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CRITICAL LITERACY, DIGITAL PLATFORMS, AND DATAFICATION

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Introduction

In this chapter, we examine key ideas associated with platform studies and datafication, and their relation to critical literacy. We contend that platform technologies present a challenge for critical literacy scholars: while critical literacy is a powerful resource for identifying and analyzing certain digital practices, it can strain to explain or intervene in the broader social, technical, and economic forces whose entanglements animate digital platforms. Rather than undermining the project of critical literacy, we suggest such limitations help to clarify where critical literacy can contribute as part of a wider repertoire of tactics for mapping, critiquing, and transforming digital ecosystems, and we outline implications for research, teaching, and practice.

Definitions of Key Concepts

Platforms refer to (1) infrastructures on which applications are built (e.g. a video game console is a platform for playing its compatible software); and (2) online networks that facilitate economic and social exchanges (e.g. a social media site is a platform for connecting with others).

The first of these meanings reflects the concept's lineage in video game studies, where scholars explore relations between hardware and software environments. Bogost and Montfort (2009) define a platform as "a computing system of any sort upon which further computing can be done" (p. 2). This framing spotlights the centrality of *relation* to platform studies: platforms never exist in isolation, and are best understood in relation to the other systems with which they interoperate. Importantly, these relations are often mediated through hidden mechanisms. A smartphone, for instance, is functional only in relation to less-visible hardware and software infrastructures (e.g. batteries and silicon chips, or algorithms and code). As designed elements, these components inherit particular interests and values from those who produce them. This is why media theorists refer to these components as the "socio-technical" dimension of platforms (van Dijck, 2013).

The second meaning of "platform" signals how this technical dimension is mobilized in social and economic exchanges. Gillespie (2010) argues, "Platforms are platforms not necessarily because they allow code to be written or run, but because they afford opportunity to communicate, interact, and sell" (p. 351). In other words, platforms are not just technical constructs; they are shaped by social actors whose asymmetrical relations (e.g. public/private, consumer/producer) give shape to the "socio-economic" dimension of platforms (van Dijck, 2013). This dimension is visible in

the growing “platformization” of the Internet (Helmond, 2015): where once-decentralized digital spaces like message boards and personal websites are now consolidated in the hands of a few platform operators (e.g. Amazon, Apple, Facebook, Google, and Microsoft). The simultaneous rise of platformization and the interdependence of users’ work and leisure on digital systems has increasingly led to a social situation where the logic and economy of platforms are extending into spheres of life once spared from digital connectivity and control.

Crucially, this proliferation of platform logics is dependent on *datafication*—or, the translation of social activity into quantifiable, extractable data (Sadowski, 2019). Since platforms can only centralize social and economic exchanges legible to their underlying code, their scalability demands the conversion of everyday activities into calculable measures amenable to prediction and tracking. Facebook, for instance, relies on datafication of users’ social ties to people (“friends”) and things (“likes”) to structure what news and advertisements are accessible to them (Bucher, 2012). This information is often termed *Big Data*—a phrase that indexes the staggering volume of data-points collected and analyzed to make such calculations. While it is often argued that Big Data surfaces patterns and associations that can tailor technical-systems to users (Mayer-Schoenberger & Cukier, 2013), it also raises ethical questions: What is omitted when social activities are reduced to numbers; and how does the funneling of user-data to private interests leave individuals vulnerable to surveillance and exploitation? Zuboff (2019), for instance, shows how commercial platforms sell user-data to third-parties to “nudge, coax, tune, or herd behavior toward profitable outcomes” (p. 8)—or share information with government agencies and creditors. As such, the promise of platforms and datafication must be weighed against their capacities to centralize user-data, erode expectations for privacy, and expand state and corporate mechanisms for raced and classed surveillance (cf. Benjamin, 2019; Browne, 2015).

Critiques of Critical Literacy in Digital Platforms

In literacy studies, platforms and datafication are beginning to emerge in research on “critical digital literacy.” This area of inquiry extends “critical literacy”—the reading and re-writing of the word and world in ways that confront, resist, or upend power hierarchies (Freire & Macedo, 1987)—to digital media (Ávila & Pandya, 2013). While “digital literacy” holds multiple, competing meanings (Nichols & Stornaiuolo, 2019), critical digital literacy has centrally focused on analysis and use of digital media as it relates to social reproduction or transformation. Numerous studies explore how youth use digital tools and platforms to engage in critical literacy: leveraging mobile devices in political protest (Smith, Stornaiuolo, & Phillips, 2018); critiquing racialized representations in popular media (Baker-Bell, Stanbrough, & Everett, 2017); or orienting new media technologies toward civic action projects (Jocson, 2015). Such work is instructive for understanding the capacities of digital media in disrupting power asymmetries within and across social worlds.

Increasingly, however, scholarly attention to the technical and economic dimensions of platforms is surfacing new complexities in the transformative power of such practices (Sefton-Green, 2021). This work highlights how young people’s agentive ingenuity can be amplified or subverted by the design constraints and commercial interests that drive platform technologies. For example, the same mobile devices youth may use in political protest are inextricably linked to the governance policies and data practices of cell-service providers and third-party applications. These firms not only extract personal and geolocation data from users, but recycle (or sell) that data for new development projects—including the training of algorithms that can monitor or disrupt future protests (Nichols & LeBlanc, 2021). Such relations do not obviate the necessity of political action; but do suggest that familiar critical digital literacy tactics may need to be augmented or reimagined in a media ecosystem where algorithmic rationality is being deployed to foreclose horizons of political possibility.

Education scholars have mapped these tensions in the integration of “transformative” technologies (Selwyn, Nemorin, Bulfin, & Johnson, 2017) and personalized learning software (Robinson, 2020) in schools—each of which promise adaptive, student-centered outcomes, yet mediate these potentials through mechanisms aimed at ranking and controlling students. These findings suggest platformization in education often extend existing regimes of standardization to increasingly refined and invasive scales, like clicks, swipes, and biometrics (e.g. heart-rate, eye-movements, moods, etc.) (Williamson, 2018). This has led critical digital literacy scholars to grapple with the incongruity between the revolutionary power of digital technologies and their regressive tendencies toward surveillance, control, and market-optimization (Garcia & Nichols, 2021; Golden, 2017). Such tensions raise questions about critical literacy’s possibilities and limits as a resource for clarifying and intervening in platform relations.

Responses to Critiques and Current Research

One way critical literacy scholarship has attended to this challenge involves engaging work in peripheral fields like platform, critical algorithm, and media studies. These literatures explore micro- and macro-level phenomena implicated in platform architectures: from physical hardware (Dourish, 2017) and algorithms (Noble, 2018) to shifts in human labor (Irani, 2015) and transnational governance (Bratton, 2015). Literacy scholars have drawn on such work both to map more expansive frames for co-articulating literacy and platform studies (Nichols & Stornaiuolo, 2019) and to explore particular facets of digital practice. For instance, Noble’s (2018) research on racialized bias in Google’s search engine has inspired studies that consider the hidden work of algorithms in conditioning everyday literacy activities (Bhatt & MacKenzie, 2019; Nichols & Johnston, 2020). Likewise, analysis of datafication (Kitchin, 2014) has propelled examinations of the data literacy practices that teachers and students might leverage to resist or speak back to predatory data extraction and surveillance (Pangrazio & Selwyn, 2019; Stornaiuolo, 2019). These studies extend critical literacy to particular technical and economic substrates at work in digital platforms.

Even so, it remains a challenge for critical literacy frameworks to capture the simultaneity of competing relations that animate platform activities. To return to our previous example: when the same mechanisms that allow protesters to take political action also enroll their data into systems whose predictive capacities can be used to thwart future protests, it is not immediately clear where forms of critical analysis and action can be mobilized. This is because, as Dixon-Román and colleagues (2020) argue, platforms are not static or stable contexts, but performative entanglements: their multiple dimensions are mutually constitutive and in-motion. Applying a critical lens to one part of the assemblage (e.g. “algorithmic bias”) can easily elide other contingencies that overdetermine that component’s performance and impacts (e.g. code, standards, institutional practices, human labor, broader forces of racial capitalism, etc.). This has led some critical literacy scholars to work at capturing this performativity in digital reading and writing. Smith, Cope, and Kalantzis (2017), for instance, trace the construction of “quantified writers” as platforms enfold student composing into datafied feedback loops to mold future practice. Others, similarly, map how the competing interests of developers, instructors, and students intermingle in digitally mediated literacy activities (Scott & Nichols, 2017; Sobko, Unadkat, Adams, & Hull, 2020). Such studies draw on critical literacy traditions, while highlighting the frictions such frames face when applied to platform relations. They suggest, in other words, there is a need to crystalize which relations in platforms’ performative ecology are amenable to analysis and intervention using existing frames for critical literacy—and which might require additional, or alterative, resources for studying, resisting, or reimagining such dynamics.

Implications for Pedagogy

One generative avenue that critical literacy scholars have pursued involves pedagogical orientations focused on unmasking and critiquing less-visible dimensions of platforms. Recent scholarship advocates for critical engagement with the “software space” that operates “beneath the screen” where literacy practices occur (Lynch, 2015). This could involve, for instance, mapping how the use of a Google document in a classroom assignment conditions teaching and learning as it circulates through hardware and software (e.g. code, interfaces, databases, Wi-Fi) and broader cultural and commercial relations. Such forms of critical digital literacy pedagogy help to concretize otherwise abstract, or obscured, technical and economic flows that structure “free” learning platforms like Google Classroom, Edmodo, or Schoology (Nichols & LeBlanc, 2020). Importantly, this also invites inquiry into how these mechanisms work in practice. Writing in HTML or JavaScript, analyzing metadata, or setting up a server, for example, adds texture to “critique” by situating it within deeper knowledge of how connective technologies operate and the ways they underwrite observable literacy practices. By engaging in such systemic analyses, educators act as change agents (Morrell, 2017), supporting learners in assessing how educational technologies actively participate in the co-construction of literacies in ways that may exacerbate already-existing injustices.

A second intervention, parallel to interrogating platform architectures, involves educators engaging in such critical reflection themselves. Before literacy educators can help students use digital tools or software—for instance, producing data visualizations in R to understand thematic patterns in a text—there is a need for them to examine the assumptions and ideologies inherited in the design of such technologies. Lynch (2015) suggests this includes critical attention to the entanglements of human, machine, and computational languages that make these designs possible. Developing this knowledge involves investment in teacher preparation and professional learning that stresses interdisciplinary collaboration—not to prepare youth for narrow economic futures (a neoliberal rationale), but to better understand and intervene in the world-making capacities (utopian and dystopian) of platforms and data. Part of this orientation includes self-examination, by educators, of the educational technologies they use—that is, how certain platforms invite predictive logics and commercial interests into classrooms which can work against their pedagogical values and commitments. Such an approach helps foreground ethical questions about the ways platforms enroll teachers and students into the involuntary co-authorship of data, which can have impacts that ripple well beyond the walls of classrooms (de Rooock, 2021).

A third area to build on is critical literacy’s emphasis on people’s agentive efforts to create media that challenge oppressive systems and work toward justice-oriented social transformation (Mirra, Morrell, & Filipiak, 2018). Recent efforts to examine young people’s data literacy practices (Wilkinson & Polman, 2020) have taken a critical turn, highlighting data’s racialized and political dimensions (Philip, Schuler-Brown, & Way, 2013) and positioning young people as active participants in generating, representing, interpreting, and communicating about data (Hardy, Dixon, & Hsi, 2019). This shift denotes a significant pedagogical aim of critical data literacies, particularly in facilitating youth’s uses of data to take social action (Pangrazio & Selwyn, 2019; Stornaiuolo, 2019). Such efforts take up the broader aims of critical literacy to center communities of color and non-dominant ways-of-knowing in order to re-imagine and re-make the conditions under which we live, work, and learn (Paris & Alim, 2017)—an arena that increasingly calls for critical examination of platform and data practices that permeate everyday life, and that are implicated in the struggle for justice, educational and otherwise (Philip, Olivares-Pasillas, & Rocha, 2016).

Implications for Research

With the steady creep of platforms and datafication into all aspects of social life, researchers, too, face challenges analyzing and intervening in those dimensions of digital ecosystems that have historically

fallen outside the scope of literacy studies. As we suggest, the invisibility of platform infrastructures and the performativity their social, technical, and economic dynamics are two glaring dilemmas for those studying such systems. They demand that literacy researchers be equipped with nimble approaches for conducting and mobilizing inquiry as they navigate participation across opaque systems and processes (Stornaiuolo, Smith, & Phillips, 2017). From timestamps to versioning, the metadata of literacy activity has become “smaller, and the recording continuous” (Cope & Kalantzis, 2016, p. 2). As scholars engage in research using digital platforms, their activity also contributes to the datafication of literacy, generating new data-streams that are recursively utilized in the refining of commercial products or as a salable commodity. Responding to the common misapprehension of such data architectures as instrumental rather than ideological, Noble and Tynes (2016) call for an intersectional critical race technology studies as:

but one means of doing a closer reading of the politics of the internet, from representation to infrastructure . . . to allow us to interrogate naturalized notions of the impartiality of hardware and software . . . [and] to examine how information, records, and evidence can have great consequences for those who are marginalized.

(p. 3)

Such an approach reorients the emphasis of critical digital literacy toward the ways that digital literacy practices—including research itself—always unfold with, within, and against platform infrastructures (Star & Bowker, 2002). This suggests a need for scholars to interrogate the assumed autonomy of their methods: considering, instead, how their chosen modes of inquiry are mutually shaped by the platform architectures that underwrite the research process. As a reflexive stance, this pushes researchers outside the familiar territory of casting certain digital practices as “dangerous” or “liberatory” (Bulfin & McGraw, 2015), and encourages, by contrast, an ecological view of the relations between observable practices and their attachments to other scales of platform activity—from the micro (e.g. forms of precision data-processing) to the macro (e.g. the environmental impacts of hardware production and energy-hungry cloud servers) (cf. Bowers, 2016).

Platforms also have implications for research ethics. Beyond established guidelines, like the Institutional Review Board’s familiar protocols for privacy, consent, and anonymity, the Association of Internet Researchers (francke et al., 2020) provides internationally informed recommendations for addressing emerging ethical dilemmas in digital scholarship. These include suggestions for mitigating risk for researchers and participants due to threats, doxing, and harassment, as well as cautions about the limits of conventional approach to informed consent in media landscape driven by datafication. Specific to online literacy research, Curwood, Magnifico, Lammers, and Stornaiuolo (2019) delineate a range of ethical considerations which scholars ought to attend: from the shifting dynamics of participant and platform access; to the unequal researcher-participant reciprocity in many online spaces; to the expanding availability of personal data online, often at (or beyond) the edges of traditional research consent.

To nurture more equitable digital research methods, some scholars have used “infrastructuring” (Ehn, Nilsson, & Topgaard, 2014; West-Puckett, Smith, Cantrill, & Zamora, 2018) as a mode of participatory design through which teams of researchers and participants, together, analyze how systems perpetuate or exacerbate inequitable relations. They then work to remake these systems, inserting flexible and responsive structures to better support the autonomy and flourishing of those impacted by it. Researchers are also intervening in these systems by taking their scholarship public, addressing legislators and general audiences about the need for regulation (or even dismantlement) of platform architectures that presently work against the public good (see, for example, Saheli Singh, 2019; www.screeningsurveillance.com).

Implications for Social Responsibility as Academics

Given what we have argued earlier about the challenges of doing critical digital literacy in an increasingly platform and datafied educational reality, how might academics and educators continue to think productively about their social responsibilities in relation to these issues?

For starters, a more capacious understanding of critical (digital) literacy is needed—one that can account for more than changes to the representational and textual dimensions of platforms and the ways these shape opportunities, identities, and social participation. Approaches to critical literacy, and even critical digital literacy, have been largely shaped in response to the world of late print capitalism, and can be stretched thinly when they are grafted onto different epistemological contexts. Acknowledging these limitations helps clarify something fundamental in the shift to established and emerging forms of digital capitalism, where digital infrastructures are pegged to a global market system that caters primarily to corporate actors and interests, often in increasingly intractable and untraceable ways (Schiller, 2000; Fuchs & Moco, 2016). In this context, scholars need to ask whether familiar modes of criticality (or critical literacy) are adequate for understanding and intervening in the social, technical, and economic forms of life now taking shape.

As we suggest, negotiating these complex “digital infrastructures” (Srnicke, 2017) is increasingly difficult. Acknowledging this complexity means looking beyond the social dimensions of platforms and understanding, as well, the technical and economic DNA. Doing so can elucidate how social inequities are reproduced and reinscribed through systems that are subtler, and more automated, than we might be accustomed to reading through existing frames for critical literacy. For instance, understanding how platform logics are dependent on modes of categorization that, themselves, have epistemic roots in eugenics; or how “connectivity” folds everyday practices into webs of extractive and exploitative relations with no immediate options for resistance or escape. Understanding how platforms encode such forms of knowing demands an ethical reflexivity that extends to scales with which scholars, educators, and others (e.g. designers, developers, users) might become much more familiar. Indeed, not taking careful and critical account of these dimensions of platforms has already become an ethical problem and challenge, and a series of “blind” and “blank” spots (Wagner, 1993), for scholars, educators and others.

An additional ethical problem, which we have already hinted at, is the ease with which scholars can be unwittingly caught up in the race to understand and explain the new and shiny, while ignoring the challenging realities. Researchers interested in education, literacy, and the digital have long traded on a focus and analysis of the latest digital “advance”—typically arguing that such developments, and their accompanying digital practices, are more or less key aspects of many young people’s digital literacies and identities. Such techno-determinism “lite” contributes to a powerful discursive field where significant commercial interests are served, as educational institutions become willing—and sometimes unwilling, of course—consumers of an ever-expanding array of technology products (Bulfin & Koutsogiannis, 2012).

When the focus is on the “new,” and not the importance of infrastructures, education is reduced to fuel for the digital economy. This association has, in recent years, become a significant facet of neoliberal and market-driven educational policy (Nichols, 2020). It is not just that digital economies require significant financial investment—although, of course, they do. Digital, platform, and data capitalism also require certain kinds of people—subjects with the capacity for creativity, innovation, and collaboration. These are positive-sounding abilities; but abilities, in turn, which are also important goals of critical literacy. Given the ease of co-option into the design of social futures presently being imagined by platform architects, big data merchants, and edu-preneurs, researchers would do well to continue to ask, what is critical (digital) literacy? As evidenced by this very handbook, the practice and aims of critical literacy have always been contested and debated. In the context of

platformization and datafication of social and educational life, the debate about the role of critical literacy must continue urgently.

Recommendations for Future Research and Praxis

A hallmark of critical literacy praxis is its thoroughly contextualized nature. As such, a recommendation for future research and praxis is to recognize the limitations of critical literacy in addressing the simultaneity and recursivity of platform architectures not as something that obviates or undermines it as a political project, but as something that can attune educators to the places critical literacy can best contribute in a world increasingly mediated by data technologies. Such an orientation invites us to ask where “critical literacy” might fit within a wider repertoire of tactics—drawn from a broad coalition of scholars, artists, organizers, and agitators; and rooted in diverse modes of inquiry and ways of knowing—that is capable of critiquing, resisting, reimagining, and transforming platform ecologies. As we have suggested, studies of platforms and datafication offer promising avenues for surfacing the possibilities and limitations of our existing frameworks for critical literacy. In doing so, they can also provide guidance for new directions in research, teaching, and practice that are attuned to the ethical and political questions that the emerging media environment makes urgent.

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