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Tracking technology: exploring student experiences of school datafication

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ABSTRACT

The use of digital technologies within schools is leading to the increased generation, processing and circulation of data relating to students. To date, academic research around this 'datafication' of schools and schooling has tended to focus on institutional issues of governance and commercialisation, with relatively little consideration of students' experiences. Drawing on focus group discussions with 62 students across three Australian secondary schools, the paper explores students' experiences of school datafication in terms of power, surveillance and affect. It highlights students' relatively constrained and distanced relations with school technology use, schools' use of data to enforce student accountability and self-regulation of behaviour, as well students' perceived powerlessness to engage agentically in digital practices. Drawing on notions of 'digital resignation' and 'surveillance realism', the paper concludes by considering the extent to which students might be supported to meaningfully engage with (and possibly resist) the constraining 'atmospheres' of datafication.

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Introduction

> *"It's like there's an FBI agent on the other side of the screen just watching us . . . . I'm okay with that, but I want to know more . . . like, what they're trying to achieve, what they're trying to do with [the data], why they want it, what will they do in the future with it?"*

The ongoing digitisation of schooling over the past 20 years or so has seen dramatic increases in the volume and scope of data being generated and circulated through student uses of digital devices, systems and software. This has prompted burgeoning academic discussion around the 'datafication' of education (Jarke & Breiter, 2019) – i.e. the representation of individual practices and institutional processes in digital data that are collected, aggregated and processed to track, profile and predict student behaviour and learning. Of particular interest is the wide variety of 'trace data' now being extracted from the array of technologies and used within schools daily. In a typical secondary school, class work and homework are completed on commercial platforms owned by Google and Microsoft, student behaviours monitored through

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apps such as Class Dojo, and cameras and sensors used to monitor classrooms and schoolgrounds. Consequently, students are routinely placed in situations where large amounts of data relating to themselves and their actions are generated and collected with little or no opportunity to opt out.

In contrast to enthusiasm about the possible analytic application of this data to enhance students' learning (see, for example, the fields of 'learning analytics' and 'education data-mining'), concerns are also growing over possible detrimental changes to the nature and conditions of schooling. On the one hand, the pace at which education technology is developed and taken up within schools makes it difficult for departments of education, school leaders, managers and administrators to be fully aware of the quantities of digital data being generated within classrooms, let alone how this data is subsequently being used, and by whom. On the other hand, concerns are also beginning to be raised over students' relative lack of awareness and/or control over the datafication of their schooling. For example, it has been noted that students have no way of knowing what data-driven records, profiles and other representations are created in relation to their school activities, and for what reasons such entities are being created (Sefton-Green, 2021).

Despite a growing field of literature documenting the educational implications of datafication, there have been few empirical investigations of students' experiences of digital data within schools. In this article, we investigate the ways in which Australian secondary school students experience the data that is generated and collected about them as a result of their digital technology use. Drawing on scholarship in the area of Critical Data Studies, we provide detailed first-person accounts of how students perceive, experience and understand this aspect of their schooling. The article begins by reviewing the literature on current research into school datafication as well as what is known about young people's understandings of digital data. We then present our research methods and findings. We conclude the article by reflecting on the implications of our findings for making sense of the extent to which students might be able to meaningfully engage with (and possibly push back against) the ongoing datafication of their schooling.

Literature review

In one sense, considerable academic attention is now being paid to the growth of digital data across school systems and within individual schools. One prominent strand of research focuses on how data is used at the school level to assess and monitor teachers and students (Daliri-Ngametua et al., 2022; Hardy & Lewis, 2017; Lewis & Holloway, 2019) and how this is changing teacher identities and professionalism (Ideland, 2021). A second strand examines the policies and governance of digital technologies in schools. This has led to more detailed research into the policy, governance and commercial rhetoric of different 'Big Tech' platforms, such as Google Classroom (Carlsson, 2021; Perrotta et al., 2021), as well as the organisational configurations of data infrastructures in schools (Clutterbuck et al., 2022; Gulson & Sellar, 2019; Pangrazio et al., 2022). A third strand of research extends these analytical frames to investigate the commercialisation of data-driven education – unpacking the relationships between big business, national and international education policy, and the complex ways that Silicon Valley and 'Big Tech' corporate interests are permeating school systems through data-driven products and processes (Yu & Couldry, 2022).

To date, education research literature has tended to pay most attention to the policy, institutional and political economy aspects of school datafication. While recent research has focused on students' experiences with assessment data (Daliri-Ngametua, 2021), the present paper aims to address the less considered framing of school digital data in terms of student experiences, understandings and responses. Here, we turn to an existing body of work outside education studies examining young people's general understandings of digital data. One notable strand of work relates to data generated from young people's social media use. Studies here suggest young people are concerned about their personal data privacy when using social media, but that concerns tend to revolve around interpersonal rather than commercial misuses of data (De Wolf, 2020; Hollenbaugh, 2019). Indeed, it is reported that many young social media users feel that the commercial extraction of personal data is an inevitable part of participation (Gangneux, 2019).

This raises the broader need to move beyond popular and political discourses of young technology users who remain largely naïve and/or unconcerned in relation to the ways in which their digital activities are datafied. While young people continue to be prolific users of digital technologies, this does not constitute a lack of awareness or understanding. Moreover, even in terms of the general (non-school) literature, it is noted that there is a lack of empirical studies on how young people engage with these data-related issues. For example, in their systematic mapping of evidence on young people's personal data and privacy concerns between 2013–2018, Stoilova et al. (2021) note very few studies focusing on young people's personal data and privacy concerns in institutional contexts, and a lack of studies that include the voices of children and young people. This was echoed by a European report into children, data and privacy, which argued it is 'crucial to adopt a child-centred approach to explore not only how datafication operates but also its social consequences and power dynamics' (Siibak & Mascheroni, 2021, p. 3).

Conceptual framework

In light of this previous literature, then, the present paper explores the direct experiences and perceptions of secondary school students of the datafication of their school-related technology uses. In framing these investigations we turn conceptually to Critical Data Studies (Iliadis & Russo, 2016; Kitchin & Lauriault, 2018) – an emerging transdisciplinary field of research that challenges the idea of data 'science' and data infrastructures as largely neutral and technical in nature, and instead sets out to problematise the datafication of society in social, political and cultural terms. Critical Data Studies therefore prompts us to approach school datafication in terms of the sociotechnical relationships that arise around data. In other words, school data can be seen in terms of the bringing together of various people, places, processes and practices, as well as systems of thought, values, ideologies and forms of knowledge facilitated by data infrastructures.

Critical Data Studies therefore provides a salient set of foci for our own investigation of students and school data. First is a focus on digital data as a form of power. Key concerns here include the ways in which digital data is intensifying existing forms of control in schools, as well as potentially supporting new ways of structuring social processes on the basis of self-organisation (Hepp et al., 2022). Also prevalent here is the extent to which the capacity to exert control over the generation of data is becoming

a key source of power within schools, or even the extent to which data and data-driven processes are becoming 'new power brokers' (Diakopoulos, 2015) in their own right. Second is a focus on the distinct qualities of data-driven forms of surveillance. Increasingly referred to as 'dataveillance' or the 'disciplinary and control practice of monitoring, aggregating, and sorting data' (Raley, 2013, p. 124) for various post hoc purposes. In this sense, we are prompted to follow a number of recent studies beginning to unpack the ways in which a permanent state of data-driven 'soft surveillance' is now giving school 'authorities new ways to sort and manage student populations' (Crooks, 2019, p. 484).

Third is an underpinning interest in the affective and embodied dimensions of living and working within data-driven environments. Beyes et al. (2022) refer to this as the 'atmospheric' qualities of data-driven technologies – i.e. how the data-based mediation 'affects how organisational experiences, emotions and moods take shape'. As has been noted in various contexts, these affective intensities of digital data draw attention to the ways in which 'data is mobilised to affect one's capacity to relate to others' (Beyes et al., 2022). Also of importance is how these affective intensities shape people's abilities to 'imagine their future selves and their future situatedness in the world of data' (Sumartojo et al., 2016, p. 34). In both ways, focusing on the affective dimensions of school data allows us to attend to students' perceived capacities to navigate current datafied forms of school, as well as to anticipate possible future educational environments that might be even more tightly woven with the generation, processing and circulation of digital data.

Finally, underpinning all these concerns about data power, dataveillance and data affect is an emphasis on producing local, contextually rich accounts of data in situ. As such, Critical Data Studies stresses the importance of moving beyond any assumptions of 'data universalism' – i.e. assumptions of essentially similar structuring and impacting of data regimes throughout the world (Hepp et al., 2022). Instead, there is growing interest within Critical Data Studies in interrogating the 'local invisibilities' of digital data – i.e. research that sets out to 'make visible the local working and living conditions, resources, and arrangements required to operate and run' what might appear to be global data infrastructure within a particular setting (Hepp et al., 2022, p. 3).

Research questions and methods

Following a Critical Data Studies approach, we focused on trying to capture the everyday realities of how data was being 'done' in three high schools. Fieldwork included over 60 site visits, in situ observations and general 'hanging around', field notes, documentary analysis, photographing, corridor conversations and more formally arranged interviews with IT staff, data specialists, school leaders and teachers and students (see Delamont, 2002; Thomson & Hall, 2016). This paper draws on the data generated from the student interviews about school data. As such, the paper focuses on the following research questions:

(1) How do students *perceive* the datafication of their school activities?
(2) What are students' *experiences* of school datafication and what are their *affective responses* to these experiences?
(3) How do students *imagine* possible future forms of school datafication?

To address these areas of questioning, we draw on focus group discussions and interview data generated from in-depth qualitative studies of digital data practices within three contrasting Victorian secondary schools across a three-year period. In this sense, these empirical data constitute what Lyndsay Grant (2022, p. 219) describes as an in-depth 'on-the-ground' exploration of educational data practices – detailing the 'everyday practices through which globalised data infrastructures and digital media are appropriated'.

The focus group and interview data used in this paper are part of a larger research project seeking to make use of participatory methods to reimagine schools' datafied practices. The project focused on three case-study schools: a medium-sized inner-city government school (Weston High School, 20 students); (ii) a large suburban Catholic boys school (Brookdale High School, 24 students); and (iii) a medium-sized private school in the outer-suburbs (Northland College, 18 students). These schools were selected because they were interested in expanding their use of data-driven technologies, and each represented one of the three government, Catholic and independent school sectors that constitute the Australian compulsory education system. All three schools had standard data infrastructures, including learning management systems, Google Classroom, laptop and WiFi monitoring, various academic analytics, dashboards and reporting tools. During our fieldwork, Brookdale also installed 'student activity monitoring software and facial recognition technology to monitor visitor attendance.

During our three years of fieldwork, we amassed a corpus of empirical data generated from focus group discussions and individual interviews with 62 students between the ages of 14–16 years. These interviews were in-depth and semi-structured, lasting anywhere between 30 to 60 minutes. Thematic analyses of the focus group and interview data for the present paper was structured initially by the themes of the three research questions described above. All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national). Informed consent was obtained from all participants included in the study. All participants and schools were given pseudonyms to protect their privacy.

Subsequently, the empirical data was critically analysed to identify what matters to the participants and the ways in which this shapes their beliefs and actions (Sayer, 2011). Our data analysis took seriously the first-person accounts of students and their experiences of datafication in schools. In this way, we identify how datafication elevates some realities and priorities over others and the implications this has for how students engage with and act upon the datafied outcomes of their technology uses. In the following sections, we present this analysis in four distinct sections: awareness; experiences; constraints; and imagined futures.

Findings

i) Awareness of how technology use is datafied

Most of the students we spoke to had a general understanding of what digital data was, and an awareness of the different sorts of data being generated and circulated through technology use. Echoing the school 'online-safety' curriculum that is run throughout Australian primary and secondary education, students were quick to talk about their

'digital footprints' and 'digital safety'. Many interviewees at Brookdale were also mindful that data was being generated from 'what you post, what you like' as well as one's 'viewing histories'. Some students were also aware of different inferences that might be made from digital data, including 'gender, age, where you come from, where you're watching from' (Northland student), as well as the possibility of 'track[ing] your location, like your friends [and] where you're going and stuff' (Brookdale student). Students also had a sense of the more complex and detailed things that can be inferred from data. As one Brookdale student explained, 'Say you're chatting to a friend you could be talking about meeting up somewhere and they could probably work it out from that.' Another student ventured, 'Voice tone and accent might give a hint where you come from specifically.'

However, as our conversations progressed, students' detailed discussions of digital data would usually stem from technology uses outside of school – most notably personal uses of different social media and gaming platforms. Here students expressed varying perceptions of the data risks attached to specific platforms that they favoured, as well as strategies and tactics for feeling 'safe'. Many boys, for example, expressed preferences for the Discord platform, which they felt was relatively trustworthy given its origins as a gaming community site. As one Brookdale student contrasted:

> I feel like Discord doesn't use data as much *per se*, but on Instagram, if I search up say something about skateboarding and then I go onto an app, they give you personalised ads from that type of data.

Indeed, most popular 'Big Tech' platforms were often seen as 'sketchy': 'it's more the outside apps that you have to worry about like Instagram and Snapchat. They're the ones you have to make private' (Brookdale student). All told, various experiences and ongoing anxieties relating to navigating the consumer online data economy were raised during the course of our interviews in all three schools:

> Well, [Houseparty] was definitely looking at what we were interested in. And it put it back onto our screens which we found like really worrying, because like it knew what we liked and what we were looking at. So, our search histories and stuff, it was all there. And people could see what we're looking at. (Northland student)

In contrast, students were less likely to perceive their school use of technology in similar intimate or personal terms. As one Northland student put it, 'I just feel like if [data from school technology use] doesn't affect my life and how I'm living, it doesn't really matter. I'm just living my life.' With prompting, students could point to familiar data points that they presumed their schools were using to construct personal profiles. This tended to include prominent points of recording and assessment such as: 'grades', 'how naughty you are', 'your reports', 'your timetable', 'where you live', 'who your family is', 'your ID', 'what colour house you're in', 'when you're playing sport', 'when you were born, what class you're in' and 'your profile picture' (Brookdale & Northland students). While not generated from their technology activities, students accepted that this information is now 'all digital and stored' (Brookdale student), was fed into various online profiles, and would likely be accessible long after they left the school.

Again, with prompting, students could speculate that these records might be augmented by data relating to their use of school systems and software – for example, most students were well aware that their school can 'see our search history and stuff'

(Northland student). Nevertheless, in contrast to the likes of Instagram and Houseparty, there tended to be a default assumption that school was doing the 'right thing' with these forms of trace data. As various students reasoned, 'we *should* trust them', 'we *should* be trusting' and 'I'm sure the school has some sort of privacy settings on'. That said, there was also acknowledgement that each school's data practices were no more transparent than that of Instagram, Discord or Houseparty: 'We don't really have a way to tell if our school is keeping our privacy safe, but we just – we don't get any spam emails or anything saying this, so I feel like it's safe' (Brookdale student).

ii) Experiences of school datafication: nudging, tracking and accountability

Most interviews raised examples of the school making use of digital data to direct students to work. Students were aware that data generated from their online learning activities was being used to 'assess performance' and what one student ambiguously framed as 'to get to know us better'. For example, system data was sometimes presented by teachers in Northlands at parent–teacher interview sessions: 'they'll show the [data from] that term and they'll say how you can improve or what you need to do to improve'. Above all, interviewees' primary experiences of data-driven processes related to the regular automated prompts and notifications that systems would issue to remind students of upcoming assignments, assessments and other commitments. As with any aspect of school coercion, students' perceptions of this use of data were mixed. These notifications and reminders were seen by some as frustrating, 'annoying' or a completely ignored aspect of their personal homepage that 'just piles up over time' (Weston student). Others, however, described the same prompts to be useful in actually engaging with work: 'I get more motivated to do my own schoolwork when I get a notification on Classroom' (Weston student).

Besides these automated nudges, students' other main experience of school data was the monitoring of their technology use – usually described in terms of students being 'tracked' and the associated understanding that this was being done to keep students 'on track'. One Northland student explained how their school dealt with YouTube: 'It's not blocked but the school will track you because they want you to only watch what's meant to be, like the videos that they give.' Another student rationalised Northland's monitoring student online activities: 'They want to make us more focused on learning . . . so we don't get distracted during work.'

While aware of this background monitoring, students remained uncertain of the full extent and effectiveness of how their use of technology in school was being tracked. Some described an ongoing state of trying to 'second guess' when and where technology use was being monitored – resulting in various tacit understandings, 'gut feelings' and hearsay about instances of students being 'caught'. This uncertainty was heightened by teachers' inconsistent use of tracking data – as one Northland student recounted indignantly:

> Some teachers can't personally figure out what you're doing, but *then* I learned that . . . my English teacher actually could see what you are doing on the laptop during class.

Various (mis)assumptions had formed within each school regarding the extent of this dataveillance. For example, one group of Brookdale students recounted the likelihood that unexpectedly logging into the school system in the evening could be

taken as evidence of not working well in class: 'They can figure out that you're probably doing some work that you either haven't finished in class or that was given to you by the teacher.' Other Brookdale students explained, 'I'm *pretty* sure they track how long you're on a website', and how tracking could continue even when students had left the school: 'when you're like at another school, they can still track you down'.

All told, such incursions and monitoring were generally rationalised as the school instilling students with a sense of 'digital accountability'. This obligation was described by most interviewees in terms of them perceiving a need to be 'doing the right thing' when using school systems. Students described feeling compelled to regularly log in, complete specific tasks, watch videos in full or comment on peers' work (even when it was not seen as necessary or helpful). This sense of compulsion was described in ambivalent terms. Some students could see this as a 'motivational' or 'incentivising' feature of online learning, while others doubted the systems' capacity to gauge their personal circumstances and fully 'know' how well they were working. As one student described what they saw as the 'detrimental' use of data-driven prompts: '[The data] might be saying continue working harder even if you're reaching your max limit' (Brookdale student).

iii) The constrained nature of school technology

As with most aspects of school, students conveyed a range of reactions, feelings and responses to the prevailing datafication of their technology use – ranging from a sense of motivation or acceptance, through to uncertainly or frustration. In practical terms, however, school technology was commonly felt to be an institutionally bounded (and therefore personally constrained) experience in comparison to non-school engagements with technology. This was experienced along a number of different lines. For example, one recurring complaint was students' lack of control over what information and data was made visible on their profiles. As one Northland student explained, they could not prevent their mobile phone number being displayed on their internal online school profile:

> So for some reason on my profile, I can't work out why, but my phone number is on it, and I can't get rid of it because the school's restricted changes and stuff. So anyone can get access to it.

In a similar way, students felt frustrated that they could not change their default profile photos which were also publicly displayed: 'We can't even change our profile pictures … they put our school photos there and it's so sad. Because mine is so bad. And you can't change it' (Northland student). While these might seem relatively minor points, it contributed to a prevailing disempowerment that students felt around the use of digital data. This powerlessness stemmed from the fact that students were not choosing to use their school system, in contrast to their more discerning engagements with 'personal' platforms where selecting profile photos and curating biographical profiles is a fundamental practice. As one student reasoned: 'If *you* have a public account and *you* post it on your profile, that's kind of your choice and your decision' (Northland student).

This tension was also reflected in students not being able to deploy many of their preferred strategies and tactics for remaining relatively 'safe' online when using school

technology. For example, when using social media platforms outside of school, students were used to using 'fake names', nick names or entering erroneous dates of birth into their profile. However, when it came to school technology use, these strategies could not be used. As one student at Brookdale put it: 'I mean, we *could* still put in false information [on the school platform] but they're still going to be collecting the same data somewhere else so . . . '. Some students therefore described feeling powerless – due, in part, to the fact that they are in a subordinate position as 'kids':

> We don't exactly have the biggest say in what they do have because we are kids. So even though we have an idea that they have all of our data, and they know everything about us . . . which can just be a little bit distressing because you don't know what they know about you (Weston student).

While not all students went as far as describing themselves as distressed, many did express a sense of unease and mis-trust at how their digital data might be accessible to individual teachers. Contrary to the general assumptions outlined earlier that their school 'did the right thing', concerns were sometimes raised over specific individuals – especially the fact that school data systems and dashboards could be accessed by teachers who did not have direct relationships with the student: 'I don't trust everyone in the school. I don't need every single teacher – a teacher that has never had me before, I don't need them knowing my information' (Weston student). Other Weston students expressed discomfort that casual relief teachers (CRTs), who only taught students temporarily, would have access to their data: 'Sure, I trust my advisory leader and the office and stuff . . . but I don't trust it with the CRT I had once.'

That said, some interviews also highlighted instances where students saw themselves as benefiting from this enforced publicness of data. For example, Northland's school-wide learning system would display regularly updated information throughout each school day relating to students' current classroom location and their mobile phone number. This function was supposed to be used by teachers when students were not present in class, yet this combination of data-points also proved useful for other students to spontaneously find out where friends were and ascertain if they were available to 'chat'. However, as one student explained, hovering one's cursor over the student's on-screen profile made this information visible to all users: 'Like if you go into someone's profile online, you can see their current class. You can see if they're available or not' (Northland student).

iv) Imagining future forms of school datafication

Our final research question centred around how students were able to imagine future uses of school data. Certainly, most students anticipated future connotations of the data that were currently being generated about them at schools. Yet unlike the grade cards and 'permanent records' of previous generations, the scope of these digital profiles were understood to be all-encompassing and instantly accessible. As one student from Northland explained:

> It affects your whole life, basically, because they're keeping record of every single thing you do at school, like everyone's watching, basically . . . and people can access it whenever they want because you have to put your school or something, and then they always contact the school and see our records.

Evident in this quote is the ready assumption of future data sharing, even though Victorian schools are mandated to keep student data private and secure. Students' concerns here focused particularly on the future accessibility of data relating to their behaviour, work habits and other failings and transgressions. As a Northland student explained, this included data relating to 'problems that you've caused, things that you've done wrong'. Even if this data did not impact students' current opportunities in school, it was reasoned that 'chances are that it will in the future'.

While most students concluded that they could not be certain what future uses of their school-related data might entail, some were willing to speculate along relatively significant lines. For example, some students anticipated future employers and governments being interested in school data: 'When you're older if you're trying to get a job they can search up your name and sometimes things will come up and they could be negative' (Northland student). An even more extreme possibility put forward was school data somehow being used by former teachers to 'blackmail' students. As this particular point of discussion progressed, however, the group concurred that teacher blackmail was unlikely. Other students felt reassured that their teachers' online activities were also monitored: 'These people are monitored, all the teachers as well. It's not just *us* that are monitored.'

When asked how school-related data might be used differently in the future, most students struggled to think beyond the standard ways that data was currently used. Several Brookdale students suggested that schools might collect data about their 'extracurricular [activities], rather than the academic stuff', while others wondered whether mood trackers or collating data on how classes were feeling would be possible. In many ways this lack of 'thinking otherwise' was not surprising as the lack of agency students felt towards current forms of datafication. Tellingly, the Brookdale students who did speculate anticipated that the most likely future scenarios involved more intensive and extensive collection of school data: 'I feel like data will be a lot more – it will be a lot easier to see, so teachers will really be able to see everything you do . . . so if you do something on Instagram and it's bad, they put it on an online file or something.' Such bleak future scenarios also encouraged students to reflect on how school data might be better used in the present:

> They could use your data to help you in education instead of just using it – sometimes they'll use it to show your parents trying to get you in trouble, which makes sense if you're not doing the right thing, but sometimes they should actually try to help us learn as well instead of just focusing on the negative things.

Discussion and conclusion

At first glance, these findings point to issues that are not necessarily unique to the datafication of schools, but rather apply to many aspects of how power operates within contemporary schooling. School is a place of many different coerced and impersonal behaviours – not just technology use. Thus, in contexts where students have little or no choice over what platforms they use (and how they are able to configure their use), it is unsurprising to find feelings ranging from begrudging acquiescence to alienation, mild frustration to a profound powerlessness. Also, schools are places where students are

compelled in many different ways to remain engaged in their studies. It is therefore understandable to find data-driven notifications, reminders and warnings provoking feelings of motivation and encouragement, as well as a sense of mild annoyance or discouragement. Above all, school is a place where students are continually monitored, measured, categorised and judged. Our findings therefore point to how digital forms of dataveillance are adding to existing atmospheres of accountability, uncertainty, vulnerability, indignation and/or defensiveness. As such, it might be concluded that the datafication of schools is largely being experienced by students in ways that are analogous with schooling in general. Schools have always been institutions of social control and surveillance, and many of the student experiences outlined in our findings therefore represent the 'translation' of existing school logics of monitoring and control into datafied forms.

That said, some aspects of our findings do appear to mark distinct transformations in the conditions of contemporary schooling – what might be described as new forms of 'data power' (Hepp et al., 2022) emerging within schools. First are the ways in which digital technologies are facilitating the creep of 'soft surveillance' into students' domestic and after-school lives – leading to students' acceptance of being 'tracked down' regardless of time or place. Second is the perceived permanence of this monitoring, with students well aware that digital data will persist long after its intended uses within school, potentially resurfacing in key future moments of judgement regarding employability and other life events. Third is the additional labour and self-organisation that students find themselves having to undertake in order to anticipate how their online actions might be tracked and interpreted – not least the work implicit in being 'digitally accountable', second-guessing how one's data is actually being monitored, acting in ways that will be read as algorithmically compliant (Bucher et al., 2021). Fourth is the way in which students become complicit – if not active – participants in their schools' dataveillance regimes (Lyon, 2018). For example, our findings show students developing data-driven practices and imaginaries that reinforce the goals of institutional dataveillance. Moreover, we also find some students themselves becoming surveillers of others – as illustrated in the 'convenience' of tracking the whereabouts of one's peers. We also find some students gaining reassurance from the fact that their teachers' future actions would also be closely monitored. In all these ways, datafication is therefore leading to altered relationships within school communities.

Given all the above, it is not sufficient to simply describe students' responses to school datafication in terms of a passive acceptance, apathy or indifference to what is being done with their data. The students in our study were generally mindful of the data-related conditions prevalent in their schools, even if their understandings were muddied by uncertainty and speculation. Instead, then, it might be more helpful to turn to emerging explanations within Critical Data Studies of the sense of '**digital resignation**' to having one's personal data exacted and then being subjected to targeted advertising and other marketing. As Draper and Turow (2019, 1824) put it, digital resignation refers to 'the condition produced when people desire to control the information digital entities have about them but feel unable to do so'. It might therefore be argued that it is not that students do not care about what happens to their personal data, but rather that they feel unable to act. In this way, they believe they have limited social leverage in relation to negotiating how they engage with institutionally mandated data infrastructures. In short,

the explanation here is that students soon become of the mind that there is little or no 'possibility of circumvention or resistance to mass data collection' (Hintz et al., 2019, p. 117).

This idea has some relevance to the experiences and perceptions of school data related in our findings, yet needs to be used with caution. Draper and Turow are concerned with the specific case of personal data from social media platforms being used by advertisers and commercial third parties. Here, it could be argued that there is a direct financial benefit for individuals consenting to the reuse of their data. It might also be that individuals have an awareness of the types of consequences of giving their consent (i.e. making a connection with the targeted advertisements that one subsequently sees in sidebars and news feeds). In contrast, the collection and reuse of personal data through school systems is clearly bound up in the more opaque organisational structures of school. Furthermore, the notion of 'resignation' infers a sense of hopelessness that perhaps downplays the spirit in which students are engaging with their school platforms and systems. As implied throughout our findings, it might be more appropriate to describe school students as more 'compelled' than 'resigned' in their acquiescence to these systems. It is not that students are passively giving up on the possibility of doing things differently, but that it is impossible to realistically consider viable alternatives. This is especially the case in compulsory secondary schooling – where students are compelled to engage with official platforms and systems all the time, and where the terms of attending a school as a student are legally bound with conditions of *in loco parentis*, the subordinate status of being 'a kid', and so on.

Allied to this latter point, then, we might frame this paper's findings in terms of the cognate idea of '**surveillance realism**' – i.e. that idea that students have 'come to see surveillance as a "realism" in the sense of being an inevitable social order' (Hintz et al., 2019, p. 120). In this sense, school data infrastructures can be perceived as ubiquitous and now embedded in everyday participation in school processes and practices to the extent that it now makes little sense to imagine how they might be challenged in practical terms. This idea of 'realism' certainly chimes with the fact that using school platforms and systems is not simply a choice or decision on the part of any individual user. Neither can students be criticised as passive agents who simply fail to act. Rather, acquiescence to mass data collection is 'actively manufactured' through the design, development and implementation of school digital infrastructures (Hintz et al., 2019, p. 119), as well as the prevailing conditions of monitoring and control inherent in all aspects of school organisation.

These ideas of realism and resignation therefore go some way to increasing our understanding of the dominant conditions of datafication that students perceive as having been established within schools such as Brookdale, Northlands and Weston. In particular, these ideas offer explanations of how these conditions work to diminish any agency that students might have developed in other (non-school) aspects of their digital technology use. Whether it is ubiquitous data capture, the endless notifications, the home monitoring of school platforms, the lack of control over publicly displayed photos and personal information, or not knowing who or what can use their personal data, our findings illustrate in detail how young people feel 'locked out' of understanding or having any semblance of control over their school technology use and, to date, perceive little or no impetus to change this state of affairs.

These ideas of school data 'resignation' and 'realism' therefore go some way to explaining the prevailing atmospheric conditions of the datafied school, and students' lack of radically different imagined future forms of school datafication. Nevertheless, these need not be seen as wholly defeatist conclusions. Instead, we suggest that these readings of student experience should be fundamental to how current forms of school datafication might be challenged and reconfigured by students and school communities. This is not an easy line of discussion and inquiry and requires sustained research *with* young people and the school community to flesh out.

An initial point to make here is the need to look beyond traditional recourse to supporting students to somehow navigate the constraints and obligations arising from datafication as replicated in 'data literacies' courses and other such 'cyber-safety' approaches. Instead, as Lina Dencik (2018) argues, countering surveillance realism is not just about developing individual skills or relying on experts to provide advice. Instead, as data infrastructures and technologies of dataveillance become part of the everyday realities of contemporary schooling, critical responses call for a complete reimagining of the system. To critique datafied systems, imagination is therefore key:

> In advancing a critique, therefore, suitable for an emancipatory politics, it becomes essential to destroy the 'natural order' of surveillance realism in order to make what seems impossible attainable. That is, the challenge becomes one in which the issue is not simply to harvest the resources available to mitigate the excessive harms of the current datafication paradigm, but is one in which we have to expand the limits of our imagination and reassert the possibilities of another world, another way of organizing society (Dencik, 2018, p. 41).

In this sense, a strong argument might be made that any such efforts to support students' critical reimagining of school datafication are not best pursued within school settings. Indeed, as Pekka Mertala (2020) points out, if education systems are reliant on datafication and student profiling, then it may appear deeply hypocritical for that system to be promoting an agenda for digital change. Instead, our findings in this paper can be taken to suggest that efforts to help students develop critiques of school datafication could take place *outside* of schools – perhaps supported by concerned civil society groups, surveillance and data activist groups, and self-organised by young people themselves.

What forms these efforts might take needs to be a matter of ongoing discussion and debate. One initial step might be to more explicitly problematise the types of datafied conditions as described in this paper and point out to students the ways in which school technology use is intrinsically entwined with school regimes of discipline, control and subordination. As Lovink and Rossiter (2015) argue, one of the defining features of the current digital era is the normalising of data infrastructures so they appear beyond question. The first step, perhaps, is therefore to make the datafication of school visible to student groups, so that technological infrastructure does not just recede into the background of students' experiences of school but can be examined, critiqued and perhaps resisted. Second would be attempts to move beyond the binary approach of hero and villain protagonists and reimagine less hierarchical control over data that provides data-actors with control and trust.

However, if schools were to take up this challenge, then teacher training must include more robust critical data literacies education. This would not only help

teachers develop the knowledge and understanding needed to critically evaluate the digital platforms in schools – including the ways in which platforms are collecting and using data – but also so they can educate and reassure students about how school data is *not* being used. The more extreme and alarmist understandings of datafication often come from a lack of understanding and therefore an inclination to assume the worst. In the classroom, educative approaches to school data could be framed as a collaborative inquiry in which teachers and students develop their school-based data literacies *together* to start breaking down the information asymmetries that exist.

There is potential for the teacher to play a key role here, not only as an educator, but also as a researcher, activist and re-designer of school-based datafied systems (Pangrazio, 2023). Resources and time are always limiting factors but teachers could play a powerful role in changing education data use for the better. Regardless of whether this education and action takes place in schools or beyond, clearly more needs to be done in working out how best to support students in actually imagining *alternative* atmospheres of datafication in their schools. This may or may not result in change, but either way it speaks back to the idea that students need to remain simply 'resigned' to data.

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