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Toward Digital Life: Embracing, Complicating, and Reconceptualizing Digital Literacy in Communication Design

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ABSTRACT
This article is the introduction to the Communication Design Quarterly special issue on digital life. It explains the exigency for this issue and details how digital literacies in technical and professional communication are complicated by emerging technologies. It also demonstrates the potential for moving toward a model of digital life as a flexible way of foregrounding and talking about the work we are all already doing to understand and improve our post-human lives.

INTRODUCTION
Emerging technologies are broadly and rapidly embraced for their promise of making tasks easier and faster, making us healthier, more efficient, more effective, and more connected. Yet the allure of personalized experiences may obscure the massive amounts of data that are collected, mined, and used to influence personal behavior. The public understanding of affordances, limitations, and potential dangers of those emerging technologies has not always kept up with rates of their adoption. Importantly, the digital has become so deeply woven into our everyday lives that the ways it shapes our lived experiences are often invisible and sometimes insidious. Further, the proliferation of ever-evolving workplace technologies has placed increasing emphasis on teaching tools and skills for industry practice in technical and professional communication (TPC) classrooms alongside critical thinking, problem solving, and other transferable literacy skills (Melonçon & Henschel, 2013; Slattery, 2005; Whiteside, 2003). Therefore, there is an urgent need to turn our attention to the design of our digital lives.

The fields of TPC, UX, and CD, and writing and education writ large are increasingly engaging with issues around “the digital” (e.g., the internet, mobile and emerging technologies, AI and algorithms) and grappling with ways to prepare students for engagement in ever-more-digital spaces, workplaces, and communities. Rather than separate the human from the non-human, we recognize how human and technology (e.g., AI) spheres augment each other and intersect with our everyday lives, and thus form the fabric of digital life. This becomes increasingly important as we use wearable technologies (such as fitness trackers, smart watches, etc.) and so augment our everyday life through surveillance and data analytics. In this, “we are trackable, predictable, and hackable” (Digital Life Institute, n.d., n.p.). And while the promise of personal data and smart devices promote a “quantified self” (Lupton, 2016)—a data-driven interpretation of the self—we recognize the tension between privacy, surveillance, and autonomy in the use of various technologies. The inherent contradiction between the promise of a better life through technologies and the concerns for human
autonomy, privacy, and self-determination require a redefinition of digital literacy.

Within the Building Digital Literacy research cluster at the Digital Life Institute (BDL@DLI), we have been working in recent years to investigate these issues; however, as conversations around topics like the implications of generative AI (genAI) like ChatGPT on education reach a fever pitch, we feel on the cusp of a turn, when the size, scope, and complexity of issues around the digital make it necessary to revisit, embrace, complicate, and/or reconceptualize digital literacy. We feel the moment is right to bring together new and diverse scholarship around considering a shift toward digital life as an organizing framework for thinking about how to foster the entangled ways of knowing and being (i.e., literacies, skills, and/or competencies) necessary for engagement as a technical communicator and human in 21st century society (Stambler et al., in press).

Much work on digital literacy has demonstrated how it is multifaceted and articulated through overlapping skills or competencies (Bourelle et al., 2017; Breuch, 2002; Burnham & Tham, 2021; Davis et al., 2021, 2022; Hovde & Renguette, 2017; Joint Information Systems Committee, 2014; Selber, 2004). Further, at BDL@DLI, we align with Cargile Cook’s (2002) theory of layered literacies, as we understand digital literacy to be deeply entwined with information, media, technology, coding, health, social, ethical, and financial literacies. Our aim by framing the issue of literacies in the 21st century as one of digital life is to foreground how the digital permeates and influences essentially all spheres of our lives. In updating Donald Norman’s classic theory of affordances (1988), Jenny Davis (2020) argued for a critical approach that understands what objects afford (or make possible), asking “how, for whom, and under what circumstances” they afford (p. 11) in order to surface their power and politics. Importantly, TPC’s central focus on user advocacy and UX (Jones, 2016; Rose, 2016; Rose et al., 2018), the rhetorical situation (Cargile Cook, 2002; Davis et al., 2021), engaging with wicked problems (Wickman, 2014), and centering social justice (Walton et al., 2019), as well as both preparing students for TPC-specific careers and widely delivering TPC service courses to a broad variety of majors, situates TPC as a field especially well-suited to taking up the issue of developing pedagogies, praxes, and methodologies for digital life.

Literacy is a term used frequently across many disciplines, including in our own work within BDL@DLI (Burnham & Tham, 2021; Davis et al., 2021; Duin et al., 2021; Duin & Tham, 2018). Yet, digital literacy remains often ill-defined or poorly differentiated from/connected to other literacies and there “is no agreement in the literature about whether this term (digital literacy)—or any other term—is most accurate in describing what now constitutes the goal of effective writing and communication in digital environments” (Spilka, 2010, p. 6). Cargile Cook (2002) argued for a theory of layered literacies, where digital literacy is tightly tied to information, media, technology, coding, health, social, ethical, and financial literacies. Further, digital literacy is a developmental process encompassing the technological, rhetorical, and social aspects of digital experience (Joint Information Systems Committee, 2014), which we see as necessary to navigate the entangled ways of knowing and being that are central to fully and actively participating in digital life. Importantly, digital literacy is not just about using tools; it also attends to the socio-technical environments in which technical communicators perform their work (Potts, 2009; Spinuzzi, 2008; Stambler et al., in press). As we argue elsewhere (Stambler et al., in press), tools-based approaches to digital literacy in TPC pedagogy may surface as teaching context-neutral skills, or what literacy scholar Brian Street (2003) called “autonomous literacies.” Street (2003) argued that a view of literacy as a context-neutral, transferrable set of skills “disguises the cultural and ideological assumptions that underpin it so that it can then be presented as if they are neutral and universal and that literacy as such will have these benign effects” (p. 77). Street (2001) proposed instead a model of literacy that understands literacies as embedded social practices “encapsulated within cultural wholes and within structures of power” (p. 435). In our current context, Street’s (2001) critique of autonomous literacies aligns well with examining issues of digital literacy, social justice, and technological determinism (Byrd et al., 2021), inviting us to consider how digital technologies shape and are shaped by our digital lives (for more, refer to Benjamin, 2019; Noble, 2018).

We suggest turning to a model of digital life that resists representing literacy as a context-neutral skill in order to resist marginalizing other forms of knowledge and ways of knowing and being (Stambler et al., in press). As Wysocki and Johnson-Eilola (1999) put it, “too easily does ‘literacy’ slip off our tongues … and get put next to other terms … too much is hidden by ‘literacy,’ we think, too much packed into those letters—too much that we are wrong to bring with us, implicitly or no” (p. 349). Literacy is also often invoked as a cure-all that is meant to solve many classroom or societal problems, though “literacy alone—some set of basic skills—is not what improves people’s lives” (Wysocki & Johnson-Eilola, 1999, p. 353). Thus, to open a broader conversation, this issue aims at embracing, complicating, extending, pushing back on and reconceptualizing digital literacy and digital life while connecting to broader TPC/UX/CD and interdisciplinary scholarship with the aim of theorizing the turn that we see on the horizon.

Of critical importance are issues of equity, inclusion, and justice. For example, we (the editors) have grappled with wondering whether literacy—as a somewhat slippery term, and one which may carry historical baggage and links to oppression (Brandt, 2001; Byrd et al., 2021; Jones & Williams, 2018; Selfe, 1999; Stuckey, 1991; Wysocki & Johnson-Eilola, 1999)—is even the best framework for approaching the concept of digital life. When noting how scholars tend to use literacy “as a metaphor for everything else,” Wysocki and Johnson-Eilola asked, “When we speak of the relationship we hope to establish—for ourselves and for our students—with newer technologies, do we want to carry forward all these particular attachments and meanings and possibilities?” (1999, p. 360). Twenty-five years later, that question is more crucial than ever, when emerging technologies like genAI blur the line between “artificial” and “real,” “human” and “non-human.” In this post-human age, when we cannot easily delineate between who we are and what we do with technology, we circle back to Wysocki and Johnson-Eilola (1999) and their call to “unpack” the idea of digital literacy and its hidden assumptions.

WHAT’S IN THIS SPECIAL ISSUE

Before we review what’s in the special issue on digital life, we want to acknowledge that this issue also includes a special section honoring the legacy of Dr. Halcyon Lawrence, organized by CDQ editor-in-chief Jordan Frith. Haleyo was a treasure in every possible way, bringing light and joy into the lives of everyone she met. Her important scholarship continues to influence the field
all over: in the special issue, Philip B. Gallagher and Marci J. Gallagher use Haleyon and Liz Hutter’s collaborative research as a source of inspiration in their work on aural accessibility (more below). We are honored to share space in this issue with the special section celebrating Haleyon.

In the CFP for this special issue, we sought to open a space for broader conversation about digital life, literacy/literacies in TPC, user experience (UX), and communication design (CD) pedagogies, praxes, and methodologies. We called for proposals “aimed at embracing, complicating, extending, pushing back on and reconceptualizing digital literacy and digital life while connecting to broader TPC/UX/CD and interdisciplinary scholarship with the aim of theorizing the turn that we see on the horizon” (CFP). We offer three ideas that have emerged from the editors’ collaborative work within BDL@DLI and the larger conversation among this issue’s articles as a way of grounding how we think about digital life:

1. Digital life is unavoidable, and requires complex layered literacies, skills, competencies, and/or ways of knowing and doing to fully participate in personal, social, and professional realms.

2. Inequity and oppression manifest in myriad ways across both digital and nondigital spaces—addressing these issues requires commitment to socially-just digital life pedagogy and praxis.

3. Digital life is about people’s lived experiences, which include how intersectional identities and positionalities are simultaneously shaped by and shape digital technologies. Digital life fronts individuals’ lived experiences rather than the capabilities or possibilities of technologies.

Together, the authors in this special issue demonstrate how our post-human digital lives are deeply and complexly layered with a range of literacies, with lived experience, and with issues of social justice. In other words, this issue showcases how entangled, multifaceted, and in many ways simultaneously intangible and embodied, our digital lives are and suggests a range of productive ways to approach digital life in our scholarship, pedagogy, and practice. Importantly, we recognize that unpacking digital life as a framework while also centering social justice means broadening the scope of and participation in the conversation; thus we aim in this issue to present a diverse set of scholars, perspectives, and projects engaging digital life in order to open up the larger conversation and perhaps plant seeds for growth of future research and practice.

In “The Post-Digital Life of Transnational Activists: Develop a Tactical Technological Literacy,” Chen Chen theorizes post-digital life through the development of a tactical technological literacy. Thus, she discusses how people use technologies in online and offline spaces and how these technologies can contribute to oppression in their daily lives. In particular, Chen examines the technological literacies of participants in the “White Paper Movement”/“A4 Revolution” in the Chinese diaspora, against the Chinese government’s “dynamic zero-COVID” policy. To do so, Chen relies on Hovde and Renguette’s (2017) technological literacy framework and extends these literacy skills tactically in an effort to advocate for the lived experiences of marginalized communities. She positions this work within the technological affordances and limitations due to design and the sociopolitical and cultural forces shaping the policies and governance of these tools. Discussing questions of privacy, surveillance, and censorship, Chen argues that tactical technological literacy in a post-digital framework for digital life includes the skills needed to subvert oppressive technologies. Chen concludes with useful takeaways for tactical technological literacy in the classroom.

Digital life clearly requires attending to the complex technological tactics that individuals use to effect political power, yet it also requires reconsidering how we define success and failure in digital activism, especially in the face of staunch structural injustice. Amber Buck’s “Redrawing the Maps: Digital Literacy Practices of Grassroots Activists” examines the layered and interconnected digital literacies of Tuscaloosa Action, an activist group fighting against racial gerrymandering efforts in Alabama. Buck situates her study of the group in TPC research on civic engagement, advocacy, and the oppressive political aims that can be present in redistricting processes. Through her role as a participant-observer in the group’s activities, Buck shares how Tuscaloosa Action members moved through different digital writing workflow phases, from information gathering to mapping, or creating their own redistricting map, and then from education to advocacy. Within these workflows, group members chose digital tools that best met their goals, such as the mapping tool Dave’s Redistricting to create a new digital map, or Google Docs and Canva to create texts educating the public about the need for this new map. Buck’s analysis shows us how digital tools and the digital literacy practices needed to use them are inseparable from the offline dimensions of activism. And while Tuscaloosa Action was not successful in convincing city representatives to adopt its alternative map, Buck argues the texts that they created successfully facilitated the group’s organizing efforts. This framing of success and failure not only asks us to deepen our study of activism as a necessary part of digital and nondigital life, it also asks us to expand how we view the effectiveness of digital literacies.

The tensions that exist among digital and nondigital advocacy spaces appear as well in the relationship between augmentive technologies and built and natural spaces, as is foregrounded in “Augmenting for Accessible Environments: Layering Deep Mapping, Deep Accessibility, and Community Literacy.” by Leah Heilig, Madison Jones, Ally Overbay, and Taylor Roberts. In this article, the authors share lessons from an ongoing transdisciplinary, multi-year North Woods Project designed to promote digital and environmental literacy and accessibility through and within an area of forests and wetlands on the University of Rhode Island campus. By surfacing cartographic literacy and deep mapping, they demonstrate the rhetorical power of map design to tell a rich environmental story including ecological, social, historical, and geological information. Drawing on crip theory, Jones, Heilig, and Overbay articulate how participatory mapping projects like theirs can complicate and disrupt divides between digital and analog experiences with place and conceptions of what it means to design access. And, through a unique teaching case, they demonstrate how we might bring these complex issues of layered literacies, accessibility, and embodied, emplaced digital life into our classrooms and our pedagogy.

Continuing with the theme of accessibility, Philip B. Gallagher and Marci J. Gallagher turn their attention to aural information literacy and justice in “Accessible Sound: Aural Information Literacy for Technical Communication Design.” In this article, Gallagher and Gallagher share how technical communicators can use descriptions, captions and subtitles, transcription, and sign language to make sound an accessible part of today’s digital life.
They argue that aural accessibility is a key part of today’s digital life and emphasize rhetorical analysis for aural accessibility. They present the aural access challenges that users face with multimedia information, including issues with current technologies and technical communicators’ assumptions about hearing loss and deafness. They offer an example of using the elements described above alongside rhetorical analysis through a webinar they developed for the Society of Technical Communication’s Accessibility Community of Interest. They conclude by offering the CRAFT framework as a takeaway for technical communicators, which presents several ways that technical communicators can leverage media enhancements to design with accessibility in mind.

Danielle Feldman Karr, Jared S. Colton, Steve Holmes, and Josephine Walwema also turn to the needs of users. They argue for a digital “good life” through revising design literacies that advocate for better ethical frameworks that allow marginalized communities to flourish. They discuss the challenges of ethical literacy with buyer persona platforms, such as HubSpot and FlowMapp. The article creatively features interview segments from a public relations and marketing director, Dr. Danielle Feldman Karr, where she shares insight into her team’s development of buyer personas. Drawing on virtue ethics and Black feminist ethics of care to inform the design of a buyer persona construction guide, Feldman Karr et al. argue that audience adaptation is key to designing good and ethical buyer personas. They advocate for practitioners to ask which audiences are and are not being cared for (that is, which audiences are included in a demographic market segmentation survey and how they are included). Thus, they argue for the importance of acknowledging literacy infrastructures of inclusion and exclusion when designing for a digital “good life.”

What audiences are and are not cared for is at the heart of Rachel Tofeland-Trampe’s examination of the experiences of older women using digital tools for job-seeking purposes in “Writing in the ‘Twilight Zone’ and Lessons for Inclusive Design.” Through interviews with women 50 years and older who visited a community job search support organization, Tofeland-Trampe highlights the negative emotions that accompany the dual difficulty of job-seeking while older and using complex digital tools to do so. This article sheds important light on the lived experience of a population not often examined in TPC—older adults seeking help in a community-based setting—as they navigate common professional writing challenges while navigating job-seeking activities via digital tools. Attending to the needs of populations not often examined in TPC, like older adults, can help designers develop more inclusive digital tools that take into account the emotional dimension of use and its impact on people’s lifelong digital literacy and lived experience.

Another important site for understanding digital life is at the intersection of intimate personal data and digital health technologies (including wearables, monitors, and apps). In “Biodigital Literacy through Intimate Data: User Perceptions of FemTech and Pelvic Floor Training Devices,” Haley Swartz works to untangle the “liberatory potential” of tracking one’s health using FemTech devices and the insidious dangers of sharing personal health data. Swartz suggests that understanding how people create personal health data with devices and use it to learn about themselves demonstrates a new kind of literacy: biodigital literacy. Positioning it as an extension of digital health literacy informed by reproductive justice and intersectional feminism, Swartz argues that biodigital literacy is imperative in a turn toward digital life as digital health devices proliferate and offer users both a measure of agency over their own health and potential risks via sharing intimate data. Further, if FemTech and similar health device companies truly aspire to address health disparities—as some suggested in their marketing materials—then, Swartz concludes, they must take an active role in designing inclusive products and fostering biodigital literacy among users.

While users in Swartz’ study were less concerned about the privacy of their data than the goals they would be able to achieve using FemTech devices, surveillance is still a key component of those devices. Taking up the issue of privacy and surveillance, Charles Woods and Gavin P. Johnson argue for the need to craft a new privacy literacy that addresses layered digital, design, and AI literacies. They build upon a previously-developed framework for analyzing privacy policies (Woods & Wason, 2021, 2023) by adding a new dimension that accounts for the communication design of these policies. To demonstrate its use, Woods and Johnson apply the expanded framework to analyze Adobe’s terms of service governing the organization’s generative AI products. The authors’ addition to the framework—the analytic element of “Design”—centers attention on how Adobe uses overly-simplified dialogue boxes and hyperlinking to policy texts as design strategies that may complicate how users understand the organization’s privacy policies, and how users understand how they can use its generative AI tools. In doing so, these design strategies can further surveillance apathy, or users’ indifference about how they are surveilled. Moreover, Woods and Johnson’s application of the new “Design” analytic shows how it can extend and overlap with the other framework elements—temporality, language, transparency, digital surveillance, data usage, and meaningful access—to highlight how policies and terms of service can be strategically and rhetorically constructed to obfuscate information about privacy.

**CONCLUSION: TOWARD DIGITAL LIFE**

The wide-ranging and diverse contexts from which the authors in this issue are writing and studying only further underscores how necessary it is to continue examining our evolving digital lives and ideas about literacy. As editors, we ground our conceptualization of digital life in three key ideas: digital life is unavoidable and requires complex layered ways of knowing and doing to fully participate in personal, social, and professional realms; it is inextricably linked to issues of social justice; and it is about understanding people’s lived experiences. A digital life framework showcases how interwoven, multifaceted, and in many ways simultaneously intangible and embodied our daily lives and technologies are.

The work in this issue also suggests that we reflect on the paradoxical and conflicting nature of digital life, and the shifting literacies and/or ways of knowing and doing that are part of it. The work we’ve outlined in this special issue suggests that digital life offers possibilities for empowerment and furthering structural change, yet it is fraught in that it also offers new possibilities for surveillance, exclusion, and violations of privacy and autonomy. As technologies like genAI continue to emerge in academic, professional, and popular contexts, conversations percolate about their impact on TPC, UX, and CD pedagogy, research, and practice. Much like previous technological developments that deeply changed what we do—the advent of the personal computer, or the initial emergence of AI decades ago—the current moment has the potential to redefine what it means to do TPC, UX, and CD. In the face of these changes, we must reconsider our frameworks for...
understanding digital literacy. This issue demonstrates the potential for moving toward a model of digital life as a flexible way of foregrounding and talking about the work we are all already doing to understand and improve our post-human lives.

REFERENCES


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The Post-digital Life of Transnational Activists: Develop a Tactical Technological Literacy

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ABSTRACT
This article examines the technological literacies reflected by participants in the transnational “White Paper Movement”/“A4 Revolution” in the Chinese diaspora, against the Chinese government’s stringent “dynamic zero-COVID” policy. The analysis reveals how protestors engaged with the technological literacy framework of Hovde and Renguette (2017): functional and conceptual; critical and evaluative, in layered and interconnected ways. But these literacy skills are also extended tactically where they must not only know how to use technologies well, but also understand how a technology works enough in order to use it subversively. Thus, this article proposes a tactical technological literacy to contribute to the theorization of a “post-digital” life—especially in transnational activism contexts—where not only do people have to consider how (not) to use technologies (in the broadest sense) in both online and offline spaces but also how technologies may impose constraints and oppression on their daily life. The article ends with some pedagogical implications on how to foster a tactical technological literacy in TPC classrooms.

INTRODUCTION
In November 2022, a wave of protests spread across China and globally in response to the ongoing injustices caused by the government’s stringent “dynamic zero-COVID” policy, prompted by the deadly fire in an apartment in Urumqi, Xinjiang, China (Cheng, 2022). The “dynamic zero-COVID” policy was one that aimed at eliminating outbreaks at the local level as soon as they were detected, which often meant limited lockdown measures implemented unevenly across the country. In the Urumqi case, a fire broke out in an apartment complex under lockdown. The fire truck couldn’t get to the building close enough to put out the fire due to the blockade to the complex. Similar events had been appearing across the country with innocent lives lost, serving as catalysts to this movement. As a Chinese scholar living in the U.S., I witnessed and participated in this movement, often dubbed the “White Paper Movement” or “A4 Revolution.” A variety of technologies were used, digital or not, including blank sheets of paper, multimodal flyers, and social media posts, etc. People also relied on guidance and instructions (often created at the grassroots level) to navigate different online and offline environments in response to surveillance and information control. The name of the movement came from the use of a blank sheet of A4 paper by a college student in Nanjing who first stood to protest not only the tragic human costs of the zero-COVID policy but also the act of censoring online content about such events. The white paper signified the online posts deleted and voices lost. What can be posted where? Shared with whom? What can get deleted? How to set privacy settings on various apps? These literacy questions were intimately connected to protestors’ safety and their quest for freedom and justice.

This article analyzes the technological literacies reflected in the experiences of transnational Chinese protestors during the “White Paper Movement” in both online and offline spaces where people interacted with technologies to not only take advantage of their affordances for resistance but also to reject their capabilities and governance strategies for surveillance and control. Joining scholarly conversations on both technological literacies and tactical technical
TECHNOLOGICAL LITERACIES AFTER THE SOCIAL JUSTICE TURN

With the more recent development of networked media and artificial intelligence, the three types of literacies Stuart Selber (2004) developed—functional, critical, rhetorical—still apply in all contexts where we must engage with technologies. Later, building on the work of Selber and others (Cargile Cook, 2002; Henschel & Melonçon, 2014; Lawrence & Hutter, 2021), Hvode and Renguette (2017) synthesized a four-level framework for technological literacy for teaching technical communication: functional, conceptual, critical, and evaluative. Here the conceptual and evaluative literacies can be seen as an extension of part of Selber’s functional literacy. Whereas Selber (2004) argued for the importance of understanding the language of computer networks, Hvode and Renguette’s (2017) conceptual level requires students to understand the concepts that underlie the technology, which can help develop critical literacy. Further, evaluative literacy requires technical communicators to be able to select the appropriate tools for effective workplace performance which requires a critical and rhetorical understanding of the design of the technology.

While functional, conceptual, and evaluative literacies are important, I argue that the critical and rhetorical literacies are even more crucial to our technological engagement as users, designers, and technical communicators. This view treats technologies as cultural artifacts, not neutral tools (Selber, 2004), drawing attention to the “political, economic, social, and cultural factors that may impact the creation, design, access, and use of technology” (Breuch, 2002, p. 272). Selber’s (2004) four parameters of a critical approach to computer literacy—design cultures, use contexts, institutional forces, and popular representations—set the foundation for us to consider more recent research across disciplines that critically examine technologies, including those revealing algorithmic biases (Benjamin, 2019; Noble, 2018), the ideological designs of platforms and interfaces (Arola, 2010; Edwards & Gelm, 2018; Sano-Franchini, 2018), and discriminatory ways of collecting, interpreting, and deploying data (Chun, 2022; Eubanks, 2018).

An important part of the rhetorical and critical literacies (Breuch, 2002; Cargile Cook, 2002; Selber, 2004) is the orientation toward social actions where attention to material dimensions of literacies is also crucial (Tham & Jiang, 2022). Scholarship from new literacy studies has long been emphasizing the importance of social and cultural contexts in literacy development and practices, such as the ideological model of literacy developed by Brian Street which puts in the forefront power dynamics that shape literacy development (Byrd et al., 2021). What factors shape how people develop technological literacies?

I argue that this body of scholarship is crucial to scholarly conversations on digital and technological literacies in the field of technical and professional communication after the social justice turn. Equipped with these critical and rhetorical literacies, we can actively engage in communication and technology design work and pedagogy that can reveal and recognize practices that reject multiple faces of oppression and replace them with socially just goals (Walton et al., 2019). For example, we can explore questions such as: In what ways do technological designs and uses enable forces of oppression? How do they privilege some ideologies and communities while disadvantage others? For people whose lives are directly impacted by the injustices brought by these discriminatory designs and uses of digital technologies, navigating such tools and conditions created by such tools is their everyday life. However, in transnational contexts, these questions are complicated by interlocking geopolitical powers which shape how people perceive issues of justice, power, and how they position themselves in transnational activism.

When the design and governance of technologies both enable and oppress users, simply rejecting these technological systems is not the answer toward justice. Rather, what the editors called a “post-digital framework for digital life” is more helpful, one that not only accounts for these existing aspects of technological literacies but also how to tactically navigate oppressive technological systems in transnational contexts. I argue that the theorizing of technological literacies must also consider the skills and capacities needed to actively subvert technologies, especially in response to oppressive technology design and governance: a tactical technological literacy.

TACTICAL TPC

Drawing from De Certeau’s (1984) work, TPC scholars have theorized tactical technical communication as extra-institutional, “existing in the cracks,” opposite to more institutionalized practices as strategies (Ding, 2009, 2018; Kimball, 2006). Ding (2018) has taken up this conceptualization of tactics to examine individual rhetorics during the SARS pandemic in response to institutional challenges and oppressions, such as whistleblowing. More recent scholarship has pointed out the need to consider tactical technical communication more carefully and ethically (Colton et al., 2018; Kimball, 2017).

This scholarship has also shifted toward a collective consideration of tactical technical communication. While we might see tactics as originated from individual practices such as the users who put together their own cars in Kimball’s (2006) original article, more recent examples of tactical communication practices have often focused on communication practices by marginalized communities as ways of living, caring, thriving, resisting, and surviving especially in the face of institutional/systemic failures in a variety of contexts (Alexander & Edenfield, 2021; Chen & Bergholm, 2020; Ding, 2018, 2013, 2009; Edenfield & Ledbetter, 2019; Edwards & Walwena, 2022; Itchuaqiqaq et al., 2021; Yusuf & Namboodri Schioppa, 2022). These examples have foregrounded the roles power imbalances play in our communication contexts and made apparent practices and genre conventions that are uniquely situated in sociocultural and political contexts, intimately tied with identities.

From this perspective, tactical technical communication can serve as practices that advocate and reaffirm the experiences and needs of marginalized communities. For example, Alexander and Edenfield’s (2021) intersectional analysis of healthcare practices in African American trans communities shows the importance of recognizing the tactics of folk medicine in creating spaces of self-care. Edenfield and Ledbetter (2019) and Itchuaqiqaq et al. (2021) illustrated how tactical communications can be identity affirming and crucial to how transgender people and sex workers can live their lives how they want to and stay safe. Often, marginalized users must create their own tactical technical communication in the face of institutional neglect and oppression. Inherent in these practices is a community-oriented tendency, where the tactical
practices can function as mutual aids, providing support in ways that community members recognize, welcome, and develop on their own (Alexander & Edenfield, 2021; Edenfield et al., 2019; McCaughey, 2021).

In this article, I’m particularly interested in how such types of tactical technical communication can show up in transnational contexts and how geopolitical forces of globalized power can influence the sociopolitical and cultural experiences of people living in “borderlands,” such as members of the Chinese diaspora (Mao, 2006). The ongoing violence against people of Asian descent in the latest COVID-19 pandemic has shown that assumptions are made about people based on the color of their skin, the origin of their passports, etc. Chinese people living in the U.S. are regularly subject to such a racial and national gaze in the U.S., while also being treated as outsiders in China for colluding with “foreign forces,” by Chinese nationalists. Their “digital life” is subject to historical, cultural, economic, governmental, and other interlocking geopolitical forces of globalized power in transnational spaces (Dingo et al., 2013; Hesford & Schell, 2008; Mohanty, 2003; Wang, 2021). For example, because I engage with technologies from both China and the U.S., I’m subject to different rules, policies, laws, let alone internet cultures that require more complex technological literacies.

Further, as I engage in global activist movements that challenge national, patriarchal, racist hegemonies, I also have to resort to tactics in response to strategies of oppression along those axes. For example, when I support Chinese feminists on Chinese social media platform Sina Weibo (a microblogging platform), I may be labeled as a nation’s traitor. Even when I use platforms such as Telegram, my privacy may not be completely protected from Chinese authorities, and I have to consider the safety of my family in China. At the same time, I still have the privilege of using Western tools such as Instagram that aren’t directly subject to Chinese government’s censorship, which grants me access to diverse information and perspectives. From participating and observing in the White Paper Movement, I’ve learned from the Chinese and Chinese diasporic communities about how to navigate the global technological terrains to develop a tactical technological literacy.

**METHODS**

Literacy researchers have long emphasized the importance of contextual perspectives, recognizing that “literate abilities originate in social postures and social knowledge that begin well before and extend well beyond words on a page” (Brandt, 2001, p. 4). While literacy research often focuses on how people develop literacy skills through ethnographic and qualitative research methods, this paper focuses on examining what literacy skills are reflected in communicative artifacts created by Chinese diasporic communities involved in the White Paper Movement, using stories of these people’s experiences and reports on the movement to provide contextual perspectives on these literacy skills in action. In other words, this research focuses less on literacy development but more on literacy in action, in practice, paying attention to how the complex contexts of this transnational movement influenced how people communicated despite surveillance and information control.

My analysis will examine narratives and interviews of people who participated directly in this movement, social media content of the movement shared across a few platforms: Telegraph group by NGOCN (a non-profit independent Chinese media group), VoiceofCN on Matters and its Instagram account @ citizensdailycn (a grassroot media group aimed at sharing stories from China to a global audience); and protest resources created by iyouport, a grassroots group that aimed to help Chinese-speaking people better engage with technologies more safely and effectively. I also draw from entries in my own research journal as I was observing the protests happening around the world, documenting my own participation in this movement and reflections.

As a participant observer in this research (Wan, 2021), it is important for me to talk about my positionality as a Chinese researcher living in the U.S. Participants in this activism came from many different backgrounds, whether in or out of China. Not all people shared the same positionality, experiences, or even opinions about the movement’s goals and actions. Working in academia as an immigrant in the U.S., I enjoy much more privilege compared with many other participants, such as the protestors on the streets in China. My participation in this movement also remained mostly online, through writing and sharing social media conversations and posts, open letters, rather than protests and vigils on the street; this certainly has meant that there was minimal risk for me compared to others who put their bodies on the front line. This positionality requires that I not make assumptions about people’s ideological stances and literacy backgrounds in shaping their literacy practices without direct evidence from their narratives and reflections.

Within this limitation, it’s also important to recognize that my goal here is not to study individual literacy practices and but to paint a picture of various literacy practices present in the White Paper Movement in the Chinese and Chinese diasporic communities, recognizing that different locations and sociocultural, political, and personal identities and positionalities of individual members of these groups, might make different decisions and take up different literacy practices for a variety of reasons. I will try my best to account for those contextual differences in my analysis. For example, how a protester in China uses social media tools and what tools they use might differ from that experience of a Chinese international student in Tokyo, but also share similarities.

With these data, the goal of this paper is not so much to explain specific literacy skills from individual participants in the White Paper Movement but rather to theorize collectively the literacy skills needed for a transnational movement like the White Paper Movement in the face of interlocking geopolitical powers and technological affordances and limitations due to both design and the same social, cultural, and geopolitical forces shaping the policies and governance of these tools.

**ANALYSIS**

Applying the existing four-level technological literacy framework (functional, conceptual, evaluative, and critical) (Hovde & Renguette, 2017), I illustrate how these four literacies were reflected in the White Paper Movement and where tactics emerged in each type of literacies that allowed people to engage more effectively and safely in the movement. To be clear, as Cargile Cook (2002) has argued, these literacies should not be treated distinctively, but as layered and interconnected. In other words, a single symbolic act can reflect multiple literacies of the user. In this analysis, I examine how the protest acts of Chinese and Chinese diasporic communities during the White Paper movement reflect these technological literacies. In doing so, I identify their tactical communication practices due to the constraints of the
technological, geopolitical contexts. While I organize the literacies into two broader groups: functional and conceptual; critical and evaluative, I want to foreground that they are all intimately connected and layered rather than distinct. For people to know how to take advantage of and subvert the affordances of a technology, they must understand how it works. This happens both online and offline in how people use technologies and how people act offline based on their understanding of the capabilities of technologies. As many learned and shared these tactics, we can see how they developed and extended their functional, conceptual, critical, and evaluative literacies.

**Functional and conceptual literacies**

Functional literacies capture the basic understandings of how to use technologies, including knowing how to learn the features of a technology, how to engage in online environments afforded by the technology, how to manage the use of multiple technologies for different purposes, and to overcome difficulties in deploying technologies. Conceptual literacies encompass a further understanding of how the design of the technology works and the underlying principles of design.

While the use of Chinese social media may be limited due to government censorship and information control, overseas Chinese communities responded by taking to platforms outside China to organize their responses. The multimodal design of protest flyers and social media posts reflects strong functional and conceptual literacies. Looking at the Instagram posts of @citizensdailycn (oftenreshared and posted from other platforms or by followers who shared their creations for the platform to share), we see a variety of posts including both digital creations such as memes and digital flyers; photographs/videos of offline protests and gatherings showcasing various kinds of slogans and flyers; as well as announcements of gatherings or other digital platforms/groups that people can join; even resources for participating in the White Paper Movement. Instagram is blocked in China, but this platform provides information and resources for members of the Chinese diaspora to support the protestors in China, including raising global awareness. At the same time, showing what’s happening in China, encourages overseas Chinese to recognize the widespread nature of this movement, challenging a dominant western assumption that Chinese citizens are not civically minded. When sharing such content, @citizensdailycn uses hashtags and tagging other accounts to extend the network of people who care about this issue.

In an example post, we see these types of literacies reflected (@citizensdailycn, 2022, November 29). In figure 1, we see an illustration by artist Ba Diu Cao of a girl throwing sheets of white paper into the sky that turn into white doves, with the hashtag #A4REVOLUTIONChina. The illustration networks together the symbol of the movement: the university student in Nanjing who first held up a sheet of A4 white paper on campus to protest against the information censorship related to the Urumqi fire on Chinese social media.

In figures 2 & 3 from the same post (@citizensdailycn, 2022, November 29), we see a verbal post listing the four main demands of Chinese protestors translated into English, and a call to action to overseas Chinese to stand in solidarity with people in China. The rest of the content in this post includes images and videos of protestors in China holding up sheets of white paper and chanting slogans, documenting the protests.

**Figure 1. @citizensdailycn Instagram post November 29, Ba Diu Cao’s illustration of the white paper girl.**

**Figure 2. @citizensdailycn Instagram post November 29 instructions for participating in protests.**

We call for everyone to:

1. **Print and bring the four demands to the vigil sites and protest events around the world and distribute them to your friends at the event.**

2. **Print and post the four demands in your school or city.**

3. **Post and retweet the four demands on social media platforms with #WhitePaperRevolution and #A4Revolution.**

4. **Help those around you to solve the four demands.**

#A4Revolution
In another post (see figure 4, @citizendailycn, 2022, November 30), we see instructions on how to contact local media for overseas Chinese to spread information about the movement to global audiences. The instructions are divided into 6 images here in a serialized post. Each of the 6 images includes the hashtag #A4Revolution in both English and Chinese as well as a graphic of three hands holding up a sheet of white paper.

Other posts of graphics and memes include funny and sarcastic posts such as the one in figure 5 (@citizendailycn, 2022, December 6). This image shows two panels of Winnie the Pooh holding up a sheet of white paper. In the first panel, Pooh is frowning, where the text reflects his inner dialogue at the beginning of the white paper revolution: “the white paper is written full of ‘foreign forces’ (a term used to label anyone deemed anti-China or Chinese government).” In the bottom panel, Pooh’s face has relaxed a bit and his eyes have narrowed one week after the white paper revolution: “the white paper is distinctly written of the people’s request: lift the lockdown! Otherwise I can’t be emperor anymore!” This post reflects not only a technological literacy but also a cultural literacy of how memes function sarcastically.

The multimodal composing literacies reflected in these posts indicate the need of functional and conceptual literacies for engaging in transnational movement like the White Paper Movement. To increase circulation of protest content, one must be adroit at using affiliated hashtags and tagging relevant accounts. However, doing this on Chinese social media platforms that may be subject to government censorship and control require tactical literacy skills that may take advantage of or subvert platform affordances. This is not new in Chinese social media which are full of visual and verbal euphemisms (see examples in the #MeToo movement in Chen & Wang, 2022) and other tactics to encrypt messages. According to a Beijing protestor’s account, they were aware of the gathering through the sharing of a string of seemingly random numbers on WeChat (a WhatsApp-like all-encompassing platform) that communicated the time of the gathering and the coordinates of the location. Further, many people recorded videos

1 Both western media and Chinese netizens like to refer to Xi Jinping as Winnie the Pooh given the two’s physical resemblance. The meme here is using the analogy to further make fun of Xi’s policies.
of protests across China which ended up being shared on platforms outside of China such as Instagram and Telegraph.

Overseas Chinese communities were also able to use technologies outside the Chinese firewall to coordinate protest activities. For example, I worked with a group of people to draft a letter addressed at U.S. universities to be mindful of how Uyghur and Chinese students might experience more stress during this time and to call on them to provide support for these students as finals time drew near. The idea to draft this letter came from a Chinese international student studying at a U.S. higher institution, a member of a Chinese activist group on Signal that I’m also part of. Several of us responded to their call and formed a separate Signal group to coordinate the writing of this letter on Google doc. Essentially, our small working group engaged in a fast cycle of content strategy (Stone, 2023) to create multiple versions of the single sourced content: a PDF letter and Instagram posts. To do so, we relied on our functional literacy skills to use cloud-based and social media technologies in ways that were also protective of our own identities. In this case, we had enough trust for each other to share our email addresses, but we also knew not to ask for any other private information. We all knew that it is a privilege to be able to use Western technology outside China’s Great Firewall, but we were also mindful that the Chinese government’s surveillance could still impact us outside China. And many people (inside and outside China) also had to learn to evaluate technologies that they could use or learn about surveillance technologies during the movement. This is why the most important technological literacies are critical and evaluative literacies which I will discuss in the next section.

Critical and evaluative literacies

Being mindful of how social media platforms might be subject to the government’s information control already reflects a kind of critical literacy, in that users must understand how the “political, economic, social, and cultural factors […] may impact the creation, design, access, and use of technology” (Breuch, 2002, p. 272). In a related way, they must then evaluate which technologies to use and to pay attention to during protests. The resulting tactical literacies would thus include methods to respond to and challenge technological and information control as well as using such knowledge to generate resources to support such tactics.

The tactical literacies here reflect some of the technological adjustment moves that Pfaffenberger (1992) theorized to challenge the dominant exclusionary power moves associated with technological regularization. Building off Pfaffenberger’s theories of the politics of technology, Selber (2004) defined the parameters of critical literacy to include understanding and challenging technological regularization in design culture, use context, institutional forces, and popular representations. In the case of the A4 movement, activists engaged in tactical and subversive moves in all four parameters to challenge surveillance and censorship with the goals of extending discursive rights of dissent, protecting privacy under surveillance, and increasing the general public’s knowledge about surveillance and ways to subvert it. Their tactics illustrate that they have a basic understanding of the broader surveillance culture and technologies and how they operate in immediate day-to-day contexts, and how the government can exert control over technologies such as social media sites and other surveillance tools such as CCTV cameras. But certainly, as my analysis shows, not everyone is well educated on these surveillance strategies; thus, while not necessarily through mass media, resources created by activist leaders or non-profit organizations can work to challenge the popular representation of these tools by educating people on the subversive and self-protective tactics, which enhance their critical literacy in the other parameters.

Extend discursive rights against censorship

Questions around digital technology literacies should also include the knowledge of knowing when it is inappropriate or not safe to use digital technologies at all. In fact, in the A4 paper revolution, the most iconic symbol of this movement (the one that gave it its name) is a college student holding up a sheet of white A4 paper. As mentioned earlier, the fire in Urumqi served as a catalyst that pushed people to “rebels” against the continuous stringent zero-COVID policy and its uneven implementations across different cities in China. Such frustrations were manifested on social media platforms such as Sina Weibo, which then encountered severe censorship. The white sheet of paper signifies a challenge to the silencing acts of the censorship system, an act of defiance perceived as much more threatening by the government. While this student didn’t use any digital technology, holding up a sheet of white paper in a public space reflects her acute functional literacy in that she clearly understands the limitations of digital platforms: what they can and cannot accomplish. In turn, the white paper itself also became a protest technology that was used by many other protesters interviewed in Yuan, 2022 November).

While I do not have the space in this article to delve deeper into the debates around activism and slacktivism, my point is that a critical perspective toward technologies must challenge the digital vs. analog binary and see how different forms of activist rhetorics can be networked toward shared protest goals, as we can see how the white paper became a symbol for this movement and included in online protest content as well (see figure 1). In an environment of tight information control, on-the-street protests and digital participation can be equally risky for people. To extend the discursive rights, Chinese internet users are often familiar with tactics that aim to preserve memories of events faced with censorship as well as to seek out information outside “The Great Firewall”. In their narrative, a Chinese international student studying abroad talks about these common tactics: saving sensitive content they see before it’s deleted; avoiding using sensitive terms before posting content; only sharing sensitive content with trusted people; and recreating deleted content/accounts (such as creating Weibo accounts after it’s deleted; avoiding using sensitive terms before posting content; only sharing sensitive content with trusted people; and recreating deleted content/accounts (such as creating Weibo accounts after they have been “bomb,” i.e., deleted) (Hua Jiao, 2022). Mr. Zhang in Shanghai, like many Chinese netizens, knows to get over the firewall to access information and news outside China to share with people in China (Yuan, 2022 November).

Evaluative literacy is reflected here in terms of knowing which tools/platforms to use for which purposes. For example, many people in China began using Telegram after the Sitongqiao protests, which continued during the A4 revolution. NGOCN and VoiceofCN are two Telegram groups born out of these movements. People who joined these groups in China are at least aware that Chinese social networking sites such as Sina Weibo and WeChat must comply with the government’s information control strategies. However, not everyone has the literacy skills or the energy to use Telegram, whose interface is only in English, thus many are restricted to using WeChat, despite its riskiness. At the same time, I learned during the A4 revolution that Chinese public security bureaus have sent undercover agents to infiltrate Telegram groups, but not all members of these groups may be aware of this. It can be
very difficult to respond to digital censorship due to its erraticism (Roberts, 2018). The tactical literacy requires ongoing learning and communication within trusted protest groups to respond to these shifting challenges.

When it is difficult to form online networks, people would resort to interpersonal interactions offline to build connections. Protestors in China talked about connecting with people on the street during a protest and even built groups on WeChat and Telegram (Miranda, interviewed in Yuan, 2022 November). One protestor in Tokyo mentioned that the controlled digital environment can silo people and antagonize them against each other, but on the street they are able to see many others who showed up to the protest and cared about the same cause, such as people from Hong Kong or Taiwan, Tibet or Xinjiang, who are often demonized on Chinese social media; the offline gathering allows them to see one another as real human beings rather than flat symbolic representations online (@xiaolu, 2022).

However, digital technologies are still crucial tools to sustain connections. As one experienced feminist activist notes, WeChat connections can be difficult to maintain because people are concerned about censorship and would end up not really talking in the groups they’ve joined (@noturalpimpkin, May 8, 2023). The censorship functions very much like the Foucauldian discipline where people begin to self-censor on what can or cannot be said. The tactical literacy here involves a certain level of cultural knowledge knowing what might be considered sensitive but also risk taking, a dare to challenge the disciplinary system, to test its boundaries.

**Protect privacy against surveillance**

Another aspect of critical literacy involves not necessarily how one might use technology but how one might react to technology. This is related to functional literacies in that users must understand how surveillance technologies work to protect themselves from their reach. Surveillance is political; thus, a functional and conceptual understanding of surveillance technologies necessarily entails a political understanding as well. Earlier I talked about how people created subversive digital content to resist online censorship; in this subsection, I discuss how protestors reacted to surveillance technologies, particularly in offline contexts. In offline contexts, Chinese people are also aware of the street and mobile surveillance capacities of the government and thus pay attention to how to protect themselves under the ubiquitous and seemingly insurmountable surveillance.

In reviewing footage and narrative of protests and protest guidelines and protection materials, I noticed that people often talked about ways to protect one’s identity when on the street. Many wore masks to hide their identities, whether inside China or outside, due to potential surveillance technology on the street in China, but also how evidence of their actions abroad might be shared on Chinese social media or be reported by other overseas Chinese nationalists to the Chinese government. Yet, some also openly defiantly reject this self-protective action. Here we can also see masks as a technology that takes on a new meaning rather than a personal protection equipment (PPE) for people against the coronavirus virus but a political tool, an assemblage with social and political cues (Chen, 2020). Some were even concerned that the Chinese facial recognition technology might still be able to identify them wearing a face mask, so they would also wear sunglasses as another layer of protection. Another tactic used by people on the streets in China was to turn on the airplane mode on their cellphones or to shut them off completely so that their phones couldn’t be traced (Gan & Xiong, 2022). When pictures of protestors were shared online, whether in public or on social media sites such as Instagram or in semi-private spaces such as a Telegram group, people also knew to mask people’s faces in images to de-identify them (Zong, 2022). Ultimately, resistance to surveillance across online and offline spaces requires tactical technological literacies that would equip people with knowledge about how surveillance works and that would allow people to protect themselves against these surveillance strategies.

**Increase knowledge to combat surveillance and censorship**

Many constraints exist that would limit people’s capacities for developing the kinds of critical and evaluative literacies I’ve discussed, including the erratic nature of the Chinese government’s surveillance strategies, and the limited space for social interactions and deliberations. Thus, I want to analyze technical communication documents that provide resources and support for people who are taking risks to engage in potentially subversive civic actions. Creating these materials can be seen as both a resistance tactic itself and a necessity for our daily post-digital life.

In this section, I analyze two such artifacts: one a protest guide created for Shanghai protestors (上海堡垒手册 [Shanghai fortress handbook], 2022 November 27) and one a guide on privacy protection for Telegram users updated on Nov 29 by iyouport at the kairotic moment of the A4 revolution (@iyouport, 2022). The Shanghai protest guide is representative of many similar guides made during this movement in that it offers guidelines and resources for inexperienced protestors on how to prepare for and participate in a protest, including teaching users critical and evaluative technological literacies, such as ways to extend discursive rights and to protect oneself during protests that I mentioned in the other two sections.

The Telegram guide by iyouport is particularly interesting because, while iyouport has created many resources and guides for subversive civic participation for Chinese speakers since the outbreak of COVID-19, they recognized the need to update this Telegram privacy guide on November 29, 2022 when the “White Paper Movement” broke out due to people flocking to the platform, many of whom were probably engaging in activism for the first time. The guide starts with an explanation of the privacy problems associated with Telegram. The five problems discussed here involve data collection and encryption practices of Telegram. The guide highlights that a Telegram account is tied to a cell phone number, which can be challenging for users to protect their identities in countries where a cellphone number must be obtained with an ID, such as China. The guide then explains that Telegram is not an end-to-end-encrypted app but one where users need to manually encrypt their accounts and messages, and where only messages in transit (between server and end users) are encrypted. The manual end-to-end encryption feature is also only available for the mobile, not the desktop interface. It also warns readers that communications in Telegram groups and channels are also not encrypted.

Then the guide proceeds to suggest specific ways users can protect their privacy through hiding phone numbers; location; online status; profile picture; communication and messaging; friend requesting; and other methods for privacy protection such as duo authentication. This section equips readers with some conceptual literacies about how the encryption on Telegram works and how
users can protect their privacy as best as they can. But ultimately, the guide suggests users not use Telegram for maximum privacy protection, because some of the privacy problems cannot be addressed or avoided, especially for “sensitive people” (people who may be very active or well-known protestors and dissidents, who may be on the government’s watchlists). Finally, the guide also offers advice on how to download and search data on Telegram in case messages/content stored on the app are taken advantage by the government for “information wars” that would aim to misdirect people about protests or divide dissident groups. User guides such as this and the Shanghai protest guide demonstrate to civic-minded people the spaces and possibilities for tactical actions, thus they can be seen as a genre of tactical technical communication themselves that supports people living in the margins on their resistance and survival efforts.

Ultimately, it’s hard to know exactly how one can recognize Telegram infiltrators from Chinese authorities, especially when there’s a large number of channel followers. From my personal experience, a certain level of peer monitoring could be helpful in smaller groups but difficult to accomplish in larger groups. The main tactic here is to maximize the protection of one’s and others’ identities.

TACTICAL TECHNOLOGICAL LITERACY
As I discussed earlier, tactical technical communication has been theorized to advocate and reaffirm the experiences and needs of marginalized communities, and even move toward institutional and policy changes toward social justice goals. Applied to technological literacies, tactical literacy allows TPC researchers, teachers, and practitioners to expand our understanding of digital literacies to a “post-digital” framework that aligns with past digital rhetorical scholarship which challenges the binary of online and offline, which also complicates our understanding of technological literacy as “multifaceted, slippery, and embedded in our everyday lives” (CFP). My analysis of the technological literacies reflected in the “White Paper Movement” in this article illustrates how people in precarious positions can engage with technologies in many different spaces in ways that require them to be knowledgeable, swift, and reflexive, often with high stakes and risks to their privacy and safety.

While past technological literacy frameworks acknowledged subversive uses of technologies by users for different purposes (Selber, 2004), here I theorize tactical technical literacy as a praxis, particularly for transnational activists who are often faced with precarious and high-stake situations. Tactical literacy is an extension of functional, conceptual, critical, and evaluative literacies in that one must understand how a technology works enough in order to use it subversively. Tactical use of networked technologies can include using coded messages and euphemisms to dodge censorship to coordinate protest activities and build connections. Relatively, participants of the movement must understand how technologies are used to surveil and control people in protest environments. Tactical literacy here involves ways to extend discursive rights against censorship and to protect one’s privacy against surveillance. Finally, tactical literacy can involve a “meta” level where one can offer conceptual and practical knowledge to others to help them develop tactical literacies. Tactical literacy captures the nimbleness, the spontaneous or extemporaneous actions and abilities in response to a volatile and unclear or unpredictable technological and political environment.

Therefore, tactical literacy contributes to theorizing a “post-digital” life by helping “foster the entangled ways of knowing for engagement as a technical communicator and human in the 21st century society” (CFP) where not only do we have to consider how (not) to use technologies (in the broadest sense) in both online and offline spaces, but also how technologies may impose constraints and oppression on our daily life.

Importantly, tactical literacy also must consider how power moves are associated with technologies. As Colton et al. (2018) argued, while tactical technical communication is the “art of the weak,” it may not necessarily be ethical. Their use of care ethics offers a way to “evaluate the ethics of tactical technical communication practices” that pays attention to “localized and concrete relations among beings rather than out of universal, a priori principles or absolutes” (p. 73). In the context of transnational activism in the Chinese diaspora, conflicting positionalities among members of the diaspora can lead to ethical concerns. For example, while some may post images of protestors on social media, they might neglect hiding the identities of protestors. While some may feel the need to take more risk in participating in public protests and activism, others may feel more comfortable sharing content online anonymously and more risk-averting. It is crucial to understand how technologies’ interactions may impact and be shaped by different levels of risk assessment by members of a transnational movement.

This requires a more nuanced and intersectional understanding of how power functions and circulates. Walton et al. (2019) drew from Patricia Hill Collins’s (2008) theory of domains of power: structural; disciplinary; hegemonic; interpersonal. These domains of power draw attention to how power is enacted through institutional means, social and ideological organization, bureaucratic hierarchies and surveillance techniques, and everyday discriminatory practices. Transnational scholars have also argued for treating power forces as interlocking across national, racial, ethnic boundaries (Grewal, 2005). In tactical technological literacy, these perspectives of power can help us see ways that technology design, use, and governance can enact as well as challenge power relations. Drawing from Pfaffenberger’s theory of the politics of technologies, Selber’s critical literacy includes technological adjustment and reconstitution that can challenge dominant practices of technological regularization. Tactical interactions with technologies may include technological adjustment such as subversive use to protect one’s privacy. But one must also consider how those practices may impact different people differently; negotiating the power dynamics is part of the tactical literacy skills.

PEDAGOGICAL IMPLICATIONS
I will end the article with some pedagogical suggestions for fostering and teaching the tactical technological literacy in technical and professional communication classrooms. TPC scholars have offered different frameworks and methodologies for discussing what literacies our students should develop in TPC classrooms and programs (Cargile Cook, 2002; Henschel & Melonçon, 2014; Lawrence & Hutter, 2021). As Lawrence and Hutter (2021) summarized, scholars have often approached this work by checklisting, adding and deepening, and stacking. Whether it’s a layered approach (Cargile Cook, 2002) or a system-based approach (Henschel & Melonçon, 2014), we generally agree that students need to develop a variety of literacy skills. But as Lawrence and Hutter (2021) argued, it is important to
investigate how literacy frameworks are developed and theorized to make sure that we accurately capture how various literacies are interconnected and related in actual TPC practices. Here I heed the call at the end of their chapter to consider how literacy framework should be articulated and how literacy skills are developed/named and assessed.

Tactical technological literacy is a perfect example to consider the interconnectedness of literacies. When teaching students about and with technologies, functional, conceptual, critical, and evaluative literacies set the foundations for a tactical literacy. Thus, tactical technological literacy is both a new literacy and an extension of existing literacy skills we have theorized. It also makes more apparent a social justice approach to technical and professional communication, as students would be explicitly asked to engage with critical examination and subversive use of technologies that challenge dominant ideologies and forms of oppression. Thus, I offer a few pedagogical ideas to help teachers teach a tactical technology where we can design assignments and course materials that explicitly ask students to:

- Examine how technologies are used to enact and contribute to forces of oppression;
- Investigate design features of technologies that contribute to such oppression;
- Investigate technology governance and policies that enact surveillance and control of people who may come into contact with the technology;
- Research case studies of subversive uses of technologies across cultural/national contexts for civic purposes;
- Use civic technical and professional communication examples that mediate or support those subversive uses.
- Identify tactics used in these case studies and examples that challenge power imbalances for socially just goals.

Finally, we may encourage students to consider how to design technologies and policies that do not stymie possible tactical uses and that consider multiple positionalities of users such as transnational users.

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上海堡垒手册 [Shanghai fortress handbook] (November 27, 2022).

**ABOUT THE AUTHOR**

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Redrawing the Maps: Digital Literacy Practices of Grassroots Activists

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ABSTRACT
This research used a participant observer method to describe and analyze the digital literacy practices of one grassroots community group that organized around the issue of municipal city council redistricting. The group proposed and advocated for city council district lines that reflected the minority-majority makeup of the city’s population. The group effectively crafted different genres, including informational Google Docs, maps, form letters, petitions, social media graphics, press releases, and public speeches to advocate for their position. This research argues for the study of activists’ digital literacy practices and the role of digital technology in activist efforts.

INTRODUCTION
The social justice turn in technical communication and rhetoric and writing studies (Walton et al., 2019) has fueled interest in literacy practices outside of the writing classroom, especially those used by activists to create change. Agboka and Matveeva (2018), for example, have argued for the need to reconsider and expand the ways that technical communication scholars take up advocacy and civic engagement. An important and growing line of inquiry for researchers is the activist work that occurs in digital spaces. As Zeynep Tufekci (2017) and other scholars have noted (Chen & Wang, 2020; Morris, 2019), communication among activists and with the public involves a great deal of writing on digital platforms and sharing that writing. Through Google Docs, slide decks on Instagram, online petition and letter writing services, live video streaming, and other tools, individuals engage in diverse digital composing processes in order to reach key audiences and advocate for change. These digital texts and their circulation through a variety of digital spaces are described by Dieterle et al. (2019) as “habit[s] of citizenship,” and important ones to consider as part of digital life.

This article examines the issue of digital life through the literacy practices of activists who worked on a local redistricting effort in Alabama. The digital writing activities they engaged in were intertwined with offline advocacy efforts and demonstrate the importance of integrating these activities for successful activist work. In considering digital life, I argue, scholars should also consider the complex digital literacy practices of activists who work for change. I trace these activists’ digital writing workflows in order to describe and study their work and to argue for activism as a fruitful area in which to study digital life. The example I present here also asks scholars to consider the narratives we tell about activism in our scholarship.
**THEORETICAL FRAMEWORK**

**Digital Literacies**

This project considers the sociocultural and material aspects of digital literacy and traces them through one activist group. Cargile Cook (2002) identified six literacies crucial for technical communicators: basic, rhetorical, social, technological, ethical, and critical. She described these literacies as “layered” (p. 8) and noted that instructors’ approaches to them within technical writing courses should be layered as well. Technological literacies are connected to each of the other literacies she describes. Rather than considering digital literacies as solely the ability to use different digital composing tools, literacy practices connected to digital technologies are also sociomaterial and cultural. Literacy, then, is plural, layered, infused with social and cultural meaning, and shaped by the materiality of writing tools.

Paying attention to the material conditions of digital literacy has, of course, been a focus of technical communication scholars since even before Cynthia Selfe (1999) argued for “the importance of paying attention” (p. 1). Les Hutchinson Campos and Maria Novotny (2021) emphasized the importance of critically examining the impact of digital technologies and the literacy practices surrounding them, calling them critical digital literacies (CDL). Christina Haas (1996), Paul Prior and Jody Shipka (2003), Cynthia Selfe and Gail Hawisher (2004) and others have emphasized the sociomaterial aspects of digital literacy practices, focusing on the ways that digital tools impact writers’ work and experiences. Kevin Roozen and Joe Erickson (2017) have also traced the specific and idiosyncratic processes of writers moving between physical and digital tools. As Prior and Shipka (2003) described, writers make sophisticated decisions on how to structure their writing processes through environment selecting and structuring practices (ESSPs). Tim Lockridge and Derek van Ittersum (2020) called these sociomaterial writing processes and the often complex assemblage of digital tools writers use to manage them writing workflows.

Digital life, as described in this special issue, is imbued with and defined by these literacy practices. As the above scholars have noted, digital tools and digital writing spaces shape the writing processes of individuals. Examining how writers manage multiple digital tools and interfaces (Lockridge & van Ittersum, 2020) and how digital interfaces use their data (Hutchinson Campos & Novotny, 2019) as these writers create and circulate texts are crucial to understanding digital life.

**Activist Digital Literacies**

To examine the impact of digital writing tools on all writing practices—including civic ones—activism is a fruitful area of study. Grassroots activists use diverse digital composing tools to create content for the purpose of affecting change offline. Stephanie Vie (2014) described the rhetorical practice of changing a profile picture on social media to show solidarity with a specific cause. Caroline Dadas (2017) has noted how effective hashtags can be used for discourse and mobilization after tragedies. In her examination of Obama campaign graphics on Pinterest, Katherine DeLuca (2015) demonstrated how political content in digital spaces can also create a backlash. Often, digital tools go hand in hand with offline efforts as well. Kathleen Yancey (2022) has traced the different rhetorical ecologies through which a gun control activist group spread its message to create a receptive public, relying on their knowledge of both digital tools and community networks. Using research on collective action in South Korea and Japan, Matthew Jenkins (2020) has also called for nuanced digital activism research that considers local context.

Through their edited collection *Citizenship and Advocacy in Technical Communication*, Agboka and Matveeva (2018) noted the importance of technical and professional communicators in “shaping democratic discourses locally and globally” (p. xxvi), efforts which occur through classroom training, in workplaces, in advocacy settings and also online. Robert Rowan (2018) and Sarah Warren-Riley’s (2018) chapters each emphasize digital literacies for civic engagement and advocacy, for example, asking students in their classrooms to gain experience with texts they will encounter outside of them. Other scholars have studied advocacy work in digital spaces more directly, such as Colton et al.’s (2017) work on tactics used by the group Anonymous; Edenfield et al.’s (2019) research on DIY instruction sets for transgender health care; and Holladay’s (2017) study of online discussion boards surrounding psychiatric diagnoses. Each of these cases consider how individuals take up official organizational or medical technical documents and organize with others in online forums to make sense of them in their own lives.

Activists who work for social justice causes often organize online and then bring their messages to offline contexts. Jennifer Nish (2022) defined “activist literacies-in-action,” as “practices that scholars and students of rhetoric can use to understand and engage with efforts toward social change” (p. 8). Her research examined digital activism and the relationship between advocacy and social media. Online activism is often described as “slacktivism” and evaluated through the lens of effort applied to the initiative. This lens is an inappropriate one through which to consider online activist efforts, Nish argued, and one that fundamentally misunderstands digital literacies and devalues “the discursive, relational, and everyday elements of activism” (p. 10). Tracing all activist activities in a given project is a difficult process because many are less publicly visible. Often, audiences only have access to one part of the activity (such as a social media post or hashtag) and are unaware of both the writing work that happened behind the scenes, and the usually substantial collaborative activity required to make that activity happen (p. 11). As Nish argued:

> A casual observer may not see how the post in their social media feed is connected to other texts or activities, or they may not have a useful framework for evaluating these connections. [...] Activist work involves complex relationships and orientations that are important for understanding how people create, view, listen to, spread, imitate, and appropriate digital media for activist purposes. (p. 11)

There is an entire system of activity from a group of people behind the culminating actions, and visible digital activist activities are often connected to offline action as well. This article builds on Nish’s call by providing a look at how the digital literacy practices of a group of activists combined to educate and advocate for a specific issue, examining both digitally and publicly visible actions as well as digital literacy practices that occurred behind the scenes. Through this research, I traced one activist group’s digital writing workflows in order to examine these digital literacy practices.

**Redistricting & Technical Communication Research**

The activists I studied organized around the issues of political redistricting and gerrymandering. Redistricting is the process
through which representative government in the United States is
determined, as representative district lines are redrawn every ten
years, based on population numbers determined by the decennial
census. Isidore Dorpenyo and Godwin Agboka (2018) argued that
while election technologies and processes like redistricting have
not often been the subject of work in technical and professional
communication, the field is well positioned to study such topics and
their impact on public discourse, civic engagement, and politics as
a whole because of the importance on both writing technologies
and social justice. In their study of voter registration applications
and literacy tests, Natasha Jones and Miriam Williams (2018)
demonstrated how these documents worked to oppress individuals
and uphold systems of power. Regarding redistricting specifically,
Fernando Sánchez (2018) also studied the 2011 Texas redistricting
process and its maps, noting how Texas lawmakers subverted
language from the Voting Rights Act to create a new map that
kept white communities in power and diluted the voting power
of Latino communities. Sánchez argued that not only was the
mapmaking process itself a form of technical communication, but
so were the related documents surrounding the map that justified
its district lines.

**Racial gerrymandering**

Gerrymandering is a process of political manipulation through
which one party gains an advantage due to strategically drawn
electoral district lines. The Supreme Court has not stopped
partisan gerrymandering—most recently in Rucho v. Common
Cause (2019)—but Section 2 of the Voting Rights Act prohibits
racial gerrymandering. In many locations in the Southeastern
United States, racially polarized voting patterns mean that racial
gerrymandering and political gerrymandering are one and the
same. Sánchez (2018) described two methods through which racial
gerrymandering functions: cracking and packing. **Cracking** redraws
political district lines in a way that splits up a racial minority
community into several different districts, thereby diluting the
community’s political power and its ability to elect the candidate
of its choice (visualized in Figure 1). **Packing** concentrates that
racial minority group into a small number of districts, creating
uncompetitive elections in those districts and containing the
political impact of minority communities (Figure 2).

![Figure 1. A representation of cracking in a gerrymandered
district.](image1)

Sánchez (2018) also noted that digital mapping technologies, and
especially GIS software, has made redistricting a more important
part of politics in the United States because such software allows
new districts to be drawn quickly, easily, and in ways that create
the greatest possible partisan advantage. The Republican State
Leadership Committee’s 2011 Redistricting Majority Project, called
REDMAP, strategically drew district lines in many states where
Republicans controlled the redistricting process in such a way
as to maximize state legislative and Congressional majorities for
Republicans. A judge in North Carolina who ruled the Republican-
drawn Congressional district map to be unconstitutionally racially
gerrymandered noted that African Americans in the state had been
disenfranchised with “surgical precision” (Ax, 2019).

![Figure 2. A representation of packing in a gerrymandered
district.](image2)

Definitions of racial gerrymandering have been set by case law
and include several other elements, including the presence of a
cohesive racial minority group that consistently votes similarly.
The tactics I’ve described above are two common ways that racial
gerrymanders are drawn. This article concerns advocacy around a
local redistricting effort, though I believe the entire redistricting
process, as well as gerrymandering specifically, deserves further
study from technical communication scholars. Gerrymandering
has a substantial impact on the ways that power is distributed
and wielded in the United States, and the process determines the
outcome of many elections before anyone has ever voted.
METHODOLOGY
This research used a participant action method to describe and analyze the digital literacy practices of one grassroots community group in Tuscaloosa, Alabama. Jones (2016) noted the potential of participant action research in supporting social justice outcomes. I joined in this group’s work primarily as a member of the community concerned with equal representation in local government. I attended many of the group’s meetings and participated in some of its actions, including speaking before the city council in support of the group’s map. I also contributed research support and was part of conversations about message and strategy. Given Nish’s (2022) argument that activists’ work often occurs behind the scenes of an online action, observing and participating in this group’s work allowed me to consider and observe their digital literacy practices at a deeper level.

It is also important to describe my own subject position as a member of the group and as a researcher. I am a white, cisgendered woman who did not grow up in this community or the Southeast. My participation in this activist group as well as my observations and interpretations of its work are therefore influenced by my own positionality and embodied experience. In this community, social divisions often track along racial lines and definitions of insider/outsider—i.e., who grew up in the community and who did not. At the time of this research, I had lived in Tuscaloosa for seven years and knew almost all of the participants in the group from other activist projects we had previously collaborated on. This experience also impacted my interactions with members of this group, as my own identity and subject position within the group and the community likely impacted the information members of the group shared with me as well.

At the end of this advocacy effort, I conducted retrospective interviews with five of the key participants of this organization. I saw these retrospective interviews as especially important for me to gain an emic understanding of the perspectives of different members of the group, their descriptions of their own work, and their interpretations of specific events. In my analysis here, I use field note data from group meetings, interviews with group members and outside experts, digital texts and social media content created by the group, public testimony, and local media reports about the activist group’s activity to provide an overview of their actions and a description of their digital literacy activities. This research was approved by the Institutional Review Board of the University of Alabama.

Local history and background
This study took place in Tuscaloosa, Alabama, a city of about 100,000 people. The home of the University of Alabama, Tuscaloosa is located about an hour southwest of Birmingham, the largest metro area in the state. Like most places in the Southeastern United States, Tuscaloosa’s politics and culture are inextricably linked to a 400-year legacy of colonization, chattel slavery, Jim Crow segregation, and later more de facto racial segregation.

Voting and representation in Alabama have been fundamentally shaped by this history as well as the Voting Rights Act (VRA) of 1965, and the state has remained a major player in voting rights legislation in the United States. The Selma to Montgomery March led to the legislation’s historic passing; Alabama held the status of a pre-clearance state under the VRA, and it was Alabama’s challenge to the law in the Shelby v. Holder (2013) Supreme Court case that weakened the VRA. In addition, the state was also at the center of the recent Allen v. Milligan (2023) case that upheld the remaining section of the legislation—Section 2—which prevents racial gerrymandering in drawing representational districts. The Allen v. Milligan case hung over the redistricting effort I describe here and created the context for some of the arguments and actions taken by both the activist group I studied and the elected officials and mapmakers themselves. At least one participant in this study who provided technical support to the activist group was also involved in redistricting efforts at the state level and advocated for specific congressional maps considered in the Milligan case.

Grassroots Advocacy Group: Tuscaloosa Action
In 2021, the City of Tuscaloosa began its process of redistricting the city council lines after the nationwide census in 2020. The results of the 2020 census showed that for the first time, Tuscaloosa was a majority-minority city—meaning non-white residents made up a majority of the population within the city limits. The city council district lines needed to be redrawn because the city’s seven districts had become unbalanced after 10 years. The district lines in Figure 3 produced four white majority seats and three Black majority seats. This map was drawn by City of Tuscaloosa officials and lawyers and came to be known by the group I studied as the “status quo” map that made only minor changes to the previous district lines drawn in 2011.

Figure 3. The City of Tuscaloosa proposed map, the “status quo” map.

A group of citizens in the city banded together to create, propose, and advocate for a new city council district map that was not racially gerrymandered and produced instead an opportunity pickup seat. The citizen-drawn map, called the “fair map” by the group, is reproduced below in Figure 4. The major differences between the two maps lie in City Council Districts 6 and 7. Under the “status quo” map, District 7 is a racially packed district, made up of 70% African Americans, while District 6 is majority white. City council seats in Tuscaloosa are non-partisan, and therefore members of the city council also do not identify by party.

1 A preclearance state under Section 5 of the Voting Rights Act was required to receive approval from the U.S. Department of Justice before enacting changes to voting procedures.

2 For more information on the Allen v. Milligan (2023) Supreme Court case, see SCOTUSBlog, Allen v. Milligan (2023).
This group organized themselves under the name Tuscaloosa Action and was a racially diverse group of roughly 30 people who were most active in this advocacy effort. The group drew, proposed, and advocated for an alternative map for city council district lines (Figure 4) that reflected the minority majority makeup of the city as a means to counter the city’s officially proposed status quo map. The number of people in the group varied over the course of the effort. Some group meetings had an average of 10 attendees, while roughly 1,000 people sent letters to their city council representatives, signed a petition in support of the group’s map, or spoke publicly at one of the two city council hearings on the subject. The members of the community who supported these new maps were organized under the umbrella of Tuscaloosa Action, a progressive organizing group. The group also worked closely with other organizations in the city that shared the group’s goals, especially the Tuscaloosa Chapter of the NAACP.

Grassroots Group Timeline & Activities
The following is a basic outline of Tuscaloosa Action’s activities:

- Aug-Oct 2021 – Initial conversations about redistricting, first with Hometown Organizing Project and then as a Tuscaloosa-specific group, Tuscaloosa Action
- Oct 2021 – Tuscaloosa Action drew a new map and promoted it quietly outside the group
- Dec 2021 – City Council tried to pass the status quo map
- Jan- Feb 2022 – Tuscaloosa Action ran public media campaign & hearings
- Feb 22, 2022 – Final City Council meeting and vote on the status quo map

This project began in the fall of 2021 with a series of conversations between members of the Tuscaloosa Action and Hometown Organizing Project, a statewide progressive group that emphasizes political and community organizing in rural communities. Hometown Organizing Project and its companion organization, Hometown Action, held several training sessions over Zoom to educate the public about upcoming redistricting processes at the state, county, and local level. Members of the group noted that while redistricting was a rather intractable issue in Alabama for state and federal district maps, counties and city councils had more opportunities to work with local officials and to redistrict maps in the ways that provided for community input. One leader within the Hometown Organizing Project’s redistricting effort noted that providing communities with new maps to start from could make the redistricting process easier for municipalities and would also let activists seize the moment. If I ask what you want for dinner tonight, we might have a long discussion about our possibilities, she noted. If I bring you the ingredients for tacos for dinner, it’s much easier to make dinner and to start from something rather than nothing.

After these initial conversations, members of Tuscaloosa Action reached out to different stakeholders in the community to begin the local phase of the project. The group identified different groups in the community as well as specific individuals whom they believed would be supportive of their efforts, and they gained additional collaborators through word of mouth. The two leaders of Tuscaloosa Action were successful in drawing their own map with input from different members of the group. Tuscaloosa Action then began what the group leaders described as a “soft launch” of their map. Members of the group discussed the map with their city council representatives and inquired with their representatives about the city’s plans for the redistricting process. After publicly stating that they had no immediate plans to draw or approve a new map, the City Council President Kip Tyner attempted to push through the city’s status quo map quickly at the city council meeting in late December. The Tuscaloosa Action group was tipped off about this proposal; another council member helped to stall that effort and was able to delay the vote to the start of 2022.

In January 2022, Tuscaloosa Action went public in promoting their community-drawn map. They sent press releases, social media posts, and other content to educate the public about the redistricting process. The group launched an online petition and a letter writing campaign to urge city council members to support their community-drawn map and to hold public hearings on the redistricting process. Tuscaloosa Action was successful in pushing for public hearings, which occurred on February 2 and 14, 2022. The City Council then held a few separate procedural votes on the city-drawn map at separate city council meetings, passing the city’s status quo map instead of Tuscaloosa Action’s “Fair Map” on February 22, 2022.

Digital Writing Workflows
While this activist group was ultimately unsuccessful in its final goal, I argue that Tuscaloosa Action’s activities are important ones through which technical communication scholars can examine digital literacy practices crucial for advocacy efforts that make up digital life. In this section, I trace the writing workflows (Lockridge & van Ittersum, 2020) of this activist group through the different phases of this project, describing how they used these tools together to educate the public about redistricting and advocate for different city council maps. Examining these digital literacy practices is describing digital life; these tools were central to the activists’ work and considering how activist groups create digital workflows for action can help scholars gain a clearer picture of activists’ digital literacies.

Phase 1: Information Gathering
The group’s plan had four phases, with a different goal in each phase, described in Table 1. Phase 1 involved information gathering; members of the group met virtually using the video conferencing software Zoom. Some of these meeting involved presentations with voting rights and redistricting experts connected to the statewide group Hometown Organizing Project. In these meetings, members of Tuscaloosa Action or leaders from Hometown Organizing Project used Google Slides to present information during the meeting. During other meetings, the group discussed goals for their efforts, refined messages, and planned next steps.

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Figure 4. Tuscaloosa Action’s proposed map, the “fair map.”

[Diagram of Tuscaloosa Action’s proposed map]
<table>
<thead>
<tr>
<th>Workflow Phase</th>
<th>Phase 1: Information Gathering</th>
<th>Phase 2: Mapping</th>
<th>Phase 3: Education</th>
<th>Phase 4: Advocacy</th>
</tr>
</thead>
<tbody>
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<td><strong>Technologies Used</strong></td>
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<td>Dave’s Redistricting</td>
<td>Zoom</td>
<td>Canva</td>
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Table 1. Digital tools used in different stages of Tuscaloosa Action’s work.

**Phase 2: Mapping**

During phase 2, the group’s leaders created its own city council map using an online mapping tool called Dave’s Redistricting (Bradlee, 2023). Dave’s Redistricting combines maps of the United States with Census data, and its digital tools allow users to redraw representative districts from national through local offices into their own desired district breakdown. This tool allowed the group to draw their own city council districts down to the block level, ensuring each new district had roughly the same number of people, and that each district had the desired demographic makeup, which was the primary aim of the group. After initially creating the map, two additional members of the group researched each city council member’s residence using publicly available voter registration data to ensure current elected officials had not been drawn out of their districts. These individuals organized that data via a shared Google Sheet. The group then downloaded versions of the map to send to other group members via email, and group leaders shared their screens during Zoom meetings to discuss the map with group members and other affiliated stakeholders to ensure that there was group consensus regarding the district lines.

**Phase 3: Education**

During the education phase, the group created documents with the aim of educating the public about the process. Central to this effort were tools from Google Workspace, particularly Docs and Sheets. One of the key texts the group created to explain the redistricting process was a Google Doc. Rather than creating a website, the Google Doc was an easily understood interface that allowed for quick updates from group members who had less experience in web editing. Managing Google Doc permissions also allowed the leaders of the group to edit the document while members of the public could view it. This document, then, served as a central education and updating function and was often shared via emails to the group’s supporters as well as linked in social media posts. The document explained the redistricting process, defined gerrymandering and racial gerrymandering, and argued for the soundness of the group’s map. A screenshot of part of this Google Doc is captured below in Figure 5.

![Google Doc Screenshot](image-url)

**Figure 5. Tuscaloosa Action’s explanatory Google Doc.**

Along with the Google Doc, Tuscaloosa Action educated the public through social media posts and graphics. The graphic design for the social media images was completed by one of three people who usually created them on their own and then shared them via a Google Drive folder. Group members primarily used free Canva image editing tools, as they were more accessible, easier to use than Photoshop or other Adobe Creative Suite tools, and free. The content of the social media posts educated the public on redistricting, gerrymandering, and the problems with the old city council district maps. The posts used the same language and talking points drawn from the group’s central Google Doc and conversations during group meetings.

Live streaming video hosted on Facebook was also important during the education phase of the project. Several Black community leaders in Tuscaloosa host their own conversational talk shows on local issues, which they stream live to Facebook. Community members can call into these programs to ask questions and comment on news and current issues, and discussions frequently happen among members of the audience within the comment section of the streaming videos. One of the leaders of Tuscaloosa Action appeared on several of these programs to discuss the redistricting effort, explain the process, and advocate for the group’s map. While the group promoted their message on their own social media accounts, they also sought out other digital platforms with already established, receptive audiences in order to reach more people.
Phase 4: Advocacy

During the advocacy phase, the group created different tools that urged members of the community to take action. Members created both an online petition and a letter writing template hosted through Action Network, a free letter writing and petition creating tool. The group’s leaders wrote the petition text and the template text for the customizable form letter (Figure 6). Action Network describes itself as building “tools for organizers, by organizers” (“Action Network”) and provides free tools for hosting petitions, managing events, fundraising, and sending letters, emails, and texts. Tuscaloosa Action used Action Network initially to host a petition calling for city council members to support the community-drawn map and later used the service for a letter writing campaign in which supporters were able to take action to send emails directly to all city council members using either the group’s provided email template or their own words. Roughly 1,000 peripheral supporters signed the petition or sent emails to the City Council. Action Network collects names and email addresses from people who take action via the tool, which built a future mailing list for Tuscaloosa Action and enabled them to send updates as well as calls to action to supporters throughout the project.

Figure 6. Letter template hosted through Action Network to city council members.

In addition to the online petition and letter writing tool, Tuscaloosa Action used their social media posts to encourage Tuscaloosa residents to attend city council meetings and to testify at dedicated public hearings to advocate for the Fair Map, as in Figure 7, which represents an image posted to Tuscaloosa Action’s Facebook and Instagram accounts.

Figure 7. A social media image representing a call to attend the redistricting hearing.

During the advocacy phase of the project, streaming video again played an important role. City Council meetings and the redistricting hearings were streamed live to Facebook on the City of Tuscaloosa’s Facebook page. The official public hearings on the new maps, the city council votes, and the public comments at these in-person meetings were therefore directed to two audiences: the audience in person in the room, and the audience watching on Facebook and on the local television access station. The streaming video and the city’s practice of archiving those videos on its Facebook page also allowed Tuscaloosa Action members to return to that video, download and edit it, and upload clips of the testimony to their own Facebook page. One group leader noted that sharing these video clips helped to make the case to other city residents that commenting in front of the city council was not a scary proposition and was something their friends and neighbors were doing as well.

Free Tools & Data Privacy

As a whole, the group prioritized tools that were free, accessible on mobile devices, and facilitated collaboration. Google Drive and Google Docs were the most frequently used tools for collaboration as well as to share information with the public. Google Workspace applications were familiar to many group members, easy to use and understand, free, accessible via both desktop and mobile devices, and easily shared with both collaborators and the larger public.

One digital tool the group used that was not free was Zoom. Tuscaloosa Action held regular weekly or biweekly meetings from October 2021 through February 2022 to discuss strategy, bring additional supporters into the group, and coordinate next steps. One active member of the group was a leader within a local political organization and had access to that organization’s Zoom account. This member set up meeting links and sent them to group leaders for distribution and hosted the Zoom meetings. Zoom meetings were most convenient for group members because Zoom could be easily accessed by both computers and mobile phones, did not require group leaders to find a physical meeting space, or require members to secure transportation or childcare services. Free Zoom accounts only allow 40-minute meetings for more than two people, and the group found this amount of time insufficient and inconvenient for their needs. The group was able to use a local organization’s paid account, which allowed them to more effectively communicate in real time.

Behind each of the group’s offline actions were a complex series of online collaborations and digital tools, which were essential to this
group’s work. Both the group’s leaders and members prioritized free and accessible tools, ones with low barriers to entry that were free, used user-friendly and easily understandable interfaces, and could be accessed on both computers and mobile devices. The group prioritized coordinating in digital spaces through tools that made it easy to collaborate and to share information. While the group occasionally gained access to paid versions of software tools when they needed them, they prioritized free software and digital tools that allowed them to accomplish their work and share information quickly.

Yet these tools often incur other costs. Google and Zoom both have issues with data privacy, and keeping or using somewhat sensitive data in these spaces creates problems. Their terms of service give these companies wide latitude over the use of data and personal information (Beck & Hutchinson Campos, 2021). The activists in this case prioritized ease and speed over privacy, yet these critical literacies are important as well, especially in organizing around topics that are frequently surveilled, such as advocacy around police brutality, reproductive rights, and Palestinian causes.

**Defining Success**

The collective effort to redistrict the City Council in Tuscaloosa did not achieve Tuscaloosa Action’s ultimate goal. As Jennifer Nish (2022) argued, however, success is often hard to come by in activist movements. Scholars and activists can still learn from the effort, and progress may have been made even if the action didn’t achieve the group’s ultimate goal. As she noted:

> Activists and social movements often undertake almost Sisyphean tasks. The very nature of systemic power and oppression makes the odds of overturning these systems unfavorable. Therefore, to look at activist projects and social movements through the lens of a summative overarching success or failure misses so much of the transformative activity and creative possibility that takes place within activist and movement rhetorics. (p. 156)

Ultimately, the members of the City Council passed the status quo map. Tuscaloosa Action was successful in pushing for two public hearings on the maps, and they were able to get two of the seven City Council members to vote against the status quo map. One of the leaders of the Tuscaloosa Action group noted that she found securing the public meetings to be a huge success. Given that more than a hundred members of the public attended each meeting and so many residents saw the public support for the effort, the final actions of the City Council, however, were disappointing.

One participant noted that while she used to attend City Council meetings frequently and would often talk to her representative on the Council, seeing the majority of the City Council and the mayor vote against the community effort was disheartening, and she no longer attends the meetings or expresses her opinions on city issues:

> It devastated me to the point where I never went to any City Council meetings again. […] It was them, sitting there, knowing they knew all of these community members were coming together to say, this is what we want to see for our city. We want to be in a diverse city and a fair city. And they knew they weren’t going to do it.

One group leader also reflected similar concerns in terms of expectations and then the reality of what the effort was able to achieve. He noted:

> I think at the beginning, like it felt like we’re being listened to, you know, and the beginning of redistricting it was like, we’re really going to do a thing and our city’s going to pull together. This is young people, and old people, and Black people and white people, and look at what a city can do. It’s beautiful, right? And then I think that feeling even after it didn’t happen, was still there some of that, which was really great, but it was also a disempowering feeling.

Those connected to Hometown Organizing Project who initially worked with Tuscaloosa Action on the redistricting effort described the group’s work as exemplary. One individual called the Tuscaloosa effort the “gold standard” in having the community work together, draw a map, and advocate for its passage. Another noted that what was unique about the Tuscaloosa effort was that the City Council itself, compared to others in Alabama, was on “the low end of communicativeness” when it came to its redistricting effort “paired with a very organized activist group.” She stated, “I think what was frustrating with Tuscaloosa was that it felt like [the group is] so organized, and they’ve got all this stuff put together. And the city council looks like, ‘No input. Thank you very much.’ So worst possible match up.” In their reflective interviews, group members noted that while the public hearings were tangible gains, nothing they could have done would have changed the final outcome. The City Council was going to pass its status quo map, and council members sent the message that they did not appreciate public input or advocacy for other approaches.

Many individuals involved, however, hope that people involved both in Tuscaloosa and elsewhere in the state can build from this work. One noted:

> As an activist, I define success as more people feeling empowered to be full citizens and to push back against the ruling class, the professionals, the elected officials. You know, they work for us, and we can come tell them when they’re not doing it right. So the more I see people doing that better. […] The more and more people have in their minds like, “I can do this. I’m entitled to do this, and in fact, I’m responsible for doing this kind of work.” Like if we can get more people feeling that way, it’s going to carry over to other issues. Because it’s more about changing how you view yourself as a citizen than it is about really changing them.

By further considering the ways that activists work to make change as well as the ways that they fail to do so, technical communication scholars can better understand the digital literacy practices involved in these efforts, as well as the systems of power that prevent change from happening.

**Implications for Technical Communications**

The work of this activist group demonstrates key aspects of digital life. These activists used digital literacy practices and the tools at their disposal to organize as a group, draw maps according to specific parameters, educate the public about redistricting and their specific map, and mobilize community members to advocate for
this map to their elected officials. Their digital literacy practices and their ability to integrate online and offline actions provide many takeaways for technical communication scholars. I identify a few strands of these implications here:

1. **Digital writing workflows and writers’ decisions about digital tools.**

Lockridge and van Ittersum (2020) have studied the ways that writers combine the use of many different digital tools into their own writing workflows. The workflows I describe here demonstrate that many writers choose these tools for their familiarity, ease of access and collaboration, and low or no cost. These choices have other consequences, however. Using tools on different platforms takes up activists’ valuable time in transferring data and work between systems. Using free tools also means activists are paying in other ways, giving up privacy and paying with their data rather than their money. Sharing information on these platforms can have significant consequences for activists’ work if their data is shared with state surveillance mechanisms, for example. This project points to both the ways that technical communication scholars can study writing workflows in different situations, as well as the need to further study the ethical and privacy implications of the writing technologies writers choose.

2. **Integrated digital tools for specific purposes.**

For the advocacy phase of this project, Tuscaloosa Action used a suite of online communication technologies for their work. Action Network, a 501(c)(4) nonprofit organization, builds and supports a suite of web-based tools for advocacy and activism. Tuscaloosa Action used both the petition and letter writing tools for their work and were also able to easily transition language between the two genres within the same online campaign. Because these tools were integrated, Tuscaloosa Action’s leaders were able to collect and save the names and contact information of supporters for email updates and additional calls to action, also through Action Network. The group can also draw on that list of supporters in the future for additional activism around related projects. Action Network’s example demonstrates how having a free and accessible online suite of digital communication tools build specifically for activist work demonstrates the need for these online platforms and the need for further research on web-based writing tools for specific tasks and writing workflows.

3. **Researching activism, social justice, and power.**

After the social justice turn in technical communication, scholarly interest in activists and advocacy work have increased. Yet we should also consider how we represent this work and which causes we choose to highlight. The stories we tell about activist efforts tend to follow a certain narrative: activists need to work hard on their arguments and messaging, and by performing these rhetorics successfully and getting others to join their cause, they succeed. The activist group I studied here created successful documents. They included stakeholders; they designed diverse digital texts and circulated these texts in places that both expanded the number of people fighting for their cause and made specific requests of elected officials. In both activist and academic spaces, many stories we tell about activism assume that these efforts will result in success. In considering hashtag activism (Ames & McDuffie, 2023; Tufekci, 2017) and in examining large social movements like the Arab Spring and Black Lives Matter, the scholarly narrative usually ends with what is described as an effective rhetorical action that leads to change. Writing research around activist work needs to more thoroughly consider issues of power, and to examine activist efforts that did not achieve their final aim as well. Emphasizing critical literacy, ways to examine structures of power, and researching groups and causes that are smaller and more local will also give scholars a better sense of how to consider social justice within technical communication settings.

**LIMITATIONS**

This study described the work of a small group of people in one community in the Southeast, while the findings of this study point toward some general conclusions, the more specific results cannot be extrapolated beyond this group. My descriptions of this activist effort are influenced by my own observations and my own subject position. While I make an argument through this article for the importance of behind-the-scenes study of activists’ digital literacy practices, that research often requires a position like the one I occupied, where I served as both a researcher and a member of the group. My position within the group impacted my perceptions of it and its efforts. While I collected documents and made observations along the way, all interviews with group members were retrospective; individuals’ actions and perceptions of the group’s efforts may have been influenced by the final outcomes of the effort and may have shifted over time as well.

**CONCLUSION**

The effort I’ve described here involves a group of people who advocated for their representation in local government. Walton et al. (2019) have called injustice a “technical communication problem” (p. 1). The injustice of gerrymandering is a technical communication problem as well. Redistricting is a highly technocratic process that has a significant impact on the outcomes of elections within the United States and in who holds political power. Tools such as Dave’s Redistricting and others used by the activist group I described here aim to make this process more open, transparent and “small-d” democratic. Yet the systems of power that govern these efforts make change difficult.

As recent scholarship in technical communication has turned to social justice efforts and to activism more specifically, it is important for scholars to also consider the stories we tell around activist efforts. While successfully creating arguments and building coalitions can and should be considered important literacy practices, successfully deploying these methods does not always lead to change. Examining local, lower profile, and unsuccessful activist efforts are also crucial in studying the literary work that activists do. Combining that work with studies of critical literacies (Cargile Cook, 2002) and critical digital literacies (Hutchinson Campos & Novotny, 2021) can also be productive to examine entrenched systems of power connected to activist work as well.

This case study presented one example of a group of citizens who came together to advocate for a cause they believed in. As I’ve discussed here, the group’s digital literacy practices were central to this effort. Utilizing free digital tools that allowed them to collaborate and to share their message with others in the community. These tools and the writing workflows they developed around them were crucial for their work. But the group’s work wasn’t just online. Using digital tools allowed these activists to reach others cheaply and efficiently; it expanded their reach and amplified their offline events, strategies, and goals. Tracing the writing workflows of activist groups allows researchers to consider...
how digital tools are integrated within activists’ work. Through these digital practices, activist groups like the one I studied here demonstrate key aspects of digital life and how activists integrate digital tools within their work.

REFERENCES


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Augmenting for Accessible Environments: Layering Deep Mapping, Deep Accessibility, and Community Literacy

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ABSTRACT
This article reports on lessons learned from the first phase of an ongoing multimodal project aimed at promoting digital and environmental literacy in concert with access and accessibility on our university’s main campus. We discuss an emerging, student-led locative media project, built to increase engagement with the North Woods, an approximately 300 acre parcel of unmanaged forests and wetlands on the north part of our campus. By layering together deep mapping and accessibility, this project intervenes in the binaries between art and science and nature and technology, with a strong focus on how digital, environmental, and community literacy can contribute to more accessible experiences.

INTRODUCTION
In the teaching and exercising of accessibility as a practice, those who work within communication design are often constrained by discourses that shape rights and equity (Bennett & Hannah, 2022). These constraints take many forms, such as legal parameters, conformance standards, and institutional policy, and while they can offer important protective measures, they can also narrow what access means and how it can be enacted, evaluated, and created. For instance, policy can, and often does, establish boundaries around accessible design as it cannot fully account for the nuances of accessibility, such as how access needs can conflict, are fluid and complex, or can be dependent on social and environmental interactions and contexts. These discourses also rarely—if ever—account for intersectional experiences in design, failing to act as sites to critically investigate how designs uphold oppression and privilege certain bodies and minds through what Sasha Costanza-Chock called “a matrix of domination” (2020, p.5). For fluid, continuous approaches to access and inclusivity that account for ever-evolving social and political contexts and relationships, we must resist and reflexively revisit institutional defaults.

Much like Cargile Cook’s (2002) layered literacies argues for intertwining digital literacy with other societal, political, and environmental understandings, we advocate for access to be understood and practiced in similarly complex, interconnected ways—between physical place, digital interfaces, and information communication technologies (ICT), along with broader understandings of environments, communities, identities, and experiences. Responding to recent calls for greater attention to access as an issue of community literacy (Hubrig & Cedillo, 2022), as well as the demand for more justice-focused and emancipatory accessibility work in TPC (Bennett & Hannah, 2022; Oswal & Palmer, 2022), we investigate how digital literacy, cartographic literacy, and digital participatory methods can help us resist and reimagine a move from restrictions and constraints to possibilities when considering who uses space and for what reasons. In doing so, we hope to demonstrate how digital projects can build critical

1 All coauthors share equal authorship.
infrastructure for furthering reciprocity and coalitional work. This pursuit of community infrastructure necessitates temporal limitations, as Shane Bernardo and Terese Guinsatato Monberg (2019) have argued. They explain that reciprocity requires “slowing down in time and working with others in social justice work strategically, tactically, and repeatedly over longer durations” (p. 83). Using our university’s teaching forest, the North Woods, as an exemplar of a heavily, institutionally regulated space that holds a wide range of accessibility barriers across physical, material, and communicative concerns, this paper shows how contributors engaged “deep mapping” (Butts & Jones, 2021, p.4) in concert with “deep accessibility” (Ford, 2014, para. 6) to inform information design that explores the rich spatial and temporal dimensions of socio-ecological history alongside direct participatory design with community members.

From our experiences across TPC and environmental communication courses, we share a few ways that various forms of digital literacies have been exercised to decenter institutional heuristics in the mapping and defining of access of a “natural” community space, and we offer reflections on how these practices might be used for other institutionally constructed and defined spaces. As an evolving, multi-year transdisciplinary project, our work with the North Woods (collectively titled The North Woods Project or NWP) seeks to “remap” the ways we imagine and embody divides between digital and natural spaces. Through layered and deep approaches to cartographic literacy and placing digital and analog experiences of “being there” in dialogue, we argue that digital technologies and physical presence together can layer access to sites of field-based inquiry, creating dynamic projects that benefit a wide range of users’ needs and are better suited to address complex social, ecological, and historical contexts, relationships, and understandings (Rai & Druschke, 2018).

To begin, we first ground our discussion of access in contexts of critical disability and crip theory. Guided by scholarship on ecoableism, we demonstrate how “natural” space is still a product of institutional and cultural design that often naturalizes embodied experiences. We discuss how a “paradox of inclusion” (Price, 2016, p. 157) is formed when institutional change is slow to enact much-needed inclusive design changes, and posit that layering digital, cartographic, and community literacy can help address some access needs more immediately through community-based mapping and environmental storytelling methods, such as participatory deep mapping (Butts & Jones, 2021; Harris, 2016) and emplaced teaching (Lesh & Smith, 2022). We then present our teaching case study, NWP, as an example for applying different literacies in the redesigning and use of an institutionally controlled space and the challenging of the naturalization of such spaces. Drawing from our experiences designing, facilitating, and participating within this broader multi-year, transdisciplinary project, we offer reflections on how digital participatory methods, in combination with intentional understandings of digital and cartographic literacy, can reveal new paths for valuing spaces—and accessible experiences within them—outside of institutional practices and policy.

“Who Gets to Go There”: Using Crip Theory to Trouble the Naturalization of Space

How space is designed and represented often privileges certain bodies and minds when environments and the interactivity within them are naturalized, or assume a default, homogenized occupant or visitor of that space and their relationships to it. Even with spaces that are designated as untouched or undesigned, we must recognize how systems of power and dominating cultures inform how space is accessed or used. The exclusionary practices of built environments in “natural” spaces in particular have long been an area of focus for disability scholars (refer to Kafer, 2013), as sites such as trails, campgrounds, or parks often assume a white, able-bodied user and the resulting “social space alienates or oppresses those who do not fit the preconstructed models or interactions of embodiment” (Heilig, 2023, p. 408). Often, “natural” spaces evoke what Sarah Jaquette Ray (2009) called the “wilderness body ideal” (p. 261) and the notion that a “pure” or “correct” (p. 260) interaction with nature is one that is exclusively in-person and unmediated. As discussed in William Cronon’s The Trouble with Wilderness (1995), this ideal is influenced by the belief that nature should be kept pristine, untouched by modernity, and separate from humanity. Outdoor recreation subculture also contributes to this ideal by associating “wilderness” with risk-taking behaviors (Senda-Cook, 2017).

This disposition not only discounts Indigenous histories and lived experiences, but also impedes inclusive interventions in “natural” spaces (Cronon, 1995) such as creating and maintaining wheelchair-accessible pathways, wayfinding signage, or accessible bathrooms. Resistance toward inclusive design in natural spaces is reinforced through eco-ableist and eco-normative attitudes, which can be witnessed in the “privileging of typically abled bodies and minds through environmental design, practices, and discourses” (Cram et al., 2022, p. 852). This resistance towards utilizing technology in the wilderness, particularly as a vehicle for accessibility, simultaneously reinforces the superiority of what Rosemarie Garland-Thomson (1996) described as the “normate” (p. 8), while also villainizing “corporeal difference as deviance” (p. 9). Much like the disagreement between what constitutes an environment as built versus natural, a similar dissonance exists between what bodyminds are considered natural or unnatural (Kafer, 2013) for these spaces. As explained by Kafer (2013), this distinction is illusory because our conceptions and experiences of wilderness—or any setting—are culturally and historically informed and are constructed through social arrangements. To accept the context of nature as self-evident is inherently ableist and exclusionary of “nonnormative” ways of engaging in this space (Kafer, 2013). To exemplify this dissonance, Kafer cited Mei Mei Evans’s (2002) suggestion that “one way of understanding the culturally dominant conception of what constitutes ‘nature’ in the United States is to ask ourselves who gets to go there” (Evans, p. 191–192, qtd. in Kafer, p. 130).

For areas like a teaching forest, a space which is considered both natural (and by extension, undesigned) as well as part of a wider university context, access becomes further restricted and opaque. Often, infrastructural changes at the university move slowly, and access becomes constrained by red tape and hard boundaries of what can and cannot be achieved in given spaces, timelines, and budgets. In this process of hard defining, focus often shifts from those who are excluded to “those who are ‘doing their best’, or onto the semi- or non-accessible spaces themselves” and the result is a “paradox of inclusion” where “inclusion is approved and valued—just not right now, or not right here” (Price, 2016, p. 157). These constraints have direct and immediate consequences: an educational space is not accessible to all of its students, faculty, or nearby community members.
While we continuously revisit what we can do to make things possible outside of and within institutional boundaries, members of NWP have explored more immediate ways to negotiate access in the less-regulated arenas of digital and hybrid spaces. As we will expand upon later in this chapter, the presentation of our teaching case study, this early stage of a multi-year project, members of NWP are exploring how to bring more institutional attention to access within our campus community with digital and hybrid environmental communication projects. These projects layer digital, cartographic, and community literacies to center how varied embodied experiences and identities, along with cultural biases and environmental stories, constitute a user experience in naturalized space (Allen & Johnson, 2023). As we plan and create interactive designs for experiencing environments, and design said environments for community use, it’s important to understand that for many visitors of natural spaces, “being there” (Ford, 2014) requires more intentional design for access, inclusion, and resisting naturalization.

In our next section, we discuss how these literacies, along with the practice of critical “deep mapping,” can serve as a way to rewrite, rework, and redefine access. Community mapping has been suggested as one way to resist how environments can “reflect, produce, and enact disability discrimination” as participatory mapping “democratically engage[s] local community members in planning efforts” (Kamperman, 2016). Similarly, critical accessibility maps are political tools “composed and designed through observations, narratives, deliberations, and materializations” that “treat access as an opened-end process, a negotiation, and an intersectional and multimodal issue, rather than an easily achievable end point” (Hamraie, 2018, pp. 455–456). Through our work with digital and cartographic literacy in environmental communication contexts, we aim to continuously and openly revisit what access means in contested, naturalized spaces.

Digital Literacy, Cartographic Literacy, and Deep Mapping

As we explore interventions in the distinction between digital and so-called “natural” (or analog) environments, we see the layering of digital and cartographic literacy as one way we can trouble this boundary to improve access. As established 30 years ago in technical communication scholarship, maps are not neutral artifacts (Barton & Barton, 1993), nor are they removed from social and political contexts or institutional oppression. Ryan Eichberger (2019), for example, discussed how maps contribute to colonial practices of erasure that often exclude and obscure issues of social and environmental justice. At the same time, as Samantha Senda-Cook argued, maps can serve to “manifest the tensions of access—preservation and safety—risk” (2010, p. 361). Awareness of the rhetorical and political capacities of maps is crucial to understanding their importance for digital literacy as well as to address the ways that maps can obfuscate, obscure, and elide different types of information.

Cartographic literacy can be understood as a way to cultivate “more thoughtful, critical readings of maps,” which includes the “recognition of geographic features and an ability to read, use, and interpret maps” (Santee, 2022) to understand how they mediate experiences with places (Ishikawa et al., 2008; McCullough & Collins, 2019). Cartographic literacy can be expanded to critical cartographic literacy, which is “an ability to recognize the social influences on any given map, question the sources of the mapped information, and create maps for specific audiences and purposes” (Santee, 2022). Of particular relevance to this project, a critical cartographic literacy is important in addressing misinformation in digital writing environments (Muehlenhaus, 2014) and communicating visual risk (Griffin, 2020; Santee, 2022). Long-standing work in critical cartography and writing studies (Barton & Barton, 1993; Diehl et al., 2008; Harley, n.d.; Propen, 2007) have illustrated how “the rhetorical nature of maps” can help foster an awareness of the ways “maps are enmeshed in ideology and always selective in what they include and exclude” (Santee, 2022). The communication design of maps becomes an important means to understand how writing is a place-making action (Brooke & McIntosh, 2007; Lesh & Smith, 2022; Li, 2020) that directly interfaces with digital literacy (Frith, 2015; Greene, 2023; Rivers, 2016; Schmidt, 2011) to tell or interrogate an environmental story.

We approach environmental storytelling through a focus on layering different technologies, writing environments, and types of information with the goal of building more inclusive spatial experiences. We extend methods in critical cartography, specifically “deep mapping,” to design more accessible experiences that cross digital and analog environments. Deep mapping is a place-based storytelling method that “combines geospatial data, qualitative research, and cultural information to communicate the many layers of meaning that form a sense of place” (Butts & Jones, 2021, p.5). Deep maps resurface different types of information—from geological and ecological to social and historical—to create a richer engagement with the many elements that constitute a place. While maps typically represent only one perspective, deep maps present a more “inclusive design strategy, connecting place-based pedagogy, Indigenous knowledge, and digital technologies to engage local communities in the work of environmental communication” (Butts & Jones, 2021, p.5). Connecting cartographic literacy with digital design allows for deep mapping to reveal the rich dimensions that together make up a place. Further, by bringing the local community into the design process, we can foster reciprocity through inclusive design strategies.

Participatory deep mapping

In concert with deep mapping, participatory approaches can greatly expand how maps visualize, (re)present, and engage places and communities. Building upon theories of deep mapping and community literacy, we rely on a method that Trevor Harris (2016) called participatory deep mapping, or participatory GIS (PGIS), to deploy the technological capabilities of GIS to meet the needs of a community. According to Harris, participatory deep mapping is “more than the merging of local community information and spatial data but a communication device intersecting disparate groups with differing world views, expertise, and understanding” (2016, p. 323). This “spatial storytelling,” as Harris called it, “allows multiple spatial stories to be interlaced through a rich weave of local knowledge about community place and the powerful GIS representations of space” (2016, p. 318). As we build experiences with our local community, we foster reciprocity between students and faculty, as well as the relationships between the campus and outside local community, by creating an evolving digital space for participants to make meaning and negotiate shared values in place.

NWP employs what Lesh and Smith (2022) have called “emplaced teaching,” encouraging students to situate themselves in the broader community, reconsidering their understanding of place (para. 4). In their work with “Writing Auburn and Writing Charlottesville,” Lesh and Smith (2022) reflected that students researching and writing about their campus communities helped develop “not only
a more robust engagement with community partners, but also a more engaged understanding of that community’s relationship with place” (p. 96). Lesh and Smith sought to “remap the perceived borders between campus and city” (2022, n.p.). Similarly with NWP, students work within a community that they are a part of, which helps diminish some of the potential harms that can occur in community-based work, which Cana Uluak Itchuaiqyq et al. (2022) identified as a need for faculty members “to advocate for the protection of relations in the face of universities’ demands for access to peoples, communities, and lands” (p. 94). The authors rightly identified “access” as a concept which “risks misuse” outside of the context of disability justice (p. 95). As such, the North Woods provide an important community space that is shared by the participants in the project as well as a place where access exposes the “fraught institutional relations” that often inform and constrain academic approaches to community-based research.

Using digital maps and augmented reality, we seek to produce work that fosters what Tiara Na’puti has referred to as “more expansive and fluid considerations of place/space” (2019, p. 6). Though her article primarily focuses on the ways that settler colonialism shapes an emphasis on land, she also has identified the ways that cartography has long been a tool in “constructing and registering places as existing exclusively for colonization and militarization” (p. 6). In addition, AR was originally developed as a tool for aviation, military, and industry. Against these applications, we seek to repurpose these tools to actively resist the ways that digital literacy has become co-opted in service of colonial and technosolutionist frameworks. At the same time, we intervene in pushing back against the ways that maps often serve to erase and obfuscate information.

Combining these technologies allows designers to produce multivalent experiences that destabilize clear distinctions between natural and digital environments, encouraging users to engage with mobile content in specific locations, while simultaneously producing virtual and telespresence experiences with an analog/material place. Digital innovation, especially in mapping technologies that shape how communities view natural spaces, can often be used to create experiences that combine digital and analog engagements with place and complicate the concept of “being there.” As such, NWP seeks to “evert” these notions of digital mapping, turning them inside out (Jones, 2016). As we utilize digital technologies to intervene in spaces, our teaching extends these notions of “being there” through a pedagogy based on digital literacy and critical cartography (Eichberger, 2019; Hurley, 2018; O’Brien, 2020), public memory (Dickinson et al., 2010; Dickinson et al., 2006; Sanchez & Moore, 2015), and user-centered approaches to digital instruction (Stevens et al., 2022). This combination provides students with an opportunity to contribute to a high-impact, community-based project that has a direct impact on their campus and local community.

Using Layered Literacies to Redesign Space and Experience: Teaching Results

In 2007, officials at our public, northeastern university completed a feasibility study focused on expanding the campus into the 300 acre forested area known as the North Woods to build what they termed in one report a “Research and Technology Park” and elsewhere as “The Rhode Island Agricultural Technology Park.” In addition to this study, the university engaged a consulting firm to evaluate land use in North Woods, including the development of Alumni condominiums, a hotel and conference center, student housing (under contract with private development), and a golf center. Amidst outcry from members of the campus and local community, these proposals were later placed on hold. This example illustrates the ways that the rhetoric of development and technological progress often shapes relationships between university campuses and natural spaces. In the case of the North Woods, they were viewed institutionally as an unused asset for the campus, a place which could be transformed into a beacon of technological progress through development. However, this natural space already provides an important place for innovative research and experiential learning, as well as a recreational space for the community. By promoting and mobilizing layered literacies across multiple classrooms and with community partners, NWP uses participatory deep mapping strategies to foster coalitions and promote reciprocity in our community.

NWP implements participatory deep mapping to materialize the invisible or oppressed narratives, practices, and histories of the North Woods and to geographically “place” community knowledge within the woods. Placing community histories, narratives, and practices visually and spatially across a map ensures that the North Woods and its meaning is co-created rather than merely created (Cizek & Uricchio, 2022). For NWP, implementing participatory deep mapping looks like inviting participants from all fields of study and all levels of academia to co-create meaning for the North Woods. To do this, the NWP has opened a call for project submissions to students (both graduate and undergraduate) and faculty in the fine arts, writing, natural sciences, social sciences, and other disciplines. NWP invites participants to determine the meaning and relevance of the North Woods to their own community, beyond university divisions, to co-create the meaning of the North Woods as a place. Participatory deep mapping enables these “users” of the North Woods—the students, staff, and faculty and non-university community—to define their relationship to a place before it can be defined for them.

Through an approach that Roberta Chevrette (2016) called “holographic rhetoric” (p. 150), NWP pieces together rhetorical fragments from many and diverse participants to conjure a more “whole” image of the North Woods, creating living experiences that go beyond museum artifacts. The photos, AR artifacts, videos, maps, audio, text, and art (the rhetorical fragments) define and commemorate the North Woods (conjure the whole). Further, because the virtual, augmented space around the woods is not owned or controlled by the university, NWP circumvents the physical constraints of being on university property. Creating digital content about the North Woods has been a primary focus of students involved in NWP, from writing website content about the socio-ecological history of the North Woods to identifying points of interest for future augmented reality installations. Other students have produced videos introducing the North Woods to the campus community, creating compelling visuals that literally bring the North Woods into frame. As an evolving, multi-year transdisciplinary project, NWP seeks to “remap” the ways we imagine and embody divides between digital and natural spaces by beginning with the university and practices of emplaced teaching.

Teaching digital rhetoric and field methods

As part of the broader efforts of NWP, one of our authors (Jones) designed an interdisciplinary graduate course, Rhetorical Field Methods for Science Communication (RFM), which focuses on the intersection of spatial theory, digital rhetoric, and community-based practices. The course is part of the Biological and Environmental
Sciences graduate curriculum, as well as serving as an elective for the Science Writing and Rhetoric Graduate Certificate and is therefore primarily geared toward students in the sciences who are interested in developing skills in writing and digital communication with an emphasis on field work or community-based research. At the same time, we survey a wide array of spatial theory and literature of place.

Using digital methods and emerging technologies, the class contributions to NWP materialize the often-invisible or hidden environmental issues and social injustices of natural and outdoor spaces in a virtual setting. Digital technologies like augmented reality and digital mapping are some of the ways NWP "presents" rather than "absents" these histories and practices (Arola, 2018; Greene, 2017; Harris, 2016), and incorporating AR and other media like digital maps provides users with the opportunity to enrich or layer their experience in the woods. AR content literally renders images that represent the stories, narratives, and practices that would otherwise go unnoticed, and doing so offers an opportunity to counter problematic narratives, subvert power dynamics, and evoke new perspectives in the North Woods.

As a highly interdisciplinary course, RFM examines field-based practices through both scientific and humanistic perspectives, surveying spatial theories from Plato’s Phaedrus to Indigenous perspectives on place (Larsen & Johnson, 2017), examining the connections between ecology and Traditional Ecological Knowledge (Kimmerer, 2015), and developing strategies for coalition building and fostering reciprocity in community-based work. These areas of focus build across three distinct but interconnected assignments:

1. 5 sets of field notes and a final field report, where students conduct site visits, take jottings, and compose desk notes, based either in our optional weekly field trips to North Woods or on observations at a different location of their choosing;

2. a proposal and prototype of a contribution to The North Woods Project, taking the form of a digital media installation or contribution to The North Woods Website, such as writing, visuals, video, audio recording, artwork, or other creative or informative exhibit, covering one element of the North Woods from an environmental, scientific, historical, or cultural perspective; and

3. an open-ended Final Paper or Project connecting theories, methods, and practices discussed in the course to individual research projects or areas of interest.

Throughout these assignments, students are encouraged to understand the rhetorical role of place less as an abstract concept or theory and more as an intrinsic part of place-based methods and practices. Because students come from a wide range of disciplines, these assignments are designed to interface from a wide range of approaches, from the Grinnell Method of field journaling that many students in environmental sciences are accustomed to taking, to the ethnographic notes common to many social science disciplines, to the deep connections between science and environmental literature evident in the journaling practices of writers like H.D. Thoreau and William Bartram (Butts & Jones, 2021). At the same time, playing the first-person, open-world video game Walden, A Game allows students to critically engage with the experience of “being there,” and understanding the reciprocal and dialogical relationship between digital and analog encounters with place. Likewise, because NWP extends into other classes across the curriculum, from Art & Art History to Professional & Public Writing to Natural Resources Science, it encourages students to engage with the messy work of transdisciplinary inquiry. This adds layers of context to the ways we define and practice “rhetorical field methods" (Chevrette et al., 2023; Middleton et al., 2015). These interlocking assignments and approaches are designed to help students understand the role of place and communities within their distinct fields of practice.

Projects also include digital mapping and web development efforts, utilizing Leaflet, an open-source web mapping platform, to allow users to access information remotely. Other class mapping projects include creating specific maps that focus on elements of North Woods. For example, one student project uses an ESRI StoryMap to explore the community scientist application, iNaturalist, and how its users interact in the North Woods across time and space. The ESRI StoryMap explores how users of the North Woods engage in the digital platform, iNaturalist, and reveals that using technology in the campus woods is perhaps less novel than expected. Over 2,500 iNaturalist observations have been made in the North Woods since 2017, and the number of users and observations has steadily increased since. Creating an observation in iNaturalist requires a geographical point from which the species was found and a photo/video/audio recording of the species. There is an optional field for text, where users are encouraged to include additional information about the ecology or life history of the species. The StoryMap project takes a closer look at the optional text included by users, which ranges from formal field observations for undergraduate science courses like botany to personal observations about responsibility and stewardship.

The StoryMap, not unlike the larger NWP, reveals that technologies and digital platforms are perhaps already interwoven in our daily lives—and despite conventional attitudes about nature and wilderness—in our interactions with the natural world in particular (Cronon, 1995). In many ways, iNaturalist serves as an informal field journal for visitors of the North Woods. Similar to the larger NWP, the StoryMap brings to light the practices and stories of the North Woods that are otherwise absent from the physical landscape. Further, digital platforms like iNaturalist provide North Woods visitors with an opportunity to engage across time and space: users can view or comment on an observation from months or even years prior, as well as view and interact with the North Woods from anywhere with their device. Digital platforms like iNaturalist are exemplary of the participatory research methods prioritized in NWP because the content and its meaning are created by students and non-university community members, who do not traditionally hold power and privilege in university spaces.

In many ways, the North Woods are a mesocosm for the work we are doing in RFM. As one of the forebears of modern ecology, Eugene Odum coined the term “mesocosm” to refer to an experimental space designed not only “to bridge the gap between the laboratory and the real world in environmental science” but also “to find a bridge between C.P. Snow’s ‘two worlds of academia’” (Odum, 1984, p. 558). Here, he is referring to Snow’s iconic book The Two Cultures and the Scientific Revolution, which discusses (and in many ways reinforces) the divisions between “science” and “the arts.” Against these divisions, Odum was interested in finding a liminal space to conduct research. Yet, Odum’s inquiry was also situated within a context of extractive colonial approaches to scientific research within communities (Jones, 2021; Martin, 2018). Through deep mapping, students can better augment the
ways we view places through a multiplicity of socio-historical perspectives. Along these lines, the course seeks to help students understand how science communicators can move beyond the constrained conditions of the laboratory, and the isolated groves of the academy, to place their work in direct conversation with local communities, foster rich interdisciplinary work, and situate their research within sites of community value.

By combining digital technologies with fieldwork, we work to address a range of accessibility concerns that circumvent infrastructural limitations. For example, the university has historically disallowed signage within the woods, contributing to a lack of student, faculty, and staff awareness and usage of the area. By producing an informational website about the North Woods, we hope to encourage students, faculty, and staff to use this important place, while also cultivating an ethic of care and responsibility. At the same time, we hope to bring greater attention to some of the physical accessibility issues that the woods present to the campus community. For example, no part of the woods are wheelchair accessible. To install an impervious surface would exacerbate issues of runoff that already impact the local ecology. The central path, known as Driftway 1, is a remnant gravel road, and the raised earth has produced wetlands that, in some places, offer important vernal pools that provide critical spawning areas for amphibians, as well as other plants and animals that spend dry periods as seeds or eggs. These dry periods mean that the pools cannot support certain predators, such as fish. To install an impervious surface would mean major impacts to these vulnerable ecosystems. At the same time, structures like a raised walkway or other options like crushed asphalt would provide a more accessible option that would not produce as drastic an impact on the ecosystem. As Kafer (2013) put it, “our encounters with nature include and encompass relations with other people. Humans are interdependent, and our relationships with each other play a role in our understanding of the nonhuman world” (p. 226). By producing maps and other forms of digital infrastructure, we work to increase access to the North Woods while advocating for physically accessible space.

Likewise, by building digital experiences, we are layering other ways to access and experience the North Woods beyond material and spatial constraints. As we approach the North Woods across physical and digital spaces, we draw upon field-based methods for rhetorical inquiry (Rai & Druschke, 2018; Senda-Cook et al., 2019). In their introduction to Field Rhetoric, Candice Rai and Caroline Gottschalk Druschke (2018) emphasized the role of “being there” as part of rhetorical inquiry, arguing that “immersing oneself in the dynamic, living, breathing ecologies that give rise to rhetoric and its work enhances the capacity to understand and observe rhetoric as a three-dimensional, situated force” (p.1). Through deep mapping, we enhance notions of being there to engage with the rich spatial and temporal ecologies that are always shaping our experiences with place and the more-than-human world. In our work with NWP, we extend this notion of field-based inquiry into designing, building, and testing digital projects that impact and enhance our experiences with space and place while opening new layers of access to experiential learning which extend beyond the requirements of physical presence in a place.

Layering access and access as community literacy

Technical communication scholars have recently advocated for different strategies to move accessibility forward, past the limitations presented by more prescriptive and limiting discourses and their ingrained approaches within TPC. These approaches include integrating disability justice tenets (Bennett & Hannah, 2022) and virtue ethics (Huntsman et al., 2018) into accessibility practices, viewing access as a collective responsibility of our field (Zdenek, 2018), using accessible design expertise to further coalitional social justice work (Bivens et al., 2020), integrating reciprocity into accessibility research (Le Lay & Card, 2022), and emphasizing the importance of participatory action research, emancipatory practices, and intentional inclusion of disabled scholars, designers, and users in technical communication studies and pedagogy (Oswal & Palmer, 2022). There is work to be done to more intentionally position access in line with critical disability theory in TPC, positioning disability as “not simply a condition defined by an impairment or an individual’s functioning level but [is] also the product of the interaction between individuals and their physical surroundings, institutional structures, and social environments” (Oswal & Palmer, 2022, p. 253). In this section, we explore and share some ways we have reconsidered a common accessibility practice in particular using NWP: the accessibility evaluation or audit.

To briefly summarize, an accessibility audit is an evaluation of content (usually web-based) to see how content, delivery, and design fits (or fails to fit) the needs of its users. Within typical industry practice, accessibility audits are conducted using conformance standards such as the Web Content Accessibility Guidelines (WCAG) as a heuristic, and have been used in a variety of technical communication classrooms (refer to Youngblood, 2013, for an early example) to train technical communicators in accessibility and novice web development. These guidelines establish a common baseline for accountability in content creation, and help to ensure that basic accessibility needs are met, such as including closed captions, checking for viable color contrast, and including text alternatives to image-based content. These guidelines serve as one of many discourses that technical communicators operate with and within, as they 1) constitute part of Section 508 of the Rehabilitation Act of 1973 in the United States, which requires federal agencies to “ensure that their information and communication technology (ICT) is accessible to people with disabilities” (Department of Justice, 2023), 2) are standard industry measures of accessibility, and 3) are the only set of conformance standards recognized by the International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) (Lazarte, 2012).

For university settings in particular, these standards often are a foundation for institutional policy and practice (Bradbard et al., 2010), such as at our own northeastern public university, which uses WAI standards for content evaluation. On a pragmatic, pedagogical level, these standards also offer an entry point for students new to accessible design to start learning its functional aspects. That said, it’s important to recognize these guidelines’ limitations—limitations that are noted by the standards’ authorial body the World Wide Web Consortium (W3) themselves (2023), as evidenced in their statement that “knowledgeable human evaluation is required to determine if a site is accessible.” An overreliance on discourses such as these standards to define the user experience runs the risk of omitting more layered investigation of access needs across users, and removes the important humanistic perspective to accessibility evaluation.
Reconsidering accessibility evaluation as instructional practice in TPC

In an effort to more intentionally position access in line with critical disability theory, understanding disability as “not simply a condition defined by an impairment or an individual’s functioning level but [is] also the product of the interaction between individuals and their physical surroundings, institutional structures, and social environments” (Oswal & Palmer, 2022, p. 253), one of our authors (Helilig) sought to reconceptualize how accessibility evaluation was taught in her undergraduate class, Writing Health and Disability.

The course, one that is regularly composed of students from outside of TPC to include majors in health studies, psychology, and communication disorders, among others, presented a tension: there was a desire to teach basic accessible design techniques, such as learning how to write and integrate alt-text, adjust color contrast, and write closed captions, but also importantly, there was a desire to resist what we are calling prescriptive approaches to accessibility, or approaches to design that are derived solely from institutional discourses. In previous terms, a traditional accessibility audit was assigned for evaluating web-based content using WCAG standards. The rationale for this assignment was in its value as project-based learning and a professionalization practice, as WCAG represents industry-standard assessment of accessibility performance, and, when available, students conducted evaluation for external clients.

However, in administering this assignment over multiple semesters, barriers and limitations presented themselves. First and foremost was a cruel irony in how many of the web tools used for accessibility auditing, such as the Web Accessibility Evaluation Toolbar (WAVE), heavily rely on color to relay information—something that makes even the process of auditing difficult and inaccessible to evaluators who are color blind, a concern voiced by a student in their reflective memo for the project. Additionally, the overlays produced by automated evaluation tools can make interfaces cognitively exhausting, as the various mark-up to identify accessibility errors often becomes overwhelming to students. While discussion and readings about social and cultural models of disability were integrated throughout the semester, as well as personal narratives from authors who identified as disabled, what was noticed in facilitating accessibility audits was a disjointment between the work that was being done through discussions in class with how the actual, applied skill of accessibility evaluation and content design was conducted. While students learned functional basics of accessible design, there was a failure to center key components of what access really is: that it is concerned about impact, that it is sociorelational, and, ultimately, as stated by Mia Mingus (2018) and emphasized by Hubrig et. al (2020), accessibility is about love. Though the importance of accessible web content was centered, there was limited engagement with other layers of accessibility—especially as an act of community literacy and as a continued journey (Le Lay, 2022).

The invitation to participate in NWP presented an opportunity to reconsider the teaching of this particular assignment and “practices in teaching writing” (Wood et al., 2014, p. 148). The environment of the North Woods, as a space that was prohibited from certain built environmental factors such as signage, and, at the time, even an official community web presence, did not lend itself toward an assessment driven solely by WCAG standards, or even legal definitions of access such as those outlined by the Americans with Disabilities Act. Instead, an understanding of access had to be cultivated through practices of layered literacy and as an action of community love.

To begin, students were introduced to the North Woods as part of their broader campus community, with many not knowing the site existed prior to the project. To contextualize the site and its broader impacts and relationships to the campus, Jones was invited to give a guest lecture on how the project began, its intention to transform the North Woods into a more accessible and inclusive learning environment, and some of the social and political elements that surrounded the space—primarily an institutional desire to avoid legal liability in the event of injury when exploring the area. When outlining the project to students, we emphasized that the deliverables they created would be used to inform how NWP was shaped and how it approached accessible practices in the future.

In lieu of legal or institutional policy, approaches from disability and design activists were used to guide students through an accessibility evaluation of the site. The primary approach was in using Star Ford’s (2014) “deep accessibility” model. This framework better accounts for the fluidity of access, as well as cognitive and sensory elements that are not discussed as in-depth within WCAG. These principles are:

- Movement, or physically getting to spaces and moving within them;
- Sense, or the experience of being in a place;
- Architecture, or the process of orienting, and as we extended, wayfinding;
- Communication, or how we understand and are understood;
- and, ultimately, Agency, which is about the control over one’s experience.

The other approach was informally considering a design narrative while experiencing the space, exercised through in-class discussions. Design narratives, as developed and shared by the Design Justice Network (2016), ask three simple but important questions:

- Who participated in the design process?
- Who benefits from the design?
- Who is harmed by the design?

The principles of the design justice movement, which focus on accountability, impact, and community-building, are deeply applicable to the teaching of accessible content design, and offered an opportunity to challenge assumptions of an undesign, “natural” environment (Kafer, 2013) and design neutrality (Hamraie, 2013).

To conduct the evaluation, students were given time to visit the site, with alternatives offered in the event that they did not want to go into the actual woods or the space was inaccessible for them. They performed photovoice studies, a method of activist research that relays experiences or narratives, aimed at promoting reflection on the relationships between space, embodiment, and access, and created reports that were delivered to Jones to directly inform the next steps in NWP for making the North Woods more accessible.

As an initial exploration into alternatives to traditional web accessibility auditing, there is ample opportunity to improve this assignment and its delivery. A principle takeaway for teaching future iterations of community- and place-based accessibility is a more direct and intentional focus on creating design narratives. While principles of the design narratives were loosely discussed in class, future versions of the assignment will better guide students...
through researching the histories of local community spaces, as well as their historic and current institutional oppressions and restrictions. Additionally, the data collection methods themselves present accessibility barriers with their focus on visual content via photovoice and the restricted mobility and travel posed by the unpaved, obstructed, and often confounding paths of the woods (an environmental barrier regularly observed and commented on by students in their reports). However, the break up with purely web-based approaches for understanding design also presented important considerations for how to recontextualize accessibility audits. Primarily, the reworking of the assignment opens more opportunity for students to integrate their direct, embodied experiences into an evaluation of their local space. Students also indicated a desire to share their work publicly and to be involved in future advocacy projects. At the end of the project, an informal, optional survey was administered that reported 71% of the students who participated in the assignment would like their credited work to be included in a public report hosted by the NWP website, and 43% wanted to be notified for future advocacy efforts or projects regarding the North Woods. Future versions of this assignment will more explicitly center the potential for using the project as a way to build community within the campus and a means to invite students into work that promotes accountability and collective practices for access.

CONCLUSIONS

In this article, we have focused on how participatory mapping projects—specifically combining deep mapping, PGIS, rhetorical field methods, and augmented reality—can disrupt codified distinctions between built and natural environments, as well as digital and analog places, in conceptions of designing access. In “Toward an Access-Oriented Field,” Brian Le Lay and Dan Card (2022) discussed how reciprocity can and should serve as a guiding principle for community-based and participatory technical communication projects. In our capacity-building work with the campus and local community, we arrive at reciprocity as a central outcome of our ongoing project. In envisioning reciprocity as a guide for our project, we follow Bernardo and Munberg’s (2019) definition, which examines how “building trust and reciprocity happen repeatedly over time” and in “how enacting reciprocity extends beyond initial research commitments” (p. 83). As we continue to iteratively build digital content and physical infrastructure for the North Woods in the coming years, we hope to enhance community engagement as we foster reciprocity with the campus and local communities that use the woods through a project that is “mutually empowering” (p. 84). Our project has found purchase in an array of applications and with a wide range of contributors, from students in the Honors Program, Art, Natural Resources Science, and Writing to collaborations with local science communication initiatives and storytelling projects with the Narragansett Tribe and the Tomaquag Museum. The process of creating digital and material infrastructure for these projects is often painstakingly slow, but we find that slowing down and treating this project as an “ongoing conversation” is a crucial part of our project. In our work, we hope to demonstrate the North Woods as a site of innovation and reciprocity that impacts many communities that call Rhode Island home.

At the same time, this project contributes to digital life by complicating and disrupting divides between digital and analog experiences with place, encouraging students and other members of the community to engage with the North Woods through an array of ongoing interactive media projects and class projects. In their similar project, mapping the campuses at Auburn University and The University of Virginia, Charles Lesh and Kevin Smith (2022) described the ways that interruptions to their project were caused by the COVID-19 pandemic. Faced with such disruptions, they demonstrate how rerouting can be an important way to respond to moments of uncertainty and rupture. For NWP, we see these ruptures taking place across a longer span of time as we work to build more accessible experiences for a myriad of user needs. In the next phase of the project, we hope to expand our connections with additional disciplinary and community partners. Building such capacities takes time and significant labor, as we navigate university bureaucracy and limitations at the institutional level. However, working toward such community-based coalitional projects helps to foster and build necessary infrastructures for the future. In doing so, we contribute to more accessible environments in order to sustain momentum toward infrastructural and institutional changes.

Designing accessible projects that engage interdisciplinary perspectives across modalities presents ongoing challenges with ever-evolving benefits. From this initial phase of inquiry into NWP, we find that:

- policies can hinder reciprocity for campus communities, and by utilizing participatory methods, scholars of TPC and design can help resist and reimagine those restrictions and constraints;
- digital, environmental, and community literacies can contribute to more accessible experiences and more nuanced understandings of accessibility—both digital and place-based;
- scholars of TPC and design are well-equipped to flip the script on narratives of digital innovation to reveal new paths towards valuing natural spaces as essential parts of local communities;
- layered and deep approaches to mapping and accessibility can lead to important practices which augment access to sites of field-based inquiry; and
- these approaches can create dynamic projects that benefit a wide range of user’s needs and are better suited to address complex social, ecological, and historical contexts, relationships, and understandings.

Through this emergent and ever-evolving practice, we hope to continue to center the North Woods as an essential part of the local community as well as a locus for innovative and inclusive research and teaching that will be a focal point of the university for many years to come.

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Accessible Sound: Aural Information Literacy for Technical Communication Design

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ABSTRACT  
This article confronts challenges faced by users of technical information with hearing impairments. The increase in digital documents since 2000 has led to multimodal technical multimedia that features aural information (i.e., meaningful sound). However, there is little effort to train technical communication professionals to make audio more accessible. Herein, we share how to use descriptions, captions and subtitles, transcription, and sign language to make sound an accessible part of today’s digital life. We explain using four accessible design elements to address challenges faced by users of digital documentation who cannot hear the information. Ultimately, we support technical communicators seeking aural information justice for all.

CCS Concepts  
Human-centered computing

Keywords  
Accessibility, Sound, Design, Literacy, Justice

INTRODUCTION  
This article provides an approach to addressing aural information (i.e., sound) related challenges faced by people with hearing impairments. We combine an access 1st design approach with rhetorical analysis and four tried and true media design elements to support the accessibility of sound. As such, this technical communication work is dedicated to making information useful and usable. It is our duty to take “a user-centered approach to provide the right information, in the right way, at the right time to make someone’s life easier and more productive” (Society for Technical Communication, n.d.). However, over the past few years in our UX lab, we, like Hutter and Lawrence (2018) before us, found that many multimodal communications—presentations, videos, webpages, interactive web apps, etc.—are anything but accessible. Many millions of people around the world living today’s digital life with hearing loss and deafness do not have access to the information they need from their media.

According to the Digital Life Institute (n.d.), “the impact of digital technologies on humans” is profound, shaping the totality of our daily experience. Technology is an integral part of human life, and therefore its role and performance as a part of life requires continual study. Early digital literacy research from our field (Cargile Cook, 2002; Selber, 2004; Selfe, 1999) began the enterprise of seeking to develop technology literacy necessary to understand and use technology to communicate effectively. Today, over twenty years later, we continue to extend our knowledge of technology as a part of our lives, how it performs communications, and impacts every aspect of human sensory experience.

As we engage in 21st century digital spaces, realms where complex technical documents—central works under the authority of professional and technical communicators—have become multimodal by Palmeri’s (2012) measure of joining text, image, video, and audio together, today’s documents are more fully interactive and embedded with smart-technology and AI enhancement than ever. The task of making these communications rhetorically effective before was complex, but now even designing them is more demanding. Unfortunately, due to this difficulty,
many modern multimodal compositions often marginalize users with disabilities. Not because authors do not want to include everyone, but because little attention is spared beyond making the communication meet the expectations of the digital space. And, even though Yergeau et al. (2013) sought to address the disability problems of these types of spaces a decade ago, proof of their existence is no further away than today’s most used websites where barriers to information access for users with various sensory experiences are seemingly ever-present.

According to WebAIM (2023), this year’s accessibility report on the top 1,000,000 web pages found “49,991,225 distinct accessibility errors were detected—an average of 50.0 errors per page.” The inaccessibility of today’s multimedia, technical or otherwise, is a huge problem. When “96.3% of home pages” have Web Content Access Guideline (WCAG) errors that prevent users with disabilities from getting information they need, as information designers we are appalled; so, we are compelled to do something. As user advocates, it is our duty to ensure access to the information that people need to get the job done (Jones, 2016). Our article supports technical communicators seeking information design justice through creating equitable digital experiences for users living their digital life with hearing loss and deafness by sharing how to make sound accessible for today’s multimodal technical communications.

In this article, we begin by searching prior technical communication research on the needs and challenges users with hearing loss and deafness encounter when they confront audio in technical media. We position studies of users’ access needs alongside scholarship on aural descriptions, captions and subtitles, synched and live transcription, and sign language (e.g., Authôt, 2019; Berry, 2001; Slatin & Rush, 2004; WebAIM, 2020, July 1; Youngblood et al., 2018). Then, we scaffold the use of access-first design approaches (Gallagher & Gallagher, 2024; Slatin, 2001) and rhetorical analysis procedures for sound (Johnson, 2022; Last, 2019) that technical communicators can use to meet the challenges these users face. Thereby, our work provides readers with knowledge of the barriers to accessible sound and responds with clear practices they can use to write aural descriptions, make useful captions and subtitles, provide necessary transcriptions, and offer usable sign-language to improve accessibility. In closing, we offer a practicable design process and research opportunities to help actively advocate for aural information access design in technical communication and facilitate information design justice so every body can live their best digital life.

**AURAL EXIGENCY**

Technical communication publications over the last twenty years have gradually increased the frequency of articles on accessibility and disability. Recently, the field sought a more “generative” view of users with various sensory experiences (Zdenek, 2018) and to be more “collaborative” with these users in research (Hutter & Lawrence, 2018). Also, the field has begun to reconfigure how it conceives of disability justice as part of essential information design work (Bennett & Hannah, 2022). However, purposeful inclusion of users with impairments is relatively new, not to mention difficult, and progressive collaboration for iterative multimodal media design that supports information accessibility continues to be only a small part of our praxis. So, it seems, we are just beginning to face these pain points.

Much to our chagrin, users with impairments that are not readily visible (e.g., hearing loss, deafness, and various neurological and cognitive states) receive the least attention in information and design conversations (Walters, 2010). Meanwhile, scholarship on more visible impairments garner more attention. Sharing this fact is not to say that these more visible users and topics shouldn’t get attention because they should (and more!), but more inclusion and equity in the representation and participation of all users, especially those with “invisible disabilities,” is necessary (Davis, 2005). We want to no longer see linguistic choices like those about our recent appearance in the Society of Technical Communication’s (STC) Notebook blog (Wilson, 2023), which expressed our work as a reminder to the field to not “forget audio content.” To rectify this, the following literature briefly offers exigence for our aural accessibility design research and sets the stage for the collaborative aural accessibility work we demonstrate later.

To date, the previous literature on aural information accessibility in the field of professional and technical communication, as well as in composition, has been relatively small compared to many of the subjects in our major journals. Beginning from Yergeau et al. (2013), we were encouraged to start paying attention to teaching communication via the lens of disability studies—more keenly to attend to users’ various experiences and abilities. This lens concentrated our attention on the various sensory experiences users had in digital spaces, and got us thinking about user involvement during the process of designing communications using technology for digital spaces. Further, it invited us to attend to the needs of people with disabilities during the design process, not as an afterthought or a “retrofit.”

Next, from Butler’s (2018) article, her perspective as a “Deaf instructor of hearing students,” invites readers to consider more closely the sensory experience of a person with no hearing as they navigate the experience of interacting with digital media. Butler posited that we need to challenge the conventions of captioning audio/video media in order to make the experience of that media more engaging, meaningful, and effective, rhetorically. As an inspiration for our work, her recommendation for an “embodied method” of captioning that invites the authors, students in her study, to “infuse captions with meaning” by improving the rhetorical value of the captions through the relationships they have with the other media is masterful; thus, providing a better context and a heightened experience for the user with hearing loss or deafness.

Last, the CDQ special issue “Reimagining Disability and Accessibility in Technical and Professional Communication,” from guest editor Sean Zdenek (2018), offers a collection of four articles all touching on the experiences of disabled users who are marginalized in a multitude of ways while they interact in digital spaces with documents and content. Scholars Zdenek (2018), Huntsman et al. (2018), Garrison (2018), and Gonzales (2018) each inspired us to think about the necessity for our approach to address the issues of accessible sound by going back to basics. That is, their discussions of aural information design across our fields, courses, video media, and multilingual technical content helped us to realize that the design elements we craft should support users with hearing loss and deafness in ways that do not put upon them or come from ableist traditions. The elements should be those most sought after by users with these disabilities, and they should empower them rather than push them to be a part of the hearing world.
To begin working on a design approach, hereafter, we share research revealing the challenges users with hearing loss and deafness encounter. Then, we share how the concepts of access 1st design and aural rhetorical analysis can play a helpful role in designing accessible communication elements. We suggest technical communicators use these approaches and four design elements that the user group reports being comfortable with to begin supporting just access to aural information—aural descriptions, captions and subtitles, synched and live transcription, and sign language.

**AURAL ACCESS CHALLENGES**

Access to aural (or audio) information is important for media designers and users. The importance of accessibility increases exponentially when sound provides critical information. Many types of contemporary technical media—interactive tutorials, training videos, specifications with voice-overs, emergency broadcasts and notifications, and more—use sound to communicate essential information in our daily digital lives (e.g., Häkkinen & Sullivan, 2007; Johnson, 2022; Nagpal, 2020). Therefore, when multimedia employs sound to deliver information without other means of access, users who have hearing loss, deafness, and other aural experiences face unnecessary challenges, challenges designers must address without being self-important or technologically paternalistic (Hutter & Lawrence, 2018).

Addressing these challenges, traditionally, has been from an ableist point of view. As Hutter and Lawrence (2018) have told us, we need to think less about ourselves, less about controlling the experiences of others, and let the users with disabilities tell designers what they want. Firstly, the most important thing to understand is that not every individual with a hearing difference sees themselves as broken or in need of fixing, which many hearing assistive devices assume (Lingo, 2013). For example, the Deaf community in America has a vibrant and rich culture, including its own language that best meets the needs of the community, ASL—American Sign Language (Lingo, 2013). While there is an effort to increase the translation of ASL through technological aids like wireless transmitters on gloves, this technology falls short when used in real life (Lipomi et al., 2017). One criticism of this technology made by the Deaf community is that sign language gloves do not actually increase hearing impaired user access, instead they focus on the “preoccupations of the hearing world” (Erard, 2017). Also, the assumption is made that these gloves translate ASL, as in the whole language, but they only translate the ASL alphabet (Lipomi et al., 2017). So, this technology is fraught with concerns and should not be part of an accessible communication design effort.

In addition to the ASL gloves, the normative cultural insistence on the use of hearing devices, especially things like surgical implants, pushes for individuals with hearing loss or deafness to have them. Many hearing individuals assume that anyone with a hearing “deficit” would surely use assistive technology to solve their “hearing problem,” but that is not the case (Lingo, 2013). In fact, the award-winning documentary *Sound and Fury: Deaf Documentary* (Aronson, 2000) follows the fight of a deaf family to protect themselves and their way of life from ableist culture pressuring them to have their 5-year-old daughter get a cochlear implant. For them, and for many in the Deaf community, assistive technology is not the answer. Instead, careful, equitable aural information design based on their needs and desires is the key to information and disability justice for them.

Further, from the perspective of a hearing person, there is an assumption that hearing assistive technology “fixes” the problem (Compton-Conley, 2015). But, this belief is actually the problem. Hearing Assistive Technology describes devices related to increasing access to sound, which includes items such as the aforementioned cochlear implant, hearing aids, alerting devices, and specialized telephone equipment (Hamlin, 2022). Each device has its own challenges, such as invasive surgical procedure, not working well in noisy environments, and often being paired with behavioral modifications like using speechreading or carefully choosing locations in a room to minimize background noise and reverberation (Compton-Conley, 2015; Hamlin, 2022). All these technologies put the onus of change on the individuals with hearing loss or deafness and not on information designers to meet their needs.

In addition to assistive technologies and their challenges, Daniel Berry (2001), a professional technical information user and subject matter expert who is deaf, says aural information itself is the biggest impediment to information access. As a “hearing impaired” individual (p. 1), Berry iterated growing fear associated with the degradation of information access as aural media elements and technology replace traditionally written media. This fear and the burden of “keeping up with changing technology,” according to Castle (2019), puts “tremendous responsibility...on persons with hearing loss” (p. 6). Additionally, contemporary studies of UX design with the deaf (Hutter & Lawrence, 2018; Mohamad et al., 2021) reveal multiple lingering difficulties technology and aural media outputs create for users.

Based on research by Berry (2001), Castle (2019), Hutter and Lawrence (2018), and Mohamad et al. (2021), we posit users with varied hearing experiences face challenges that include:

- Accessing oral/verbal information
- Apprehending aural effects and notifications
- Parsing the purpose or function of auditory information
- Executing interaction with multimedia elicited by sound
- Gathering all the necessary media information for information integrity

Further, and complicating the interaction of users with technology, Fok et al. (2018) indicated that speech interactions and voice-based smart device controls may be exacerbating issues of accessibility and usability too. Thus, not only do aural outputs require design consideration, but input requirements do as well. So, you may note, there are a number of challenges indicated by users without access to aural information that must be considered by technical communicators designing media, and these users are not especially motivated to adopt technology that might cause more disruption to their lives or create new challenges without much good.

**AURAL ACCESS DESIGN**

Technical communicators designing aural information for access have several media enhancements they may consider and use to support the equitable sharing of audio information. By using aural descriptions, captions and subtitles, synched and live transcriptions, and sign language, technical information and media designers can work toward addressing the challenges users with hearing loss, deafness, and other aural experiences face. In the paragraphs that follow, we briefly define each of these design elements, provide
a scenario of their use for information sharing, and indicate the challenges they can help users overcome.

The first design element is aural description. Aural descriptions, which we’ve based on Johnson’s “aural-visual rhetoric” (2022, p. 374), translate contextual sound information into written information. These descriptions may include defining the sound (e.g., “electric music”), contextual information (e.g., “muffled rainfall”), and information about sound-as-result of an action (e.g., “the door handle rattles insistently”). Also, aural descriptions may include simple icons, like music notes that provide information using symbolic means. Aural descriptions should define sound, explain context, and provide action information when they are used in technical communications like interactive tutorials, video assembly instructions, or even video games or gamified learning modules. In each of these scenarios, aural descriptions can address challenges interpreting mood and atmosphere. They can elicit response or interaction. Or, they can indicate successful completion of an activity. These translations may assist users with varied hearing experiences to address some common challenges. The element may support users’ apprehension of aural effects and access to notifications or interaction effects indicated by sound.

The second design elements are captions and subtitles. Though similar, captions and subtitles are differentiated by purpose and content. Captions, which are “text versions of speech and other important audio content” (WebAIM, 2020, July 1), are used to make audio information accessible for “viewers who cannot hear” (Wallace, 2023). Subtitles, in contrast, are also text alternatives for audio, but do not identify the speaker, describe music or sound effects, and may only translate pertinent dialogue for the viewer. Thus, subtitles are usually geared toward viewers with some or all of their hearing. They are usually used to move from one language to another, rather than one medium to another. In technical communication, captions and subtitles should be used in both live and recorded situations, such as webinars, demonstrations, training videos, and emergency broadcasts. Captions are either “open captions,” —always on because they are part of the recording—or “closed captions,” —text that can be turned on or off by the users of a device that is either live or recorded (Authó, 2019; WebAIM, 2020, July 1). Like aural descriptions, captions and subtitles can help users overcome challenges. The elements can provide access to oral/verbal information and support the parsing of auditory information for use.

The third design element is transcripts. Transcripts are written documents that support the use of audio and video media by users who cannot hear, see, or both. According to WebAIM (2020, July 1), transcripts go “beyond the spoken words, [and] should include descriptions of audio information [like laughter] and visual information [such as someone entering the room].” This definition mirrors Slatin and Rush’s (2004) claim that technical communication transcripts must be a “text version of the audio portion [and] of the video presentation” (p. 406). The combination of aural and visual information must be a readable (notably machine readable) format. This makes transcripts versatile when designing for accessibility and information justice online. Like captions and subtitles, transcripts can be produced live or prerecorded and synchronized with other audio-visual (AV) media. But, as a text, Bennett et al. (2003) pointed out that “errors in transcription can be resolved” later, unlike live captioning mistakes (p. 124) because transcripts are usually in a separate file or webpage. Relevant technical communication situations and media that use transcripts include teleconferences—where transcripts are often machine composed in real-time (like on Zoom)—and for government or organizational conference presentations, which request presenters make transcripts for their work available physically and electronically (like requests by the STC SUMMIT). When transcription is used as a design element, it can address several challenges users with varied hearing experiences encounter. Transcripts can enable access to spoken language, access to aural effects and notifications, support interpreting the purpose of sound in context, and aid the gathering of media information contributing to information integrity.

The fourth design element is sign language. Sign language is “a language of its own” (West, 1979, p. 7). It consists primarily of hand gestures, but also incorporates “facial expression and body language [as] important to communication” (p. 7). “American Sign Language (ASL) is a frequently used language in the United States” (Hutter & Lawrence, 2018, p. 22). But there are other sign languages used around the world (e.g., BSL in the UK, Auslan in Australia, Gestuno for international signing), according to WebAIM (2020, Sept. 25). Even though the inclusion of sign language is not often part of today’s technical communication design, it should be. It is the right of users who are deaf “to use sign language in any given situation” and to have access to an interpreter (World Federation of the Deaf, 2016). In technical communication situations like emergency and disaster management, as well as for breaking news, users who have varied hearing experience, should have access to their language via its inclusion. Just as technical communicators produce localized documentation in many languages, multimedia for educational settings, lectures, and training videos should be made available in a user’s primary language, including sign language, whenever possible. By presenting technical information in a user’s language, sign language can address any of the challenges identified. And, together, these four design elements can be used to create multimedia that improves information access and justice in technical communication. But, to this end, the design work itself must be scaffolded—enter access 1st design and aural rhetorical frameworks.

**Framing Our Response**

Scaffolding the framework for creating accessible aural media from our previous lens of disability studies, we use two praxis-oriented concepts that help support information justice. We chose these concepts because they are practical, practicable, and based on proven theoretical approaches to doing communication work. The two frameworks we recommend technical communicators use are the access 1st design approach (Gallagher & Gallagher, 2024; Slatin & Rush, 2004; Slatin, 2001) and rhetorical analysis (Last, 2019), specifically the process for aural rhetorical analysis (Johnson, 2022). Hereafter, we briefly define this framework and explain how to use access 1st and rhetorical analysis when making aural media. We follow this description with a demonstration.

Originating from Slatin (2001), “access-first design” aims at making website content accessible. “Access-first design” involves the use of accessible design elements—like alt text—for making visual information accessible by students of Slatin’s technical communication class websites (p. 76). It also involves the idea of providing these alternative forms during the design process. Extending his accessibility design work, Slatin and Rush (2004) teamed-up in Maximum Accessibility: Making Your Website More Usable for Everyone to make accessibility a key feature of design.
Technical Communication’s Accessibility Community of Interest

To demonstrate aural access design for technical media, we share life, of deaf users and people with hearing loss.

sound information using the four aural access elements, technical literacy for making accessible designs. Also, working to design aural content rhetorically for its meaning, mood, indications, and this point, we posit that technical communicators must analyze overlooked” in the digital media design of today (p. 380). From informatives…” (p. 379). In these three ways, sound can purposefully three basic rhetorical purposes: decoratives…, indicatives…, and mood” of media (p. 379). Based on Peirce’s (1960) communication “auditory elements communicate information and emphasize the (p. 380). According to Johnson, aural rhetoric considers how is part of media and what it is communicating. Johnson (2022) called this consideration an exercise of “aural-visual rhetoric” (p. 380). According to Johnson, auditory elements communicate information and emphasize the mood” of media (p. 379). Based on Peirce’s (1960) communication strategies, Johnson has illustrated that sound can respond to “the three basic rhetorical purposes: decoratives…, indicatives…, and informatives…”(p.379). In these three ways, sound can purposefully “convey important technical information…[and] should not be overlooked” in the digital media design of today (p. 380). From this point, we posit that technical communicators must analyze aural content rhetorically for its meaning, mood, indications, and descriptive and directive value. This can improve designer’s digital literacy for making accessible designs. Also, working to design sound information using the four aural access elements, technical communicators may improve the user experience, i.e., the digital life, of deaf users and people with hearing loss.

A DEMONSTRATION

To demonstrate aural access design for technical media, we share a recent experience preparing a presentation for the Society of Technical Communication’s Accessibility Community of Interest (COI). The STC Accessibility COI invited us to host a webinar based on our 2022 SUMMIT conference presentation called, “New Era, Same Problem: Making Visual Content Accessible for Visually Impaired Users.” As we planned the webinar, we used an access 1st approach, rhetorical analysis, and an aural analysis-focused framework to support the four access design elements identified by our research.

To ensure information justice in our webinar, we maintained an accessibility 1st design mindset. We chose design elements to make our communication more user friendly for every body and to promote inclusive experiences from the very beginning. With sensory, neurocognitive, and motor awareness, we chose design elements that supported visual, aural, textual, and mobility accessibility. We used:

- Visual descriptions, alt text, and machine-readable transcripts for visual information access;
- Aural descriptions, linked, pre-generated transcripts, and live captions for aural information access;
- Descriptive headings, navigation strategies, and plain language content for cognitive access; and
- Enabled live captioning and sign language translation in advanced software settings to reduce interaction requirements and enhance delivery.

Together these elements met the needs of many audience members, our shared purposes, and the context for delivering the webinar.

Briefly, our pre-presentation analysis of rhetorical situation revealed that our audience would mainly consist of members of the STC Accessibility COI, STEM educators and practitioners, and student members of the organization. Individuals in these target subgroups are likely to have some college experience, knowledge of AV technology, and their digital lives may exhibit a range of sensory experiences by which they receive information and understand meaning in unique ways. They also may engage with the content using an array of system settings and devices that improve their individualized experiences of the webinar.

The purpose of our webinar was to share our research on making visual information accessible using practical theories and basic design elements. Similar to this article, we sought to help other educators, designers, and students create professional, technical media that provides an equitable and just experience of information—in this instance visual information. Attendees were likely to have similar purposes—attending to discover new ways to make their documents and visuals accessible—and/or to learn about the history of the visual accessibility challenges we face in digital design spaces common in STEM.

Turning to the context, the webinar was to be hosted live using teleconferencing software selected by the COI director. Therefore, our presentation was mitigated through that software and its affordances. Using this software, we were able to share our screen, turn on captions, support ASL, provide links to transcripts, and have our materials delivered to attendees through their own devices and operating system settings, while they navigated the software using their own adaptive devices and inputs.

We used all the previously mentioned elements to respond to this rhetorical situation. They were incorporated rhetorically for our audiences so they might share (and achieve) the purposes of our presentation, and they were used to create an accessible webinar.
in the digital context we worked within; however, the following demonstration of our design work in practice only shows how we used aural elements as we prepared and presented our webinar.

Designing the webinar for aural access, we focused on multimedia enhancement. We drafted descriptions of instances where we laughed, paused, or used audio and included them in our live transcription (see Figure 1).

Figure 1. STC Webinar Screenshot Illustrating Aural Descriptions in Captions.

Note. This image shows a slide called “Visual Information Needs for Inclusive Communication.” It provides data from three visual access studies and has two drawings—one of abstract data graphics, and one of a confused person. It is overlaid by a caption that includes an aural description. The image also shows the presenters in the top left of the screen, with a time stamp in the bottom right. (Screenshot taken by authors.)

These aural descriptions made contextual sound information accessible (e.g., our mood, pace, attitude, and atmosphere). For example, we indicated pauses to offer users a chance to digest information and ask questions (as Figure 1 shows). We also included laughing and tonal shifts to invite user interpretation based on mood changes and to cue polling interactions. Collectively, our aural descriptions assisted users to enter the conversation, interpret feelings, and be more persuaded by the content.

In addition to our aural descriptions, we used clear announcements and used high contrast and gain for our descriptive headings (see Figure 2).

Figure 2. STC Webinar Screenshot Illustrating Descriptive Heading Slides. Note. This image shows a descriptive heading slide that reads, “We need a visual accessibility crash course.” The image also shows the presenters in the top left of the screen, with a time stamp in the bottom right. (Screenshot taken by authors.)

Though these descriptive headings and their design are primarily inspired by accessibility methods for users with deafness, low vision, and other neurocognitive experiences, we also used a high gain microphone and took great care for tonal emphasis, volume, and pacing for users with hearing loss as well. We took this level of care with all our slides, in fact, but paid special attention to our powerfully descriptive section headings. In addition to these design choices, all our descriptions of sounds and sections were provided via our transcript too.

Providing a transcript, we decided to write it in advance. We have found that even though most teleconferencing software generates a live transcript that can be shared afterward, we wanted to be able to share it before our presentation. Sharing a transcript in advance gives users the option to read along with a presentation, if they wish. Further, we were able to not only plan our aural descriptions, but to edit all presentation content carefully, use the transcript as a script during delivery, and to distribute it via email and chat as a linked, machine readable web document. Therefore, users had access to the transcript and could read it and compare it to the captions in case of poor machine translation.

Turning to captions, we enabled live captions for our presentation. In Zoom, presenters can activate live captions from the settings menu so users with hearing loss, deafness, or various hearing or neurocognitive experiences can read what speakers say in real time. Live captions are machine produced and may contain errors, so speakers must take care to use a good microphone and to pronounce words clearly. We used live captions to supplement our transcript, in case users wanted to see the presentation full screen and not have multiple open windows to read the separate transcript. Also, in advanced settings, speakers can enable live sign language translation. But, even though we enabled live sign language for our presentations, we do not know sign language (ASL or otherwise, yet). However, having this setting enabled allowed us to invite an attendee who does know sign language to be assigned the translator role. Then, users seeking sign language translations can have access to the transcript via a window in Zoom.

In summary, our planning and use of aural descriptions, online transcripts, and live captions made our webinar more accessible for every body and supported disability and information justice in action. We hope this illustration aids understanding how to perform aural accessibility design advocacy too while making accessible sound.

MOVING FORWARD, MEETING MORE NEEDS

To conclude, it is our hope this article helps professional, technical communicators advance their digital literacy so as to better meet more users’ needs, especially users who need more aural information access to improve their digital lives. Together, as a takeaway from this work, we must remember to CRAFT aural information as follows:

• Create aural descriptions of sound that define it, put it in context, and illustrate its relationships in specific rhetorical situations;

• Reveal spoken and aural attributes in situ by providing live and recorded captions and subtitles to translate information from one media and/or language to another;

• Articulate the audio (and video) into machine readable
transcripts that can be used by every body before, during, and after a media experience;
• Face the need to translate documentation into written, spoken, and sign languages during localization;
• Trust the users (and challenges) to direct and participate in the access 1st design process.

Using our access 1st approach, conducting rhetorical analysis, and using an aural design framework by exercising CRAFT and collaborating with users to design aural descriptions, captions and subtitles, transcripts, and sign languages promotes inclusion, equity and disability and information justice for every body.

Going forward we want to point out that taking any first step toward accessibility is hard and can be disorienting; that is the nature of new experiences. Like UX research, accessibility design work is messy and we cannot fall into the trap of thinking that what works for one user, works for all users. Because of this challenge, beginning access 1st design can be fraught with apprehension, hesitation, and fear, fear that we may make mistakes that will result in censure or ridicule; and we will, we are learning. But, we can’t let that stop us from trying to do the right thing.

We should learn from our limitations, assumptions, and mistakes. We can refine, adjust, and improve our CRAFT by working with and for every body. This work, just like our article, has limitations and requires more research. For example, some of our data is dated, some research did not collaborate with users with aural access challenges, and best practices work like our CRAFT recommendations require testing to establish their validity. Therefore, we call on readers to pick up where we began and to work alongside us toward establishing disability and information justice in professional and technical communication.

To start, we can study how the four design elements support access in different media platforms. We can examine how design beyond these four elements can ensure aural access beyond documentation (e.g., wearables and haptics, Operating Systems (OS) and Progressive Web Application (PWA) visual notifications, and for AR/VR immersive/spatial audio cues). We also need to address the new Artificial Intelligence (AI) elephant in the room to discover how AIUI, or Artificial Intelligence user interfaces, can enhance accessible interactions for disabled users of devices, but we must do so mindfully aware of AI’s emerging challenges and limitations (Gallagher, 2024). Last, we must conduct user testing to discover the impact our approaches have (access 1st and aural rhetoric) to create new empirical data to support future scholarship.

In closing, this article seeks to provide an approach to addressing aural/sound-related challenges and how to respond to those challenges by combining access 1st design, aural rhetorical analysis, and four tried and true design elements that support the accessibility of sound. We believe that this knowledge and collaboration with users can help professional and technical communicators expand their accessibility efforts and improve their CRAFT. When advocating for users with hearing loss, deafness, and varied hearing experiences, technical communicators creating today’s multimodal digital media must strive to design information for disability justice (Bennett & Hannah, 2022). This article is just another step along the path toward inclusive information design necessary for today’s digital life.

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The Digital “Good Life”: The Limits of Applying an Ethics of Care to a Company “Running with Scissors.”

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ABSTRACT
This article explores the challenge of implementing diversity, equity, and inclusion literacies in popular buyer persona platforms such as HubSpot and FlowMapp. Drawing on a practitioner interview with a public relations and marketing director, Dr. Danielle Feldman Karr, this article contextualizes Feldman Karr’s efforts to revise her design team’s internal buyer persona construction process to better engage DEI issues. This article considers the successes and challenges of applying an ethics of care informed by Graham’s Black feminist ethics in order to analyze how designers think about “the good life” (flourishing) in persona redesign.

CCS Concepts
Social and professional topics

Keywords
Ethics of care, Buyer personas, Ethics, Diversity

INTRODUCTION
This article emerged from an ongoing conversation among a practitioner who was earning their MA and then PhD in technical communication (each at different universities) and a group of academics through our shared interests in ethics in technical and professional communication (TPC). For this particular article, these conversations were about the ethics of buyer persona design and design justice. Part of this article will draw on the authors’ empirical interview data with Dr. Danielle Feldman Karr, who gave permission to use her interview responses. Feldman Karr is the current Director of Public Relations & Events and Engagement Marketing at Snap One, a large smart technology product and services company with 1500+ employees. She has led buyer persona and design teams at Snap One and at previous companies for a decade. However, this article is a hybrid text since Feldman Karr is both a subject of analysis (an interviewee) and a co-author. To help the reader understand the distinctions among questions, answers, and co-written sections, each has been styled differently: questions are in bold, Feldman Karr’s answers are in italics, and our co-written sections are in normal text. This article will also seem idiosyncratic in that literature review and ethical commentary will be interspersed among the text, as appropriate to Feldman Karr’s answers. Her answers have been edited for clarity with her input.

Some additional framing and definitions will help readers with what follows. Ethical literacy, which Cargile Cook (2002) defined as “a technical communicators’ knowledge of professional ethical standards” (p. 15), is a start. However, professional ethical standards are not necessarily ethics more broadly. Thus, we intend to extend Cargile Cook’s definition to considerations of ethics that are not just in professional standards to include virtue ethics, care ethics, and Black Feminist care ethics. We define the similarities and distinctions among these frameworks in the Black Feminist Ethics of Care section. We selected a hybrid approach to perform some of the complexities of translating nuanced industry contexts to academic journals and, in turn, academic ethical models and article genre writing expectations to industry contexts. As we
endeavored to draft a traditional academic article, we found that our undertaking frustratingly cut critical contexts from Feldman Karr’s insider perspective as a practitioner-scholar who has been an advocate for diversity and inclusion in the workplace. As such, this hybrid academic article represents a compromise that the authors agree best enables readers to gain insight into how the authors have collaboratively sought to grapple with ways to apply ethics and literacy scholarship to design practitioner contexts.

**What problem did you see in the workplace that really helped spur your interest in academic approaches to ethics?**

“When reading through my company’s newly released personas several years ago, I was struck by something concerning: of the five personas that were being presented, the only technology-negative quote in the persona lineup was attached to the only female persona. Personas are often used in multiple departments across a business for strategic positioning, and their framing can have influence across many areas of a business. I was studying ethics in graduate school at the time, so that ethics-driven perspective made me more attune to notice the disparities. I went to the team that had created the personas to voice my concerns, and they were extremely apologetic and grateful I had raised this issue to them. They had used a common, standard process of development for the personas and had tried to be thoughtful in their design—even including a female persona for the first time in the company’s history. We discussed the quote, the methods used which got them to that quote, and then explored how looking at the survey feedback they had used to develop the personas through a different lens could lead to a different perspective.

This issue and process struck me: Here was a gender-diverse and racially diverse team of people who cared about inclusivity and equality, and yet they still reached the end of a personas development exercise with a quote that stereotypically and negatively oriented women with technology. In the best-case scenario, this persona would have been ignored because internal teams did not find it useful. In the worst-case scenario, this persona would have perpetuated negative associations of women and technology into product development, marketing, and sales. This situation left me wondering: What kind of framework could enable practitioners to still move quickly, as we are always doing, while simultaneously empowering them to move more considerately and reflectively when developing professional communications?

This example demonstrates two things: 1) how challenging successfully implementing DEI can be in a fast-paced active work environment, and 2) how easily people find themselves simply repeating what is considered standard practice or what has been done before—regardless of the strengths or weaknesses of the process. These habits directly tie into the struggles any kind of organizational change faces—but they also reveal the opportunity for change. I believe being able to successfully enact change within a company that creates more aware and intentional processes is the path to eudaimonia—the good life—as a professional, but the way forward is much more complex than is initially perceived.”

**BUYER PERSONA RESEARCH IN TPC**

Buyer personas (Figure 1) in user experience and user interface (UX/UI) design take segmented audience data and “humanize” it into a relatable caricature for designers. Personas are a popular form of industry literacy because they can create a connection between the internal design team and the audience in order to simulate empathy with customers and imagine their potential needs. Designers have increasingly employed digital platforms like FlowMapp, HubSpot, or in-house platforms to develop audience personas. These platforms are spaces in which UX/UI literacies are created, negotiated, and reinforced and are an “invisible” part of infrastructures that Star (1999) and Frith (2020) have called upon us to study. Figure 1 shows a FlowMapp (2023) mockup of a problematic technophobic gendered customer persona, similar to the one Feldman Karr describes above [note: the original is proprietary and we are not able to share it].

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These design platforms represent a missed opportunity to help designers expand their digital literacy through diversity, inclusion and social justice frameworks.

Others have previously engaged the ethics of buyer persona work in TPC (Friess, 2012; Getto & St.Amant, 2015; Melonçon, 2017). Notably, Melonçon’s (2017) call to include more embodied and cultural dimensions in persona design. Designers will likely struggle to realize the ethical dimensions of persona design when many free buyer persona constructions apps like FlowMapp and Hubspot follow a design strategy that has not significantly changed since the late 1990s, when personas originally rose into mainstream corporate popularity (Cooper et al., 2007; Humphrey, 2017; Turner & Turner, 2011). In this process, designers are not prompted to question their research methods or ideological assumptions throughout the promoted reflections on the audience. Following Noble’s (2018) critique of Google’s search engine algorithms, popular buyer persona construction interfaces are only as equitable as the research inputs, processes, interactive templates, and cultural literacies of the design teams developing them. If the cultural literacies of a design team presuppose gender and racial stereotypes, even unintentionally, the results will inevitably contribute to discrimination and unnecessary exclusion of marginalized individuals and userbases. In
the context of this special issue’s interest in literacy and the “good life,” we make the case that we cannot have a digital “good life” as end users or designers until design literacies are revised through better ethical frameworks that allow marginalized identities and user bases to flourish.

Therefore, we use Feldman Karr’s insider perspective to suggest productive ways to redesign HubSpot’s Make My Persona interactive walkthrough template and design tool. We draw on an ethics of care lens because Feldman Karr did when intervening in her workplace. Care has been raised by multiple TPC scholars (Colton, 2016; Colton et al., 2017; Colton & Holmes, 2018a; Lancaster, 2018; Feldman Karr, 2021; Walwema et al., 2022), who often cite care ethics theorists such as Tronto (1993, 2013). We also build on Feldman Karr and our own ethical thinking to explore how to articulate care differently as it is experienced and practiced by persons of color (Collins, 2000, 2020; Hankivsky, 2014; Lane, 2018; Raghuram, 2021). In particular, Makeda Graham’s “black feminist ethics of care” (BFeCoC) usefully recognizes differences among women that might shape alternative intersectional perspectives about matters of care for individuals in a company, as well as their clients (Graham, 2007): “care flows through interconnectedness with others [. . .] and is maintained by caring both in the individual sense and as a collective endeavor” (p.1).

From your industry experience, are DEI beliefs at large companies difficult to change? If so, then could you tell us about what you have seen that can make change difficult?

“One of the most difficult things to do as a leader in industry is to enact change within an organization. It is so challenging, in fact, that if you’re at a larger company, oftentimes there is a person in the business dedicated to helping leaders enact change in their organization (i.e., Change Management). There is a widely circulated sentiment in organizational change management that when change fails, 60-70% of the time it is due to employee resistance (see for example, Ewenstein et al., 2015). In my own career, I have personally experienced team members and stakeholders actively resisting change—to the point of people sabotaging or quitting their jobs, staying in a broken process, or even missing out on career advancements due to this resistance.

In my experience, sometimes people resist due to the potential loss of power or control that will come from a different way of doing things, or because it will require them to change in a fundamental way. Or they resist out of anxiety that comes from the unknown (I’ve heard the saying “but it’s the devil we know” thrown out more than once in a meeting). However, a fourth reason, and I argue the more common reason, that people resist change is because they simply cannot contextualize a new path forward because of the ingrained habits of stakeholders. Efficient habit formation is a praised skill in many organizations, with habits being passed from manager to employee—often without question. These habits take the form of business processes, ways of interacting with other employees, presentation styles, and more. I believe that the majority of the time DEI challenges in the workplace stem from this fourth reason rather than from a more nefarious reason.

My virtue ethics research during graduate study (IRB2022-134) alongside my time in industry has helped me understand that individual habits align and build to form collective habits, and those collective habits turn into organizational structures and processes within a business (Feldman Karr, 2022). Structures and processes are passed along and maintained, even carried from one organization to another, and it can be hard to question the structures and processes when everyone is moving quickly trying to complete the tasks that the structures and processes enable. I had a colleague once describe working in industry as everyone being given a pair of scissors and told to run—we need the scissors to get our jobs done, but sometimes we trip and hurt ourselves or others in the rush. In this analogy, structures and processes are the scissors we need to accomplish tasks, and the harm often comes from people moving too quickly without giving proper attention to the “scissors” themselves. When it comes to DEI specifically, I think an important point to realize in order to further DEI is that most people believe in the concepts of DEI—and even try to implement it, as was the case of my personas example—but struggle in navigating the uncharted path forward to develop a new process that enables DEI.”

**HUB SPOT AS LITERACY IN THE CONTEXT OF FLOURISHING**

One way that DEI concerns remain unquestioned may be due to the fact that popular persona creation tools tend to focus on functional persona creation over raising any self-critical analysis about the type of research or data that might go into the former. For example, HubSpot.com is a developer and marketer of software products for inbound marketing, sales, and customer service (HubSpot, 2023b), and, in addition to its software services, HubSpot provides practitioner education and tools related to the industries its software supports. One of the tools it provides is a persona generation tool (Figure 2). This personas development tool utilizes the traditional approach to personas development, focusing on the creation of a fictional archetype to represent a segment of the customer base.

HubSpot has a tutorial and a persona generation tool as displayed in Figure 2.

![Figure 2. Screencapture of the HubSpot’s Make My Persona tool.](https://www.HubSpot.com/make-my-persona)

Clicking through the prompts under “Learn More” on the left side of the website in Figure 2 allows users to download The Ultimate Guide to Buyer Personas (For Beginners) (HubSpot, 2023a). The guide is 24 pages and has five chapters, including one chapter entitled “How to Research Buyer Personas.” HubSpot’s recommendations in the Research chapter (Chapter 2) are general and aimed at non-expert readers with advice such as “Buyer personas are created through research, surveys, and interviews of your target Audience” (2023a, p.9). For interviews, the Guide recommends reaching out to existing customer bases with advice such as “Reach out to both...
‘good’ and ‘bad customers’ to get a balanced perspective” (2023a, p.10). Notably, the words “diversity,” “stereotype,” “culture,” “bias,” or any other content related to diversity in research study design is not featured or mentioned.

The omission of any cultural content in the Guide is a bit ironic considering that the interactive walkthrough shown in Figure 3 appears to be an indigenous person’s avatar. Other possible avatars to select include a Black American stroking their beard. In other words, whichever team designed this app and Guide was aware of a need to reference diversity, but not at the level of the consumer demographic research or buyer persona design, other than an imaginary “this is what the person looks like” idea. Of course, as countless race rhetorics scholars have established, race and diversity are not just about skin color.

The larger problem lies in an absence of explicit directions to raise awareness of diversity at any point in the persona construction tool. The interactive buyer persona construction tutorial begins with an optional Walkthrough with 7 Steps [note: this is their language. We are mindful of the able-ist connotations] to prompt the persona designer to “humanize your buyer persona.” On Step 2, shown in Figure 3, the app explains why more details that humanize a persona are important:

![Figure 3. Screen capture of the interactive template tutorial in HubSpot’s Make My Persona tool.](image)

The walkthrough step instructions state: “Collecting demographic information about your buyer persona allows you to paint a clearer, more personal picture of your customer” (HubSpot, 2023b). However, the only two query inputs are about age and gender. The default template inputs are rhetorical (Gallagher, 2015). Furthermore, behavioral economists (Thaler, 2015) have noted that most end users fail to interrogate default or preset choices such as when an online home insurance quote calculator presents a list of 4-5 coverage options. End users are primed to think that these are the only options available whereas they could negotiate a much broader range of unique coverage if they would call into the company to speak to a customer representative.

An “Add New” prompt is available on the design screen interface that follows the walkthrough. In other words, the user has to make an independent and voluntary decision to care about marginalized research concerns or values not because the company is intentionally excluding them, but just because the default normative assumption about users’ needs for this system are stratified invisibly by structural racism. To be clear, one could make the case that these default settings participate in structural racism (Walwema et al., 2023). Well meaning designers like those on Feldman Karr’s team might not intend to participate in such structures. However, Walwema et al. (2023) have argued via Kendi (2015) that not actively engaging in dismantling structural racism can be seen as equivalent to participating in structural racism.

Interfaces such as HubSpot are a popular interactive UX design template, and as such, contribute to a UX infrastructure that creates and shapes literacies. While we appreciate how the guide and interactive templates make calls for research, there is a disconnection between the need to qualify the type of research as well as when HubSpot makes a claim like (on the main website):

> “Learn about the particular needs and goals of the buyer, think authentically.
>  
> • Create personas by combining both types of information to create an accurate reflection of the user.”

It is critical to question what the call to “think authentically” means for HubSpot users or for marketing teams like Feldman Karr’s when diversity is not queried or prompted within the system or the design and research workflow. What it means once again is that users and designers will be able to continue to ignore any existing biases and stereotypes as the unquestioned norm of default for epistemological constructions of users. Thinking authentically is not the same as being enjoined to think critically or to question one’s own identity assumptions or privilege. Here is where a missed opportunity for literacy construction in buyer persona research exists.

TPC scholars like Cargile Cook (2023) have long drawn on the concept of literacy to inform effective technical communication and assessment. Literacy grounds writing skills and knowledges in social contexts beyond just language and has also been accompanied by an explicit mandate to train and educate “responsible citizens and ethical workers” within their communities (Wahlstrom, 1997, p. 130). For Wahlstrom (1997), functional literacy in TPC cultivates “ethical agents of change” and an engaged citizenry (p. 130). Building on Wahlstrom (1997), Cargile Cook (2002) articulated “six layered literacies” to engender functional literacy (p. 24), which in turn led to further articulations of “multiliteracies” (Selber, 2004, p. 192) in which Selber focused on computing and digital literacy and how being functional in those multiliteracies would facilitate wider systems change. Regardless of these expansive definitions of literacy as they pertain to TPC, it remains the case as Cargile Cook (2023) noted, that the kind of literacies “gained through extended practice within specific cultural settings” cannot be narrowly captured by the ability to read and write (p.172). Moreover, literacy is itself fraught with undertones of “superiority” as originated in the sensibilities of Western cultural superiority, which implicitly brands those who lack dominant literacies to be deemed illiterate and therefore unworthy of “the good life.” Those who are perceived to be illiterate are marginalized and stereotyped and can be systematically disenfranchised (Jones & Williams, 2018).

Literacy can connect to “the good life” for end users who are operating apps like HubSpot. If an opportunity to cultivate a habit of effective, substantive and meaningful DEI research and practices is not part of the interface, then two things happen: a) Black and non-white designers and epistemologies cannot be understood as equal or as part of the system at all (therefore, they have no ability to thrive in that space) and b) white designers have no ability to cultivate habits of DEI and inclusivity that would then create more opportunities for non-white designers and epistemologies to thrive. Understanding the “good life,” or what flourishing means, is critically important part of an app design. In Design to Thrive, Howard (2009) made a compelling argument that it isn’t enough to
just design effective or beautiful interfaces and platforms; instead, the ways in which users interact with a given app or website needs to help them flourish in that space.

While Howard is not thinking of an ethics care or virtue ethics per se in that book, Christiansen and Howard (2017) clarified later that *habitus* is at the core of flourishing in platform design. They argue that we can and should do more as a field with the connection between flourishing, habitus, and design. Bourdieu’s *habitus* derives from Aristotle’s *hexeis* and virtue ethics. The end result of virtue ethics is *eudaimonia* (flourishing, happiness, or well-being). Briefly Aristotle’s virtue ethics explores how different virtues and vices are cultivated through the semi-durable ethical dispositions (*hexeis; hexis*) that we build through our interactions in embodied ecologies and environments over the course of our lives. A virtue or “good behavior” that might lead toward the good life can’t be a single ethical or unethical behavior or action. This confusion is common. Markel’s (2001) and Dombrowski’s (2000) respective introductions to virtue ethics, which are central ethics in TPC readings, tend toward such a narrow reading where good actions seem like semi-random characteristics of good people or only lenses for after-the-fact analysis of a single ethical dilemma. By contrast, it is the presence of structures in a society, community, or online buyer person design app that give individuals opportunities to cultivate good virtues as an ongoing habitual disposition that are important and not evaluating whether a given action is virtuous in isolation. An honest person is not honest because we can choose a specific moment when they have clearly acted honestly instead of dishonestly; instead, a society views persons as honest when they have cultivated a disposition through repeated opportunities to act honestly or dishonestly and, furthermore, that they see the cultivation of these virtues as being encouraged by the community or platform instead of discouraged. If literacy is tied to citizenship, then the virtues are the ethical habits that help to establish the continuum of behaviors that contribute to ethical and unethical forms of citizenship.

Flourishing can only emerge through the opportunity to develop virtuous habits in a user interface, social network, or non-digital community. Our *hexeis* have to flexibly but enduringly shape our patterns of action within a golden mean. Importantly, virtues can have no end but themselves. If we add diversity features to an app like FlowMapp because the government has passed legislation to do so, this end might be a good consequence, but the means would be that our actions are motivated by fear of external consequences. We are not actually undertaking a good action because we know that it is a good thing to undertake good things. The ethical obligation is not necessarily to promote any one particular virtue, but to produce any sort of TPC texts or interfaces that allow users the opportunity to cultivate good ethical habits, such as justice (Coltecn & Holmes, 2018b).

One of the key characteristics of flourishing is that it is a result of the pursuit of virtue for its own sake. In truth, we cannot identify a fixed set of characteristics that would show us reliably how a number or even a single person was flourishing. Yet, we can certainly show when external means are motivating or compromising an individual’s ability to self-rationalize/pursue virtue or to find them within a community. While definitions vary, a lack of diversity within UX research lacks generosity; it over taxes the mental health of non-white individuals; it produces so many unnecessary ends as means before someone can get toward cultivating other virtues like empathy in client satisfaction or design. There aren’t any structures that create meaningful opportunities to think about how diversity relates to design in comparison to the other habits that are created, which therein increases the labor or emotional stress in having to step back and determine how to incorporate those features in a way that we don’t with others. This is how apps cultivate or don’t cultivate habits of flourishing. By comparison, an app that accounts for diversity or a research cycle that builds from diversity as a central feature rather than a superficial concern offers all users the ability to start creating or refining the ethical habits related to design or perseverance or “technomoral virtues” (Vallor, 2016, p. 1) of communicating with clients through digital and multimodal means of the app’s products. Having these concerns as part of the design cycle or app offers individuals the chance to cultivate habits related to generosity (in some ways, racism as a vice is a profoundly oppressive form of selfishness since it fails to recognize structural oppression in the Other) (see Benjamin, 2019)

What does this flourishing mean for literacy in TPC? As Davis et al. (2021) observed in their article, writing aims to develop in students the ability to critique “often unseen systems of power” (p. 44). These systems are often embedded within the infrastructure that supports the workflow. Moreover, as digital, mobile, wearable, and immersive platforms proliferate, so does the need for digital literacy (Davis et al., 2021). As scholars have argued, literacy for TPC assumes ethicality or “making informed choices and decisions about digital behavior” (Traxler, 2018, p. 4). In other words, competent communication and ethical communication “have closely intertwined meanings” (Smith, 1986, p. 575–576). Indeed, as Miller (2020) posited, the question of effective communication is one of both ethos and ethics; “of character, communicable norms, and rhetorical action” (p. 445).

Therefore, as we consider living the digital good life, ethics and ethos are a necessary literacy that cannot be decoupled from effective and efficient communication in digital platforms and elsewhere. Personas are a feature of digital spaces. And digital spaces were not created with marginalized people in mind. Because whiteness and maleness are considered the default, experiences that mirror/reflect whiteness and maleness pervade digital spaces (Noble, 2018; Sweeney, 2013). This spatial limitation is carried over from the material world in which multiply marginalized people were often in the service of whiteness and functioned behind the scenes never to be seen or heard from and certainly never to have their needs considered (as Graham, 2007 has shown). If more and more services and forms of interaction are taking place on digital platforms, then we need a literate public that can decipher … read and understand the platforms so they are not operating in the dark. Given the role of buyer personas in enhancing UX in TPC, a functional digital literacy can help “take the user experience to a new and better place” (Lund, 2006, p. 2). To that end, user/buyer personas, a way of representing users and a stand-in for advancing user needs within a given interface, have to be imbued with values such as justice, equality, respect. Therefore, accounting for users’ goals, motivations, and frustrations serves an important function in determining the technical dimensions of a service or product, given that ethical values can motivate or constrain user decisions.

While our ethical literacy discussions remain focused on DEI, specifically gender and race, it is important to note that any ethical framework to explore ethical literacies necessarily should consider a broader range of marginalized user populations. For example, readers could examine commercial buyer persona construction platforms to determine whether the age and respective technology
needs of their users is a superficial or substantial consideration for designers. Older individuals who have received job retraining in marketing and might be seeking to enter the workforce could likely benefit from more introductory tutorials or scaffolding than is present in HubSpot. Accessibility and disability representation is a clear concern for ethics of care scholarship. We could use care to determine whether the needs of the deaf community or sight impaired are addressed by the design of the user interface or within how buyer persona default avatars are presented or framed. Accessibility concerns also include neurodiverse users which are seldom reflected in mainstream commercial design apps. Identities are intersectional, after all, and the limited customization options in buyer persona design platforms can play an important role in affirming or undermining prevailing identity and cultural hierarchies.

**Do popular buyer persona platforms like HubSpot and FlowMapp play a role in this workplace problem that you found with technology-negative buyer persona constructions?**

“What buyer persona platforms like HubSpot really demonstrate is the standard process that is used to develop personas in companies today. Smaller companies may actually use HubSpot to develop personas, but even if a company is developing their personas in-house with a team—they are still most likely using a similar process to the one that HubSpot demonstrates. This way of thinking about, engineering, and designing personas to be used for a business is structurally flawed when it comes to trying to incorporate meaningful DEI changes and demonstrates the habituation around a process—even if it is foundationally problematic—that is abundant in industry that can make change difficult.

In the HubSpot example, if someone were to move through the prompts looking at them through a DEI lens, they would see that while the prompts offer some diversity in their options in terms of being able to select tokenistic persona avatars, they inherently miss opportunities to interact or prompt users to reflect on more meaningful DEI research or to interrogate bias as part of the actual structure of the structure designed. The way HubSpot proposes diversity opportunities doesn’t draw attention to the system itself when what really needs to happen is a reflection on the processes that are accepted as standard. That is the danger of processes—people can spend their time shuffling around the different parts trying to create a better outcome, when what really needs to be explored is the limitations of the accepted framework. Processes can often be the cause of an issue, but if you’re only focused on trying to address the symptoms, you can miss that root process issue that needs to be addressed.”

**You were in the process of earning your PhD when you started to simultaneously address some of these problems in your workplace’s team. Could you describe the persona design team you were studying/working with? What type of ethics framework in academia did you seek to draw on?**

“The team was actually diverse in every way—when it comes to demographics, we had a variety of ages, genders, races, and sexual-orientations in the group. I found that a really curious point in the study because oftentimes any kind of DEI issues are implied to be the result of lack of diversity in the development. I do agree that diversity in the workplace is important, and studies support that companies with a diverse workforce are more successful; however, I believe from my experience in this study that it isn’t the sole solution to successful DEI implementation. Everyone holds unconscious beliefs and biases, as these biases stem from the brain’s need to organize the world by categorizing; however, often unconscious bias harms by creating structures of exclusion. Raised awareness and intentionality during audience and content development is desperately needed, no matter who is performing the development work. It is important that teams are empowered with tools and guidelines to enact DEI rather than simply putting the burden on minorities or individuals to inherently understand how to successfully implement DEI and change management initiatives within an organization. I was drawn to ethics of care as an ethical tool to help prompt teams with reflections when working through projects due to the situational nature of the ethical framework.

Ethics of care emphasizes the importance of caring within human relationships and tries to find solutions to relational ethical dilemmas through ways that minimize damage and emphasize care. It defines the people who are at the center of the decision and those in close surroundings as those most vulnerable to choices and their outcomes. These individuals are most affected by the decisions made in those situations, and, therefore, they deserve more weight to their voices and extra consideration in regard to the outcome. Tronto, one of the leading care ethicists, established five ethical elements of care: attentiveness, responsibility, competence, responsiveness, and caring with. These rules of care guide how ethical care can be enacted and implemented. Using an ethical care framework, I defined “care” in my research within professional contexts and for professional audiences as an active assemblage of moral mindfulness, responsibility, compassion, effort, and engagement enacted by the actor towards those affected by an action. Other diverse ethics of care philosophers have added to those elements of care a focus on historical and contextual consideration in the situational framing of an ethical dilemma and its effects/effects. While they draw on more social caregiving situations in their examples, I applied the contextual considerations to a professional setting—adding context consideration as an element to Tronto’s list of elements of ethical care.

These elements—attentiveness, responsibility, competence, responsiveness, caring with, and context consideration—when applied and reflected on throughout a process redevelopment, have repeatedly enabled me and the teams I’ve worked with to visualize new methods of moving forward that better cares for both the internal stakeholders and the end audience in a way that can center on DEI considerations in a more thoughtful way. For example, with the personas project, the team was struggling to interpret the feedback they had received from the women they had interviewed. When the development team was prompted with questions framed through ethics of care concepts (e.g., “How have women been included or excluded from technology in the past that might be impacting their experiences or our perception of their experiences?” or “What are these women hoping happens from the feedback they’ve provided us? How can we ensure that comes
across to the internal teams?”), then they were better able to reflect on the development process itself and the impact it could have on internal and external audiences. The workplace is such a situational landscape made up of unique assemblages of human and nonhuman actors—individuals, teams, processes, audiences, technologies, structures—that it needs a situational ethical theory, and I proposed ethics of care, to help provide the toolkit needed for meaningful reflection along any development path in an organization.”

BLACK FEMINIST ETHICS OF CARE

In response to the first interview question above, Feldman Karr has asked her own interview question: “What kind of framework could enable practitioners to still move quickly, as we are always doing, while simultaneously empowering them to move more considerately and reflectively when developing professional communications?” One way to extend Feldman Karr’s interest in care for diversity is to explore Makeda Graham’s Black Feminist Ethics of Care, which usefully recognizes how differences in cultures can shape intersectional perspectives about matters of care for individuals in a company, including clients. Briefly, care arguably emerged in two ways: 1) as part of virtue ethics; and/or 2) a feminist specific response to masculinist impulses both in philosophy proper, which neglected theory from non-male perspectives, or virtue ethics in the West which tend toward individualist modes of virtuous excellence.

So how do we get from virtue ethics to black feminist ethics of care? Virtue ethics is one major ethical framework common across different cultures’ ethical traditions from sub-saharan African Ubuntu to Confucian zhi. Virtue ethics explores how different environments and socio-political structures work to shape individuals’ ethical habits—their semi-durable practical capacities for ethical reasoning—over the course of their lives. The connection to the “good life” lies in the idea that if society (or a digital online community) offers enough structures to enable individuals to form virtuous habits (of patience, honesty, generosity, justice, etc.), then individuals will have the ability to flourish. For virtue ethics philosophers, it is the ethical disposition that motivates a given action rather than the end it brings about or the means used to obtain it that makes an action ethical or unethical. Care ethics emerged out of a related but distinct set of concerns over the gap between the wide range of cares that all of us require or give to others to survive from birth and eventually flourish.

Following from Tronto, ethics of care came to privilege care, practices of giving and receiving care, and critiquing and advocating for normative modes of existing care—especially as certain identities were forced into certain limited caregiving roles like nursing and teaching. Key to Tronto’s work is her argument that any ethics of care recognizes that inequality is a precondition for care. In turn, and herein lies the link to virtue ethics, the recognition of this inequality is—implicitly—a way to cultivate a reflective mentality of a virtue of justice. Tronto has called attention to care as an ethical practice because it was neglected by the philosophical tradition’s largely masculinist emphasis on rational and logical approaches to realizing ethics instead of through concrete sites of embodied affect and identity. Virtue ethics (like care) does not promise any universal ethical axioms to establish permanent hierarchies of correct and incorrect conduct. Instead, virtue locates ethics in everyday behaviors and actions on a case by case basis, which is why we see care as emerging out of a similar set of concerns.

Similarly, many in TPC who have invoked Tronto and ethics of care may not realize that care is not an easy or automatic route toward a more equitable society, and in fact, an ethics of care will never assume that some form of action fixed things in some permanent state. Tronto wrote, “inequality gives rise to unequal relationships of authority, and to domination and subordination. No society exists without such relationships,” even if that society is built on an ethics of care (p. 135). Care is not going to be a perfectly universalizable or institutionalizable set of practices. Instead, it is an ethical disposition, a literacy, and a set of embodied practices that require constant adjustment to the circumstances at hand.

As such, Graham’s work offers a useful corollary to Tronto and other uses of ethics of care because Graham offers an intersectional approach grounded in ethnicity and the lived experiences of Black women British caregivers. A researcher who focuses on caregiving professions, Graham has noted how Black women healthcare practitioners were given more physical labor and low skill intensive tasks that did not allow them to advance their careers in the same way as their white British women peers. Graham has demonstrated this by focusing on vulnerability, a key term in care ethics (Cavalerio, 2009). Care ethics recognizes that all people are vulnerable but that such vulnerability changes with context (from child’s needs to a teenager’s needs, for example). Degrees of vulnerability are also not consistently recognized by all audiences depending on racial hierarchy and privilege. If the cultural presuppositions at work in a given organization don’t consider certain experiences, then some individuals are not allowed vulnerability at certain moments without risking a negative perception, and the care they will require goes ungiven.

As an example, Graham pointed to the narrative of the “strong black woman” as possibly beneficial in some contexts but failing Black women when they require care. That “image not only neglects the reality of individual lives but also fails to consider their human vulnerabilities and limitations. In this context, and quoting Beauboeuf and Lafontant (p. 46), Graham argued, “the strength discourse normalizes struggle, selflessness and internalization strategies that compromise the health of black women” (as cited in Graham, p. 201). Practices of care are not universally good, and our cultural presuppositions about race, as well as disability, age, gender, sexuality, and other intersectional considerations can actually lead to attempts at care-giving that cause harm or perpetuate inequalities rather than alleviate them. The ways in which who counts or doesn’t count as an audience or an end user are discursively figured and provide the conditions for literacy assumptions, as well as structures that do or do not encourage behavioral virtues and vices. Graham’s point is analogous to a set of concerns identified by TPC scholarship on marginalization and illiteracy (Jones & Williams, 2018). Those who are not recognized in the assumed forms of literacy may continue to be erased even if a diverse design team is not specifically seeking to exclude them.

When scholars fail to notice the unique care oppressions specific to Black women, even if they focus on relationality rather than hard and fast principles, then care’s application in scholarship and industry still privileges white and western ways of practice. This, for Graham, seemed contradictory to care ethics’ value in relationality, vulnerability, and specificity of stakeholders. Thus, she convincingly pointed out that “care flows through interconnectedness with others and the universe and is maintained by caring both in the individual sense and as a collective endeavor.”
(p.1), and that any commitment to collectivity and relationality must recognize and prioritize cultural differences.

However, applying Graham’s work is not easy, as it adds another layer of ethical literacy considerations to a UX redesign idea. For example, imagine if Step 2 on the demographic template on HubSpot was followed by a new slide 3 redesigned from a perspective of care:

“It is important to be aware of cultural and cognitive biases in buyer persona research and design. You should be aware of available resources at your company or by DEI organizations for making sure that survey samples or interview processes do not exclude important diversity considerations in your cohort.”

Could any of the traits that you have assigned to this persona possibly be construed as stereotypes in relationship to culture (disability, race, sexuality, gender, ethnicity)?

Does the data that you and/or your organization are employing make any stereotypical assumptions as well?

Have you sought to amplify diversity while minimizing bias in data collection methods to inform a buyer persona concept? Would all or most customer identities be satisfied with their ability to see themselves represented in your overall buyer persona designs?

Note: such omissions might be unintentional, but they could limit or mischaracterize your customer base. HubSpot recommends consulting additional resources in customer assessment metrics to ensure that an equitable and representative form of market segmentation has been employed.

This redesign slide functions similar to how Feldman Karr intervened in her workplace with a care-driven heuristic to improve buyer persona literacy practice negotiation. Part of any starting place in shifting from viewing design or technical communication beyond an apolitical skill or technique lies in literacy: connecting definitions of culture and public rhetoric to the contingent and often limited ways that diversity is understood and enacted with HubSpot’s token diverse avatars as a case in point.

Drawing on an ethics of care or a BFEoC to temporarily address this issue is perhaps a first response, especially as we consider Feldman-Karr’s “running with scissors” analogy. An intervention like the one above may at minimum give pause to the persona designer with regards to DEI concerns; however, we should be clear: if the goal is to fully integrate ethical literacies related to DEI (such as ethical, critical, and rhetorical) into persona design and other user experience practices, it is not enough just to add a revision to one phase. As Graham argued, if we want to consider intersectionality in an ethics of care, we cannot simply rely on “add-on approaches” to fix any problem (p. 200). This shift introduces a deeper problem. We must consider the conditions of capitalism that encourage quick movements and quick fixes (especially with respect to shareholder demands and stock value for large publicly traded companies) to the detriment of deeper, more substantial solutions.

One undeniable takeaway from Feldman Karr’s interview answers is that the research process into buyer personas needs to be fundamentally restructured and rethought if ethical literacies related to DEI like the kind Graham would advocate for are going to be baked into that process. However, reaching that point in an institution that seems to require “running with scissors” is challenging if not impossible. Colton and Holmes (2018a) have argued via Ranciere that any permanent socially just state is not permanently attainable because hierarchies of power and value will always reform (some more equitably than others) in any institution. They argue that we may need to think of social justice as an active process that requires continual revisiting and redesigning.

Feldman-Karr’s team clearly did not intend to participate in any type of structural sexism or racism and actually appreciated diversity initiatives in the workplace when challenged on that topic. The team appreciated Feldman-Karr bringing this to their attention despite not connecting this interest or understanding to deeper structural problems with race in American design and marketing culture. Realizing this fine grain paradoxically frees designers and TPC scholars to open themselves to a continuum of institution and platform changes from smaller scale interventions like the one we hypothetically suggest above to medium but still localized solutions like the heuristic that Feldman Karr’s discusses in the next section—even as we recognize that such an intervention is not a permanent solution. In other words, what the four of us might think of as a fix for flourishing and improvement on literacy might not be sufficient for Graham or other marginalized users.

How would an organization’s approach to using something like HubSpot as a UX design tool look differently when applying these principles? How would Graham’s work or ethics of care more broadly inform a redesign? What would need to change?

“I developed an in-house design heuristic (see Figure 4 below) to prompt my team to ask new questions as they were developing buyer personas with the following steps. To be clear, I did not require them to believe the same things that I did and I did not make explicit political recommendations. Instead, my goal was to inject some reflective points into an otherwise functional design research and construction process:

Step 1: Developing Understanding of Audience

- Stage of Experience: How do we meet them where they are at?
- Engagement Qualifiers and Thresholds: What are they currently doing?
- Additional Segment Considerations: Which behaviors or vulnerabilities connect them?
- Needs, Understandings and Pain Points: Where are they being held back or need support?
- Consideration of Processes and Other Influences: What external or internal processes/influences (human and nonhuman) are affecting audience development?

Step 2: Developing Engagement with Audience

- Audience-Led Desired Engagements: Where do they want to
literacies from informing a buyer persona construction guide? In metaethical: what ethical frameworks and motives prevent ethical and productive. Feldman Karr with Graham make us return to the and by good we mean both ethically good, as well as efficient the unquestioned presuppositions that govern “good” practices— is that ethics of care offer a conceptual method of expanding on What Feldman Karr describes and what Graham helps us analyze

CONCLUSION

What Feldman Karr describes and what Graham helps us analyze is that ethics of care offer a conceptual method of expanding on the unquestioned presuppositions that govern “good” practices— and by good we mean both ethically good, as well as efficient and productive. Feldman Karr with Graham make us return to the metaethical: what ethical frameworks and motives prevent ethical literacies from informing a buyer persona construction guide? In turn, what ethical frameworks enable their supplementation or reinclusion, and what practices and values might or might not be best for applying them? Feldman Karr notes that studying more formal scholarship in ethics and TPC, as well as social justice scholarship, has helped provide a conceptual vocabulary to help revise research practices in her workplace. Her team is now creating and affirming new ways of articulating values in buyer persona literacy construction.

What we believe is useful for academics regarding Feldman Karr’s experience is her attention to audience adaptation. Using the terms “ethics of care” or “Black feminist ethics of care,” for example, might not be effective in industry workplaces with practitioner audiences who are not graduate students in technical communication and who do not have the educational history to support such discourse. Instead, it is likelier that employing these frameworks implicitly to ask practitioners about which audience are or are not cared for (i.e., present within and, if included in a demographic market segmentation survey, how are they included?) and to create an obligation not to act—at least not yet—but at least to be prompted to see the literacy infrastructure for what it is or is not. Merely changing the default settings can be transformative, as Feldman Karr changed the research and design defaults in her company’s team. Going back to the running-with-scissors analogy Feldman Karr mentioned, this is an appropriate mode of intervention in a fast-moving space that is not typically accustomed to being challenged on issues of diversity.

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Writing in the “Twilight Zone” and Lessons for Inclusive Design

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ABSTRACT
Digital life for older women seeking employment includes several hurdles. Their stories and experiences illuminate the range of pressures they’re experiencing (e.g., societal, economic) and the negative emotions that accompany those. Their challenges illustrate why some of their digital tools are hard to work with and how they can have a negative impact on them. Two women also named internal dialogues that may also influence their experience with digital tools and may prevent them from having the confidence or desire to develop their digital literacies further.

INTRODUCTION AND LITERATURE REVIEW
Almost 20 years ago, Lippincott (2004) advocated that technical and professional communicators “write and design for the communication needs of older people at work and at leisure” (p. 157). Unfortunately, as Smith (2022) noted, older adults are still often overlooked in journals that publish technical and professional communication (TPC) scholarship. Lippincott’s initial call asked scholars and practitioners to draw from scholarship from other fields focusing on older adults and to advance our understanding of the ways in which older adults interact with computers and the internet. From the perspective of 2023, and with what we know now about how reliant society would become on digital tools and going online to make it through a global pandemic, we know we need more insights regarding older adults’ experiences with digital literacies and digital tools.

We would do well to learn from older adults with a range of intersecting identities. When we look for the stories and experiences focusing on older women and digital technologies in TPC, for example, they’re almost nonexistent. This understanding of audience is needed because these perspectives are so frequently overlooked. The rising number of older adults in our society (Mather & Scommegna, 2024) and our increasingly digital lives are also important reasons for learning more about these perspectives. We are often directed to go online for services, coordinating healthcare, ordering food or groceries, keeping up with the news, maintaining ties with loved ones, and managing finances. We need to better understand the emotional dimensions around using digital tools and applying for employment that have been impacting older adults. These can help us to design more inclusive digital tools and methods of communication for everyone because these emotions are universal.

In support of creating more inclusive design experiences, my study carves out a place for considering how older women use technology for employment-seeking purposes and how emotions impact that experience and influence their digital lives. With that, we can
continue to create digital experiences that are more inclusive and
cognizant of the ways in which users approach their necessary
digital life work.

The findings I share are part of a larger project related to older
adults and their professional writing practices as they sought
employment. In this article, I report on the negative emotions that
arose from my analysis of participant interviews regarding their
job search and writing process as well as the negative emotions
regarding the necessary digital tools they use for this writing. I use
a modified grounded theory approach to analyze my interviews and
will present two of the categories that emerged for over half of the
participants. To situate my findings, I review literature on efforts
to examine aging and design within TPC scholarship, as well as
scholarship outside of the field. I also discuss scholarship on digital
literacies to set a foundation for thinking about the challenges my
interview participants faced in doing their professional writing for
employment and the implications of these findings for researchers,
practitioners, and teachers. My study aims to shed light on what it
means to do professional writing in digital contexts as an older adult
and how negative emotions are present in that experience and can
be additional obstacles for achieving one’s goals and developing
one’s digital literacies.

AGING AND DESIGN

Lippincott critiqued technical communicators for not paying closer
attention to the needs of older adults. One of the challenges presented
to TPC practitioners and scholars was to look at a range of sources
to “ensure that our audience analysis and documentation design
accommodate older adults’ physical, cognitive, and emotional
needs” (p. 157). As Lippincott noted, other fields were doing
important work on aging and design that should be considered.
Smith (2022) pointed out that this work remains, noting the limited
number of full-length technical communication articles published
on this topic in the past few decades.

Smith (2022) contributed to this understudied area by conducting an
analysis of older adults completing structured tasks online, which
revealed valuable insights for how to make digital experiences
better for people (e.g., looking into users’ values and motivations
for using digital tools, constructing critical information literacy
tools, or developing a better understanding of mental models that
users have). Kirksecey (2021) has also published on methodological
approaches to evaluating a mobile health app where older women
experiencing osteoporosis were one of the stakeholder user groups
interviewed for building personas to later develop and assess the app.
Kirksecey’s findings with this group pointed to challenges using the
app that involved cognition, physical movement, motivation, and
visual perception, and advocated that researchers should account
for the “embodied, structural, and attitudinal barriers” (p. 210)
of all mobile health app stakeholder-users, including the people
supporting older adults in using the app. Kirksecey heightened our
awareness for the different elements of older adult user experiences
that should be examined.

Past scholarship has also documented design barriers older adults
encounter when using digital tools. In a community literacy setting,
McKee and Blair (2007) detailed digital tool cost and access
distance and transportation to a public computing site), one’s
physical body (arthritis or aging eyesight), and the fear of harming
the computer or of looking foolish. Community technology center
tutors have mitigated barriers due to technology conventions by
providing visual and audible representations (Tofteland-Trampe,
barriers influencing how older adults are actually able to use their
digital literacies once they have them. Ultimately, less privileged
adults are more likely to use digital tools for tasks related to
enhancing their financial security. Taken together, there are a range
of persistent barriers older adults encounter when they need to use
digital tools. TPC scholars need to expand the scope for examining
user experiences with these tools.

Across these studies that directly address older adults and

technology use, I focus on calls for scholarship addressing emotional
needs (Lippincott), values and motivations for using digital tools
(Smith), and attitudinal barriers (Kirksecey) as a way to advance our
understanding of the complex nature of digital literacies and how
best to design digital experiences that will enhance people’s lives.

As discussed in the next section, research in adjacent fields,
especially outside of the United States, has addressed the
intersections of older adults and technology, which is what
Lippincott observed in 2004. Exploring the existing literature
from around the world that centers on the intersections of older
adults, technology use, and emotional experiences reveals missed
opportunities for TPC scholarship. Turning to this interdisciplinary
work examining older adults’ lived experiences with technology
and TPC work is necessary because TPC has neglected this as an
area of focus.

THE INTERSECTIONS OF OLDER
ADULTS, TECHNOLOGY USE, AND
EMOTION

It is not uncommon to see scholarship describing the benefits
of technology use generally, and as Francis et al. (2018) noted,
more scholarship on older adults and technology use is starting
to be published. For example, digital technology use has been
demonstrated to help reduce loneliness and depression for older
adults (Barbosa Neves et al., 2023; Lee et al., 2021). In recent
years, a number of studies outside of traditional TPC publications
have addressed some of these emotional dimensions of aging and

technology use.

Some of the positive impacts of digital technology use for older
adults involve using them to mitigate feelings of loneliness and
depression. Barbosa Neves et al. (2023) explored loneliness for
older adults in Australia who experienced loneliness before the
COVID-19 pandemic and how they navigated a lockdown during
the pandemic. Digital technologies were used as tools for fighting
loneliness and were most advantageous when they had meaningful
interactions over video calls and social media with loved ones
such as “gaming online with grandchildren or helping them with
homework via video” (p. 127). Lee et al. (2021) also found that
using digital technologies can benefit older adults with depressive
symptoms who are lacking social interactions, and Seçer and Öykü
Us (2023) investigated how digital games can be used as a way
to have fun and relieve stress for older adults. There are obvious
benefits to digital technology use in some cases, and perhaps these
more positive emotions are likely to result when an individual has
the digital literacies to support these interactions.

Yet, not all digital technology use results in positive outcomes
for users, and there is room to expand our understanding of how
negative experiences with digital technologies may be impacting
older users as well. While some scholars have started exploring this (Francis et al., 2018; Nam et al., 2023; Nimrod, 2018, 2022), we need to continue this work and further examine some of the major implications of having negative experiences that are part of our digital life, like pursuing employment. The idea of “technostress” has been talked about in literature since the 1980s and is something that should be revisited now in light of the stressful experiences shared by my interview participants.

Nimrod (2018) credited Brod (1984) for coining the term, technostress. Brod explained that it captured one’s “inability to cope with new computer technologies in a healthy manner” (p. 16 as cited in Nimrod, 2018, p. 1080). Since that time, other scholars have updated the definition, and Nimrod credited Tarafdar et al. (2007) with its most recent definition. As Tarafdar et al. (2007) stated, “Technostress, therefore, is one of the fallouts of an individual’s attempts and struggles to deal with constantly evolving ICTs and the changing cognitive and social requirements related to their use” (p. 303). This definition importantly points to the ever-changing landscape of using digital technologies. Keeping this in mind will allow us to better recognize the stress impacting digital technology users in different contexts, especially those who are older. This is important because this stress may result in digital technology avoidance or errors when using particular technologies. With so much of our lives existing online, not being able to participate online has major consequences and further marginalizes an already overlooked population.

In a related but slightly different context, Nam et al. (2023) also explored some of the negative outcomes of digital technologies. They examined negative emotional responses to an interface design of a self-service technology system at a fast-food restaurant in South Korea. They analyzed emotions associated with stress such as social anxiety and helplessness. Overall, they found that a simple interface design allowed older users to feel more “in control” (p. 11) and that negative emotional responses to an interface might be assuaged by a system that users believe to be easy to use.

These studies remind us that stress and technology use are associated and that user experiences are not always positive. We still need more work in this area within TPC contexts, especially with what is at stake for the people seeking employment later in life. Their digital lives directly impact their life overall, because for some, not being employed means losing opportunities for financial stability, health insurance, opportunities for engaging with society, and a sense of purpose. This is why developing the digital literacies to support one’s goals is so important.

DIGITAL LITERACIES

Having access to adequate digital tools and having strong digital literacies are both necessary for composing job applications today. The demands of one’s digital literacies for fully and critically participating online are high. TPC scholars have documented this changing landscape over time, illustrating how digital literacy is not a static state. Because of this, one’s ability to remain digitally literate requires continual maintenance and development.

In just over two decades, early definitions of digital literacies remain relevant. Yet, they benefit from added nuance due to technological advancements and cultural shifts. For example, in the early 2000s, Gurak (2001) gave a nod to Gilster (1997) for advancing the concept of digital literacy by saying that it refers to both knowing “how to use the tools” (p. 27) and “that digital literacy is literacy of the performance sort” (p. 27). Gurak then added that the idea of “cyberliteracy” means carrying a lens of “concepts and critical views with which to understand today’s internet” (p. 3).

Most recently, Davis et al. (2022) pointed to the array of definitions and frameworks that technical and professional communicators have developed to highlight the different levels of literacy, citing Hovde and Renguette (2017) for organizing these approaches into, “functional, conceptual, evaluative, and critical levels of technological literacy” (p. 46). In Davis et al.’s (2022) own work, they emphasized the importance of the rhetorical situation for being digitally literate, stating, “Attending to the rhetorical situation facilitates consideration of context and the ways that literacies operate” (p. 46). This attention to the rhetorical situation is useful because it allows writers to better design messages and experiences that will align with their audiences and unique contexts. It highlights how it is not enough to be able to use a tool (e.g., desktop computer, keyboard, or smartphone). Rather, one must be able to envision how the artifact produced from using those tools will be received and interacted with by potential audiences. There’s an anticipation of the audience’s experience that is underscored.

With the rhetorical situation and this longer history of digital literacies in mind, it is no wonder that accessing and using digital tools to apply for employment brings about stress. There are several dimensions to consider pertaining to one’s audience and their contexts. Furthermore, a new dimension of being digitally literate involves the ability to be aware of “technostress” and develop tools to manage it so that users can produce the types of texts and experiences that will allow them to achieve their goals within the scope of their digital life.

Given the extant scholarship and calls for research regarding older adults and technology use, my scholarship responds by bringing the emotional experiences of applying for employment online later in life to light.

METHOD

My work on this project evolved out of what I had started noticing in my data while working on a larger study that focused on digital tools and learning how professional writing happens for older adults when applying for jobs online. When coding and doing analysis for that project, I noticed that emotions were expressed as my participants relayed their experiences trying to secure employment. At the time, I did not focus on emotion, and did not have this as a frame in mind for seeking out data on emotion, as I was developing other categories. However, I took note and eventually revisited my data to gain a more in-depth understanding of how emotions were interacting with this important writing. When I returned to my data, I had a research aim of better understanding how emotion was taking shape for these women as they completed their professional writing (e.g., resumes, cover letters, emails, LinkedIn profiles) for their employment. I then intentionally went through my transcripts and selectively coded for emotion so that I was able to see how emotions were appearing.

As a result, I had a goal to examine the emotions that came up for my participants around the process of their job search, their writing for application materials, and their use of digital tools as they worked to secure employment in 2019. My guiding research question was, what emotions do older adults experience as they use digital tools and write for their job search? The following

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method section outlines my participants, data collection, analysis, and limitations.

PARTICIPANTS
My interview participants were adults ages 50 years and older who were actively seeking employment and visiting my community partner site as a resource for this process. In 2019, I recruited participants and interviewed 12 women in person. I report on my findings with 10 of those women. I connected with a community partner in a major urban area of the Midwestern United States, which I will refer to as Employment. Employment is a site people can visit to take classes on preparing for and participating in their job search, use a computer, and/or meet with consultants for help on written materials or a job search strategy. This organization is open to the public and serves a range of people, from veterans looking to transition to new careers to those who have experienced job loss. Visitors to the site may have little to no higher education and others are professionals with advanced degrees and years of professional leadership experience. All people are welcome. Employment is one site of many available to people living in this area. My study was approved as exempt by my university’s institutional review board.

DATA COLLECTION
I advertised my study at Employment in a few different ways and used convenience sampling to recruit participants. I sat at a table in the lobby to talk to visitors about my research goals and the interview process as they stopped into Employment. In addition to this, I circulated a flyer at Employment introducing myself, explaining the motivations behind my research, and interview question topics (e.g., resumes, completing online applications, emails, using smartphones or computers, notes, calendars, and to-do lists for their job search process). Employment staff members teaching courses at the site also allowed me to visit their classes in person to give elevator speeches about my research, and when I was unable to make an in person visit, Employment teachers would talk about my project and invite participation in their classes for me. From June until August, and over the course of 10 visit days, I spent anywhere from two to four hours at Employment trying to recruit and interview participants. There were some days that I did not have any interviews. Most of my time was spent at Employment in July when I was able to conduct eight of the interviews over the course of six visit days.

I typically interviewed participants in the consulting rooms off the main lobby of Employment, but some interviews occurred in the main lobby. My interview questions focused on interview participants’ job search experience, writing practices, and devices that they had used when working on their job search. I also asked questions about advice they would offer others who were working on a similar job search, and if they had anything else they wanted to add regarding their writing or technology use.

DATA ANALYSIS
For analyzing my interview data, I used a modified grounded theory approach (Charmaz, 2006; Glaser & Strauss, 1967). Emotions emerged from my initial open coding of incident by incident (Charmaz, 2006) when working on a different project. For example, in my interview with Kathy, I noted her following statement, “when I started out searching, it was kind of depressing because I had been at this company for like 2 1/2 years and they just let me go.” I labeled this as “Feeling depressed because let go after being at a company for 2.5 years.” I marked such incidents when they stood out at the time, but I did not give my full attention to emotion until I returned to my data. I then reviewed 10 of 12 transcripts due to time constraints.

When I returned to the 10 interviews, I started by selectively coding for emotions that appeared for the first six interviewees in relation to one’s job search, job search writing, and digital tools. An example of emotion expressed for one’s job search included: “Actually, there was quite a few of us in there and we all felt the same [about a job seeker class held for those 40 years+]. So that was very helpful.” (Carol). This was coded as “Being in community was helpful.” An example of emotion for job search writing was: “as an older person that’s still thought, well I still have for sure three or four years left in the workforce, it’s frustrating” (Judith). This was coded as “It’s frustrating to still have time to work.” For emotion related to digital tools, an example included: “I hate LinkedIn” (Sherry). This was coded as “I hate LinkedIn.”

When looking over those codes and comparing them, categories emerged for positive (e.g., “Being in community was helpful”), negative (e.g., “It’s frustrating to still have time to work”), and neutral emotions (e.g., “Is processing the transition”). Due to the sheer number of negative emotions expressed, I was interested in pursuing those. When looking at all of the negative emotion codes, I decided to divide them into two different themes as a way to start organizing them. One theme was negative emotions for “digital tools” and another was negative emotions around “job search and the process of writing materials for job search.” From there, I categorized negative emotions for digital tools into the following four categories:

- Tool is hard to use: “But they don’t have the ergonomic keyboards, which I’m used to do.” (Carol)
- Participant feels like a burden: “so and my kids are still my IT guys. They hate it when I call. You know?” (Judith)
- Participant digs at own intellect: “A smart TV, and a smartphone, just not smart parents to run it.” (Judith)
- Participant is embarrassed by the tool: “Yeah, yeah didn’t know it was going to that and it was just horribly embarrassing.” (Sherry)

This process allowed me to better understand what shape these negative emotions were taking. After my analysis of these first six transcripts, I noted which dimension was occurring most frequently (“Tool is hard to use,” where three of the first six participants reference this experience) and then selectively coded for that code within the final four transcripts. Overall, six of 10 participants referenced this experience.

My approach for categorizing negative emotions around “job search and the process of writing materials for job search” was the same. As I analyzed the codes for negative emotions around the job search and writing process, I sorted codes into the following seven categories for the first six participants:

- Experienced the Twilight Zone: ‘I figured it’s kind of hard to get back out there, so today I feel little confidence.” (Kathy)
- Frustrated to still have time left: “as an older person that’s still thought, well I still have for sure three or four years left in the workforce, it’s frustrating” (Judith)
- Part of job search is slow (overall process, cover letter): “Slow. It’s been slow” (Sherry)
• Hated cover letters: “So I hate cover letters. It’s like do people really read cover letters?” (Sherry)
• Job search was overwhelming: “It’s been a little overwhelming.” (Carol)
• Felt disconnected to job search as a task: “I want to know. See that’s the disconnect that I have with this job search [in referencing preference for face-to-face communication and not relying on technology to get her questions answered; technology is only one of her sources of information].” (Edith)
• Doubted ability: “And I had some help because I’m not really good like prioritizing the resume. Which order it goes and somebody could read them.” (Kathy)

The experience of the “Twilight Zone” appeared for four of the initial six participants. Because this was the most frequently appearing dimension, I went into the remaining four transcripts and selectively coded for “Twilight Zone.” Ultimately, seven of the 10 women referenced this type of experience.

This process allowed me to uncover the negative experiences these women were encountering around the digital tools that they were using to do this professional writing for employment. While my interviews were varied and useful, there are ways that my research is limited as well.

In terms of my own positionality, I was someone entering a community space with a lot of privilege. I was employed as a professor and was potentially someone that visitors to Employment may not have been comfortable speaking to. In addition, I was asking these visitors to have a conversation with me about how they were going through what was likely a very vulnerable time in their life. For these reasons, there may have been some people who chose not to participate. I also was limited in the range of people from whom I could learn. It’s possible that the people who visit Employment in the first place may be unique to others who are seeking employment (e.g., more likely to use resources or willing to ask for help, confident in sharing their story or experiences, had accessible transportation, or available to visit Employment during daytime work hours). As a result, I may not have heard from those who are also seeking employment but who did not visit Employment and who may be differently situated. While I spoke to a range of women, some who presented as white and some who presented as women of color, I did not inquire about the intersection between their professional writing for employment and their racial identities, which limits our understanding of how identity may be influencing writing decisions and processes and future research should address. Next, I will expand upon the negative emotions my participants expressed about their job search writing as well as those for using their digital tools.

RESULTS
One of the most striking observations from these women’s stories was how frequently they talked in negative terms about their experiences with preparing their written applications materials and maneuvering online. The emotions conveyed in their responses about their job search included feelings of being overwhelmed and worried about their age. When discussing digital devices, such as the smartphones and computers that they use, they also expressed frustration about the obstacles they were encountering, including the limitations of working on a phone and the challenges of navigating LinkedIn. After noticing the number of negative experiences, I wanted to examine these specifically. My results section is broken into two parts where I detail the negative emotions expressed about writing for the job search and negative emotions expressed about their digital tools.

Writing for the job search prompted reflection and insecurity, and one participant likened the experience of applying in her sixties as entering the “Twilight Zone.” Overall, nine of the 10 women expressed negative emotions around writing for the job search. The theme that emerged most frequently within these negative emotions was that of being in the “Twilight Zone,” which seven of the 10 women mentioned. This referred to negative experiences with the job search and not always feeling as if they were being taken seriously, that they were lacking confidence in themselves, and that they felt discouraged about the process. This “Twilight Zone” experience was named by Judith. She captured the experience of this transition involving a lack of belief in herself (and others her age) in the workplace by stating:

And I don't want to be checking and scanning out groceries, and I don't want to go back to retail that, you know, my weekends are now dedicated to working and I don't-- it is a what do they call it, it's kind of that, uh, the Bermuda Triangle. What do they call is, the something zone. It's like the uh… the Twilight Zone. Yes, the Twilight Zone, just that it's like, okay, you know? "You're in a situation that you think maybe isn't real. You've entered the Twilight Zone” [in a movie voiceover voice]. No, you've just entered your sixties.

Naming the experience as having entered the “Twilight Zone” evokes a sense of unfamiliarity and disbelief around this new reality where she doesn’t feel as credible or taken as seriously as a job candidate. Judith went on to say that this feeling doesn’t just apply to her:

I think, a lot of people feel. It's like, there are so many people out there with so much talent and yet, you know, uh, they're using it - a lot of 'em in different ways, a lot of 'em still like their job and hang onto it, but I know a lot of people that are little by little pushed out, too. So, the workforce is getting... it's getting tighter.

These experiences of losing credibility or feeling pressure to avoid being “pushed out” of the workforce is one I saw echoed in the experiences of several of the women I talked to. Six more told me about their experiences. For example, Alice, who was 62 years old, noted the new persuasive challenge that existed for her and others over 60, stating:

I mean, people don't want to put a lot of investment in somebody who's then going to retire. I mean, it's one thing to be 55, but now you get over 60, yeah. And and the question is what are you bringing to the table that the 45 year old doesn't bring?

She illustrates the perception shift and pushing out that people experience as they age. This awareness likely contributes to one’s lack of confidence in securing a desired position and makes the process of applying that much harder.

Writing in the “Twilight Zone” means pausing to assess one’s new reality and noticing the landscape of being unemployed later in life, often not by one’s choosing. It involves dealing with insecurities and fluctuating confidence, regardless of one’s professional and
eductional background. Alice expressing doubt in herself, as a physician with years of leadership and consulting experience, reveals how common lowered self-confidence can be in this situation.

All of these women were navigating their way through this reality. And unfortunately, the dimensions of being older and dealing with perceptions of others is only part of the larger landscape and challenge of securing employment later in life. The digital tools and digital literacies required to craft and submit applications are more important today than ever. As the women I talked to revealed, this is another source of stress and negative emotional weight that only adds to the existing pressures they are experiencing.

NEGATIVE EMOTIONS EXPRESSED ABOUT DIGITAL TOOLS

In addition to expressing negative emotions around writing for the job search, six of the 10 women described negative emotions surrounding the digital tools they were using. They used words like “annoying,” “frustrating,” and “exhausting” to describe their professional writing experience. These negative emotions can be organized into three categories: a.) the frustrating physical dimensions of a digital tool; b.) the participants’ lack of knowledge for conventions around particular applications; and c.) the cost of digital tools.

Digital Tool Physical Dimensions

Judith referenced some of the frustrating physical dimensions to using a smartphone for this type of work and explained how she needs a larger device to apply for jobs:

> Yeah, my eyes are too bad to be able to see that.
> It's, to me a phone is frustrating to try to work on.
> I need a surface with a keyboard versus a - my thumbs don't work like my kids' thumbs work.

Carol preferred using a desktop but found it frustrating to use a keyboard at Employment that does not match what she has at home: “But they don’t have the ergonomic keyboards, which I’m used to so.” Carol feels like typing on a non-ergonomic keyboard negatively impacts her accuracy. She isn’t used to the feeling of that type of keyboard and has greater comfort with her own and noticed this in taking a typing test to maintain her skills: “I don’t feel them [the keys] as accurate…With the typing test, for instance. So I think that kind of made me, ‘Okay, I need to do this more often.’”

Edith, who had not searched for a job in over 30 years when I had interviewed her, lamented needing to use her phone for her job search because her laptop was not working. She explained that she has to coordinate how far in front of her face her phone should be in order to read what’s on it, and how that is “annoying.” She went on to say, “And then trying to get it to go to the sideways where it’s fine. My phone doesn’t always do that depending on what site I’m on.”

Beyond doing important writing or editing work on a smartphone, Helen also said that browsing company websites can be hard on a phone, too, and that sometimes the buttons on a site are not as easy to use as they would be on a larger device:

> To go to the next page, yeah, you know, just trying to figure out how to get to that next page that it might have an arrow. So those are like some functionalities that I think that are just not the best to try and work on [while on a smartphone].

For Joan, having a larger screen reduces her stress, but it is also necessary due to the types of glasses she wears: “I like to have a a nice big screen and be able to um see all of it at the same time instead of you know kind of having to scroll up and down and having to enlarge it and you know with the bifocals.” In addition to managing the physical features of digital tools, my participants also explained instances that impacted their participation in online professional writing contexts negatively.

Application Conventions

Understanding the conventions around using particular applications was problematic for participants as well. For Sarah, some of the conventions around using her email account to keep up with correspondence for jobs was challenging and made emailing difficult. She ended up having to create an entirely new email account because she was unaware of the ways to reset a password, and likely did not have a recovery email account set up so that she could retrieve a password that way. She explained:

> I had it flipped so my password was my e-mail. My e-mail was my password because I have identical basically and so I yeah I got confused and yeah…I had two interviews at a company but like I said I gave him my old e-mail address and…I lost my password and and I I tried every single one that I could think of and I couldn't not think of it.

From Sarah’s experience, there are elements of interfaces, like email, that can be challenging to work with if the user does not have more advanced digital literacies. She was unable to determine where to enter in the correct information and ended up needing to create a new account. She also struggled with losing a password, which prevented her from receiving an email, had she advanced in the application process. Without having the digital literacies to reset her password, instead of trying a range of options, she was unable to intercept a potentially important message about her employment.

For Joan, working within a word processing interface to adjust formatting was frustrating. “I struggle and get very frustrated with um formatting and and the bulleting process and indenting and trying to make sure everything is even.” Joan had a concern with participating in newer communication platforms as well. For example, learning to use LinkedIn effectively was daunting. Sounding exasperated, she said, “And so that’s another one where it’s like [sighing] oh how much am I gonna have to type in there.”

Composing emails, a resume, and profiles are common professional communication genres, and as Sarah and Joan illustrate, these forms of communication can be stressful and also impossible if users lack the necessary digital literacies to complete them. Being able to afford digital tools is another barrier to participating online.

Digital Tool Cost

The cost of digital tools is a prohibitive factor as well. Edith’s laptop was not working at the time of the interview, so she was reliant on her smartphone. Sarah could no longer afford her own computer and explained, “I used to have my own computer, but it was just getting too expensive and I just couldn’t afford it anymore, so yeah, well.” The price of digital tools can influence tool access and some tools are more conducive to particular writing tasks than others. Participants were not always able to use the tools they desired.

Overall, using the digital tools necessary for the job search was annoying, exhausting, and costly. These older women didn’t always have an easy time using new variations of a tool, like a
different keyboard, because it created an unfamiliar experience. Others had challenging experiences going to smaller sizes of a keyboard or screen because their bodies or assistive technologies, like bifocals, were unable to interact with the interface in ways that were productive for them. Furthermore, my participants didn’t always have the digital literacies to make their writing easier, such as navigating a password reset sequence or formatting bullet points. The maintenance costs of digital tools was problematic for some as well.

The implications of these barriers to using digital tools is costly, too. As Joan explained, professional writing for employment is high stakes because a lot can hinge on an appealing application. Joan needed a job with benefits and felt pressure to create compelling, audience-centered job materials, stating:

I had been subbing the last year, and with subbing you don’t get benefits though and so I’m getting hit with the big premiums for um health care. Um, and not a lot going into my retirement either. So, um, now I’m becoming, these things are stacking up and it’s like more and more, it helps me focus on the fact that you need a full time job and you need one with benefits.

As I’ll discuss next, these barriers extend to how participants may approach their digital literacy development in the future as well. Feelings of being an inconvenience to family members who offer technology assistance and feeling embarrassed about a public error made on LinkedIn could keep older technology users from asking for help or using certain digital tools. Ultimately, these experiences could prevent them from fully participating online, which would negatively impact their ability to get hired.

Inconvenience and Embarrassment

Two other intense emotions emerged in my interviews, but only two women named them. Because they fell under negative emotions expressed around the process of the job search, their writing, and their using digital tools, they were accounted for in my coding, but they were outliers as these codes did not repeat.

In speaking with Judith, I heard that she feels that she is an inconvenience, to some degree, to her kids who help her with technology. Her kids have been an important part of her digital literacy development over time. She stated:

And I remember my oldest son was in kindergar- ten, and I came home so frustrated from work, and he goes I could come to work with you and help you with the computer. And I thought, he probably could! You know? And he was a kindergartner, so and my kids are still my IT guys. They hate it when I call. You know?

By relying on her sons, Judith expressed the inconvenience she believes she causes. She has also potentially internalized some of the thinking that circulates around a user being at fault for not being able to operate a device. In this way, she seems to bring in negative self-talk that may influence how she sees herself as a technology user, and it may make her feel as though she is not capable of being a more digitally literate person. After describing herself as “not smart” she goes on to compare herself to younger people, both her sons and the people she works with, highlighting their lack of fear of trying things out on a device:

It’s like, I don’t know, it says I have a smartphone, but it’s not acting very smart! [laughing]. A smart TV, and a smartphone, just not smart parents to run it.

I know, it’s not intuitive. But to them it is. They’re not afraid to push buttons, they’re not afraid to sometimes to the point that’s like, “stop pushing the but--” you know? But yeah, and I work with young, with young kids, or I worked with young kids that are twenty-one to twenty-six or seven I would say would be the average in there for age. And, um, they’re almost…they understand how to do more things on the machine...

In acknowledging her sons dislike her calls for tech help and pointing to time when she has not felt as “smart” or adventurous as those younger than her, Judith may feel inadequate but unsure of how to move forward to develop her digital literacies.

In a related vein, Sherry recalled an embarrassing experience using LinkedIn when she knew she did not fully know how to use the application. She started her story by saying, “I hate LinkedIn.” When I asked her for more detail she said:

Oh, because I just don’t know all the tricks to it. ‘Cause it’s like when I updated my resume to when I was updating my position to make sure that when I started job searching everything was current. I sent out notifications to everybody that I got a promotion. So all of a sudden, all these people are congratulating me on a promotion and I’m saying, yeah, I’m being laid off in a week. (laughs). It’s like nooo. So she [a friend] had to go in there and show me how to set it up so those notifications don’t go out. It’s like, oh, it was so embarrassing. Yeah, yeah didn’t know it was going to do that and it was just horribly embarrassing.

Sherry’s experience illuminates how challenging it can be to stay updated on every application and how the repercussions of making a misstep can be embarrassing and public. This may make exploring new interfaces and digital literacies less appealing and may ultimately hinder someone’s professional opportunities if they are not using the tools and communication strategies that audiences (employers) expect.

Being an inconvenience and experiencing embarrassment as a result of trying to use digital technologies and advance one’s own digital technologies are strong emotions that may greatly impact digital literacy moves for these women in the future. While these codes were outliers, it is quite possible that many others who are older and less confident in their skills also have these experiences. Their fear may prevent them from learning new tools and advancing the skills that they have.

When looking at the emotions expressed around digital tools and the professional writing work for employment, several women had negative emotions and experiences. They also pointed to experiences of embarrassment around misusing an application. As a whole there is a strong thread that reveals how using digital technologies is a source of stress and pressure for these women who were applying for employment later in life.
DISCUSSION

The women applying for employment later in life described this as an unfamiliar experience that made them feel like they were entering the “Twilight Zone.” Judith coined this abrupt transition of no longer being viewed as a desirable employee and worried about getting “pushed out” of the workforce. Other women lacked confidence in their applications, and Joan highlighted the high stakes nature of this writing. Job search writing not only impacts employment status but can have long-term implications for healthcare and personal finances.

Negative emotions around the digital tools these women used were common, and their experiences echoed “technostress” (Tarafdar et al., 2007) because they were faced with adapting to “evolving ICTs” (p. 303). In particular, they were negotiating how to work with the physical dimensions of their digital tools, unfamiliar application conventions, and costs associated with maintaining digital tools. When encountering the limits of their digital literacies, they experienced frustration. Some also noted feeling like an inconvenience and being embarrassed when a mistake in LinkedIn became public to her network. Currently, literature on emotional responses to digital tools is limited within TPC scholarship but connects to recent conversations surrounding the inclusive nature of the field and areas of focus such as user experience and artificial intelligence.

The women I talked to, those over 50 years of age applying for employment, are often-overlooked users and communicators. Their narratives offer what Jones et al. (2016) called the field of TPC to address in order to advance “a more expansive version of TPC” (p. 214) for one that is more inclusive. Because this writing and digital literacy work is also happening outside of academia and industry, both common places for people to engage with TPC scholarship as Allen (2022) noted, we get a better understanding of how this unique type of writing is happening in a less familiar context. It complements ongoing efforts in our field to engage in more community-based settings to better understand TPC work in a range of contexts (e.g., Allen’s work examining Black family reunions and technical communication literacies; Communication Design Quarterly’s 2023 issue on community-engaged research). This work also sheds important light on the lesser-known user experiences of older adults maneuvering common digital tools (e.g., physical tools like a keyboard or screen and digital tools like LinkedIn). We are accustomed to seeing scholarship focused on users with more advanced digital literacies (Melton et al., 2018) wrote about how to use social media without posting damaging content; Zani et al., 2022 wrote about organizations making use of users’ self disclosures that they post). This article expands the existing literature by instead considering the experiences of a different group.

In addition, TPC’s work to create productive user experiences and to navigate artificial intelligence will mean attending to users’ emotions and real experiences. My findings reveal how challenging this type of writing is and how the tools and writing goals of participants made the experience stressful. Therefore, we need to attend to not only how users complete tasks but what they feel while working on a task because those experiences are impacting how they approach their writing and their digital literacies. Whether our messages or experiences are constructed by humans, AI, or a combination of both, better understanding and meeting our users where they are will result in a more enjoyable user experience. Verhulsdonck et al. (2021) offered a statement from Janice Redish that highlights the value of getting at user experiences more holistically as they look at the intersections of design thinking, content strategy, and artificial intelligence: “TPC no longer writes content but ‘writes around the interface’ itself as we develop for user experiences surrounding content. These reside in writing usable content, but also in addressing experiences—user emotions, feelings, and thoughts—across different channels as part of the content in a new UX ecology” (para. 4). Hearing from these women offers us an opportunity to become more informed and rhetorically aware scholars, practitioners, and teachers so that we can design messages and experiences in more fitting and user-focused ways.

When considering how to make use of this information for creating more inclusive forms of communication, there are few additional ways to apply what these women have shared:

1. TPC scholars and practitioners should incorporate older adults into design processes more frequently. My findings illustrate how users may be able to use particular tools but that their experiences with those can be negative, potentially impacting motivations and ability to use them in the future. In addition, older adults ages 50–64 and 65 years+ are the second and third most smartphone reliant (behind 18–29 year-olds but ahead of 30–49 year-olds) (Pew Research Center, 2024). This means they are valuable candidates for user feedback on phones and applications because they are using them so regularly. There are also differences in digital technology use based on age. Faverio (2022) indicated that adults ages 50–65 years+ go online less frequently than 18–29 year-olds. When designing for people representing these different age groups, it is important to understand the variations in digital literacies or frequency with which users are going online. Paying attention to older adults, their technology use, and their emotional responses to using digital tools provides missing perspectives that can better serve other older adults and those who also experience barriers based on digital tool physical features, conventions, and cost.

2. Websites and applications should be more user friendly for people using smaller devices such as a smartphone. For example, Indeed’s job search and application site is viewable and workable on a smartphone, but it is not optimized for the user who may need to use their phone to apply for a job. Tasks such as uploading documents or clicking small targets like checkboxes are especially challenging to complete on a phone.

3. TPC scholars and practitioners should seek opportunities to illuminate inclusion efforts. For example, publishing a web accessibility statement demonstrates an organization’s values for making online spaces more welcoming and accessible. Or, an inclusivity statement could encourage applicants from a wide range of lived experiences to apply.

CONCLUSION

For my participants, the stakes of their professional writing and digital literacies were high, and it was challenging to accomplish the task of submitting a job application online. Several negative emotions were expressed about writing for the job search and about using digital tools. Yet, this online work is necessary, directly impacting their employment and overall wellbeing. As user
advocates, TPC scholars and practitioners need to account for older adult user experiences with technologies as well as their emotional experiences with those tools.

With all of this in mind, researchers and practitioners should continue to look at less traditional contexts outside of academia and industry for conducting TPC research on users’ digital lives so that we can expand our understanding of the digital tools and literacies people have. They should also account for the emotions users have around the tasks that they are completing online and around the tools that they use. Teachers of TPC should continue to offer students opportunities to expand their digital literacies and help to foster skill building for navigating challenging digital literacy situations in the future to better manage technostress that may result over time (e.g., build a resource network of ideas for how to troubleshoot; practice using new applications regularly to continue gaining familiarity with new interfaces and conventions) and should guide students toward creating a range of texts that are usable and accessible to a range of people in a variety of contexts.

The women I interviewed shared how they do professional writing for employment using their digital devices and what the emotional experiences are for doing that type of work. In summary, it is taxing because of feeling like they are in a Twilight Zone, because they are doing high stakes writing, and because of how digital tools impact them. Despite these challenges, the women I talked to were finding ways to make it through the process. Future scholarship should attend to the emotional dimensions impacting older adults and their technology use as a way to design more inclusive digital tools and methods of communication. That way, when older adults are applying for employment online, they are not discouraged. Or, when they are confronted with online banking, healthcare communications with their provider or apps to manage health conditions, smart home technologies to age in place, or even a kiosk at a fast food restaurant, they will have a successful experience that reinforces their value.

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Biodigital Literacy through Intimate Data: User Perceptions of FemTech and Pelvic Floor Training Devices

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ABSTRACT
The FemTech industry, a booming segment of the health technology market, trades in feminist empowerment largely by data tracking and collection. As issues of privacy and surveillance related to users’ data collection have grown, scholars in health, design, and communication have explored how health-related technologies complicate the liberatory potential of self-tracking and self-monitoring health, signaling digitally collected, intimate data as concerning and gesturing toward critical digital literacy as a requirement for technology users. By analyzing user comments about pelvic floor training devices, this article reframes intimate data to understand the ways that people create and use it to learn about themselves. This move demonstrates a new kind of literacy: biodigital literacy, which I offer as a concept and framework that highlights the unique competencies of embodied digital life.

CCS Concepts
Information Systems

Keywords
Health technologies, Digital literacy, Embodiment, Data collection, Privacy

INTRODUCTION
You do not know the joys of the future until you can hold your phone in one hand, a beer in the other, and make a butterfly fly up and down purely because of the strength of your vagina. 10/10

–Perifit User Comment

As a woman with a Wi-Fi connection and a social media scrolling habit, I am often confronted with targeted advertising for mobile health applications, smart devices, and telehealth solutions that will help me to lead a healthier, more empowering life. These products, part of the booming segment of the health technology market known as FemTech, promise feminist empowerment largely through data tracking and collection. As this industry grows—predicted to reach $75 billion by 2025—wearables, monitors, and health tracking apps have become white noise in the FemTech landscape (FemTech Market Overview, 2023). But most baffling to me as I scroll are devices that claim to solve the problems of my childbearing and earnestly aging body: pelvic floor training devices, which treat pelvic floor dysfunctions using biofeedback to suggest exercises and to measure muscle strength. These devices, and the FemTech industry at large, aspire to address disparities in women’s health that are the result of persistent and long-standing stereotypes, exclusions, misrepresentations, and misunderstandings (Cleghorn, 2021; Jensen, 2016; Koerber, 2018).

1 Throughout this article, I specify women’s health, including in this category all people who identify as women as well as those who might medically benefit from a gendered health perspective but do not identify either as a woman or with a specific gender.

And as the Perifit user describes above, such devices can also be joyfully liberating. Beyond the promise to expand health literacy and agency in health decision-making, FemTech responds to and participates in the accelerating turn toward digital life.

Recognizing this turn as a “data paradigm,” Levy (2014) asserted that data’s pervasive infiltration normalizes “intimate surveillance” (pp. 679–680). Levy’s framing highlights the need for a digital literacy that helps FemTech users to understand how (and where) their data travel. While anxieties about privacy and surveillance are warranted, a digital literacy for FemTech must also acknowledge the
distinct skills required for navigating an embodied digital life: how technology creates intimate data and how to use the data to learn about oneself. Indeed, user comments about pelvic floor training devices reveal that FemTech consumers are more concerned with the way that their bodies create data and what can be learned from that data rather than where their data go or who has access. In this article, I reconsider intimate data generated through FemTech as user-created and deployed, demonstrating a new form of digital literacy that reflects the confluence of bodies and technology in digital life.

Levy has used intimacy—“intimate surveillance” and “intimate data”—to describe digitally collected information about interpersonal and often sexual relationships. Indeed, research on FemTech often interrogates tracked behaviors that are sensitive or private: behaviors like physical activities, menstrual and reproductive patterns, nutrition, and movements (Healy, 2021; Lupton, 2015; Stenström, 2023). These critiques often involve broad arguments about privacy, consent, data extraction and exchange, and capitalist production. As concerns regarding privacy and surveillance related to users’ data collection have grown, scholars in technical and professional communication (TPC) and rhetoric of health and medicine (RHM) have explored how health-related technologies complicate the liberatory potential of self-tracking and self-monitoring health (De Hertogh, 2018; Jack, 2016; Novotny & Hutchinson, 2019; Teston, 2016). Additionally, scholars have engaged principles and methods of TPC to consider improvements in design and informed consent, particularly focusing on human-centered design (Bivens, 2019; Frost, 2021; Green, 2021; Jones, 2016; Melonçon, 2017; Novotny, 2015; Walton, 2016). This research rightly signals digitally collected, private data as concerning and potentially damaging or dangerous, gesturing toward critical digital literacy as a requirement for technology users (Hutchinson & Novotny, 2018). Moreover, many of these scholars adopt a feminist perspective. For example, Novotny and Hutchinson (2019) called for “more critical feminist action” in emerging health technologies, action that exposes the role of the technical communicator in “understanding that the data our bodies tell is not a neutral, objective technological act” (p. 357). Nonetheless, as continued innovation and investment in the FemTech market indicates, critical attention must move beyond scholarly interest in representation and data collection.

My own research began with questions about data collection in increasingly digital, increasingly personal health applications and devices in FemTech. Pelvic floor training devices like the Elvie Trainer, Perifit, and Joylux vFit offer personalized programming based on tracked data. Beyond measurement and self-reporting, these devices involve extremely sensitive, personal health data that includes inserting the device directly into the body and measuring the strength of muscles that assist with private bodily functions such as bladder control, bowel control and sexual function. I wondered how users of these devices perceived of sharing their intimate data and how they articulated these perceptions in comments and reviews. I imagined that I would discover comments that mirrored and extended Stenström’s (2023) findings that users of fertility tracking apps crave a sense of ownership and control regarding how companies use their data. I anticipated comments suggesting that users contemplate the scope of their intimate surveillance, a signal of digital literacy. Instead of either of these outcomes, I discovered that users are less concerned with data after it leaves their bodies and their devices but more concerned with the way that their bodies created data and what they could learn from that data. I thus shifted course in my inquiry, seeking to understand how users learn from and about their bodies with digital technology. User comments demonstrate that digital health devices are not only biopedagogical—teaching users about their bodies—but also teach digital health literacy.

Digital health literacy describes competencies users require in order to engage with digital health services (Norman & Skinner, 2006). While this term is useful in describing the constellation of cognitive skills required to obtain, communicate, and understand health through digital means, I follow Bivens et al. (2018) in their argument to include bodies and senses in our literacies: that a multisensory approach to health literacy—including tactile, aural, and visual literacies—more accurately aligns with the skills required to navigate modern health practices. Relating body, cognition, and digital health devices, I offer biodigital literacy as a concept that highlights the unique competencies of embodied digital life. I position biodigital literacy as a digital corollary to body literacy, a term that has been linked to menstrual health and reproductive justice (Temnet & Fleming, 2022; Wershler, 2012). More than a digital literacy that requires decoding data collection policies, privacy policies, and terms and conditions, FemTech demands that users practice biodigital literacy, which involves not only understanding how to use a device that is intimately linked to the body, but also interpreting and applying the intimate data that one’s body creates as well as considering how digital technologies affect bodily knowledge and health practices. Thus, biodigital literacy is necessarily entangled with intimate data; intimate data are then less about “marking data as sensitive or close to a body” but are instead “bound up with the production and regulation of gender, race, sexuality, class, citizenship status, and beyond” (Burns et al., 2022, p. 2). In a digitized world, consumers increasingly turn to digital devices to self-manage health and wellness practices and learn about their bodies, rendering biodigital literacy an important aspect of leading a healthy, digital life.

In this article, I extend and complicate research on digital health technologies by not only interrogating issues of digitality and data, but also accounting for user interactions with that data, demonstrating how the design of our digital lives is enwined with intimate data. As Frost and Eble (2020) reasoned, separating embodied experiences from data—that is, presenting data without the specificity of the person whose body created that data—pathologizes the gendered body, marking, diagnosing, and categorizing bodies that are outside of the androcentric norm. This issue is endemic to biomedicine and public health, both of which inform advances in FemTech. Reconciling data “within the context of embodied experiences...gives us a diverse view of multiple bodies and how they are constructed” (p. 6). I contend that in addition to the intervention into normalized health discourses that Frost and Eble have described, valuing embodied experience offers a more nuanced view of the relationship between users’ digital health devices and the intimate data that emerge. Moreover, pelvic floor training devices provide an opportunity to expand upon intimate data as a concept. The devices, when paired to their corresponding apps, do indeed collect, interpret, and transmit data relating to use. In addition, the apps include options to input additional data such as personal goals, symptom tracking, and wellness reports. All three companies I examine claim to anonymize and encrypt user data when storing, sharing with third parties (such as marketing), or using data for product development and analysis. This is the
data that scholars most often associate with investigations of health technologies and mHealth apps (De Hertogh, 2018; Friz & Overholt, 2020; Hohmann-Marriott, 2023; Hutchinson & Novotny, 2018; Koerber & Still, 2008; Levy, 2014; Lupton, 2016; Roess, 2017; Teston, 2016).

Beyond this “hard” version of intimate data that is addressed in terms and conditions statements and privacy policies, I reframe intimate data to represent the bodily and embodied information that FemTech devices illuminate. In order to discern how users understand and engage with their intimate digital data, I analyze user comments about pelvic floor devices. Take, for example, this user comment about the Elvie Trainer:

You download an app on your phone to use with it. This is a great idea as you can see how well you are doing and you know if you are using it right. It shows you exactly what strength you have. It gives you a routine dependent on what you want to strengthen your pelvic muscles for. Each step is easy to do and to follow. I think this is a great help. No forgetting what you've done, or how long. (emphasis added)

This user describes several instances of intimate data involved with device use: exercise outcomes, strength measurements, personalized schedules and goals, usage tracking and timing. If we think of intimate data only in terms of their digital transmission, we are missing their interiority: the ways that people create and use intimate data to learn about themselves.

To situate and give context to pelvic floor health technology, I first describe what the pelvic floor is. Dr. Kegel developed a device to measure the strength of the pelvic floor muscles through vaginal electrical stimulation to contract the muscles, a method which can be effective for people who have difficulty with Kegel exercises. Beardsley’s book is a great resource for learning more about Kegel exercises in the 1950s through a set of exercises he called “Kegel exercises” or more popularly, “Kegels” (Starn & Pierson, 1993). Additionally, Dr. Kegel developed a device to measure the strength of the pelvic floor muscles, called a perineometer, and Kegel balls, which are small, weighted balls that are inserted into the vagina to provide resistance during Kegel exercises. Although Kegel balls, now commonly made of silicone, have persisted in their popularity, a growing market for consumer products that assist with pelvic floor exercises have led to the development of more complex technologies: pelvic floor trainers and biofeedback devices.

Pelvic floor trainers are wands, probes, and wearables that use electrical stimulation to contract the muscles, a method which can be effective for people who have difficulty with Kegel exercises. The first pelvic floor trainers were developed in the 1980s, but by the 1990s, the technology evolved to include biofeedback by measuring the strength of the pelvic floor muscles through vaginal pressure sensors and providing information and guidance to the user. Biofeedback helps users learn how to correctly contract and relax the pelvic floor muscles, alleviating a primary concern of clinicians working to treat pelvic floor dysfunctions (Mateus-Vasconcelos et al., 2018). Users experience limited benefits (if any) when pelvic floor contractions are done incorrectly; therefore, devices that offer biofeedback are particularly favorable in the consumer product market. Examples of such contemporary products are the Elvie Trainer, Perifit, and JoyLux vFit.

Founded in 2018, Elvie is a FemTech startup known primarily for their Stride Breast Pump, a hands-free, portable lactation device that was honored as one of TIME’s best inventions in 2021 (TIME, 2021). While Elvie is a London-based company, it has a significant following in the United States, especially among new parents. The Elvie Trainer combines pelvic floor contractions with biofeedback to offer users instantaneous information about their Kegel workouts as well as a longitudinal view of progress with continued use. Users insert the egg-shaped device into the vagina and use the associated app to follow and record workouts. The Elvie Trainer is available at big-box stores like Target, Wal-Mart, and Best Buy, and it has also been featured on Goop, the aspirational wellness and lifestyle company that mixes privilege, excess, and self-care. In a list of “8 Wellness Devices to Charge Up Your Mind, Body, and Sex Life,” Goop editors highlight the simplicity of the Elvie Trainer:

Elvie is a small, smooth, waterproof pod that you slip in just as you would a tampon. Via Bluetooth, the pod links to the Elvie app, which tracks your progress through five-minute gamelike pelvic floor exercises. If you’ve ever been interested in strengthening your pelvic floor but you’ve been unsure how to do it consistently, this makes it pretty simple. (It comes with a sleek, portable case that you can take anywhere.) (2021, p. 7)

The $199 price tag is prohibitive for many; nonetheless, its broad availability and extensive network of promotion suggest its popular uptake for its effectiveness and simplicity.

The Digital Pelvic Floor

The pelvic floor consists of a group of muscles supporting the uterus, bladder, and rectum. It is often framed as an essential yet precarious part of anatomy: the 1970 publication of Women and their Bodies instructs that these muscles, in their “normally firm state...keep the intestines and other soft organs from falling through the lower opening of the pelvis”—a frightening, if overstated, description (1970, p. 131). Age, pregnancy, and childbirth contribute to weaknesses in the pelvic floor, and the most common symptoms of this weakness are incontinence and sexual dysfunction, not sinking organs (American College of Obstetricians and Gynecologists, 2017). While exercises that strengthen the pelvic floor muscles (and, according to Women and their Bodies, increase their “suppleness”) have been practiced for centuries, gynecologist Dr. Arnold Kegel popularized pelvic floor strengthening in the 1940s and 1950s through a set of exercises he called “Kegel exercises” or more popularly, “Kegels” (Starn & Pierson, 1993). Additionally, Dr. Kegel developed a device to measure the strength of the pelvic floor muscles, called a perineometer, and Kegel balls, which are small, weighted balls that are inserted into the vagina to provide resistance during Kegel exercises. Although Kegel balls, now commonly made of silicone, have persisted in their popularity, a growing market for consumer products that assist with pelvic floor exercises have led to the development of more complex technologies: pelvic floor trainers and biofeedback devices.

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While Elvie markets simplicity, Perifit, founded in 2016, takes a more pronounced gamification approach to the biofeedback technology, branding itself as “the pelvic floor game changer” (Perifit, 2023). Like the Elvie Trainer, Perifit is a silicone device that users insert into their vagina, connect to their mobile phones via Bluetooth, and complete exercises following a program based on symptoms and goals. Perifit guides users through the exercises through a series of actual video games—like PONG and Flappy Bird—that users control with their pelvic floor muscles, thus differentiating itself from Elvie by marketing the program as easier and more motivating (About Us, 2023). The device is slightly less expensive than the Elvie Trainer ($149 compared to $199); further, Perifit allows users to pay with a Flexible Spending Account or a Health Savings Account debit card. Claiming to have over 400,000 users worldwide, in the U.S., Perifit is available on Amazon and directly from medical providers through its extensive affiliation program (Business Partnership, 2023). Perifit’s popularity is evident in the number of aggregated reviews on Google, which total almost 4,000 as of June 2023.

Rather than a physical trainer that promotes muscular contraction, the JoyLux vFit devices use heat, infrared light, and vibration to facilitate vaginal toning. JoyLux claims that by boosting blood circulation and stimulating cell metabolism, users will experience improvements in bladder control and pelvic muscle strength, with the added benefit of 

enjoying

the therapy—coding self-pleasure into device use (vFit Gold Device, 2023). The vFit devices are marketed to mid-life women, the primary customer demographic for JoyLux, which is a menopause-focused company that was founded in 2013 in Seattle, Washington. JoyLux promotes that its devices are “designed with menopausal women in mind, promote vaginal wellness, improve sensation, and increase confidence, all from the privacy of home at a fraction of the cost of in-office options” (Our Devices, 2023). That fraction of cost starts at $395, and the devices can be purchased through the “doctor nearest you”—which includes providers such as dermatologists, cosmetic surgeons, and aestheticians. Notably, not gynecologists. Undoubtedly because of the hefty price point, the vFit devices do not have as many user reviews as other, more accessible devices. Nonetheless, the vFit is an interesting and provocative case study because of its position in the mid-life market and its potential for pleasure as well as progress.

A digital landscape not only facilitates the biofeedback technology that make devices like the Elvie Trainer, Perifit, and JoyLux vFit competitive in the FemTech market, but the ability to connect with a mobile device, to track, and to learn from these devices bespeaks their power and influence in digital life. Further, as evidenced by the staggering number of user reviews across merchant sites and app stores, the devices fill a clear need in women’s health: the pelvic floor is notoriously tricky to exercise correctly. As companies and users alike proclaim that the devices empower users with language about confidence, taking control, and unlocking feminine power, neoliberal, postfeminist logic pervades: women’s health is framed as an individual issue for the hegemonic, feminine woman. Dubrivny (2013) argued that this postfeminist lens reveals a new identity for women’s relationship to health: the “vulnerable empowered woman,” who appears to have agency but is instead bound by neoliberal structures that reduce her agency to her individual lifestyle choices and her participation in the marketplace (p. 8). Nonetheless, I contend that biopedagogical technologies like pelvic floor devices complicate this postfeminist view, much like they complicate the technological determinism linked to data collection. The intimate data that users create indicate opportunity for biodigital literacy, for learning about one’s body and about how technology influences the body through digital devices. User comments offer a window into device use; in the following section, I describe a methodology and method to investigate intimate data.

A Feminist Methodology for Intimate Data

To explore how users perceive of, discuss, and use intimate data as an exercise in biodigital literacy, I take on a feminist new materialist perspective of data that animates user comments as consequential sites of analysis. Research in health technologies presents a complex ethical context when considering individual privacy rights: personal health data are tricky to share. As such, Bivens and Welhausen (2021) have urged RHM scholars to “embrace analyzing existing data” like user comments in order to prevent data waste and more ethically—and efficiently—engage with user experience (p. 485). Utilizing user comments as data optimizes research design and avoids ethical concerns about confidentiality and privacy (Welhausen & Bivens, 2021). Further, centering user comments is beneficial to demonstrate how, as Crawford et al. (2015) have recognized, “the relationship between users, devices and companies is fluctuating” (p. 494). User comments thus provide a fecund site of analysis both because of accessibility but also because comments serve as an inflection point between user, company, and technology that reveals issues of user experience. Scholars in TPC and RHM alike have developed and applied user experience design (UX) methodologies and methods to studies of health technologies (Jones et al., 2017; Kennedy, 2018; Kessler, 2016; Melonçon, 2017). As Maria and Hawk (2009) noted, scholars that use UX as a method and concept situate the user in “a complex system of human intentions, organizational discourses, biological trajectories, and technological possibilities” (p. 3). In other words, these studies conceive of UX as an assemblage that addresses interconnection and embodiment in health care technology use.

Sociologist Deborah Lupton (2016) has promoted this sociomaterial perspective, including data as a key element in this assemblage. To Lupton, data are lively, continuous, and “fundamentally about the lives of humans: about their body functions, behaviors, social relationships, moods and emotions” (p. 5). Data can both shape and delimit individual capacities as it structures “our notions of identity and embodiment, our relationships, our choices and preferences, and even our access to services and spaces” (Lupton, p. 42). The liveliness of data as Lupton has described speaks to feminist scholarship that has often approached data as contingent, embodied, and oppressive (Booher & Jung, 2018; Frost & Eble, 2020; Hallenbeck, 2012; Royster & Kirsch, 2012). Moreover, digital humanist Joanna Drucker (2014) described data as captus—as actively constructed and shaped by observation and measurement (p. 130). This exposes a new materialist sensibility to data: if data are embodied and oppressive, they are an active agent in shaping and determining lived experience. Technologies that give us data about our bodies make those determinations real. As feminist materialist Susan Hekman (2010) argued, discursive, technological, and material interactions produce agential configurations with material, political, ethical implications (p. 21). For example, as many pelvic floor device users mention in their reviews, biofeedback makes pelvic floor strength legible and measurable, enacting new forms of biodigital literacy. These approaches indicate data’s dual nature: that it is both material and immaterial. The abstract, technical quality of data positions it between material and discourse: data
are both a physical object that can be stored, processed, and manipulated, as well as an abstraction that can be understood and interpreted by both human and machine.

This methodological understanding of data’s duality and centrality in an assemblage with user and technology informs my method, characterized by “toggling” between computational and rhetorical analysis (Klein, 2015). As Julie Klein (2015) asserted: “Toggling between distant and close, macro and micro, and surface and depth allows digital humanists to play with scale by ‘zooming in and out’ in a search for large-scale patterns then focusing on finer-grained exegesis” (p. 34). Mueller (2017) framed this idea as combining distant and thin methods with close and thick methods, a methodological move that can distill and direct the researcher’s attention when data are abundant. As such, my method first involves scraping user comments from device websites in order to isolate the text. I scraped 2,081 comments from the Elvie, Perifit, and JoyLux websites in May 2023 (Elvie and JoyLux) and June 2023 (Perifit). I then anonymized comments by replacing commenter names with randomized ID numbers and excluded reviews without user text or without usable text (such as comments that only contained emoticons), resulting in 1,625 extracted comments. With text extracted, I adapted a text analysis code using R language to create word network plots (See Figures 1–4).

![Word network plot using text data from all user comments from Elvie, Perifit, and JoyLux vFit.](image)

By comparing the lines that connect with “exercises,” the researcher can determine that “exercises” has the strongest correlation with “time,” but is also associated with words like “complete,” “regular,” and “minutes.” These correlations indicate that users often write about the timing, frequency, and effectiveness of their pelvic floor exercises.

Thus, words that are highly correlated and common within a corpus can uncover trends and patterns that might otherwise go unnoticed. Using the word network plots, such as those described above, to identify key terms, I performed a close reading of user comments, toggling between the visualizations and the text itself and zooming in on phrasing in specific comments to compare, enliven, and add nuance to the computational analysis data. Toggling between data and language in this way provides a rich understanding of how users conceptualize the intimate data that they generate and ostensibly share. Further, by focusing on users’ perceptions of FemTech device use and practices, I demonstrate how intimate data translate to biodigital literacy.

### Biodigital Literacy through Intimate Data

As FemTech devices converge digital and physical worlds, the concept of intimate data offers insights into embodied knowledge and implications for biodigital literacy. In an instructive comment about the Elvie Trainer, a user writes, “It shows you exactly what strength you have.” This comment reveals an intricate relationship between technology and embodiment, illuminating the way FemTech devices transform bodily experiences into quantifiable metrics. The user’s body, in concert with the device, creates a data output that allows the user to understand and even visualize their pelvic floor strength in relation to a predetermined goal. This aspect of intimate data—shifting from a personal, subjective experience to one that is more universal and measurable—demonstrates the complicated confluence of intimate data, bodily knowledge, and digital interfaces. I argue that attention to how users communicate about their intimate data and the way they perceive their data can provide insights into biodigital literacy practices.

By toggling between computational textual analysis and close reading of user comments, I explore three comment categories through which users perceive and engage with their intimate data: device use, user outcomes, and device shortcomings. These comment categories emerged through word network plots and word pair correlations related to comment text of each device separately and all three devices combined. As I sifted through the data, it became clear that most users commented on how they used the device (using words related to timing, methods, or purpose), their results of use (words like “strength,” “improve,” and “difference”), and critiques (through words about cost and functionality). The words and word pairs related to these categories occurred most frequently across the three devices and within a combined analysis. Table 1 provides examples of frequently used words and correlated word pairs within each category in my combined analysis of Elvie, Perifit, and JoyLux vFit. A word pair like “run running” seems puzzling, yet when I cross referenced with user comments, I found that this pair relates to phrases such as, “I can run now and not need to pee the moment I begin running,” which demonstrates a positive outcome for a user. This relationship only becomes apparent after close reading. Further, returning to user comments allowed me to find comments that may determine which words appear most frequently across users rather than simply which words appear the most.
not include specific terms relating to a category. For example, a Perifit user notes that the device “measures my efforts, distracts my negative thinking with games, and encourages me to take up the training yet another day,” gesturing to user outcomes and the ways users demonstrate biodigital literacy. Beyond the words highlighted through computational analysis, my close reading of user comments confirmed the categories of device use, user outcomes, and device shortcomings while also animating user’s biodigital literacy practices: engaging with the device, learning from the device through decoding and translating intimate data into health outcomes, and critically reflecting how the technology interacts with a user’s unique body.

<table>
<thead>
<tr>
<th>Comment Category</th>
<th>Frequently Used Words (Number of Users &gt; 100)</th>
<th>Correlated Word Pairs (Correlation &gt; .25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device Use</td>
<td>Easy, fun, week, day, time, exercises</td>
<td>Stress incontinence, giving birth, post menopausal, fun games, vaginal dryness, times week</td>
</tr>
<tr>
<td>User Outcomes</td>
<td>Results, difference, muscles, progress, strength, improvement</td>
<td>Noticed difference, strengthen muscles, run running</td>
</tr>
<tr>
<td>Device Shortcomings</td>
<td>Issues, money, connection</td>
<td>Customer service, waste money, money spent, bluetooth connection</td>
</tr>
</tbody>
</table>

Table 1. Frequently used words and correlated word pairs within each comment category.

**Device use: Engaging biodigital literacy**

Generating and observing intimate data is central to users’ interactions with pelvic floor devices. Users primarily turn to devices like the Elvie Trainer, Perifit, and JoyLux vFit to address specific and intimate health issues. This is clear when viewing, for example, a word association plot using text data from JoyLux vFit user comments, which shows a correlation between words like “painful sex life” and “vaginal atrophy dryness” (Figure 2). Other common word correlations across the three devices, such as “stress incontinence,” “vaginal dryness,” and “child/giving birth,” highlight user health concerns and demonstrate both precarity and motivation for device use. For instance, one Elvie user remarks, “I gave birth naturally to two big babies. Nobody really tells you the kind of damage this can do to your lady cave.” This comment notably highlights a gap in postpartum care education and potential for FemTech to bridge it. Recognizing a similar dearth of information regarding menopause symptoms, a vFit user writes, “I’m 58 and have enjoyed a great sex life with my husband, but due to dryness, sex had become extremely painful. Which was really a bummer. I was embarrassed and didn’t want to talk about it…No one talks about this stuff and we should.” These comments point out that sharing and discussing intimate data like the postpartum experience or symptoms of menopause is imperative. Users credit the devices for opening this conversation, confirming a clear demand for biodigital literacy and demonstrating what Bellwoar (2012) called “literate activity” in the way users “actively engage in thinking about their health” (p. 325).

![Figure 2. Word network plot using text data from JoyLux vFit user comments.](image)

As comments make clear, users not only adopt these devices for therapeutic purposes, but also for the biofeedback and digital interactions they offer. Word pairs like “track progress,” “understand progress,” and “kegels correctly” appear frequently in user comments. These word pairs demonstrate that users are keenly aware of the devices creating intimate data from their pelvic floor movements. For example, a JoyLux user associates intimate data with positive outcomes by attesting, “I appreciate the app giving me actionable health info and tracking my progress…I wasn’t sure about the science and theory behind the device but it does seem to produce results.” Similarly, an Elvie user demonstrates the relationship between the creation of intimate data and embodiment:

I was so weak at first that I could barely do any of the exercises at all but I kept at it & saw improvement. This is a type of “biofeedback” and I really like SEEING the result of the exercise simultaneous [sic] with FEELING it - that was the key for my improvement! I like how Elvie tells me when I’m doing the exercises incorrectly - very important!

The intimate data that this user creates—the biofeedback that corrects exercises and records results—expand biodigital literacy by teaching the user about their body and about the device. Biofeedback is also a key feature of user experience and motivation.

Additional correlated terms such as “user friendly,” “fun games,” and “playing games” suggest that users appreciate real-time feedback about their intimate data and a gamified experience that both facilitates understanding and fosters engagement (See Figure 3 for an example of word correlations like “kegel entertaining” and “playing fun video games”). One user compares the Elvie Trainer to popular games, asserting, “It’s like candy crush for your downstairs!!” This analogy emphasizes the convergence of healthcare and digital life, turning what could be a clinical, mundane, or even awkward activity into an engaging experience. Moreover, a Perifit user’s remark, “I tell my hubby I am the Serena Williams of P**** Pong,” illustrates the playful yet empowering dimension these devices bring to intimate health. In these cases,
intimate data allow users to visualize improvements and make the abstract tangible, a benefit that supports Lupton’s (2016) assessment of data being both lively and about the lives of humans. Nonetheless, when comparing device use to gaming, user comments demonstrate an uncritical approach to their intimate data, appearing less concerned with profound implications of the data and opting instead to equate biofeedback with familiar digital experiences. This lack of criticality could be a result of blind technology adoption, or, as Stenström concluded about the users of fertility applications, users could be making a conscious decision to simply “benefit from the opportunities and positive aspects of this cultural moment” (p. 103). Whether users are aware of the implications of their intimate data or not, user comments indicate biopedagogical literacy simply through understanding that the devices transform an often medically necessary exercise into a game.

Outcomes: Demonstrating biodigital literacy
As users create intimate data through device use, they are compelled to decode the data and assess their success. Word correlations like “noticed difference,” “improved strength,” and “strengthen muscles” confirm this process (for example, see these correlations in Figure 3). As noted in the previous section, user comments underscore how biofeedback functionalities of these devices make pelvic floor strength visible and tangible. But beyond physical outcomes, the intimate data enable new forms of biodigital literacy and create bodily confidence. Users’ comments about outcomes reflect newfound awareness of their bodies and the ability to correctly identify and exercise pelvic muscles. For example, a Perifit user remarks:

I had no idea how unaware I was of my pelvic floor. This has taught me how to both tighten and relax…which I thought I knew but clearly did not. It's amazing how after some training, I can now actually be aware of what the tension feels like and release that throughout the day like I've never been able to do before.

Another user points out, “I think it’s particularly helpful for teaching you how to isolate your pelvic floor from your abdominals.” This enhanced body literacy, made possible by intimate data and digital technology, has a profound impact on users, as evidenced by another word correlation: “game changer.” As one Elvie user elaborates, “It’s really helpful to get instant feedback to show you are exercising the right muscles and can see the improvement.

This gives motivation to continue which is so important and will hopefully help me keep going to really improve bladder control.” Body literacy is imperative for users who experience intimate health issues; moreover, comments demonstrate an understanding of the relationship between intimate data and health outcomes while centering technology use as the mediating factor in this relationship, demonstrating biodigital literacy in decoding intimate data.

Further, users recognize that positive outcomes extend beyond health improvements to include daily activities and intimate experiences, connecting intimate data to confidence in everyday life. A vFit user summarizes the benefits: “Yoga-check. Cycling-check. Jumping jacks-check. Trampolines-check. Hot dates-check. Pleasurable sex-check. Confidence-check.” Word correlations like “run running” (as in, “I can run now and not need to pee the moment I begin running”), “sex life,” and “bladder control” signal the personal and embodied effects of device use (See Figure 3). Many users comment on these significant improvements. For example, a Perifit user wrote, “I’ve noticed a huge improvement in my bladder control - & great sexual side effects.” Similarly, an Elvie user commented on specific, material changes: “I have stopped wearing liners and I’ve been able to run without leakage.” Additionally, comments demonstrating the utility of intimate data are not limited to users. Partners also comment about health outcomes, such as this comment for vFit:

When I suggested JoyLux to my wife (48) she thought I’m nuts. But our situation was dire so we decided to give it a try anyway. And Wow what it difference it made. Within two weeks of day-on day-off use, her urgency to pee after each intercourse practically disappeared. Sex had become fun and connecting once again.

Through the use of pelvic floor devices, users (and their partners) discern real, material benefits not only from the physical use of the device itself, but also from the intimate data that they share with and receive from the digital interface. As biopedagogical tools, Elvie, Perifit, and vFit not only instruct users about the most intimate parts of their body, but the tools encourage users to decode and translate intimate data into health outcomes—to become biodigitally literate. Nonetheless, these digital health interactions are not always successful.
Shortcomings: Critical biodigital literacy

While 71% (1,154) of pelvic floor device users present a glowing and often uncritical perspective, 29% (471) of users have negative comments, expressing frustrations with technological defects and product design. 1 Word pairs such as “bluetooth connection,” “waste money,” and “complete waste” indicate disillusionment with the device and its technology. Users note challenges with device consistency and interface functionality, like an Elvie user who writes, “In an ideal world I wouldn’t be putting a green plastic thing up my vagina so if I’m going to bother doing it I’d really like it to work consistently” and a Perifit user who quips, “I spend more time calibrating than training.” These comments speak to device deficiencies while also demonstrating the intricate assemblage of body and technology that creates intimate data—data that these users were hopeful to provide and learn from. An Elvie user articulates this frustration:

The Elvie only registers about 50% of my squeezes before it goes slightly wonky and stops registering. Once I’ve readjusted the position it sometimes works properly and sometimes doesn’t. I can accept that perhaps this might change with time or that I am wonky inside but annoyingly the app doesn’t allow you to redo any of the exercises so it just registers them all with really bad scores so it’s hard to see any progress and frustrating to use.

Comments diverged in placing blame: many criticize the device and company, while others worry about user error or express feelings of defeat. For instance, one Elvie user writes, “I do sometimes wonder if I am using it correctly” and another adds, “...it makes me pretty frustrated and leaving me with a feeling that I can’t do it right.” Here, the intimate data that users infer reinforce the notion of malady—of the health issues that initially attracted the user to the device.

A user with biodigital literacy should be critical of the device and the design; unfortunately, shortcomings in device design indicate malady to some users. One vFit user points out difficulty of device insertion for those with vaginal atrophy, and an Elvie user questions the sleek design as antithetical to the device’s purpose, writing that the device is “nicely presented and very discreet but probably designed for an equally pristine vagina, which, let’s face it, if you’re looking at buying an Elvie it’s probably because you’ve mullered your pelvic floor during childbirth.” Because both the Elvie and the Perifit are meant to be internally held in place, users also commented on size and fit, noting that of course, one size does not fit all. For example, an Elvie user lamented, “No matter what position I stand or lie in, no matter if I add or remove the size adjuster, and no matter how far I insert the device, it keeping [sic] popping out in the middle of every training exercise.” The device companies claim to demystify pelvic floor health, but to many users, who perhaps do not match what these companies deem to be a “typical” user, the devices do not offer the clarity that users crave. This disconnect highlights the complicated interaction between intimate data and digital interfaces: as digital life seeks to universalize and quantify, some data are too intimate to generalize.

As a result, users might discontinue exercises, prolonging the health issues that they sought to resolve; or worse, device use could exacerbate conditions and necessitate further medical intervention. 4 I coded reviews with 4 and 5 stars (out of 5) as positive and 3 stars or below as negative.

Users that are already cautious of medicine and the stereotypes, exclusions, misrepresentations, and misunderstandings involved in gendered healthcare may be left deciding whether to seek care for an intimate issue in an often oppressive, inaccessible, and difficult medical system. Further, this finding reflects what Burns et al. (2022) argued: intimate data are not only about an individual body, but they also reproduce the uneven distribution of “benefits and burdens of visibility and social participation...that are often enabled by the assumed dichotomy between public and private life” (p. 2). In the case of pelvic floor devices, intimate data reflect invisible, private struggles that a one-size-fits-all device fails to address. Biodigital literacy necessarily requires users to question device design and functionality, to expose the ways that devices—and the intimate data that users create in concert with them—can be “bound up with the production and regulation of gender, race, sexuality, class, citizenship status, and beyond” (Burns et al., 2022, p. 2).

The nuanced relationship between users and FemTech devices confirms the intricate interplay of intimate data, health technology, and digital life. This interplay both instructs in and requires biodigital literacy: pelvic floor devices teach users about their bodies and illuminate practices that may have been otherwise inaccessible or unknown through biofeedback and gamification. At the same time, users must remain critical of this technology, not only due to data collection or privacy concerns, but because the technology is inherently flattening: in order to appeal to the masses, it is designed for a “typical” user. Biodigital literacy engages the body in the work of understanding a device’s flaws, providing an additional level of criticality beyond the device itself and demonstrating the entanglement of bodies and technology in digital life.

CONCLUSION

As sites of personal, intimate care, FemTech devices are a complex assemblage of technology, data, and embodiment. Devices like Elvie Trainer, Perifit, and JoyLux vFit signal the persistent and increasing integration of health technology and digital life. Users indicate an uncritical embrace of the intimate data that they both create and share with the devices and their interfaces, trusting insights and feedback. These devices become essential aspects of a therapeutic journey while instructing users about how to practice digital health: they are sites of biodigital literacy. While FemTech companies purport to be empowering and inclusive, research has shown that health technologies both produce and reinforce normative understandings of wellness (Ajana, 2017; Ding, 2009; Keränen, 2015). As users increasingly turn to digital devices to self-manage health, particularly devices that address intimate issues, they must question and critique these biopedagogical tools. Negative comments largely focus on challenges with the device or interface, attributing these challenges to their own misunderstanding or finding fault in the technology and design. Few critical reviews engage with larger societal implications. I found exactly two: an Elvie user who writes, “Really shameful they are marketing to mothers desperate to get their body’s [sic] back” (and a comment about Perifit pricing. The Perifit comment is written by a non-user:

I haven't bought this product. I just wanted to say the price seems excessive. It's a bit sad to see such a potentially beneficial product unavailable/unattainable to those of lower socioeconomic standing.
These are the people who need health products like this the most. This user speaks to the many disparities present in healthcare. One prevalent disparity that FemTech companies should consider is the racial disparity in maternal health outcomes. Biographical literacy is imperative in a turn toward digital life, but access to devices that can provide necessary health interventions should be a priority. FemTech pushes methodological boundaries (McNely et al., 2015, p. 6).

FemTech offers a more logistically—and often financially—accessible alternative to visiting a pelvic floor therapist, FemTech products come with a cost. Users often compromise their privacy, allowing companies to collect and use data (intimate or otherwise) for product functionality, research, and marketing purposes. We also need to consider the financial investments beyond the initial product purchase: users must first have a smartphone with reliable internet access and be able to pay monthly or annual subscription fees that these products often require. Moreover, the hidden cost of FemTech devices, like the pelvic floor devices discussed in this article, is users’ time, care, and attention in learning about and securing the device to address a health need, understanding how to use the device, interpreting the results of use, and considering how the technology affects one’s body and one’s health practices: developing biodigital literacy. Put plainly: even as features of digital life offer convenience and accessibility, FemTech demands users’ vigilance, often without certainty of positive outcomes.

Feminist orientations in TPC and RHM, such as the one I have used in this article, are necessary to interrogate the persistent turn toward digital life. As TPC continues to consider innovative methodologies, online research methods, and the role of computational analysis while welcoming “methodological and theoretical pluralism,” the field is poised to learn from and contribute to work in RHMs that pushes methodological boundaries (McNely et al., 2015, p. 6). As such, this article addresses Novotny and Hutchinson’s (2019) provocations for research on reproductive health applications. Specifically, Novotny and Hutchinson asked researchers to consider how related areas of inquiry, such as TPC and RHM as well as feminist rhetorical studies, re-envision an empowering user experience. This re-envisioning is necessarily linked to social justice, a recent turn in both TPC and RHM that urges scholars to “refuse to support the behaviors and structures that oppress groups of people and leave them at the margins” (Walton et al., 2019, p. 141). Whether centering the user (TPC) or the patient (RHM), research in these areas helps us to better understand the relationship between people and technology, information, and health. Nonetheless, in their introduction to a special issue of Communication Design Quarterly on the rhetoric of health and medicine, Lisa Melonçon and Erin Frost noted an “underexplored dimension to what a feminist orientation can offer to the way we research” (2015, p. 11). Melonçon and Frost mentioned that feminist perspectives reveal insights into power structures and “ideological perspectives of the other” (Ibid). To this, I would add that a feminist orientation bridges the theoretical and methodological chasm between TPC and RHM when it comes to issues of social justice, offering researchers both a broad theoretical framework for addressing persistent social structures and a methodological perspective that permits engagement with various forms of evidence. Indeed, Frost et al. have affirmed a “serious commitment to interdisciplinarity in TPC to address the embodied experiences of multiply-marginalized people in health care” (2021, p. 223). I specifically offer biodigital literacy as a corollary of digital health literacy influenced by reproductive justice and intersectional feminism.

Digital life demands a biodigital literacy that advances more critical user experiences and manages expectations about device use and outcomes. Moreover, if FemTech companies truly aspire to address disparities in women’s health, then these companies must take an active role in fostering biodigital literacy among their users. This involves designing products that can adapt to diverse bodies and needs, ensuring that educational resources are accessible and relevant to a broad user base, and recognizing that each user brings a unique set of skills, experiences, and motivations to their interactions with technology.

REFERENCES


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(Re)Designing Privacy Literacy in the Age of Generative AI

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ABSTRACT
In this article, we propose (re)designing privacy literacy as an essential component of our digital lives in an age of Generative Artificial Intelligence (genAI). Our study emphasizes the layered digital, technical, rhetorical, and algorithmic literacies associated with design thinking and genAI to support theorizing privacy literacy. We introduce Design as an analytical element complementary to Woods and Wason’s (2021) multi-pronged framework for analyzing Terms of Service (ToS) documents. Using a cluster of Adobe Generative AI ToS, we illustrate the necessity of including Design, which allows those invested in Communication Design (CD) and Technical and Professional Communication (TPC) to interrogate how or if design supports or undermines values related to user privacy, data ownership, and informed consent. We conclude by detailing how collective surveillance apathy regarding emergent data infrastructures signal a Post-Surveillance era in our global society and digital lives.

CCS Concepts
Computing methodologies

Keywords
Design, Digital privacy, Post-surveillance, Terms of service, Artificial Intelligence

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INTRODUCTION
In a recent Zoom meeting, a colleague from the Visual Communications program, housed in our university’s Art Department, voiced concerns that the university’s AI Initiative was drafting policies that did not necessarily account for the potential impact of generative Artificial Intelligence (genAI) designed to produce images, graphics, videos, and art. She suggested that our institution and the general discourse about genAI technology focused too heavily on the production of text via Large Language Models (LLMs) (e.g., OpenAI’s ChatGPT) with significantly less attention on genAI capable of visual output (e.g., Adobe Firefly, OpenAI’s DALL•E and SORA). She pointed out that this is particularly concerning because our university is an Adobe Creative Campus.

Becoming an Adobe Creative Campus is generally framed as a positive contribution to student learning by Adobe advocates, university administrators, and technology enthusiasts. The mission of Adobe Creative Campus is “fostering digital literacy, access, and equity for students—and driving recognition for innovative institutions” (Adobe Creative Campus). For many, the integration of Adobe Creative Cloud products (e.g., Adobe Photoshop, Audition, Illustrator) across disciplines affords students opportunities to develop practical skills for a twenty-first century job market (Brumberger & Lauer, 2015; Lanier, 2018; Verhulsdonck et al., 2021). We will not argue against the benefits for students and faculty who receive free access to the Adobe Creative Cloud suite, including some of the most advanced and expensive design technologies available. We benefit from this agreement in our own teaching and research. However, as one might expect, Adobe has developed and integrated genAI across many of their products. As scholars and teachers concerned with the material-discursive

1 The coauthors gladly share equal authorship.
2 Across its policies, Adobe uses the generic term “Adobe Generative AI” when referring collectively to both stand-alone genAI and machine learning design software (Adobe Firefly) and their AI platform (Adobe Sensei), which is integrated into other software apps, including Adobe Photoshop. We use the umbrella term Adobe Generative AI or genAI unless a specific reference to Firefly or Sensei is required.
impact of digital technologies on users, especially students, Adobe’s integration of genAI into their products alongside increasing Adobe Creative Campus initiatives suggests a need for renewed analysis of their communication design. For us, this means critical analysis of not only their interface designs, but also essential documents that outline Adobe’s Terms of Service (ToS), including privacy policies, that govern user interactions, data collection, and digital lives.

Privacy policies certainly are not the most exciting genre of the digital age but they are extremely important, and we aren’t reading them (Woods, 2023). Indeed, while almost one-third (32%) of users are prompted to consent to a privacy policy weekly, users experience surveillance apathy about digital data collection because they don’t think it’s possible to go about their daily life without companies, institutions, and governments collecting and using their data (Auxier et al., 2019; McClain et al., 2023). This kind of apathy, or even cynicism, defines user engagement with data collecting technologies, and often the policies and procedures promote apathy at the cost of the user (Hargittai & Marwick, 2016; Meier et al., 2020; Ranzini et al., 2023). Legal scholar Ari Ezra Waldman (2018) suggested this is purposeful: “Policies today are paradigmatic examples of ‘unpleasant design,’ or design that deters certain behaviors by exercising a form of social control against actors” (p. 79). In arguing that users simply are “not reading” ToS documents, we mean this literally—we’ve all agreed to policy pop ups without even skimming the text because of their overwhelming and “unpleasant design”—but more importantly, we mean this rhetorically.

Previous scholarship encouraging rhetorical readings of ToS not only calls for individuals to meaningfully investigate the implications of a policy, or cluster of policies, governing their own data but also the large data archives other users agree to sign over to tech companies (Banyville, 2020; Markel, 2005; Obar & Oeldorf-Hirsch, 2020; Woods & Wason, 2021). While persuasive arguments about the rhetorical work of ToS are available, few have interrogated how privacy policies are designed to communicate the affordances, constraints, and impact of genAI on our digital lives. This is in spite of the rapid circulation of public-facing genAI as well as long-term theorizing of intelligent technologies by Technical and Professional Communication (TPC) scholars (Duijn & Pedersen, 2023; Johnson, 2023). To this point, as genAI becomes more diverse in their capabilities and more ingrained across technologies, we need to “pay attention” (Selfe, 1999) to how communication design links privacy, technology, and literacy in order to do “constructive work, aimed at producing concrete effects in the world” (Swarts, 2012, p. 12).

Deep analysis of ToS can be as tedious as you might expect; however, Communication Design (CD) and TPC informed thinking exposes the various ways these influential genres enable surveillance apathy. (Re)considering the current communication design of ToS certainly necessitates investment in learning how one’s data is collected, stored, aggregated, commodified, and used under surveillance capitalism, or “a new economic order that claims human experience as free raw material for hidden commercial practices of extraction, prediction, and sales” (Zuboff, 2019, p. 1).

Additionally, recognizing and challenging the global systems and cultural norms that produce the “external privacy intrusions” that necessitate data protection protocols in the first place is essential (Masur, 2020). Companies like Adobe, for example, whose influence spans professional, educational, and personal domains, design their ToS in ways that underline the interconnectedness of digital, design, and AI literacies.

In this article, we argue for (re)designing privacy literacy as an essential component of reconceptualizing our digital lives and combating surveillance apathy in the age of genAI. First, we ground our theorizing in critical and ongoing discussions about privacy and integrate scholarship emphasizing the layered digital, technical, rhetorical, and algorithmic literacies (Cargile Cook, 2002; Gallagher, 2020; Selber, 2004) associated with design thinking and genAI. Then, we analyze a cluster of Adobe Generative AI ToS emphasizing a version of privacy literacy. To do this, we build on Woods and Wason’s (2021, 2023) multi-pronged framework (the framework) for studying privacy policies and add “Design” as a new analytic element. This new analytic element allows those invested in CD and TPC to interrogate how or if the design of ToS supports or undermines values, including user privacy, data ownership, and informed consent. We conclude by drawing on Amy Collier and Jen Ross’ (2020) conceptualization of “post-surveillance to detail how the emergence of new surveillance technologies, like biometrics and genAI, contribute to an affective orientation highlighted by collective surveillance apathy toward the emergent data infrastructures of our global society and digital lives.

Defining Privacy Literacy by Layering Digital, Design, and AI Literacies

The Digital Life Institute (2020) has explained that the rapid embrace of ubiquitous technology and promise of sophisticated digital futures has come at the expense of “autonomy, privacy, and sense of self” thus making users “trackable, predictable, and hackable” (Building Digital Literacy). As a result, the need for privacy literacy becomes apparent; however, defining “privacy literacy” as a unique and unchanged set of practices falls short. Instead, we build on (and with) scholars like Kelli Cargile Cook’s (2002), Stuart Selber’s (2004), and John Gallagher’s (2020) layered conceptualization of digital, technical, rhetorical, and algorithmic literacies to theorize privacy literacy as an assemblage that can be brought in and out of focus. For the purposes of this article, we layer digital, design, and AI literacies into a privacy literacy appropriate for unpacking Adobe’s ToS.

We are not the first to forward the term “privacy literacy,” which is generally defined as learning how one’s data is collected and used as well as skills for actively protecting one’s private data (Givens, 2015; Langendorfer & Miyazaki, 2009; Wissinger, 2017). Of course, the available paths toward privacy literacy are countless, contextual, and complex. Dana Rotman, for example, outlined a framework linking critical thinking and privacy literacies with five active cognitive practices: understanding, recognizing, realizing, evaluating, and deciding (as cited in Wissinger, 2017, p. 381). Christina L. Wissinger (2017) pointed out the importance of realizing as this practice requires assessing risk, which

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3 “Privacy apathy” and “privacy cynicism” are established terms in the field. In this article we prefer “surveillance apathy” to highlight how, collectively, users have come to accept surveillance in our digital lives. Thus, we argue, they are apathetic about the surveillance practices and willing to accept violations or limitations to their privacy. Nonetheless, the literature that centers apathy remains useful to our argument even if terminology shifts.

4 New surveillance technologies (Marx, 2002) include closed-circuit and web-based monitoring systems and biometric technologies (e.g., direct-to-consumer genetics, facial-recognition technology) and have expanded to cover emergent surveillance techniques related to algorithmic surveillance and AI.
distinguishes privacy literacy from other forms of critical thinking and information literacy skills (p. 382).

However, several scholars identified weaknesses in current formations of privacy literacy. In her study of social media, SoeYoon Choi (2023) did not disavow the potential impact of privacy literacy but demonstrated a measured gap between privacy literacy and privacy practices. She argued many users, even those considered “privacy literate,” may not be aware of specific methods for protecting their data, underestimate data visibility and circulation, or simply allow certain erosions of their privacy when conforming to techno-cultural norms (p. 219). The divide between privacy literacy and privacy practices fluctuates depending on sociocultural issues including access, race, gender, class, and locale; Choi importantly noted (2023, p. 219). In turn, interdisciplinary scholars suggest privacy is a form of social capital with unequal opportunities for building literacy practices, which disproportionately impacts multiply marginalized communities (Hagendorff, 2018, p. 132; see also Benjamin, 2019; Skinner-Thompson, 2021). Paula Helm and Sandra Seubert (2020) argued current data collection and processing capabilities of emerging technologies outmatch the potential safeguards of any “privacy” framework (p. 185). Furthermore, critics emphasized how “neoliberal regimes of responsibilization” shift blame for violations of user privacy back onto the user and their lack of care in protecting their data. Said another way, blaming the individual without attending to the systemic and infrastructural processes diminishing privacy (Helm & Seubert, 2020, p. 192; see also Dubrofsky & Magnet, 2015, p. 4; Young, 2023, p. 39; Zuboff, 2019, p. 14). They concluded, “privacy literacy can do only so much and needs to be combined with other forms of privacy regulation in order to safeguard autonomy, enable resistance, and foster agency” (Helm & Seubert, 2020, p. 192).

Privacy scholars have suggested, with good reason, that privacy literacy is a subcategory of digital literacy (Helm & Seubert, 2020, p. 190). While stabilized definitions of digital literacy are elusive (Spilka, 2010), if not outright challenged (Wysocki & Johnson-Eilola, 1999), TPC scholarship has offered insights into the possibilities of being literate in the digital age for, at least, the last three decades (Berry et al., 2012; Breuch, 2002; Davis et al., 2021; Tuman, 1992). Many TPC scholars studying surveillance, surprisingly, avoid the “privacy literacy” terminology preferring the broader “critical digital literacies,” which could be read as working against the narrowing of surveillance and privacy frameworks that too often center individual data protection. Sarah Young (2023) extensively reviewed TPC literature and tracked eleven areas of emphasis: surveillance in the workplace, surveillance in schools, state/government surveillance, medical surveillance, surveillance of women’s bodies, specific technology examples of surveillance, pedagogy and student research opportunities, unintentional research surveillance, developing tactics, the consequences of surveillance, and Foucauldian analysis (pp. 21–23). Considering the pedagogical bend to these fields, it was unsurprising that the literature often centered the university, student data, educational technologies, and privacy-attentive pedagogies (see Beck et al., 2021; DRPC, 2022; Johnson et al., 2023; Tham & Dunn, 2020). For example, Colleen Reilly (2021) called for creating learning opportunities in which students develop “privacy awareness and then privacy suspicion so that they can see how to take further action to protect first themselves and then all citizens from an unacceptable and unprecedented lack of privacy in digital spaces” (p. 11). We agree with Reilly’s insistence on educating individuals about their data privacy and turning toward tactics for collective action. It is an essential both/and approach.

Despite noted critiques, we recognize radical potential in the material-discursive framework of privacy literacy. Philipp K. Masur (2020) suggested as much with his four-dimensional model for privacy literacy for both individuals and collectives within a global society. Masur’s (2020) model included

1. Factual Privacy Knowledge (individual)
2. Privacy-Related Reflection Ability (individual)
3. Privacy and Data Protection Skills (individual)
4. Critical Privacy Literacy (collective) (p. 261)

Masur’s model interests us because it critiques individualistic privacy protections but ultimately argues for critical privacy literacy whereby a user can “criticize, question, and challenge existing assumptions about the social, economic, and institutional practices that have led to a status quo in which the individual has to defend his or her freedom against more powerful economic and institutional influences,” which should lead to “social responsibility” to change the systems in place (p. 262). Masur relied on collective action to initiate social change that, eventually, concludes with “positive privacy,” or “privacy-by-design” (Cavoukian, 2009). A design literacy, therefore, is integral to a dynamic privacy literacy.

The turn toward design in TPC, Jason Tham (2021) argued, illustrates how technical communicators are problem-solving professionals who deploy design thinking to iteratively address “the whole user experience; [to take] into account users’ hopes and needs (through empathy and definition), as well as their actual reactions and behaviors (especially during the testing with prototypes)” (p. 6). Such a mindset helps technical communicators, teachers, students, and other stakeholders remain adaptable as technologies and culture continue to present unprecedented issues for humanity. However, lest we forget, “design—including its embedded literacies—can perpetuate or dismantle inequalities in society” (Wilson-Lopez et al., 2022, p. 3; Costanza-Chock, 2020). The impact of genAI on privacy is inescapable, but critical digital and design literacies can assist in developing frameworks for understanding the interplay between users, their data, genAI, machine learning, and privacy. For example, Gustav Verhulsdonck, Tharon Howard, and Jason Tham (2021) identified design thinking and genAI as prominent streams that contribute to a “multi-stage user-centered methodology” (p. 468) and suggested a rethinking of agency could enable further development of conversational design as a mode of genAI delivery.

Moving from a binary of “literate = protected and private” and “illiterate = unprotected and public” toward multidimensional layered literacies is essential for developing critical privacy literacy in the age of genAI. We relied on interdisciplinary and field-specific conceptualizations when referring to AI literacies, particularly Timothy Laquintano, Carly Schnitzler, and Annette Vee’s (2023) clustering of “functional awareness, skepticism about claims, and critical evaluation of outputs” as essential elements of an AI literacy. Taken together, the layering of digital, design, and AI literacies offers insight into how we might conceive of a
privacy literacy attuned to contemporary challenges impacting industry, education, and everyday users. We acknowledge the critique of privacy literacy and the limitations made apparent when considering issues like profiled identities, technology access, and data collection that actively erode user privacy, often in the background and buried in ToS documents. (Re)designing privacy literacy, therefore, requires a multifaceted approach that integrates layered literacies that are not only agile across contexts and technologies but also comprehensively unpack the deeply rhetorical and complex data collection methods of genAI. To these ends, we insist on deep analysis of ToS that outline and enforce data collection and privacy policies as a critical initial step.

METHODOLOGY
Many users consider ToS as impediments to fulfilling their desire to be online and the gratification they find there (Obar & Oeldorf-Hirsch, 2020, p. 142). To deal with such impediments quickly, users often accept ToS without critically considering the implications. Charles Woods and Noah Wason (2021, 2023) posited a multi-pronged framework for analyzing and teaching about digital data collection (Table 1). The framework used digital rhetoric, TPC, and genre studies scholarship that studied privacy and data collection online.

The framework, as originally formulated, accounted for the asymmetrical power represented in privacy policies by engaging six (6) analytic elements: Temporality, Language, Transparency, Digital Surveillance, Data Usage, and Meaningful Access. Woods and Wason (2021) proposed delineating between lower order elements (temporality, transparency, language) and higher order elements (data usage, digital surveillance, and meaningful access); however, in this article, we do not. Instead, in the spirit of this Special Issue, we complicated and reconceptualized the framework, accounting for communication design.

Methodologically, we understand the analytic elements in constant negotiation, each an equally critical aspect for embracing a multifaceted privacy literacy. Indeed, each element—individually and collectively—contributes to the (un)ethical design and user experience of privacy policies. Therefore, we expand the framework and introduce a new analytical element: Design (Table 2). This addition amplifies the importance of understanding communication design as an essential component of practicing privacy literacy. Some studies, for example, demonstrate how the length of privacy policies impact a user’s decision making (Meier et al., 2020); however, we go further and argue the design of privacy policies encourages collective surveillance apathy among users willing to forgo their privacy to live their digital lives. Simply put, by adding this new element, our research inquires: Who are privacy policies designed to benefit, and what design choices contribute to that benefit?

We focus on Adobe, in part, because it is a Big Technology (Big Tech) company known for its design apps, which are extremely popular with professional designers as well as faculty and students. Just think about the verbification (rhetorical anthimeria) of Adobe’s Photoshop, a trademarked software, into “photoshopping” to reference the act of using a digital image editing software. With initiatives like Adobe Creative Campus, Adobe can also be positioned as an Educational Technology (EdTech) company. However, we are most interested in Adobe precisely because it presents a privacy rhetoric that articulates pride in the steps it takes to secure user data, even though those steps may not be as notable as claimed.

In the following sections, we analyze Adobe genAI ToS using the aforementioned analytical elements. A notable feature is that for each analytic element, we conclude the analysis with a brief question. These questions are designed as rhetorical questions; however, we hope you will carefully consider each within the framework we’ve described in our introduction and literature review. Our goal is for these questions to act as a bridge between theory and analysis. These questions may also work well as discussion questions in a course or reading group.

ANALYSIS: EXPANDING PRIVACY LITERACY
Adobe’s online “Privacy Center” is prime for analysis (Figure 1). This dedicated area of their website (adobe.com/privacy) proudly declares, “We value your privacy and trust” with the subheading “The Adobe Privacy Center makes it easy to find information on privacy topics, including your choices about how we collect and use your information.” Users can navigate the page(s) using both a header menu and a menu of icons. The icons direct users to Adobe Privacy (icon: open book), Young Users (icon: young male on shield); Cookies (icon: scalloped circle with a check mark); Contact us (icon: on-ear headset with microphone); Law Enforcement (icon: scales of justice); Trust Center (icon: webpage with padlock); and Your privacy choices (icon: mechanical gear). The Privacy Center’s interface is designed to communicate an ethos of trust, transparency, and consent.

![Figure 1. Screen capture of the Adobe Privacy Center main page as of October 2023.](https://example.com/privacy-center.png)

Admittedly, holistically examining the assemblage of policies contributing to Adobe’s privacy frameworks exceeds the limits of this article. Instead, prompted by the public circulation and widespread integration of genAI, which is increasingly a daily aspect of digital life, we focus our analysis on a cluster of documents that specifically govern Adobe’s genAI—“Adobe Generative AI User Guidelines” (Guidelines) and the “Adobe Generative AI Additional Terms” (Additional Terms)—but the hypertextual nature of these documents also required reference to other documents including Adobe Privacy Policy (Privacy Policy) and Adobe General Terms of Use (General Terms).6 We examine aspects of these policies related to our analytical element, Design, in its own right as well.

6 These documents are publicly available through Adobe’s website. These documents are fluid and can be updated regularly. For our analysis, we used documents that were current in October 2023.
as its interplay with the original analytical elements: Temporality, Language, Transparency, Digital Surveillance, Data Usage, and Meaningful Access. This analysis demonstrates how understanding privacy policies and other ToS contributes to practicing and questioning privacy literacy. Layering design literacy with privacy literacy in this way facilitates a discussion about what it means to consent to a ToS document in an era of post-surveillance.

Design
The impact of Design precedes user engagement with the ToS when accessing Adobe Generative AI. When first entering Adobe Firefly, users are greeted with a dialogue box (Figure 2). Interacting with the dialogue box is the mechanism by which consent is provided by the user. The user interface (UI) is typical for these kinds of dialogue boxes; however, approximately the top 1/3rd is occupied by a beautiful, colorful AI generated bird. The “Agree” is clearly marked and distinguished by a gray button on a black background. Just above, there is a simple message in white letters on a Black background: Generative AI in Adobe apps (formatted as a heading in larger, bold text) above two lines of text (formatted in normal body text). The first line reads: “You can create in new ways with generative AI technology” and the second reads “By clicking ‘Agree,’ you agree to our User Guidelines.” The phrase “User Guidelines” is hyperlinked and set off in blue. The link brings you to the Adobe Generative AI User Guidelines, which is one policy from the cluster of ToS we analyzed below. The interplay of language—specifically the sparsity of language—paired with the “Agree” button that stands out on the black background prioritizes simplified design over consent. Similar dialogue boxes in other digital interfaces often require the user to scroll through the entirety of the guidelines and some even add a small box that a user must check before agreeing to ToS.

![Figure 2. Dialogue box that prompts users of Adobe Firefly to “Agree.”](image)

Clicking the hyperlink allows further interrogation. The design of the Guidelines communicates the acceptability of collective surveillance apathy as a part of digital life. For example, the Guidelines explain that they exist in coordination with other policies that are accessible via a series of hyperlinks, which means users must navigate across and negotiate information from a seemingly endless constellation of documents. Moreover, while users can opt-out of Adobe utilizing creative work produced to train Adobe Generative AI, responsibility to stop the use of a user’s creative work to train genAI by third parties is on the user. But how can we know every third party that might use our data to train genAI without transparency from Adobe in their ToS documents? Thus, this becomes an issue of user consent, which is not mentioned in the Guidelines document. ToS documents amplify values related to respect, safety, and authenticity which are, admittedly, related to user beneficence but not explicitly user consent or user experience. Furthermore, designing the policy to emphasize authenticity—specifically outlawing deep fakes, impersonation, and automation—contributes to an uneasy feeling among users about the future of their digital lives. Certainly, the Adobe Content Credentialing process reassures users that the company is taking measures to their digital privacy and perform ethical data collection, but “Content Credentialing” will need additional and continual investigation.

The strategic use of hyperlinking creates a user experience that demands patience, stamina, and thoughtful online navigation of Adobe’s dense network of privacy-related documents. The Privacy Center is a unique digital space filled with many other unique design choices that help and hinder asymmetrical power structures: it offers users the opportunity to interface with the company to learn more about their data collection protocols. However, it is also designed to openly encourage interactions with law enforcement organizations and agencies regarding mitigating fraud and deception and, unfortunately, law enforcement is a multi-pronged, oppressive surveillance apparatus ingrained in governing infrastructures. Realizing that Adobe products, including its genAI, which are mostly utilized for creative pursuits, potentially contributes to the extensive law enforcement surveillance apparatus is unsettling; thus, we need to continue to interrogate the design of ToS documents, particularly for Big Tech companies and genAI.

The analytic element of Design integrates with Woods and Wason’s (2021, 2023) original framework. It allows users to return to elements like Temporality, Language, Data Usage, Transparency, Digital Surveillance, and Meaningful Access and assess not only the related content but also interrogate the rhetorical design choices being made to persuade or dissuade users from certain uses and understanding of technology. For example, evaluating when a privacy policy was last updated or analyzing the various digital tracking technologies (e.g., cookies, SDKs, etc.) used reveals how certain design elements might encourage the kind of surveillance apathy that confuses users and leads to their feeling a lack of control when it comes to the collection, commodification, and circulation of their data (Auxier et al., 2019). Design is essential for privacy literacy if we are going to take on the wicked problem of privacy erosion.

Question: What design choices help or hinder the user experience for those seeking to understand the complex privacy policies linked to popular technologies?

Temporality
The rapid shifts in technologies are reflected not only in the tools themselves but also in the policies that govern them; this is especially true for genAI technologies. Adobe Generative AI, for example, updated its relevant privacy documents multiple times during the writing of this article, and we expect the ToS will receive multiple updates during the review, revision, production, and release of this Special Issue. Technology has little regard to the slow pace of academic publishing. While some may perceive this moving target as a limitation of our analysis, it actually emphasizes...
the importance of understanding and observing the temporal impact on ToS documents and, in turn, privacy literacy.

Adobe is transparent with its updates. At the top of both the Guidelines and Additional Terms documents. We noted that these particular documents were both updated on October 6, 2023. At the time of writing, this update was only available for a few weeks with the previously most recent update posted on September 8, 2023. With policy updates occurring within a month, we easily understood the rapid changes in genAI technologies and their use. This understanding was reinforced by the change made specifically to the Additional Terms. Only one substantive change was observable: the Term “Beta Versions” was removed on the October update. This Term expressly disallowed the commercial use of Output generated by “a Beta Version of our Services and Software.”

Question: What changed within a month to nullify the Beta Versions Term, and how does this impact user data?

Language
Adobe’s language use in ToS documents is precise, defined, and, in terms of design, emphasized in bold. An interesting example of this language use occurs at the end of the first paragraph of the Additional Terms document when the company states, “Capitalized terms not defined here have the same meaning as defined in the General Terms” (Adobe). This means users who are invested in understanding definitions—for many an elementary but critical step in literacy development—as a part of practicing privacy literacy must be familiar with yet another Adobe ToS document, the General Terms. But to what end? The latest iteration of the General Terms were published August 1, 2022, and last updated September 19, 2022, well before the introduction of Adobe Firefly in March 2023.

Technological development alone alongside policy changes should prompt an update to their General Terms every year. For example, the Privacy Policy was updated on September 23, 2023; their General Terms should have been updated at the same time. The Privacy Policy is designed with language that underscores the “Key Point” that geolocation matters when it comes to data collection as dictated by state and local policies. It is quite a different digital life for users in California from those in Texas. Investigating these language choices in relation to credibility and logic reveals a great deal about how place matters as it offers the opportunity to investigate data collection and digital privacy laws governing different locations as a way of practicing privacy literacy.

Question: How might we consider the use of a hyperlinked Q&A section as providing an organizational logic that presents the types of appropriate (“logical”) questions a user should ask while also creating a conversational relationship between Adobe and the user?

Transparency
The “Summary of Key Points” in the Privacy Policy communicates information in the policy Adobe believes is most important. While the policy maintains readability, its design intentionally overwhelms users with information—a method of breeding collective surveillance apathy. Thus, readers can rely on the “Summary of Key Points” to learn the highlights but will need to discern what elements of the policy they want to investigate further. Many privacy policies include similar designs, and beginning there when analyzing ToS documents should be considered essential for practicing privacy literacy. While the “Summary of Key Points” table is helpful, Adobe highlights the wrong aspect of data collection users should be concerned about when it states, “This policy explains when we process personal information for our legitimate interests” (Adobe, emphasis added). Unless they opt out, users must assume that data is constantly being collected, primarily in the form of cookies. The question, importantly, is not if but when. Instead, we suggest, the emphasis should be on how data is collected, aggregated, and commodified.

And what are the potential trajectories of user data created using Adobe Generative AI? The Additional Terms explains under the heading “Text Based Inputs by Free Users” that without a paid subscription, users grant Adobe “non-exclusive, perpetual, irrevocable, worldwide, royalty-free license to use, reproduce, distribute, modify, sublicense, create derivative works based on, publicly display, publicly perform, or translate” your inputs and outputs.

Question: How does the fact that Adobe provides additional rights and privileges for intellectual property (IP) and data privacy to paid subscribers reflect their participation in surveillance capitalism?

Digital Surveillance
Adobe, like many corporations, uses a variety of digital surveillance strategies to improve their goods and services, including genAI. Cookies and similar technologies (e.g., pixels, SDKs, etc.) not only help improve product experience for users, but also these analytics contribute to the construction and evolution of algorithms, which can manipulate users into purchasing products or endorsing political candidates. Obviously, Adobe wants us to buy more Adobe products: “Adobe advertises online in a variety of ways, including displaying Adobe ads to you on other companies’ websites and apps and on social media platforms’ (Adobe Privacy Policy). Additionally, as described in the Privacy Policy, they work with other Big Tech companies and brands—like Facebook (Meta) and LinkedIn—to circulate online advertisements for their products.

Users who practice privacy literacy as part of their digital life must navigate the seemingly endless network or third party relationships.
As mentioned, Adobe creates an atmosphere of trust regarding digital privacy with their Adobe Privacy Center. Indeed, analyzing the Privacy Policy requires users to navigate the Center, which includes the Privacy Policy, as well as critical information related to Cookies and their relationship with another third party, law enforcement. Adobe explains “cookies and similar technologies” are used on the site; however, how cookies are used is buried in another policy available via a hyperlink embedded in the Adobe Privacy Policy. This additional cookie policy is short, simply explaining how Adobe uses web beacons and embedded scripts to notify them when certain webpages, emails, etc. are clicked on.

**Question:** Importantly, the “Law Enforcement” section of the Adobe Privacy Center amplifies the importance of protecting children, a protected group in privacy policies. What data do corporations, governments, and educational institutions use to determine which populations should be “protected,” and what ideologies influence this decision?

### Data Usage
Adobe amplifies values related to respect, safety, and authenticity in the Adobe Generative AI Guidelines. If digital surveillance is widespread, then establishing a protocol for privacy literacy that includes understanding how these values, and similar ones, are positioned in a privacy policy to serve the goals of the community is critical. Adobe encourages users not to “create, upload, or share abusive, illegal, or confidential content” to protect the

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<th>Analytic Element</th>
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<td>Design</td>
<td>How does the design of the policy support and/or work against the stated values of the company/data collecting body?</td>
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<td>Is user consent positioned as a value within the design of the policy?</td>
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<td>What, if any, design elements help to balance asymmetrical power structures embedded in privacy policies?</td>
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objects of surveillance (users), but also to protect the surveillant (Adobe). Indeed, privacy policies are designed and implemented to protect companies from lawsuits from consumers (Beck, 2016). Reasonably, the purpose of these policies is to mitigate risk, but even though Adobe promotes an ethos of trust with users via their Privacy Safety Center, ultimately mitigating risk for Adobe serves the goals of the data collector at the expense of user privacy.

Adobe collects and aggregates user data and analyzes it to enhance its genAI platforms. And while Adobe centers “Your privacy choices” in the Privacy Center and ToS documents, user consent is not requested or attained in all instances. For example, like many other Big Tech companies, Adobe works to provide a “seamless experience” across products by “show[ing] you the most relevant content and services and for marketing purposes, with your consent where required” (Adobe Privacy Policy, emphasis added). This means that users do not have to consent to every different use of their data. Adobe determines many of their privacy “ethics” on legal statutes and industry best practices. This, often, means that users receive minimum protections even as Adobe promotes valuing privacy and trust. The issue of consent must be carefully examined within the context of privacy literacy especially in the wake of genAI. Deciding whether the balance between the significance of the data usage and the personal cost of the means of surveillance is a decision for individual users which can only be made soundly by deploying well-developed privacy literacy.

**Question:** What tactics can users develop for delineating between the costs and benefits of ethical data usage?

### Meaningful Access

Access is a topic addressed at length in the Privacy Policy, but not in relation to meaningful access: not just the access to physical technology, but the literacy to engage with technology meaningfully and to understand the implications of use (Banks, 2006; Woods & Wason, 2021). Instead of meaningful access, access is covered in relation to users accessing Adobe products and who has access to data once it is collected (e.g., third parties). There are many reasons for third parties accessing user data generated, which constitutes unethical surveillance when consent is not obtained.

The Privacy Policy states that for the purposes of fraud prevention and business security:

> we will disclose personal information to companies, organizations, government authorities, or individuals outside of Adobe if we have a good-faith belief that access, use, preservation or disclosure of the information is reasonably necessary to detect, prevent, or protect against such fraudulent, deceptive, or illegal activity, misuse of our Services and Software, or security or technical issues, or where it is reasonably necessary to protect from harm the rights, property or safety of Adobe and our employees, our users, children, or the public as required or permitted by law. (Adobe Privacy Policy; emphasis added)

Here, complete definitions of what Adobe deems in “good faith” and “reasonably necessary” are missing. To further complicate the concept of “good faith,” consider how what is considered in good faith—just as we must determine what is considered reasonable—differs across cultures and communities. Understanding that good faith is fluid and subjective, and how a company defines what good faith means, for a company is part of practicing privacy literacy within all aspects of digital life.

Considering how—or even if—meaningful access is positioned in a ToS document contributes to our understanding of privacy literacy because living a digital life maintains implications beyond the digital realm. We might look to Adobe Creative Campus initiatives and the widespread implementation of laptops and tablets throughout elementary and secondary education as viable, effective methods to overcome access issues for students. Practicing privacy literacy means understanding how digital surveillance occurs online and via digital technologies like laptops and tablets, but also how genAI technologies are integrated as part of the infrastructure promoting surveillance apathy.

**Question:** In what ways can meaningful access be determined, especially when dealing with considerably complex technological and legal discourses?

### DISCUSSION: COMMUNICATING AND CONSENTING TO SURVEILLANCE

The analytic element of Design integrates with Woods and Wason’s (2021, 2023) original framework and amplifies a crucial component of assessing ToS documents while expanding privacy literacy at a critical moment. It allows users to return to analytic elements like Temperality, Language, Data Usage, Transparency, Digital Surveillance, and Meaningful Access and assess not only the related content but also interrogate the rhetorical design choices made to persuade or dissuade user practices. For example, evaluating when a privacy policy was last updated or analyzing the various digital tracking technologies (e.g., cookies, SDKs, etc.) used reveals how certain design elements might encourage the kind of surveillance apathy that confuses users and leads to their feeling a lack of control when it comes to the collection, commodification, and circulation of their data (Auxier et al., 2019; Waldman, 2018).

Design is essential for privacy literacy if we are going to take on the wicked problem of privacy erosion.

Privacy erosion begins when ToS documents communicate surveillance apathy among users through their design, like the Adobe ToS documents we examined related to Adobe Generative AI. Analyzing the temporal aspects (e.g., when the policy was last updated) and understanding data generation and data usage (e.g., third party relationships) in coordination with and in relation to the communication design of the ToS documents reveals how power is distributed asymmetrically online, thus contributing to systemically inequitable experiences among users. Contextualizing this point with the Adobe products used in industry as well as classrooms helps users and instructors conceptualize how students contend with the biases inherent to these technologies and the systemic marginalization they perpetuate. This is essential for those working toward a praxis rooted in privacy literacy that is attuned to issues on the privacy-surveillance continuum.

Studying Design illuminates transparency as a particularly dynamic analytical element when studying privacy policies with the goal of privacy literacy. The questions about transparency originally posited in the framework are related to the understanding of the accessibility of data collection processes and identifying the potential trajectories for user data once it is collected; that is, sharing and selling it with companies, government entities, and other third parties. Further interrogation of the transparency of ToS documents brings attention to meaningful access for the audiences...
these documents are designed for and questions how consent is conceptualized within them. For example, Adobe’s Privacy Center includes design elements that highlight “Your privacy choices”; however, in the Guidelines, consent is mentioned once in relation to users gaining consent for inputting data. Users practicing privacy literacy are concerned with consent, and closely attending to issues of design identify shallow appeals to consent in ToS.

The language of consent can also be further unpacked using Design as an analytic element. Recall the initial dialogue box users confront when launching Adobe Firefly (Image 2). Attention is purposefully directed to the beautiful AI generated bird and the encouraging tagline while the Guidelines are presented as a hyperlink in a smaller font. By concealing the language dictating use behind a hyperlink, Adobe is also obfuscating—making less transparent—the language that informs the user about digital surveillance and data usage in favor of aesthetic and experiential ease. Further, Adobe also makes use of future implicit consent throughout its apps.

The design of the cluster of Adobe ToS documents analyzed for this study encourages collective surveillance apathy among users. If individual users know digital privacy issues exist but are uninformed, unbothered, or unwilling to compromise, then collective surveillance apathy is the permanence of this attitude among users across space and time among various communities and within society. Indeed, Big Tech and other companies value data in aggregate form, and are less concerned with an individual user’s data. We must emphasize how the design of these policies impacts both individuals and groups—quite literally, individuals and dividuals. Once we see privacy policies as intentionally designed to cultivate collective surveillance apathy at the individual level to capitalize on aggregated data, then we can work towards establishing a coalitional approach to understanding digital privacy to combat collective surveillance apathy in the current age of automation.

Amplifying the critical nature of Design as a new analytical element to the framework helps us overcome collective surveillance apathy and propels us towards the intersection of design justice and what we might describe as privacy justice. Principles of design justice include empowerment, sustainability, and liberation in focusing on “possibilities of design as a tool for social transformation” (Costanza-Chock, 2020, p. xviii). We might think of privacy justice as upholding similar principles, and privacy literacy as a way of advocating for equitable interactions in our digital lives. Integrating privacy justice as a key element of design for ToS documents is one way to work towards overcoming surveillance apathy.

**CONCLUSION: POST-SURVEILLANCE IN THE AGE OF GENERATIVE AI**

Unethical digital surveillance triangulated with the expansion of online education and the introduction of genAI models for public use should prompt complex discussions about literacy in relation to content authenticity, ethical data collection, and digital privacy. Indeed, such technologies, and related discourses, have pushed us past the era of New Surveillance (Marx, 2002) toward a Post-Surveillance era. We define Post-Surveillance as an affective orientation highlighted by users not only expressing collective surveillance apathy regarding the implementation of New Surveillance technologies with the intention of bodily control but also a willingness to participate in practices that aid in the expansion of global surveillance infrastructures.

Like many concepts, scholars have theorized a “post-” surveillance, and specifically within higher education contexts. Amy Collier and Jen Ross (2020) explained higher education institutions historically monitor faculty and students through data collection and evaluation of their scholarship and on-campus activities, and “contemporary technologies and dataification are part of, but not the source, of surveillance practices in higher education (Collier & Ross, 2020, p. 276). Collier and Ross are associated with Higher Ed After Surveillance (About, n.d.), a group of scholars who work from the position that surveillance erodes trust, is not care, always expands, and is a symptom not a solution. To overcome the symptom of surveillance, Collier and Ross have encouraged user consideration of potential futures separated from inequitable, unethical surveillance. However, the expansion of New Surveillance technologies, specifically biometrics and AI, amplifies the importance of understanding how Post-Surveillance attitudes permeate beyond education and within larger society in relation to surveillance apathy.

Designers, technical communicators, teachers, and, in essence, all users of technology find themselves at a critical moment. This article argues for developing multifaceted literacies not only for engaging increasingly sophisticated, rapidly evolving technologies but also for navigating numerous technical and legal policies that govern data and privacy in digital lives. Our study provides guidance for CD and TPC researchers as well as teachers and students interested in studying ToS documents as a way of reconceptualizing privacy literacy as an integral element of their digital life. We expanded the framework by introducing Design as a new analytical element to amplify communication design as an essential component of practicing privacy literacy. Our study focused on a cluster of Adobe ToS documents, yet there is continued need for investigation of other policies for other emerging technologies, particularly genAI capable of producing images, graphics, videos, and art.

We must learn more about content credentialing and authentication as opportunities to counter surveillance regimes while maintaining a critical eye. In 2023, for example, we saw influential labor unions like the Screen Actors Guild-American Federation of Television and Radio Artists (SAG-AFTRA) fighting for human agency and fair labor standards regarding IP for their members. This is a consolidated demonstration within one industry of the far-reaching implications of genAI across sectors. But how do we rectify autonomy with automation? For example, how did Adobe develop its content credentialing processes and who oversees maintaining and refining those processes over time? And what additional ways do data collectors obfuscate information to encourage collective surveillance apathy? These are pertinent questions in the Post-Surveillance era and would provide fruitful research questions for users interested in implementing privacy literacies as a way to overcome collective surveillance apathy.

We opened this article with a brief anecdote about discussions happening on our university campus about the impact of genAI. Specifically, we recalled a colleague concerned that there was not enough attention around genAI capable of producing images, graphics, videos, and art considering our campus recently became an Adobe Creative Campus. We find it interesting that the Adobe Creative Campus initiative, which is currently on nearly 60 university campuses across the U.S., began prior to the introduction

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8 Content credentialing is a process by which additional information about a content creator, the source of included digital assets, and the use of genAI is embedded in metadata.
of Adobe Generative AI and wonder if campus administrators would have thought differently about entering such an agreement given the overwhelming suspicion of genAI in higher education. These concerns are extremely pertinent with increasing investment in academic User Experience (UX) and Design programs, including on our own campus. Regardless, initiatives like Adobe Creative Campus need to be interrogated in the era of Post-Surveillance, especially by CD and TPC experts who can be privacy advocates9 after the social justice turn (Walton et al., 2019). In sum, Big Tech companies like Adobe may strive to present themselves and their products as trustful and sensitive to user privacy; however, the ToS and privacy policies that outline their data collection practices are designed to cultivate collective surveillance apathy, the hallmark feature of the Post-Surveillance era.

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9 Colin J. Bennett (2008) described privacy advocates as people and groups who challenge intrusive government and corporate surveillance.


**ABOUT THE AUTHORS**

Charles Woods is an Assistant Professor of English at Texas A&M University-Commerce (A&M-Commerce) where he teaches undergraduate and graduate courses in the Department of Literature and Languages. Charles specializes in digital rhetorics, privacy and surveillance, and writing pedagogy and his scholarship is published in *Computers and Composition*, *Journal of Interactive Technology and Pedagogy*, *Peitho*, and various edited collections. Charles is co-editor of *The Annual Proceedings of the Computers and Writing Conference* and an assistant editor for *Kairos: a Journal of Rhetoric, Technology, and Pedagogy*. He has been awarded the 2020 *Kairos* Service Award for Graduate Students, the 2022 *Kairos* John Lovas Award, and the 2022 *Computers & Composition* Michelle Kendrick Award. Charles is the Founder of the Digital Rhetorical Privacy Collective (DRPC) ([drpcollective.com](http://drpcollective.com)), which has been awarded a prestigious Conference on College Composition and Communication (CCCC) Emergent Researcher Award grant. Connected to his work with the DRPC, Charles has also won a competitive A&M-Commerce Presidential GAR Initiative package and a Council for Programs in Technical and Scientific Communication (CPTSC) Research grant. Charles received his PhD in English from Illinois State University in 2021 and is a proud first-generation college graduate from rural Alabama.

Gavin P. Johnson is a teacher-scholar specializing in multimodal writing, queer-feminist rhetorics, and critical digital pedagogy. He currently works as the Director of Writing and an Assistant Professor of English at Texas A&M University-Commerce. He is a founding advisory board member of the Digital Rhetorical Privacy Collective ([drpcollective.com](http://drpcollective.com)), which was awarded a prestigious Conference on College Composition and Communication (CCCC) Emergent Researcher Award for its work bridging academic and public conversations about digital privacy and surveillance. His writing is published and forthcoming in journals including *Rhetoric Society Quarterly, Computers and Composition, Technical Communication, College English, Peitho, Composition Studies, Pre/Text: A Journal of Rhetorical Theory, and Literacy in Composition Studies*, and various edited collections. For his research, he has been awarded the *Computers and Composition* Ellen Nold Outstanding Article Award (with Laura L. Allen), the 2021 CCCC Lavender Rhetorics Dissertation Award for Excellence in Queer Scholarship, an Honorable Mention for the 2020 Computers and Composition Hugh Burns Best Dissertation Award, and the 2016 CCCC Gloria Anzaldúa Rhetorician Award. Dr. Johnson is a proud first-generation college graduate from southeast Louisiana.
Special Section dedicated to Dr. Halcyon Lawrence: “Please continue this good work!”: A letter to Dr. Halcyon Lawrence from a brief friend

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INTRODUCTION
Dear Halcyon,

You probably didn’t realize the impact you had when, sitting on that bench outside of The Medical University of South Carolina (MUSC) at the 2023 CPTSC conference, you changed the topic of our conversation from your new house to, “And what is your research on, Sarah?”

No one had ever asked me that before.

As a long-time technical writing instructor, I knew my lane and was terrified of academia. When I saw your call for applications to your summer group, though, I saw a place where I might be able to learn and contribute. How can I encourage professional writing students to want to shape their workplaces instead of conforming to the white professional habitus? I really wanted to talk with other teachers about this at your summer reading group, “Redressing Language Bias in the Field of Professional, Technical, and Scientific Communication,” sponsored by a grant from the Council for Programs in Technical and Scientific Communication’s (CPTSC) Antiracist Programs and Pedagogies.

You didn’t select my application, but your rejection boosted me. You wrote,

Thank you so much for your interest in joining me to write a statement of linguistic justice this summer. I was particularly impressed with your commitment to anti-racist pedagogy and the amazing scholars that you introduce your students to in your classroom. Please continue this good work!

Your email offered other ways for me to get involved. Because of your generative, welcoming, inclusive, encouraging rejection, I wanted to do more. Consequently, I registered for CPTSC’s 2023 conference in Charleston, South Carolina so I could attend your workshop where you would solicit feedback on the summer group’s draft Statement on Linguistic Justice in Professional, Technical, and Science Communication (PTSC).

At the conference workshop in September, it was exciting to provide feedback on the draft Statement, be part of this group project, talk with other teachers about these issues, and shape the world we wanted to live in. When teachers started sharing ideas about what to add to the Statement (for example, a collection of classroom activities and assignments), you encouraged them to take up that project. You were not the gatekeeper; after all, we all had a responsibility to do this work.

Do you remember that evening in Charleston, when we sat together on that bench, chatting about random things and discovering we lived only 30 minutes from one another? I confided about how, as a new assistant writing program administrator, I had a million ideas. But my ideas were often far-fetched and beyond our capacity after the day-to-day was done. Months after, I couldn’t believe I’d suggested in a meeting, “Let’s host a conference for professional writing programs in our area to get together!” Hearing my story, you cut to the chase: “Let’s work together, Sarah. I am looking for more connection, too.” You asked to be friends.

When I came home from Charleston, I used your accent and dialect tags activity in my U.S. Latinx Literature course, which was one of my students’ favorite self-driven discussions of the semester. I focused more attention on Critical Language Awareness and introduced ideas of translanguage and language ideologies. In my technical writing class, I included discussion boards for students to reflect on the three myths named in the draft Statement...
on Linguistic Justice in PTSC. I doubled down on my invitations to students to expand their thinking of what counts as technical communication and what project topics they would take up. As I did so, I kept hearing your voice at the conference, “Hair braiding is technical communication.”

I thought more about the guiding questions in the Statement, like, “What skills do we need to be able to do this work: e.g., …Basic linguistics training?” (2) I am interested in how translanguaging and basic linguistics knowledge can help our students increase facility in seeing, questioning, and resisting oppressive language ideologies. I want to focus on how I can help students be better listeners, uplift the role of the listener in making meaning in professional communication settings, and resist monolingual and other oppressive language ideologies that insist speakers need to change. How can listeners (and listening technology) change, cooperate, and collaborate toward shared understanding?

It was when I was sharing with my program director about our plans to work together that he told me you had died. You and I had texted and emailed in the weeks since the conference, and I had felt a new engagement with my teaching. I now saw many possibilities for research that were grounded in a relationship with you.

What I want you to know now is that we started a reading group on Linguistic Justice in PTSC with other faculty members and graduate students in our Professional Writing Program. We’ve been reading the draft Statement, bell hooks, essays from Your computer is on fire (Mullaney et al, 2021), including your essay “Siri Disciplines,” the film Signing Black in America, and more. Some questions we are still grappling with include

- How can we acknowledge the importance of philosophy and linguistics study for our students and how to incorporate that in this already-jammed general education class?

- How can we include the viewpoints of our 90 faculty as we propose changing one of our learning outcomes from Standard Written English to something aligned with linguistic justice? How do we persuade our students? (In your essay in Technical Communication and Social Justice (2024), you emphasize how harmful calling language “standard” can be. And also how important it is to include community members in the process of change.)

Our group has been so generative, Halcyon, and I wish you could see it. We are developing classroom projects to incorporate understanding of different linguistic ideologies in the technical writing classroom. Taking into account your findings in “Siri Disciplines,” we are designing a group project to analyze and design projects that include speech as part of their multimodality and that engage critically with the design of that speech. We are hearing stories from engineers in a government agency who tell us people were weeded out of the interview process using accent as a disqualifier. We are developing a proposal for an upcoming conference. We are creating activities to test out in our professional writing classrooms, and we have one another to discuss them with. We are considering how work in sociolinguistics and bilingual education, especially translanguaging, can help support the work of linguistic justice in PTSC. We are incubating projects to add global components to our courses. Our program director supports our group, and the group has helped advance the work of our department’s CAARES committee (Committee for Antiracism, Accessibility, Respect, Equity, and Social Justice); we even received a small grant to purchase snacks for our meetings. Technical communication is a human process.

You not only taught me that there’s abundance, belonging, and intimacy to be found in academia, you showed me how to locate it and create it in each moment. It is impossible to separate the teacher from the teaching.

I’ve got to tell you about one more thing: this June, our Professional Writing Program is going to host a one-day meeting for other writing programs in the DMV (Washington, D.C., Maryland, and Virginia region), part of a proposal my director and I submitted to the CWPA’s call for Summer Regionals. Our purpose will be to discuss the theme of Linguistic Justice, and to just meet each other.

We are paying attention to what you’ve been saying, and we’re taking action.

Your friend,
Sarah

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ABOUT THE AUTHOR

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Honoring Dr. Halcyon Lawrence’s Legacy in the Technical Communication Classroom

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INTRODUCTION

Over the course of my friendship with Dr. Halcyon Lawrence, I would often spend weekday evenings completing a mundane chore like washing dishes or feeding the cat. I would then hear my phone’s alert for an incoming text message: “I need company. Are you working tonight?” Within 30 minutes or so Halcyon and I were on Zoom, cameras off, and nothing displayed on screen but our login names. Other times I’d receive a text like “I need your advice. Do you have time?” and we convened over the phone. When we talked, answers to our mutual question “How was your day?” prompted stories, and those stories led to musings and reflections. When I became befuddled when an assignment would flop or disappointed by a flat discussion, Halcyon gently queried, “So what were you trying to do?” or “Why do you think that activity didn’t go well?” Her responses always reoriented me. When venting was no longer productive, we teased apart the problem, speculating what skill or knowledge students needed but had not sufficiently developed. These conversations often gave me enthusiasm for a new pedagogical approach or revealed insights about the gaps in our teaching and our students’ learning. When venting was no longer productive, we teased apart the problem, speculating what skill or knowledge students needed but had not sufficiently developed. These conversations often gave me enthusiasm for a new pedagogical approach or revealed insights about the gaps in our teaching and our students’ learning. In the months since Halcyon’s passing, I miss most acutely these nightly conversations about what was happening in our classrooms. My goal in this essay is to underscore the fact that part of Halcyon’s legacy as a social justice-oriented technical communication scholar is her ethos as a teacher and collaborator who cared capaciously about student learning and the development of teaching practices and assignments.

Over the course of our postdoctoral work as Brittain Fellows at the Georgia Institute of Technology as well as in our tenure-line positions, Halcyon’s and my scholarly collaboration took shape and deepened. The research projects we developed focused on implicit biases in the design and usability of technological devices and the naming and categorization of technical communication skills and knowledge. Our interest in these issues stemmed from our experiences in technical communication classrooms at different institutions. The process of discussing, drafting, and revising with Halcyon provided me with an intensive examination of pedagogical practices that made visible the complexity of the classroom as a learning space. For instance, while developing our article, “Promoting Inclusive and Accessible Design in Usability Testing: A Teaching Case with Users Who Are Deaf” (2018), Halcyon taught me to value the classroom as a relational space that had the power to embed biases as well as to foreground the obligation to challenge these biases. In our article “The Discourse of Technological Innovation: A New Domain for Accountability” (2021), we identified four patterns characteristic of the “grand” narratives developers and journalists employed when promoting technological innovations and educating users on their use and importance. We further speculated that not only are these narratives perpetuated in media and journalistic spaces, but also in our classrooms, especially when students are tasked with design projects. Our work together on this article helped me to value the technical communication classroom as a place to not only prepare students for the workplace, but also as a place from which to critically question the discourses the workplace promoted as inclusive and universally beneficial.

Our focus on technical communication pedagogy pivoted inward toward our discipline’s practices in “Confronting Methodological Stasis: Re-Examining Approaches to Technical Communication Pedagogical Literacy Frameworks” (2021). In this qualitative study we asserted the necessity for such frameworks to “be more responsive to new contexts, accommodate multidimensional...
relationships among literacies, and ultimately be more sustainable” (p. 100). As we wrestled with the data and talked through the implications of our analysis, we regularly came back to the tension between the discrete, static categories of the pedagogical literacy framework and the complexity of skills and knowledge we ask students to demonstrate, even in traditional assignments such as resumes and cover letters.

I am proud of the fact that the research we conducted and the articles we wrote developed from observations we made and problems we encountered in our classroom experiences. Reciprocally, what I learned from working with Halcyon on these projects continues to shape the design of my courses, the development of new assignments, and even the contributions I make in my department’s discussions around learning outcomes and curriculum. Most recently, in Spring 2023, I taught a writing research seminar for junior and senior English majors in rhetoric, creative writing, and professional and technical writing. For this course, students conceptualized, designed, and implemented a digital exhibit hosted on ArcGIS story maps. Their exhibit, Rituals of Healing: Diversity and Divergence in Catholic Tradition (Beamer et al., 2023) reflects the complexity and interrelatedness of technical communication literacies. To develop the digital exhibit, students undertook a research process grounded in archival artifacts as primary sources. A key insight was the way the archival process, to use Susan Well’s phrase, immersed students in the experience that “[t]he archive resists knowledge...It refuses closure” (2002, p. 58). For my students, the process of research became less about finding answers to investigative questions and more about the frustration and incompleteness of not finding what they hoped or expected to find. Students treaded in an unfamiliar experience of incompleteness, of telling a story for which they did not have all the information. For my upper-level students whose prior research and writing experiences were thesis-driven analyses supported by evidence from scholarly publications, the process of archival research was a very different means of constructing knowledge to answer a research question. In designing a multimodal digital exhibit, students also encountered a very different process of organizing information. The presentation of their research findings on a digital platform whose affordance was the interaction between text and image contrasted starkly with their familiarity with academic research papers. I regret that Halcyon did not see this completed project, though we certainly shared numerous conversations about it over the course of its development, particularly the archival component. Our collaborative thinking and writing about technical communication literacies had primed me in this course project to move “away from flat, linear thinking about classroom activities” and to embrace the “complexity and interrelatedness of technical communication activities” (Lawrence & Hutter, 2021, p. 107).

As collaborators in teaching and scholarship, my partnership with Halcyon was one-of-a-kind. Her absence in my day-to-day life feels weighty, yet as the semester progresses and I move from one class session to the next, I am slowly recognizing the pedagogical tools and wisdom she has left me: the important questions to teach students to ask and to explore, the courage to hold ourselves accountable as teachers and scholars, and the belief that the technical communication classroom and technical communication pedagogy are vital to the discipline’s growth and identity.

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A Glimpse of Lawrence’s Legacy: From “Siri Discipline” to Disciplining Artificial Intelligence

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INTRODUCTION

Have you ever wondered how a researcher from the periphery can gain an enduring foothold in the pantheon of researchers from the center? This essay will attempt to answer that question. Halcyon Lawrence was a researcher, writer, and professor from the Global South who has made a mark on a community of technical communication scholars, writers, researchers, and professors with her widely discussed research articles dealing with the pros and cons, perils and promises, boon and bane of speech recognition tools and technology. Lawrence’s research explores the thickets of speech recognition and proposes strategic and revisionary measures toward neutralizing the lopsided corpora of speech recognition software, vaporware, and artificial intelligence (AI)-powered technology. To crystalize her contributions to justice, data justice, and racial-linguistic justice, I chose a chapter, “Siri Discipline,” she (2021) wrote for the book Your Computer is on Fire (Mullaney et al., 2021). My essay highlights how her ideas have gained more traction in relation to the current disruption of the AI revolution (Gopal, 2020). That disruption is often exemplified through ChatGPT, a platform that shows how Lawrence’s core insight from “Siri Discipline” can have a direct bearing on normative frameworks being developed to address burgeoning challenges ushered in by the AI revolution.

With the launch of ChatGPT came a series of AI chatbots such as Google’s Bard, Anthropic’s Claude 2, Perplexity AI’s Perplexity, Meta’s LLaMA, Microsoft’s Bing Chat, and X’s Grok. Of these AI chatbots, ChatGPT has arguably been the most successful and has impacted various human activities, ranging from the composition of lyrics to the creation of code, content generation, and data visualizations (Farhat et al., 2023). These chatbots have impacted user practices by doing what they are commanded to do. However, the affordances of these AI chatbots comes with a price, including the threat of obsolescence (Danaher, 2022); plagiarism (McVey, 2022); ethical dilemmas (Nassar & Kamal, 21); and the hegemony of large language model, natural language processing, data injustice, racial slurs and slights (Bender et al., 2021). It was an open secret that AI content likely contains biases and prejudices. Oftentimes, some traces of slights and slurs are bound to show up in AI content (Zalmierute & Cutts, 2022). Maybe most importantly, researchers soon found that AI Chatbots often cannot generate a copious amount of content about subjects when sufficient data is unavailable in parts of the world where Internet access is limited.

With the rise of platforms like ChatGPT, Dr. Halcyon Lawrence’s core arguments from “Siri Disciplines” have become even more relevant. While discussing why Apple’s Siri, Amazon’s Alexa, and Google’s Google Home cannot efficiently respond to the voice commands given by nonnative English speakers, Lawrence (2021) argued that the majority of voice corpora embedded in the neural network and symbolic algorithmic systems of weak AI such as Siri, Alexa, and Google Home come from mainstream discourse (p.183). Dominant voices in the form of data constitute the corpora of voice assistants, such as Siri, Alexa, and Google Home. Furthermore, Lawrence noted that these voice assistants have been built on Western-centric data infrastructures. Big data, metadata, and data infrastructures reflect what Eszter Hargittai (2020) has called the hegemony of data, which reflect the information, and epistemic entities developed, dispersed, and owned by native speakers of English (p.12). Because of the lack of sufficient voice data in the algorithmic corpora of the voice assistants, Siri, Alexa, and Google Home and seldom respond as efficiently with non-native English speakers.
In relation to these asymmetrical corpora entrenched in AI-powered tools, Lawrence’s key takeaways from “Siri Discipline” have become even more resonant: Data injustice in the voice of assistants’ corpora, language as a tool of imperialism, accent biases, and a call to diversify big data for data justice and epistemic justice are increasingly important issues. These ideas have gained traction amid growing scepticism of hype about cutting-edge AI Chatbots, especially ChatGPT and Bard. Consequently, Lawrence’s arguments have become even more important, considering the burgeoning issues surrounding the disruptive repercussions of leaving AI unregulated.

When the Center for Humane Technology coined the term “alpha persuasion” to characterize AI’s mode of persuasion and insisted on formulating an ethical framework (Center for Humane Technology, 2023), some AI enthusiasts and chatbot users became aware of the pitfalls and precarity associated with Generative AI. Under the banner of natural language processing, Chatbots are reifying the hegemony of the “standard” English language. Much of the data included in the AI training corpus are produced, consumed, and dispersed by native speakers and communicators of English who dwell in North America, Western Europe, Australia, New Zealand, and Ireland. As a result, the data in the AI corpus will likely be less resourceful when the AI Chatbot is commanded to generate some content on non-Western culture, literacy practices of the marginalized communities, history, art, and rhetoric of the Global South. This problem is partly because of the lack of data infrastructure (Kitchinn, 2014). Another equally convincing explanation is that many tech giants that developed generative AI populate their dataset mostly with data from Western countries. Because many Western countries treat data as resources and have erected a solid data infrastructure, the generative AI chatbots they train often fall short of the expectations of communities of color and the Global South.

As Lawrence detailed, voice assistants are not comprehensive in their data coverage: As she has argued, “A similar language divide also exists in speech technologies, as software is primarily developed for the English-speaking market: standard American, British, and Australian” (p. 188). These technologies are exclusionary because they make little room for the voices of those who speak accented English. Her work shows how voice assistants are biased; they are designed to work well for people who speak accented English. As a result, the data in the AI corpus are likely to be less resourceful when the AI Chatbot is commanded to generate some content on non-Western culture, literacy practices of the marginalized communities, history, art, and rhetoric of the Global South. To her, the root cause of problems with speech recognition technology is the nature of data, the way data are hoarded, the sources of data, who has access to data, and how data structures are developed. Those problems are just as relevant to Generative AI, and her proposals can help us imagine a more just future.

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Shiva Mainaly is a rhetoric and composition scholar who holds a Ph.D. from the University of Louisville. A North Dakota State University (NDSU) postdoctoral research fellow, Shiva delves deep into the intersection of AI and pedagogy, exploring persuasive technologies, alpha persuasion, and ambient rhetoric. Shiva specialized in the representation of opium, opium addiction, and the Opium Wars in Victorian literature. His research on leveraging AI for effective science communication is published in esteemed journals like *Composition Studies, Journal of International Students, Constellations,* and *Critical Humanities.*
Dr. Halcyon Lawrence: A Resounding Legacy

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INTRODUCTION
I last heard from Dr. Lawrence about two weeks before she died when she responded to my request for her expertise:

Dr. Lawrence,
Attached are my comments on the 2 surveys.
I'm concerned about the length of the POE survey in particular...It's long and I'm assuming if people are responding to this this [sic] on their way out of the building, they are not going to give it the careful thought and reflection that many of the questions require. But maybe I have the context of the survey wrong...
I hope my comments are helpful — this is such an exciting project,
Halcyon

Dr. Lawrence and I were good friends, but she addressed me as Dr. Neefe because I had addressed her as Dr. Lawrence when I requested her expertise a couple weeks earlier. I was venturing into new territory as a researcher, drafting prototype user questionnaires about an architectural soundscape. Because my postacademe identity leans into my strengths in writing and storytelling more than research, it is a treat once in a while to play scholar. I so appreciated that Dr. Lawrence reciprocated the gesture of respect for me as a colleague. As always, she showed up with all her intelligence, attention, kindness, and wit. Her friendship and collaboration were precious gifts.

It is fair to say that Dr. Lawrence and I are an unlikely pair. We met as postdoctoral fellows at Georgia Tech in 2015. My academic field—poetry and media of the British Romantic period—is practically the antithesis of hers (and of this journal, for that matter). Whereas Dr. Lawrence analyzed our hypermediated world for techniques of successful communication, I analyzed Romantic literature for its moments of ill-fated communication. Romanticism, in its most conventional formulation, celebrates the genius of “negative capability,” as John Keats put it, a disposition that favors “being in uncertainties, Mysteries, doubts.” As a child of the eighties and nineties, I was dutifully training my own private “hermeneutic of suspicion” (Ricoeur, 1970) on the failures of communication. By the time I arrived at Georgia Tech, I was in thrall to the critical history of communication laid out in John Guillory’s pendant Critical Inquiry essays of the aughts, “The Memo and Modernity” (2004) and “Genesis of the Media Concept” (2010), which may be understood as a response to the “media shift” (King, 2018, p. 15) made apparent by the worldwide web in the early 2000s.

At that time, I was also just beginning to add sound studies to my reading in poetry and Romantic media history, and that is how Dr. Lawrence and I found each other. We shared an interest in the social justice of sonified life. Whereas she was technical, technological, and praxis-oriented, I was theoretical, historical, and poetry-oriented. We pushed each other in all the ways one hopes for from interdisciplinary collaboration. Ultimately, we co-taught a brand-new linked course for first-year composition students and upper-level communication students: “Siri’s Progeny: The Future of Voice Interaction Design.” A series of assignments, including a concept proposal and a user-experience survey, scaffolded the final assignment to pitch an idea for a voice-interaction technology or app in a 4-minute podcast episode.

Our linked course included a module on bias in technology, for which Dr. Lawrence gave a lecture on accent bias that influenced several final projects from the students. Our preparatory...
conversations led to an episode of the Writing and Communication Program podcast I created to amplify the fellows’ research and elevate our dossiers for the job market. “When I Talk to Siri” (Neefe, 2018) is a glimpse of the argument that developed into “Siri Disciplines” (Lawrence, 2021) and the posthumous essay published earlier this year in *Technical Communication & Social Justice* (Lawrence, 2024). That episode in the series is the only one in which I intrude on a colleague’s spotlight because Dr. Lawrence, in characteristic fashion, invited me to put her observations about speech technology in conversation with the “talking book” reflection in Olaudah Equiano’s autobiography (2001). By showing what the media transition of two centuries ago can teach us about our own transition—and vice versa—the episode collapses the apparent distance between our fields of inquiry.

Following the fellowship, Dr. Lawrence continued a meaningful career in higher education, earning tenure at Towson University and establishing her reputation as a champion of just experiences and applications in communications technology. I left the sanctuary of the university and ventured into private industry. After teaching a subsequent course on equity in the soundscape design of cutting-edge architecture—also influenced by Dr. Lawrence’s work—I landed a position editing and curating thought leadership initiatives at Perkins&Will. Less than a year into this job, I found myself on a team creating the firm’s first podcast, Inhabit, and was confronted with the speech biases ingrained in the conventions of broadcast journalism. It has been exciting to navigate the friction between the concepts Dr. Lawrence and I taught and the exigencies of doing business.

I then began a research-incubator project that gave me occasion to call on Dr. Lawrence’s research once again. Perkins&Will prioritizes evidence-based design and funds research projects, large and small, that advance innovation across the firm and, by extension, the profession. I was awarded a grant of time and money to carry forward the work I had begun in the “Architectures of Sound” course on equity and soundscape design that had focused on Georgia Tech’s Kendeda Building for Innovative Sustainable Design, the first building in Georgia to achieve Living Building Challenge certification.

The Living Building Challenge (International Living Future Institute, 2024) is the most demanding green-building certification program in the industry. Part of its rigor is its expansive definition of sustainability, which notably dedicates an entire schedule of requirements to equity. I argue that the soundscape is essential to achieving equity in any built or architectural space and, second of all, that a soundscape assessment should be included in the Living Building’s equity standard. My research project sought to draft a prototype questionnaire for such an assessment and propose an initial framework for addressing the relationship between soundscape and equity. Though designers will tend to dismiss the linguistic diversity of a space as outside the scope of their work, I further argue that architectural design can in fact support and even advance linguistic diversity. As Dr. Lawrence insisted, hearing the sound of one’s own accent or language is a critical dimension of social justice. The sound of linguistic diversity and, even better, of one’s own language is an important indicator of the efficacy of one’s accent or language in that space and therefore that equity is an operative principle there. In other words, soundscape design can and should counter the imperial hegemony of English as the lingua franca. As her note indicates, Dr. Lawrence provided feedback on my questionnaire drafts as well as enthusiasm for the project.

The final report, “Measuring Aural Architecture as an Equity Performance Standard” (Neefe), was published in November 2023.

I had no idea Halcyon was ill. We had been trying to connect for months when I reached out for her help with the questionnaire. Summer is busy. Adulting is busy. She is disciplined about time. I barely am. The semester was well underway. In architecture as in the university, fall is full. But Halcyon believed in my intellectual pursuits and always supported them. I could not have known that “always” included her time of dying. This fall, as I begin an MFA in Experimental and Documentary Arts at Duke University, her work will find life in my artistic pursuits at the intersection of poetry, sound, and the space we make for justice in the places all around us.

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Lauren Neefe is a poet, sound writer, educator, and activist based in Atlanta on Muscogee Creek land. She regularly collaborates with actors, musicians, and dancers, weaving field recordings and interviews into live performance. Recent collaborations include a live improvisation based on her poem “Eunoisha” (2023); “Citizen Greeting | Rite of Return” (2024), a sound-based docu-poem about
incarceration and the freedom to move; and “F(L)IGHT” (2024) a site-specific theatrical performance putting Ilya Kaminsky's *Deaf Republic* in conversation with Pearl Cleage’s *Love and Trouble*. She has a Ph.D. in English from SUNY Stony Brook and an M.A. in Poetry from the Writing Seminars at John Hopkins University. In the fall of 2024, she begins an MFA in Experimental and Documentary Arts at Duke University.
Dr. Halcyon Lawrence’s “Siri Disciplines”: Examining Accented English and Pedagogical Implications of Biased Technologies through an African Diasporic Lens

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INTRODUCTION
In the Fall of 2023, my professor, a fellow graduate student, and I dedicated months of intensive work to a project that held great significance for us because of its relevance to human values and the broader conversation on social justice. We applied to a conference and were eager to disseminate our methodology and findings. This conference promised to be a landmark experience for me; it was going to be my first time attending this conference and an opportunity to present our work to a like-minded audience. We were accepted and the schedule listed our presentation last on the panel. I anticipated our presentation with a mix of excitement and responsibility.

The panel’s format required all presenters to use a single laptop connected to the audio-visual system, supplemented by an Automated Speech Recognition (ASR) program for closed captioning to ensure accessibility. When our turn arrived, constrained by time yet bursting with insights to share, I found myself speaking at an accelerated pace. However, a palpable disconnect emerged between me and the audience, and their expressions reflected the growing gap. To help bridge this divide, the moderator intervened, adjusting the microphone and advising me to “move closer to the mic to be more audible.” Despite adhering to this guidance, I found out that the real issue was not my audibility but the ASR system’s “revolutionary” Euro-American feature, which exhibited a bias against my British Nigerian accent. That bias created a form of exclusionary othering because it kept captioning my words incorrectly. This incident underscored the nuanced challenges of technology’s intersection with linguistic diversity and left a lasting impression on me.

Most importantly for this essay, that experience personally highlighted the profound impact of Halcyon Lawrence’s (2021) groundbreaking research on discrimination against accented speakers, an impact that has enriched my own scholarly pursuits. Driven by both my individual journey and what I see as our collective experience as international scholars from my reading of “Siri Disciplines” (2021), I am inspired by her critical examination of technological designs and linguistic imperialism. Sadly, I never met Dr. Lawrence, but the more I read her brilliant work, the more I wish I had the opportunity to share with her some of my challenges as an African international scholar, as well as those of other international colleagues I share academic spaces with often. Her work provides a foundation from which I intend to explore the nuanced challenges faced by speakers who navigate the expectations to conform to “standard English” within Western academic environments, including classrooms and conferences.

Lawrence’s work resonates deeply with me, not only as an academic concern but also as a personal one that also affects countless international students and scholars who find themselves at the crossroads of maintaining their linguistic identity and adhering to Western academic discursive norms. Her advocacy for the recognition and embrace of diverse voices serves as a catalyst for my scholarly work. It motivates me to advocate for a shift towards more linguistically inclusive practices in technology design, particularly in educational and professional settings. Expanding on this point, my goal as a scholar is to contribute as a form of complaint and awareness (Ahmed, 2021) to the dialogue on technology and accented English by highlighting both my personal experiences as a diasporic African and the experiences of others with similar identities. While Lawrence focused on technologies, linguistic inclusiveness, and usability, I use her work to focus on pedagogical intentionality, epistemic sensitivity, and the need to bridge the gap between theoretical critique and practical application, especially in the times of post-COVID institutional
disruptive innovation of online learning and reimagined teaching practices (Martini, 2022). In this essay, I join hands with Lawrence to announce a call to action.

One of the compelling arguments presented by Lawrence revolves around the concept of marginalization, specifically the notion of being “left behind” (p. 179). As an African student in the United States, my experiences have often mirrored the dual prejudice targeting both my racial identity as a Black woman and my African accent (Browdy & Milu, 2021). These biases manifest in various ways in academic environments that often overlook and undervalue contributions in class discussions that are presented in an accent perceived as “non-standard.” I have observed and heard peers lament instances where identical ideas are received differently based on the speaker’s accent, highlighting a preference for Americanized articulation. Similarly, the inclusion of case studies in classroom discussions has revealed a subtle yet discernible bias in the reception of international students’ perspectives, particularly those from Asian and African backgrounds. I have witnessed instances where international students contribute to class discussions by drawing upon examples from their own cultures only to be met with indifference from the professor; however, when an American student echoes the same perspective using examples more closely aligned with American experiences, the professor responds with enthusiasm, praising the student’s insight by saying, “Very good!” This bias, often reflected through dismissive body language, originates from ethnocentric assumptions that deem non-Western experiences and narratives as irrelevant or inferior to Western norms and imperialist worldviews.

Reflecting on my own conference experience, the imposition of ASR technology on all speakers, regardless of accent, further exemplifies these assimilationist expectations. The technology’s failure to accurately recognize “non-standard” accents, coupled with the insinuation that the speaker is at fault, encapsulates the broader issue of linguistic imperialism. Lawrence (2021) challenged the premise that non-standard-accented speakers must assimilate to participate effectively: “If you possess a foreign accent or speak in a dialect, speech technologies practice a form of ‘othering’ that is biased and disciplinary, demanding a form of postcolonial assimilation to ‘standard’ accents that ‘silences’ the speaker’s sociohistorical reality” (p. 181). This leads me to the question: What must an African international student sacrifice to gain acceptance and fully participate in these academic and technological environments?

To build upon the broader research that shows accentuated speech often evokes negative stereotypes that impact the speaker (Lawrence, 2021; Boyd 2003; Bresnahan et al. 2002; Nesdale & Rooney, 1996; Ryan et al. 1977), my presentation that evening gave an unfavorable impression about my competence on a project I gave so much to. Reflecting upon that experience reminds me of a particularly poignant moment from my first-year writing class when a student’s response to Malcolm X’s “Learning to Read” struck a chord with me. The student wrote, “Having the ability to thoroughly but concisely explain something in English liberates you.” This statement not only underscores the power of the “standard English” language as a tool for expression and liberation but also resonates with another event that highlighted the complexities of linguistic accessibility and cultural exchange.

In a captivating scenario on Instagram, a group of Korean children was challenged to identify a footballer hidden behind a curtain. The mystery footballer, David Beckham, provided hints in English, prompting the children to engage in animated discussions in Korean. Amidst the enchanting display of these young minds’ extensive knowledge about football history, a commentator was fixated on the notion that teaching these children English from a young age would enable them to “participate better in society” (spicy.gochu, 2024). This perspective, while advocating for the practical benefits of learning “standard English,” inadvertently overlooks the richness of linguistic diversity and the value of cultural identity that Lawrence argued for in her work. The emphasis on English proficiency, as suggested by the commentator, raises critical questions about linguistic imperialism and the expectations placed on speakers of “non-standard English” to conform to a global lingua franca. It begs the question: Have the commentator and people who think like them made similar efforts to embrace other languages, such as Korean, with the same zeal? This scenario and my student’s insightful reflection on Malcolm X’s narrative both highlight the liberating potential of language mastery, yet they also expose the nuanced challenges faced by native speakers of non-dominant languages in a predominantly English-speaking world.

By contemplating the pedagogical repercussions of these rhetorical situations, I find myself returning to Lawrence’s critique of the subtleties of racism inherent in accent bias. This issue compels us as academics and educators to reflect on the subtle, yet pervasive, racist undertones that accent bias introduces into our academic spaces. It prompts critical inquiries into the euphemisms for racism that we might unintentionally overlook, the Western-centric literacy expectations we impose, and the impacts of these biases on our students’ classroom participation and self-identity.

Moreover, these issues raise questions about the types of technological innovations we endorse—innovations that, despite being described as revolutionary, carry imperialistic overtones that often do not accommodate the rich nuances of our students’ diverse and intersecting identities. How do the design and application of assistive technologies like ASR marginalize students from non-Western backgrounds? And more importantly, how do these choices reflect our own unexamined biases, subtly perpetuated through the very tools and methodologies we employ in our teaching and research?

My personal journey as a scholar underscores the importance of Lawrence’s work and her call for urgent need for a critical examination of our pedagogical practices and the technological tools we integrate into our educational and professional frameworks. Both my experiences and Lawrence’s research challenge us to consider not just the content of what we teach but also the implicit messages we convey about language, identity, and belonging through our choices and attitudes. Consequently, my essay serves as a clarion call for introspection and action. It beckons us to recognize and dismantle the biases embedded within our academic and technological spheres that, albeit unwittingly, perpetuate exclusion and discrimination. By doing so, we not only honor the diversity of our students’ identities, but also pave the way for a more inclusive, empathetic, and just educational environment. I believe Lawrence’s important work on linguistic justice points a way forward for the changes that need to happen. Embracing linguistic diversity is not merely an academic exercise but a moral imperative that urges us to reflect on the human biases that shape our interactions with technology and, ultimately, with each other. By striving for the more just world Lawrence fought for in her work, we can create pedagogical practices and linguistic...
technology that embrace and celebrate diversity. Ultimately, as Lawrence (2021) argued, we must commit to fostering a world where every voice is heard, every identity is respected, and every individual is empowered to thrive.

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