Below the Digital Surface:

Digital Platform Ecologies and English Language Arts Education

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Introduction: Platforming English Language Arts (ELA) Education

Teaching is being increasingly facilitated by digital platforms. Platforms are digital spaces where users engage in social or economic exchanges (Gillespie 2010). They are a kind of electronic infrastructure which brings together different people and technologies, including students, parents and teachers (Srnicek 2017). These include social media giants like TikTok, Facebook and Google, which provide infrastructures for producing, storing and circulating texts, as well as more niche electronic resources for designing, remixing, monitoring, assessing, sharing and discussing them. Long before COVID-19 and its great digital migration (Williamson 2020), many teachers were already using digital platforms: SeeSaw for learning management, Flip for video-making and responses, Google Docs for note-taking, Padlet for collaboration, Classroom Dojo for classroom behavior, TurnItIn for academic integrity. Today, literacy teaching, learning and practice are heavily facilitated by platforms, which have become the very architecture of classroom life for many (Garcia and Nichols 2021). There hardly remains a facet of ELA education which is not potentially part of some digital platform or learning management system. These platforms offer both great opportunity and a good deal of frustration. Educators appreciate how the platforms make instruction engaging and connective, but they also express anxieties about being at the mercy of software companies whose products are designed without their input or control.

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All these technological changes to our classrooms—notably their rapidly-escalating adoption in recent years—can be bewildering. In this commentary, I want to offer a framework for thinking about digital platforms which captures some of their complexity as instructional infrastructure in today's ELA classrooms. While there is a robust scholarship of critical digital literacy scholarship for educators and their students (Ávila and Pandya 2013; Bacalja, Aguilera, and Castrillón-Ángel 2022; Morrell 2012; NCTE 2019; Parker and Smith 2022), much of it continues to focus on the circulation of texts and ideas—decoding memes, helping students adjudicate mis/disinformation, producing counter-messaging to negative representations—and largely overlooks the ecological nature of digital platforms (Nichols and Stornaiuolo 2019). Just as ecological approaches to the environment (Benson 2020) require the consideration of constantly changing relations between ever-evolving phenomena (temperature variations, the introduction of new species, parasite and host relations, interaction spaces, retreating riparian zones etc.), an approach to digital platforms also must move beyond simply analyzing and producing textual representations to account for a richer array of interactions, objects and dynamics. A broader, ecological approach would include both content (the familiar "texts"

for digital literacies) and the digital infrastructure that facilitates it: "from the code that allows them to run, to the business models that drive their features and updates, to the nature of the K-12 marketplace—that shape how we can teach and learn in those environments" (Garcia and Nichols 2021, 15). Because digital platforms are more than just representation (texts and symbols we can interpret), scholars have suggested that traditional "textual" approaches to "digital literacy" are inadequate in our current media terrain (Nichols and LeBlanc 2021); rather, we need a fulsome ecological orientation.

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In policy documents, district mandates and instructional conversation, digital platforms are often conceptualized simply as "tools": neutral "things" we can pick up, adopt for use and put down as we need them. Outside of educational contexts, however, digital media scholars have begun to focus on the ways in which hardware and software relate with each other, with individuals and with society (Eubanks 2018; Zuboff 2019). Indeed, digital platforms like Uber, Facebook, YouTube, WhatsApp, Amazon, Spotify and OkCupid have radically changed the way we buy, sell, travel, connect and even love (Bratton 2016; Srnicek 2017; van Dijck 2020). In fact, digital platforms are so ingrained in our contemporary lives that some scholars now describe the modern world as "the platform society" (van Dijck, Poell, and de Waak 2018). Consequently, pedagogies which specifically and directly address the unique dynamics of digital platforms (Nichols and LeBlanc 2020) are urgently needed for teachers and other educational stakeholders.

Why Platform Studies?

One way that critical literacy scholarship has begun to attend to this challenge has been to tentatively draw from research in adjacent disciplines like platform studies, critical algorithm studies and media studies. These literatures explore micro- and macro-level phenomena which are part of platform architectures: from physical hardware (Dourish 2017) and algorithms (Noble 2018) to shifts in human labor (Irani 2015) and political sovereignty (Amoore and Rally 2016). English education scholarship urgently requires research which closely attends to the platform dynamics that condition texts (literary or otherwise), their distribution through networks and the ways readers encounter both: material hardware, technical infrastructure, aesthetic interfaces, federal and provincial policy, algorithmic architectures and platform business models, as well as the human labor and natural resources required to create and sustain them (Gray and Suri 2019; Perotta et al 2020; Williamson 2017b).

Emerging platform dynamics and their role in our instruction, assessment and communication require specific attention from and for educators. Platform studies approaches can help educators identify important performative dynamics of the media environment. This is particularly urgent as our instruction is increasingly going digital following COVID-19 (Williamson and Hogan 2021). Despite the tectonic shift in digital relations in and through the platformization—algorithmically organized datafication, commodification and selection (van Dijck, Poell, and de Waak 2018)—of more and more of our lives, few provincial educational documents, even those explicitly addressing digital citizenship, have taken up these concerns in any substantive way (Alberta Education 2008, 2012; Government of Northwest Territories 2012; Ontario Ministry of Education 2016; Shepherd and Henderson 2019). Much of the work of platforms happens out of sight and below the digital surface; therefore, our attention is typically drawn to what is most immediately visible. One way to better grasp these new ecological relations is to try

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to draw a better map of the various dynamics, all of which bear down on our teaching, our grading and our interactions with students, parents and administrators.

Understanding Platform Dynamics in Classroom Ecologies

In translating contemporary platform studies for educational contexts and audiences, my collaborator Phil Nichols (Baylor University) and I have begun to think about what this transition to digital platforms means specifically for literacy education (LeBlanc et al 2023; Nichols and LeBlanc 2020, 2021; Nichols, LeBlanc, and Garcia 2024; Nichols, LeBlanc, and Slomp 2021). In grappling with these processes, we have drawn on a conceptual map from platform studies scholar Jose van Dijck (Poell, Nieborg, and van Dijck 2019; van Dijck 2009; van Dijck, Poell, and de Waak 2018), whose work tries to capture many of the competing dimensions in this emerging ecology. We foreground van Dijck's conceptual map not only because it is the most comprehensive and accounts for every dynamic in this still-evolving system[1] but rather because we believe it contains dynamics which are most legible for working English educators. In doing so, we have also encouraged teachers to ask difficult questions about the digital platforms that are so seamlessly part of their instruction today (see Table 1) for facilitating small group interaction, assessing writing, giving timely and visible feedback, communicating with parents, testing for plagiarism, taking attendance, monitoring behavior and other potential uses.

In their foundational work *The Platform Society*, van Dijck, Poell, and de Waal (2018) describe an online platform as

> programmable digital architecture designed to organize interactions between users–not just end users but also corporate entities and public bodies. It is geared toward the systematic collection, algorithmic processing, circulation, and monetization of user data. (p 4)

A digital platform facilitates interaction, much like a train platform facilitates travel between two destinations. This might be interaction between two human users (for example, sending instant messages to each other on WhatsApp), or between a human user and a corporation's algorithm, or between two non-human users (for example, two bots competing for concert tickets on StubHub). And when we consider the immediacy of interactions between students and teachers (for example, using Google Docs to comment on rough drafts of each other's written responses to a text), van Dijck et al (2018) remind us that just out of view in these visible interactions are also corporate interests and potential unknown audiences (both human and non-human). Data generated on the platform for use between immediate interlocutors (two students chatting in a Google Classroom) is collected and aggregated for use as training data (either for the platform's corporate owner or sold elsewhere), as well as used for algorithmic attuning for the specific user. This builds value for the platform's ownership, rendering the platform a multi-sided market, where users buy platform access, and platforms sell user data or make users available to targeted advertising. As such, the design of the platform is specifically crafted with this in mind ("geared toward," in van Dijk's parlance, with other dynamics facilitating this outcome).

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Such an understanding disrupts tidy definitions of digital platforms as mere tools (like a hammer), which can be used or subtracted from schools without further implications. Adding a digital platform to a classroom changes the nature of the instructional ecology, as teachers often bend their instruction toward platform features (for example, mandating peer commentary on Google Docs for legibility and easy tabulation). Additionally, a platform simultaneously plugs the classroom into a broader platform ecology, serving as a "kind of interface layer within a larger global computing stack" (Bratton 2014, 35), connecting the laptop or the smartphone "to an ocean of data and bring[ing] that data to bear on the user's immediate interests" (p 32). Every digital platform in our ELA classroom has implications both for our teaching and our data privacy, data harvesting,

surveillance and supervision, and a host of other broader concerns. Teachers must balance these dynamics and relations in their decision making (LeBlanc et al 2023), weighing productive functionality with other serious concerns.

Fundamental to platforms are two key processes: digitization and datafication (Williamson 2017a). Digitization is everyday processes being increasingly moved into online spaces. For example, it is now rare for a teacher to do something as simple as take attendance without using a learning management or software system (and many schools no longer accept analog records). Datafication is the reconstitution of swipes, clicks, information, engagement and other factors into "machine readable data, which can then be subjected to sophisticated forms of processing, calculation, analysis, interpretation, visualization, and circulation" (Williamson 2017a, xv). Thus, as our instruction migrates further online and into digital spaces, it is simultaneously subjected to more and more intense data extraction and analysis, which then feeds back into processes of personalization, targeted marketing and filter bubbling.

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In van Dijck's (2013) influential framing, she suggests that digital platforms are best understood as the intersection of three interlocking dynamics: the *technical, social* and *economic*. Some of these are opaquer to working teachers than others—few of us have the technical acumen to understand the specifics of a platform's algorithm—but we can still address each in our adoption, use and evaluation of digital platforms. Every time we bring a new platform into our classroom, it is vital to think about a broad range of implications. Teachers can and should ask themselves whether any platform, regardless of its digital bells and whistles, matches their vision of a quality education for all students. Teachers should also ask whether a digital platform asks them to constrain their instruction, to reconfigure it so that it better conforms with the platform's expectations.

We typically wrestle with a platform's *technical* dynamics first. The technical dimension of a platform refers to the varied components that structure applications and mediate how users experience them. To examine these details, we need to ask, How do platforms work? Most pressingly, we see the technical dynamics in our interaction with the user interface, which is the amalgam of visual features—buttons, graphic designs, layout etc—which mediates our subsequent interaction with the software's underlying code. The technical dynamics are a lure and also the site of our frustration when breakdowns occur or an interface feels

Table 1: Platform Dimensions and Considerations for Practice (Nichols and LeBlanc 2020)

Technical	How do platforms **work**?	• For whom is this hardware in/accessible? • What does the interface make in/visible to users? • How is content moderated by algorithms? • What default settings are coded into the software?
Social	What do platforms **allow their users to do**?	• How do a platform's intended and actual uses differ? • How does it reconfigure teaching and learning? • How does it alter teacher-student-parent relationships? • How does it transform existing practices or necessitate new ones?
Economic	**Who profits** from a platform's use and how?	• Is the platform publicly or privately owned? • What is the business model for the platform's owner? • What protections are in place for student/teacher privacy? • How is data generated through the platform used?

unwieldy. According to van Dijck's (2013) critical point, however, these technical features are designed for the systematic collection and processing of user data. So, where we may have some freedom in our swipes, uploads, likes and comments, "A platform's architecture – its interface design, code, algorithms – is always the temporary outcome of its owner's attempt to steer users' activities in a certain direction" (p 144). The technical side of any platform is consequently always guiding, prodding and directing users in certain ways—and these may directly undercut our own pedagogical intentions.

van Dijck's other two dimensions are also critical for our consideration. *Social* dynamics refer to the ways people create, consume or integrate hardware and software into their daily lives. This perspective considers the following question: What do platforms allow their users to do? For example, using a platform like Classroom Dojo or Seesaw is not just a matter of technical know-how. It may change the way we interact with parents or alter which learning objectives we choose to focus on for our lesson. This is how we typically talk about digital platforms in our classroom: how a new connective technology allows us to do something or to arrange groups in a particular way. Indeed, many digital technologies have become a de facto utility in facilitating social relations in our classrooms (consider the importance of Google Classrooms post-COVID). When a platform comes to be central to organizing our instruction, we might feel compelled to alter our teaching to match the platform's needs (rather than the other way around).

Equally, digital platforms have an *economic* dimension. Because they nearly all are privately owned, most are built on business models which require collecting student data and monetizing it by selling it to third party advertisers (Zuboff 2019). The economic model for freely available technology (such as many educational apps) requires datafication of platform interactions: transforming interaction into data (van Dijck 2018). When teachers' and students' clicks, likes and swipes are mined for saleable information, it is critical to consider how a platform's economic model might run counter to educators' aims and values. Focusing on the economic dimension encourages us to ask, Who profits from a platform's use and how? Most pressingly, it may urge us to consider the implications of mandating student app enrollment (think of the ubiquity of assignments which ask students to "create a social media profile for a literary character" or the required submission of written material to TurnItIn, and who subsequently enrolls those entries into training data). While economic dimensions are often hidden from users (perhaps only available by reading the interminably long and famously unscoured "terms and conditions" agreement), they are often the driving force behind the platform's design and thus have significant implications for our pedagogy.

Conclusion

In a connective world where apps and platforms have become our very educational infrastructure—as essential as the electrical grid or the water utility for the functioning of schools—it is crucial that we address the pressing questions that these technologies and ecosystems raise for instruction. This approach helps us to see how each keystroke, swipe and username in a classroom contains complicated social, technical and economic dynamics—each of them raising their own concerns. Being digitally literate in our contemporary education landscape means both having the technological skills to use platforms and thinking critically about their impact on instruction and education.

Teachers may not have complete control over which digital platforms they use in their classroom, but one prevailing goal can be to work toward aligning the platform with their pedagogy (and not the other way around). The following are some simple questions teachers might ask of any new platform as they consider its implementation:

Aligning Platforms and Pedagogy: Questions Teachers Can Ask (Nichols and LeBlanc 2020)

- What is the problem for which this platform is the solution?
- How does the platform address this problem differently than other platforms (or non-technological resources)?
- What new pedagogical or ethical problems might this platform create?
- How might it reshape relations among teachers, students, parents and administrators?
- How might its usage need to be amended or monitored to ensure alignment with educators' values and commitments?

Conceptualizing platforms as ecologies and as participating in broader educational ecologies draws us away from strictly focusing on the "textual" and the immediately observable—fake news, graphic interfaces and other semiotic material—and towards understanding platforms as "dynamic environments" (Fuller 2005). As with any ecology, the introduction of a new dynamic (whether in an environment or in a classroom, school, district or province) can have unforeseen implications, rippling out over time in new and potentially troublesome ways. A new learning app, a new classroom management system, a new attendance platform can all bend, buckle, alter and transform a host of other ecologically near and distant practices, assessments and policies. Our response is then not to reject digital platforms or purge them from our pedagogy but to think through their complexity at various scale levels to consider their current tensions as we use them in our everyday work, and to advocate for ecological orientations amongst our students, colleagues and administrators.

Notes

1. For alternative and equally compelling maps, see Bratton (2016), Ibert et al (2022), Stewart and Hartmann (2020), van Dijck (2021).

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