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RESEARCH ARTICLE



## Returning the data gaze in higher education

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### ABSTRACT

Learning analytics offer centralization of a particular understanding of learning, teaching, and student support alongside data-informed insight and foresight. As such, student-related data in higher education can be imagined and enacted as a ‘data frontier’ in which the data gaze is expanding, intensifying, and performing new meanings and practices. But the gaze is not necessarily one-way. In this article we conceptualize different ways the data gaze might be returned. Drawing on more-than-human theorizing, we map three descriptive accounts to better understand the tangle of datafied bodies complicit in the gaze of learning analytics and to inform how the data gaze may be re-shaped, re-directed, and re-storied as forms of data activism. This includes uncovering what algorithms do, improvising passages, and talking back with data-bodies. Such theorization offers insights for new modes of proactive data activism to address the problematics and opportunities of the intensified datafication of learning analytics platforms.

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Not only has higher education become digitalised and datafied as part of the unfolding of broader socio-techno imaginaries and machinations, it actively encourages and participates in the expansion and intensification of the *data gaze*. A gaze which, as Beer (2019) explains, expropriates value while performing new meanings, practices and institutional structures. We situate this article in learning analytic systems to explore the data gaze within higher education and the possibilities for responding to its increasing scope and authority. Emerging a decade ago, learning analytics have become part of the broader data-scape in higher education, with evidence suggesting that these systems are increasingly hungry for sources and variety of data including, but not limited to, multi-modal data; facial expressions and affective analytics in classroom settings; and tracking students on and across the campus (including residences, cafeterias, and social gathering spaces) as well as off-campus (Jones 2019; Kwet and Prinsloo 2020).

Learning analytic systems offer the promise of increased student support strategies and better understandings of how students learn alongside administrative and strategic planning efficiencies. But they do more than this. Learning analytics practices are performative and political (Prinsloo 2019), enacting what Siles et al. (2019, 1) refer to as ‘contemporary processes of surveillance and anticipatory governance’. They promise granular personalization, technological neutrality, and ways to predict success. However, it is not merely the intensification and scale of access to, and collection of, more data that is potentially problematic. It is also what these data do. As Beer (2019, 15) argues, ‘data themselves come to life and begin to have consequences when they are analysed and

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when those analyses are integrated into social, governmental and organisational structures'. And it is in such new configurations that more nuanced and critical work is needed.

In this article, Beer's (2019) notion of the data gaze serves as an entry point for this critical conceptual work. Beer (2019) views the data gaze as a 'powerful analytic, constitutive and performative social presence' (8) that enables a deeper understanding of the 'connections, structures and performances of power within analytics' (7). Data therefore afford power and offer possibilities 'for the expansion of data-led thinking, judgement, ordering, and governance' (Beer 2019, 5). Pernicious, unfettered, and often not held accountable, the data gaze can be complex and open to challenge. Particularly when it emerges from, propagates, and sustains a 'particular vision of the social world so as to present data analytics as the only real solution' (Beer 2019, 15).

The expansion and intensification of the data gaze in higher education re-assembles higher education as a *data frontier*, which Beer (2019, 19) describes as 'the edges, the thresholds and limits of data led-processes' in which the promises of data and analytics – new data imaginaries – are projected onto and appropriated into practices and organizational structures. Indeed, Williamson (2019, 2804) describes the reassembling evident in how universities are adapting 'to the political economy of neoliberal competition, markets, metrics and platform capitalism, all enabled by the software platforms, data analytics, algorithms and apps that are plugged together as an interoperable data infrastructure'. Such frontiers entice the emerging industry of data: datafication practices not merely imported from other fields but adapted to the specificities of higher education. Taking this further, Couldry and Mejias (2019) refer to a 'new form of data colonialism, normalizing the exploitation of human beings through data', adding that this is 'not an echo or simple continuation of historic forms of territorial colonialism' (336) but rather refers to a 'new form of colonialism distinctive of the twenty-first century' (337). In so doing, new forms of data colonialism interact with and intensify the legacy of historical territorial colonialism in ways not previously encountered (Prinsloo 2020).

In this article, we explore how data are made accessible and amenable through the workings of leaning analytics as they perform, and are performed as, a sort of data gaze. The data gaze, therefore, becomes as a 'means for understanding how data intervene in the social and how data come to shape decisions, judgements, and outcomes' (Beer 2019, 10). Within this framing, we further define the data gaze as: the sense of being looked at/upon, with or without one's knowledge, for purposes often unknown to those as gazed-at and over which they may or may not have any control or say. In and through the workings of learning analytics, students and staff are gazed upon according to the criteria, assumptions, and intentions of the institutional gaze and myriad of data assemblages.

The gaze is not necessarily one-way. We set out to conceptualize different ways the data gaze might be returned. Supported by more-than-human theorizing, we then map three descriptive accounts from different contexts to better understand the tangle of datafied bodies complicit in the gaze of learning analytics and to inform how the data gaze may be *re-shaped*, *re-directed*, and *re-storied* as a form of data activism. In higher education, learning analytic systems are becoming increasing blackboxes of intersecting and fluid algorithmic decision-making systems. There is a pressing need to better understand the workings of these systems; in particular, how students are put into highly charged relations with the digital materialities of data. This includes how data are collected and analyzed (or not) and then used to represent and position students, performance, and pedagogy. We suggest that how learning is conceptualized and operationalized through these machinations should be open for contestation, appeal, and oversight.

It is possible that the notion of the blackbox may constrain inquiry by suggesting that algorithms, for example, are completely hidden and unknowable (Bucher 2016, 82) or that we are dealing with a singular blackbox rather than an increasingly complex terrain of visibility and invisibility. However, it can be a generative heuristic, inviting creative approaches for 'knowing algorithms' (Bucher 2016, 84) with an emphasis on how algorithms both enact, and are enacted, in day-to-day practices. Integral to opening these blackboxes is a need to challenge the assumptions that the 'commodification

... of our digital activity’ (Sampedro 2018, ix) or ‘being visible through the data we emit’ (Taylor 2017, 1) are inevitable consequences of technology or part of the contemporary social contract. Raley (2013, 131) argues that dataveillance and countervailance must be seen as inextricably connected. We propose that Milan and Gutiérrez’s (2015) notion of *proactive data activism* offers possibilities for not only *returning the gaze*, but also *responding to the gaze* of learning analytic platforms by changing narratives and re-distributing power and influence. A more affirmative engagement with data takes advantage of the possibilities for advocacy and social change by moving beyond critical thinking about technology towards how technology and data itself can be used strategically to advance alternative arrangements and narratives (Gutiérrez and Milan 2019; Kennedy 2018).

Although there is some research on critical data literacies, published research focusing on learning analytics-related data activism is not yet evident. Jones (2019, 15) flags the inevitability of ‘student backlash’ if institutions continue to obfuscate how they use student data for learning-related support and management purposes. It is crucial – and the aim of the article – to engage critically with the performativity of the data gaze, within the context of learning analytics, as a starting point for further conversations and research.

More-than-human perspectives offer ways to think generatively about the data gaze in ways that make the connections and co-constitutive relationships between data, bodies, and institutional practices more evident. Barad (2007, 185) argues for ‘ethico-onto-epistem-ology’ to foreground the intertwining and mutual implicatedness of ethics, knowing, and being; thus stepping away from problematic binaries of human-nonhuman, subject-object, substance-medium that seem to play out in much of the data and bodies discourse. We employ Ingold’s (2012) notion of the *mesh-work* to interrupt these binaries by extending the notion of the data gaze as an entanglement of interwoven energetic moving lines rather than a network of interconnected dots. It is then possible to see beyond the objects themselves in these accounts (e.g., predications, recommendations, visualizations, databases, clicks) to something more material and how these materials continually mingle, react, animate, compose, and dissolve datafied practices (Ingold 2007b, 9). In this sense the data gaze is always in the process of becoming something else, which creates both challenges and opportunities for researchers and the humans performing, and performed by, the data gaze.

We first engage with and (de)construct the notion of the data gaze. We then explore and map different possibilities for *returning* the data gaze of learning analytics as a form of data activism. Given the relative paucity of such examples within the specific context of learning analytics, we also engage with empirical studies of datafication and data activism from other settings. Our intention is not to prescribe ways in which the data gaze may be returned, but rather to open spaces for generative conversations. This analysis concludes with a brief reflection on new modes of proactive data activism that may help to address the problematics and opportunities of intensified datafication in higher education, particularly learning analytics.

## Conceptualizing the data gaze

‘The gaze’ – to look upon someone or something, or to experience being looked at – has long fascinated theorists and scholars. This ranges from tourism studies – the *tourist gaze* (Wassler and Kirillova 2019); security studies – the *gaze of the state* (Goldstein and Alonso-Bejarano 2017); feminism – the *male gaze* (Ponterotto 2016); race and racism – the *white gaze* (Morrison 1998); surveillance studies – the *gaze of Big Brother* (Sætra 2019); postcolonial studies – the *colonial gaze* (Bhabha 1990; Fanon 1963; Ram 2018); the *medical gaze* (Foucault 1973); and, specifically in the context of the ‘data revolution’ (Kitchin 2014), the *data gaze* (Beer 2019).

The relationship between the gazer and the gazed is complex and abounds with power imbalances: the one who has the power, abilities, and technologies to gaze and the gazed-upon with lesser power, however momentarily. Referring to Sartre’s *Being and Nothingness*, Afolayan (2018) argues that in the gazers’ gaze, the gazed is reduced to an object and so when captured in another’s gaze, I

see myself as the Other sees me, and as such, I pass judgment on myself according to the criteria, assumptions and the intentions of the one who gazes upon me (314). Here notions of objectification, judgment, constraint, and restriction of possibilities resonate.

It is often assumed that the surveillant gaze is *linear* and *unidirectional* – from the one with power who gazes to the gazed-upon. However, the changing landscape from panoptic to post-panoptic has resulted in a re-assessment of surveillance perspectives. For example, Mann, Nolan, and Wellman (2003) recognize various forms of *sousveillance*: increasing decentralized and non-hierarchical modes of surveillance. Thomsen (2019, 1) refers to this as ‘surveillance from below’. From tourism studies, Wassler and Kirillova (2019) examine the embodiment of the gaze and although ‘always one of exposure’ (124), note ‘additional realities contextualize the gaze’ (117), such that ‘neither the gazers nor gazes are passive and can exercise power over each other through the gaze’ (124).

The gaze of learning analytics systems is enacted through a mesh of data, multiple software spaces, algorithms, data dashboards, reports, automated ‘at risk’ warnings, digital traces of student presences and absences, and institutional policies and ambitions: human bodies, activities, and lives translated into data points more amenable to the data gaze. Learning analytics, and particularly predictive analytics, rely on increasingly sophisticated algorithms and machine learning. In this sense, the gaze of learning analytics is an accomplishment of a distributed network of human and nonhuman actors. However, similar to data itself, the data gaze of learning analytics systems is not one thing performed by one actor but rather redolent with what Mol (2002, 79) describes as *manyfoldedness*: ‘different versions, different performances, different realities, that co-exist in the present’. The idea of manyfoldedness creates innovative spaces for returning the data gaze.

The data most often used in learning analytics are largely generated by institutional learning management systems (LMS). However, this is a rapidly changing data frontier as new data streams enter the mix. Student information systems collect data about prior qualifications, socio-economic status, ethnic group, financial situation, and hours worked by students (Sclater, Peasgood, and Mullan 2016). Learners also create data traces through their digital artefacts and their movements may be tracked using geolocation data (Jones 2019). Emerging research suggests collecting biometric data from wearable devices to document students’ stress and sleep patterns (Arriba Pérez, Santos, and Rodriguez 2016). Other digital technologies deployed in the learning process (e.g., ebooks and intelligent tutors) can offer up data and students reveal sensitive information as they create profiles on third-party applications they are required to use (Jones 2019). More data creeps in as digital records are augmented with information about financial aid, disciplinary and criminal reports, personal health, and extensive data profiles from admissions applications. Temporal and spatial dimensions shift as past experiences are used in attempts to predict and create present and future models of learning processes (e.g., Herodotou et al. 2019).

How much of these data finds a way into learning analytics systems is difficult to discern. However, the ‘latent trove of data’ on hand in universities (Jones 2019, 2), alongside trends in other sectors, suggests it is likely the data gaze will amplify exponentially. But data do not work alone. The increasing scope of potential data sources is now aligning with machine learning, more powerful algorithms, and tighter blackboxing of ‘the data system’. This brings additional challenges such as accounting for the contextual idiosyncrasies of fragmentary data from multiple sources (Sclater, Peasgood, and Mullan 2016), biased and unrepresentative data sets, lack of transparency in how algorithms work, and the increasing availability of (relatively) easy-to-use software tools for creating data-trained learning analytics which can now be built by people who have limited understanding of the inner workings of such systems and their limitations. And yet, the data imaginary marches on and the stakes get higher. Beer (2019) outlines how the data gaze “has both sight and foresight: to ‘grasp the future and use it in the present’ (27) but more prophetically, bringing ‘those desired futures into existence’ (29). Worrysome are significant inequalities and risks associated with stereotyping, exploitation, elisions, and highly selective rememberings increasingly prevalent in datafication practices, especially for groups historically marginalized (e.g., Wernimont 2019).

Such digital mediation may both translate and amplify existing issues as well as generate other forms of marginalization. What some might regard as benign data generated by clicks in a LMS can become something else altogether.

In this article we focus on *returning* the gaze. Crucial for our understanding is Murphy's (1987, 114) argument that 'each person is capable of receiving and returning the gaze, each person can function as oppressor and oppressed'. There are also calls to re-embody datafication practices by recognizing that data 'work with and through bodies' rather than 'inscribed on bodies' (Lupton 2020, 122). In so doing, the idea of returning the gaze opens up new ways of being and possibility.

## Returning the gaze: data activism

In this section we employ the notion of returning the data gaze as a heuristic to uncover what algorithms do, improvise passages, and talk back with data-bodies. We draw on existing empirical work to extend theoretical thinking and develop these insights to understand the politics of data and data activism in ways that could be illuminating in a learning analytics context. Issues highlighted in these three descriptive accounts include biased datasets, blackboxed algorithmic systems and outputs, problematic predictions and recommendations, and the urgent need for increased data fluencies. Throughout this analysis, we attune to how complex data assemblage of bodies, data, human-computer interfaces, algorithms, policies, and outputs of data analytics, become as Lupton (2020, 126) suggests, 'objects for sense-making' as humans and digital data make and remake the other.

Kennedy, Poell, and van Dijck (2015, 2) suggest that more attention to real-world practices is needed given that the current debate 'leaves little room to explore the small-scale actors' who are adjusting to the new data power. These small-scale actors include students and instructors. Our focus on *proactive data activism* involves a 'politics of the quotidian, as it alters the everyday relationship between citizens and automatized data collection', and in so doing, aspires to bring the fundamental elements of agency and politics 'back into the data collection machine' (Milan and Gutiérrez 2015, 130). We suggest that such activism requires distributed agency – humans and nonhumans working together – and is part of a data justice agenda that includes not only activism, but as Taylor (2017) suggests, the political economy of datafication. The three accounts advance possibilities of how students and staff can work with learning analytics creatively and critically for pedagogical support and wider social action. Each account offers a different perspective on data activism with an increasing sense of proactivism. We therefore align the notion of returning the data gaze with Kennedy's (2018, 18) urging to 'take account of what non-expert citizens themselves say would enable them to live better with data, based on their everyday experiences of datafication'.

## Uncover what algorithms do

We start by exploring the importance of attending not only to the data collected and circulating in learning analytics systems, but also to the algorithms that help to construct powerful, exclusive, and multi-directional data gazes. This is a missing focus in much of the learning analytics research. We harness one of Eubanks (2019) case studies from her book, *Automating Inequality*, as a cautionary tale for learning analytics in higher education. This tale is an example of uncovering what algorithms and data do; an initial step towards proactive data activism. Similar to Bucher's technographic approach (2016, 87), Eubanks (2019) traces how algorithms 'offer a description of themselves' by examining the 'visual output of information' they deliver in everyday situated practices and how the human actors in these situations work with, on, or through these outputs. Eubanks's (2019) complete account vividly describes how algorithms both assist and automate decision making. We build on this work to illustrate how the insights this sort of 'uncovering' provides could inform more critical analysis of learning analytics.



Eubanks (2019) reports on the Allegheny Family Screening Tool (AFST) used to predict future victims of child abuse or neglect. It started with the creation of a data warehouse in 1999, a central repository that now holds more than one billion records, an average of 800 records for every person in the county (135). Regarded as ‘a tool to increase agency communication and accountability, provide wraparound services for clients, and cut costs’ (Eubanks 2019, 135), one can see a similar rhetoric to that of data analytics systems in higher education. While the data team in the Department of Human Services has been praised for their participatory approach and high ethical standards, following the 2007 recession decision support tools and predictive analytics were implemented to better focus limited resources. AFST went live in 2016.

Although ‘the AFST is supposed to support, not supplant, human decision-making’, Eubanks (2019, 142) reports that ‘in practice, the algorithm seems to be training the intake workers’. An ethical review in 2016 cautioned that once the big blue button is clicked and the AFST runs, the perceived authority of the AFST risk score leads intake workers to question their own judgment. Several issues have emerged: Although the AFST may identify patterns and trends, it is routinely wrong about individual cases (142); because there is much more data about poor parents, their children are over-targeted as being at risk for child abuse; and correlation is conflated with causation resulting in ‘poverty profiling’ (Eubanks 2019, 158). The AFST has come to be an almost unassailable ‘unit of force’ (Callon 1986, 216). Its recommendations translated into ‘evidence-based objectivity and infallibility’ that become more influential than human judgement (Eubanks 2019, 168).

There are potentially troubling – but also instructive – parallels with developments in learning analytics. By bringing the larger data-social care assemblage of the AFST, and its innumerable micro-practices, into view, it can be interrogated. A similar analysis could be instructive for unpicking learning analytics algorithms. D’Ignazio and Klein (2020, 53) argue the need to ‘audit opaque algorithms and hold institutions accountable’. Focusing on the specific interactions between human and nonhuman actors in everyday AFST (or learning analytics) practices is one way of returning the data gaze. A gaze made more visible by attending to proxies, predictive variables, models, validation data, data extracts within scope, screens, risk-assessment scores, and levels of transparency within learning analytics systems. Such algorithmic auditing moves well beyond the features of a learning analytics platform people find more/less useful. Attempting to discern how learning analytics algorithms consume, process, direct, and represent data is a way to ‘audit’ these systems: important work for both researchers and teaching staff in higher education.

In the next account, we examine what can happen when students become more curious, informed, and critical about the data gaze of learning analytics: when they start to uncover what such algorithms do and try to improvise new passages (new ways of being), and with, these data.

### ***Improvise passages***

There are not yet many empirical examples of critical work with students and learning analytics. One study is Knox’s (2017) innovative small-scale project with a Learning Analytics Report Card (LARC). Knox (2017, 743) reports that the LARC ‘offered students an opportunity to ‘play’ with their [learning analytics] data: to choose what is included or excluded, when the report is generated’, and the ability to add comments about the analytics process. By encouraging students and teachers ‘to critically interrogate the production of learning analytics data’, this project enacted ways the data gaze might be returned by attuning to the improvisation of passages with, and through, these data-driven systems (Knox 2017, 742). To some degree, instructors and students are already finding their way through their interactions with the inputs and outputs of learning analytics systems and responding to datafication – purposefully and accidentally. The task at hand is to make these improvisations more visible. In so doing, the data gaze of learning analytics is pulled out of the background, creating opportunities for proactive data activism to emerge, including more deliberate improvisation of ways to work deliberately with and through the data gaze.

There is ample evidence from the field of learning analytics in which the easy-to-use modes to interpret behavior in dashboards are mentioned as a positive (e.g., Bodily and Verbert 2017; Rienties et al. 2018). Ingold (2007a) provides a different approach for conceptualizing the forces and flows of the data gaze of learning analytics. He describes a *network*: comprised of lines that merely connect ‘a complex of interconnected points’ (Ingold 2007a, 47). Here, the view of the gaze is pre-determined by the (data) points it connects: ‘isolated and compact moments’, fractured and compressed, but viewable all at once (Ingold 2007a, 45, 52). Dashboards and the analytics humming in the background simplify the complex; reinforcing a key message in the data imaginary that holds out the promise that everyone can become ‘their own data analytics specialist’ (Beer 2019, 24). Perhaps the gaze of learning analytics described here resembles this network view: different data points pre-connected and assembled so as to be constantly ready, fast, and efficient. However, Ingold (2007a, 47) also refers to these networks of connections as ‘lines of occupation’: ‘surveyed and built in advance of the traffic that comes to pass up and down them’. Reminiscent of colonialism, the ‘tangled trails of inhabitants’ and lines of habitation are overridden (Ingold 2007a, 47).

Yet, the data gaze as all seeing and offering instant knowing with one click is questioned in this descriptive account. Knox (2017, 748) reports that students were critical of the system’s ability to acknowledge the full range of learning activities, with some regarding the analytics as ‘superficial ... concerned with ranking and grouping students, rather than seeking to ‘understand’ the character of [learning] activity’. Here is evidence of push-back to the panoptic promise of the data imaginary: the ‘all-seeing ... prosthetic eye’ where ‘nothing escapes. ... premised on a growing ability to see the unseen’ (Beer 2019, 25–26). It is not only students who raise these questions. In a study of five higher education physics instructors who used data dashboards (designed to deliver ‘algorithmically assembled information about students to the instructor’ (338)), Brown (2020, 393) reports that instructors were ‘stymied by a lack of clarity on how data were assembled and imbued with meaning, which limited their own sensemaking regarding the data’. Moreover, these data dashboards threatened their sense of autonomy, opened for the door for unwarranted interference, undermined their existing pedagogical strategies, and enabled unwelcome surveillance. Here, the rhetoric of datification and the panoptic promise ‘to see and understand all’ is challenged.

We suggest that the rigidity of this network view *can* be disrupted and create space for new ways to return the data gaze by re-shaping, re-directing, and recovering. Ingold’s (2012, 49) notion of the *meshwork* – an entanglement of interwoven energetic moving lines rather than a network of interconnected dots – is instructive. Ingold (2007a, 46) writes that although people increasingly find themselves in environments ‘built as assemblies of connected elements’, in practice they continue to thread their own ways through and among the ways of others (human and material), tracing paths (lines) as they go: creating a meshwork as they *improvise passages* (Ingold 2012, 49).

Conceptually, we see improvising passages through data infrastructure in ways that re-shape, re-direct, and recover the data gaze as a form of data activism. Humans return the data gaze by improvising passages through, and with, the data landscape: laying new lines through deliberate practices and discourses that do not follow pre-determined grooves or merely connect pre-determined points. In Knox’s (2017) study, the data gaze is not merely reacted to, but instead, returned purposefully. Hughes (1999, 168) describes the power of the unfettered gaze as seeking ‘containment, boundaries, compartments, taxonomies of phenomenal form, angles, homogeneity, stable relationships and, above all, the security of binary distinctions’. However, when one is able to glimpse attempts of the gaze to contain, categorize, and judge, the machinations of data gaze become more visible. And present opportunities to re-shape and re-direct the gaze: to generate counter-data narratives and practices. In this way, humans do not merely interact with their data in pre-determined ways but rather *co-respond* with their data in creative and improvisational modes.

Ingold’s (2012) work extends an invitation to work more spontaneously and inventively with data and the data gaze. By deliberately engaging with the data gaze – augmenting, amending, annotating, and questioning what is present/absent, insightful or not – the gazer (student) is able to see themselves and their learning practices as the ‘other’ (learning analytics system) sees them. Students



– and educators – as proactive data activists are re-positioned to use the technologies of learning analytics in order to effect new understandings and change. In addition to developing these new critical data sensitivities, such activist work might eventually be built into how learning analytics systems are both designed *and* deployed.

As noted above, students and practitioners are developing critical sensibilities and practices around the performativity of learning analytics that include attuning, questioning and challenging. In the next account, we take this one step further and look more closely at the relationship between data and human bodies. Barad (2007, 185) argues that ‘knowing is a matter of part of the world making itself intelligible to another part’ such that practices of knowing and being are ‘mutually implicated’. This suggests that we cannot stand outside the data systems of which we are part. What happens when people ‘get inside and with’ data systems – when data, bodies, and activism come together – is where we turn next.

### **Talk back with data-bodies**

A combination of community-based organization, capacity building, and academic research, the *Our Data Bodies* (ODB) project (<https://www.odbproject.org/>) is a more proactive foray into data activism. Researchers studied the impact of data-driven systems as they worked directly with historically marginalized groups in three US cities. Of interest was how re-entry data (from prison back to the community) affected the search for employment; how one’s data trail of interactions with government impacts foreclosure, evictions, and utility shutoffs; and how digital surveillance impacts the experience of finding shelter and negotiating the criminalization of homelessness and poverty (Petty et al. 2018).

Based on the data in this study, participants in this project seemed to be cognizant of the data gaze to some degree, perhaps because they had no choice. Stating that ‘people closest to the problems have the best solutions for them’, resources created by the ODB enable people to talk back to, and through, their data bodies (Petty et al. 2018, 33). This is often easier said than done. Agostinho et al. (2019) acknowledge the practical issues of access and expertise required to recognize, excavate, analyze, use, and influence the data that impacts individuals. Crucial in the ODB project was the knowledge building work the researchers and data experts did with participants. Learning new data fluencies necessarily aligns with data sense-making so that people can generate, interpret, and question datafied representations of their lives.

The project produced the *Digital Defence Playbook*, a ‘workbook of popular education activities focused on data, surveillance, and community safety’ to work towards data justice by developing knowledge and tools (Lewis et al. 2018, 5). These activities are ways to return the data gaze: first becoming aware of the data landscape and then adjusting one’s actions. Taken further, these starting points can extend to other forms of data activism that include compiling counter-data narratives and mobilizing data science to challenge ‘unequal distribution of data and power’ (D’Ignazio and Klein 2020, 2). The drive towards reflexivity and mobilization is crucial for activist work and acknowledges the importance of working *on* and *through* the larger data ecosystem.

The impetus in the ODB project was to ‘shift who gets to define problems’ around data and ‘shine a light’ on how communities wish to confront these problems (Lewis et al. 2018, 5). This stance is relevant in higher education: how do/could students and staff articulate problems around data and how they want to deal with these problems? An integral part of the contractual agreement between students and institutions is sharing of student data. However, the kinds of data that could be collected with, on, and about students is expanding rapidly and includes data that they might not have considered part of the original contract. It is in the *combination* of these different data streams that potential tensions arise. Although students’ data bodies are ostensibly fluid, throughout their academic experience they serve as points of reference for various pedagogical and managerial decisions. Mol (2002, 5) writes that ‘objects come into being – and disappear – with the practices in which they are manipulated’. In this sense, students as data bodies both come into being and are

absenced through the practices caught up in the data gaze. It is here that the notion of data bodies could be used more strategically and proactively.

The datafied body is often described as beyond the reach of the human body: somehow connected, yet separate, entities. This is not entirely inaccurate. Although individuals may have participated in what comes to comprise what is sometimes called their data body, they often have no or little access to the information contained in these data assemblages. However, more-than-human theorizing suggests that it is possible to not only shape and learn with one's data body, but also to work with these multiple and performative data body 'things' to 'do and be' in the world (e.g., Raley 2013; Ruppert 2012). In this sense, data bodies are not separate from human bodies. Each enacts the other. Although the ODB project seems to reinforce the distinction between *real* human bodies and data *about* bodies, their work signals a move towards seeing beyond data bodies not as objects 'that capture our attention' but to the 'materials of which they are made' (Ingold 2007b, 9)

Ingold (2012, 431) suggests a change from "the 'objectness' of things to the ... formative processes wherein they come into being and are active in the world". In other words, something far more lively, changeable, and embodied. *Data-bodies* with a hyphen and as plural (Thompson 2020; Thompson, Williamson, and Prinsloo forthcoming). Returning the data gaze is therefore not merely standing up to the force of data from a distance. Rather, returning the data gaze means becoming totally entangled with it: the gaze, the gazer, and the gazee juxtaposed through hyphenated data-bodies. Such a conceptualization argues for a more embodied sense of the gaze of datafied systems (including learning analytics): it is *together* that data and human bodies live out data practices.

The move from the *objectness* of data bodies to the *thingness* of data bodies creates openings for re-shaping and re-directing the flow and activity of data. This shift is evident in the strategies employed by the ODB participants and the focus of the workshop activities. It is speaking *with*, *as*, *in*, and *through* data-bodies that offers further possibilities for data activism. ODB project findings describe how people confront and challenge predatory data-driven systems or invasive data collection. Their purposeful strategies both *re-shaped* the data gaze (keeping track of how they are tracked and setting the record straight) and *re-directed* it (obscuring and blocking data trails and expungement). Consistent with Hughes (1999, 162), not only was the gaze made visible, strategies were innovated with participants to return the data gaze, thus creating a space whereby resistance was enacted as refusal 'to be seen as one is supposed to be seen by the eye of power [and instead] to return the gaze and transform shame and humiliation into pride'.

Such action is applicable to students in higher education, who too can also play a role in constructing their data-bodies, including how the collection and analysis of their learning activities (and other data) feeds and re-embodies their data-body. This is the political project at hand. Similar to the participants in the ODB project, as data activists, students should have opportunities to re-shape, re-direct, and re-story their data-bodies when the partialities and mis-representations become problematic. In so doing, they re-embodiment their data-bodies to address missing data, bias, exploitation, and the limits of institutional categorization and algorithmic determinism. Such work does not reside solely with students: it demands strategic collaborations and support, which we address in the Conclusion.

At best, data bodies are partial representations and constructions. Extremely problematic data impasses and injustices will not be solved merely by saying that we are connected with our data and that this garners (distributed) agency. But it is an important starting point. As 'materialisations and extensions' of physical bodies, these data assemblages invite us to reconsider the relationship between data and 'enacting bodies and selves' (Lupton 2018, 9). In this loosening up *and* weaving together of data and bodies opportunities for returning the data gaze emerge; a response to the increasing tenacity of the data gaze amidst a discourse of data determinism. It is with such aspirations that the ODB is significant and relevant for considering the importance of, and ways to return

the data gaze of learning analytics. And an opportunity to improvise new passages with and through the data gaze.

## (In)conclusions

Although data have long been an essential aspect of pedagogical and administrative practices, datasets are increasingly digital, larger, more diverse, and interconnected and intermingled in ways not imagined even a decade ago. D'Ignazio and Klein (2020, 72) assert that 'those of us who use data in our work must alter some of our most basic assumptions and imagine new starting points'. Engaging with Beer's (2019) work on the data gaze in a more-than-human conversation, we argued that higher education is one of many new data frontiers in which the data gaze is expanding and intensifying. It is troubling that there is not yet much data activism in this area. Perhaps the full intensity of the data gaze is yet to be experienced. Although students and instructors may realize that data dashboards and other outputs generated by learning analytics are not neutral, a singular truth, or all encompassing, there is a pressing need to develop more sophisticated ways to return the data gaze.

Framing this article in the workings of learning analytics, we worked through three deliberately different accounts to explore different ways in which returning the data gaze could be conceptualized. Such theorization offers insights for further conversations and research to explore new modes of proactive data activism to address the problematics and opportunities of intensified datafication. Amoores and Woznicki (2018, para 6) suggest that rather than aiming solely for algorithmic transparency, 'we must begin instead from notions of opacity and partiality' in the 'algorithm's space of play'. Returning the data gaze is one way of surfacing and engaging with such partialities. Promising conceptual debates alongside practical ideas and tools emerging from critical data literacy emphasizes awareness, critical reflection, public debate, and informed opinions. These are necessary elements for data activism. Sander's (2020) qualitative study of 40 online resources that foster this sort of literacy foregrounds a range of available resources. Interesting is Sander's (2020) observation that many of these resources are generated by the NGO sector, rather than government institutions or academia.

There is much at stake. When learning analytics take students' behaviors as 'proxies for learning', learning is simplified and codified in terms of what is measurable by such systems (Bennett 2018, 5) thereby enacting new educational realities that often offer a narrow vision of education (Knox 2017). Despite marketing promises, the data gaze of learning analytics does not comprehend fully or encapsulate the many complexities and nuances of learning. Swept up in the enthusiasm of datafication across higher education, learning analytic systems (in all their diversity) are subject to the challenges highlighted in this article: biased datasets and algorithms, missing data, black-boxed systems and outputs, and problematic predictions. Corrin et al. (2019, 24) urges that this is especially critical at a time when staff and students 'are increasingly concerned about being monitored, how data is being used, and in the context of widespread misuse of data by social media platforms and affiliates'. Moreover, Gourlay (2021, 160) argues that the effect of learning analytics is not merely datafication of students but something more far-reaching and serious: 'alter[ing] the very ontological status of the student, who is rendered – who unwittingly becomes – a digital document ... no longer exist[ing] outside the baroque entanglements of digital surveillance'.

Engaging with more-than-human perspectives provides significant entry points for returning the data gaze as a much-needed form of data activism. This includes re-thinking the notion of data-bodies. When data and bodies come together in practice they are more than fragments and 'more than one': 'multiple objects [that] tend to hang together somehow' (Mol 2002, 5). These lively multiple objects and multiplicities create openings, including ways to improvise passages through new data landscapes. Law (2009) contends that practices are assemblages of relations that create realities. Since realities are done in particular ways, the implication – the *ontological politics* (Mol 1999) – is that they could be assembled differently. Data activist efforts are well suited for

such ontological politics and new assemblings. Indeed, Gourlay (2021, 20) asserts there is a compelling need in contemporary higher education policy, discourse, and research to attend the *how* of ‘epistemic practices as specific, emergent, material entanglements’.

Data activism must be a collective undertaking. D’Ignazio and Klein (2020, 58) argue that while compiling counter-data narratives and analyzing data processes are important, this can become an ‘endless loop if not accompanied by other tools of community engagement, political organizing, and protest’. The importance of engaging with the larger data infrastructures and ecosystems is essential. Work by Chenou and Cepeda-Másmela (2019) on the creation of a National Index of Male Violence in Argentina illustrates data activism designed to provoke a response to gender violence issues, exacerbated in part by lack of official data. Significant in this project were the collaborative partnerships between grassroots activists, social science researchers, and data science experts to work with ‘big enough data’ and ‘data from below’. This applies in higher education. Although students or staff may take the initiative, there is an important role for social and data scientists as well as grassroots activists. Lehtiniemi and Ruckenstein (2019, 7, 8) encourage moving beyond the ‘API of me’ (e.g., “talking ... about ‘our’ instead of ‘my’ data”) to create new infrastructure models that acknowledge that data are both individual and collective and demands collective responsibilities for ethical and inclusive data practices.

Our aim was to facilitate a pause, as Ruppert, Isin, and Bigo (2017, 2) suggest, from the ‘atomism and immediacy’ of the data discourse in order to ‘question the political struggles around data collection, its deployments, and how data is generative of new forms of power and politics at different interconnected scales’. And at the same time, to offer ideas for how to move research and practice forward in generative ways that can energize new narratives of highly embodied and detailed data stories. In the *About Data About Us* project, Samson, Gibbon, and Scott (2019, 39) report that people were not ignorant or complacent about data, were keen to express their wants and needs, and can offer ‘meaningful insight into the development of future rights, responsibilities, regulations, policies, and products’. An insight that resonates with the accounts reported in this article. Datafied experiences are individual and collective, local and global, personal and institutionalized. It bodes well to start by listening to how people make sense of, experience, and want to influence their datafied learning practices.

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