Digital Literacies in Algorithmic Cultures:
Critical Literacy as ‘Working the Algorithm’

Christian Ehret and Anita Hagh
christian.ehret@mcgill.ca, anita.hagh@mcgill.ca
McGill University

Abstract: Research on literacy learning and algorithms has been limited to how youth understand their operations as computational systems. Through a case study of one young adult’s practice of ‘working algorithms’ across social media platforms, this poster presents new pathways for researching critical, digital literacy learning in algorithmic cultures. It provides evidence of how youth use their literacies in the critical production of algorithmic cultures, and toward more just and diverse communities.

Rationale and research focus
Humans’ everyday experiences with literacy are increasingly entangled with non-human actors, such as computational objects like bots and data, and larger computational systems such as algorithms and platforms. Scholars across disciplines have worked to understand the implications of these entanglements for the production of culture and information at the same time that the implications of these entanglements have impacted everyday life at multiple scales: from the online amplification of post-truth politics across the globe, to the algorithmic personalization of digital ads for individuals. Analyzing these communicative conditions that are produced through the relations of human and non-human agents online, scholars have employed terms such as algorithmic culture (Galloway, 2006) and platform society (Van Dijck et al., 2018). Meanwhile, learning scientists are contending with changing experiences of literacy in these collective, global conditions—forced to think anew about evolving demands on critical literacy (e.g., Leander & Burriss, 2020).

This poster poses novel questions that contribute to this emerging area of inquiry, and it presents worked examples from the third year of a five-year design-based study of adolescents’ (14-17 yrs-old) and young adults’ (18-22 yrs-old) literacies with emerging technologies and digital cultures. In developing these worked examples, the poster follows Gee’s (2010) recommendations for using small pieces of data to illustrate the potential of new theories or ideas, especially around emerging digital literacies. These worked examples bring into sharper relief the complete imbrication of human and non-human relations in the production of algorithmic cultures through youths’ uses of their literacies, and it develops theories of digital literacy learning to better account for such imbrication. Algorithmic cultures refer to the processes by which the constant flow of human activity online creates ‘big data’ that is parsed and fed into algorithms that help shape new culture phenomena (Galloway, 2006).

Worked examples focus on one young adult’s, Mella’s (20-year-old, gender-queer Canadian), uses of her literacies across social media platforms, including TikTok, Facebook, and Instagram. Analysis of Mella’s practice of what she calls working the algorithm across platforms provides novel insight into how contemporary youth practice critical, digital literacies while participating in, and producing, algorithmic cultures. Questions guiding analysis of the poster’s worked examples of Mella’s literate practice of working the algorithm will open productive discussions for learning scientists researching emerging forms of learning online, and especially those researching critical, digital literacies, which cannot ignore the imbrication of human and algorithmic activity: (1) What agency do humans have in the co-production of posthuman, algorithmic cultures? (2) How do humans shape algorithmic cultures to create diverse communities and to support diverse identities and personal desires beyond those imagined by the social media corporations that produce and constantly adjust algorithms?

Conceptualizing critical, digital literacies in algorithmic cultures
Adolescent literacy learning, for youth such as Mella, requires developing facility in the discourse practices of specific cultures, and critical literacy learning requires a developing understanding of the ideologies and systems that shape discourse and participation in such cultures. Learning scientists have recently begun developing critical literacy frameworks for contemporary online data flows, and these frameworks position youth as authors and interpreters of online data collected about them (e.g., Stornaiuolo, 2020). However, attention to algorithms has been limited to how youth understand their operations as computational systems. Research on critical literacy must also account for youths’ participation in, and co-production of, culture in relation to algorithms. Critical digital literacies should encompass how youth learn to work the algorithms with which they interact online for their own purposes. As Mella’s case illustrates, those purposes include producing cultures meaningful to them, and critically resisting, and re-authoring, the data-driven, normative, neoliberal, and sometimes racializing (Dixon-Roman, 2016), cultures that most corporate algorithms produce.
‘Working the algorithm’ as emerging critical, digital literacy for cultural production and participation

Data come from a year-long, ongoing relationship with Mella established through a multiyear design-based research project. These data include semi-focused interviews related to her online life. Mella describes her daily life on social media platforms as less about ‘liking,’ and ‘posting,’ and more about what she calls ‘working the algorithms.’ Table 1 presents three categories of social practices and related literacy practices in which Mella engages to critically co-produce algorithmic cultures. For example, in relation to her social practice of intentionally co-authoring social media algorithms, she discusses specific literacy practices of posting, liking, sharing, and ignoring posts to train algorithms on TikTok to create a safer more inclusive space for herself to share queer content. In relation to her social practice of maintaining her well-being in relation to charged discourses, Mella describes writing DMs (direct messages) in response to users’ politically charged content, but not actually sending them. By not sending these DMs, she is training the algorithm not to include her in these charged discourses, whilst still engaging critical conversations on her own terms. In relation to creating in-person communities from online cultures, Mella uses mobile apps to create queer content when she is in public spaces in order to prompt the apps to connect her (e.g., by suggesting new friends to follow) with like-minded users nearby. She thereby works the algorithms to create community and culture around her, aware of the location-based technologies that collect geographical data for social media algorithms. Short, worked examples of each literacy practice are provided on the poster for discussion.

Table 1 Mella’s critical literacies for working algorithms

<table>
<thead>
<tr>
<th>Literacy practice</th>
<th>Intentional co-authoring of platform algorithms</th>
<th>Maintaining well-being in relation to charged discourses</th>
<th>Creating in-person communities from online cultures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Reading to monitor and distinguish between platform’s algorithms</td>
<td>Reflecting offline rather than engaging online</td>
<td>Reads queer identities offline through trends seen online</td>
<td></td>
</tr>
<tr>
<td>2 Posting, liking, sharing, and ignoring to train algorithms for her own purposes</td>
<td>Writing reflective messages that she doesn’t send</td>
<td>Discusses queer issues offline to later re-train algorithms online</td>
<td></td>
</tr>
<tr>
<td>3 Using platforms’ mobile apps based on location to train algorithms</td>
<td>Discusses online content in personal, safe relationships offline</td>
<td>Trains algorithms to connect her to other queer users in close physical proximity</td>
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</table>

Conclusion

Mella’s case illustrates that critical digital literacy learning requires understandings of how humans’ actively co-author culture and social life with non-human agents such as algorithms. Mella’s uses of her literacies in working algorithms are critical because they intentionally resist the cultural normativity and racializing tendencies of social media algorithms driven by big data. If, as learning scientists have argued (e.g., Stornaiuolo, 2020), algorithmic cultures tend toward aggregating big data into normalized ‘big culture,’ then learning critical literacies that work algorithms toward more just, diverse purposes is essential.

References


