

Article

Cat-and-Mouse Games: Dataveillance and Performativity in Urban Schools

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Abstract

This paper focuses on the responses of teachers and students in a South Los Angeles public high school to dataveillance regimes that were meant to control specific behaviors. Over a period of two years, a newly deployed one-to-one tablet computer program supported the integration of dataveillance regimes with previously established modes of pursuing teacher and student accountability. As tablet computers achieved ubiquity, students, teachers, and administrators challenged the ambiguous relationship between digital data and the behavior of subjects putatively described by these data. Conflicts over digital data—what data could mean, what they could stand in for, and what could be deemed normal or aberrant—emerged between school authorities and targets of dataveillance. Where school authorities often depicted their own surveillance capabilities as immediate, inescapable, and predictive, contests over the interpretation of data attenuated this power, showing it to be partial, negotiated, and retroactive, a dynamic this study refers to as *interpretive resistance*. This study uses a theoretical framework based on performativity of digital data to think through the implications of observed contestations around representation. Performativity conceptualizes digital data not as a set of objective, value-neutral observations but as the ability to produce statuses of norm and deviance.

Introduction

Cultural studies of surveillance draw a sharp contrast between the democratic ethos of public education and the contemporary culture of control that is associated with schooling (Monahan 2011; Monahan and Torres 2010). Scholars have examined the role of so-called surveillance schools in habituating students to invasive modes of social sorting and control that clash with the civic ideals of public education (Taylor 2013). In many modern-day schools, surveillance occurs across multiple scales and modalities. Surveillance is accomplished simultaneously via cutting-edge digital technologies and time-tested analog discipline, which together constitute a seemingly endless array of techniques and technologies for “watching, monitoring, tracking, or data analyzing for purposes of control” (Monahan and Torres 2010: 6). Schools all over the English-speaking world are in the throes of a number of administrative transformations that include privatization, the establishment of audit cultures, and the de-skilling of the teaching profession; schools have also increasingly incorporated the systematic collection and analysis of digital data to achieve desired ends (Monahan and Torres 2010; Lipman 2013; Ball 2003; Perryman 2006). Dataveillance—the systematic collection and analysis of digital data for the purposes of controlling a targeted group—gives authorities new ways to sort and manage student populations, to reward or punish the work of teachers, and to field-test various kinds of commercial software (Clarke 1988; Cochran-Smith, Piazza and Power 2013; Selwyn 2016; Page 2017). Dataveillance figures as a site of struggle between powerful public and private constituencies over the values schools should promote and the form schooling itself should take in pursuit of those values (Lipman 2013; Barnard-Wills 2012). Critics warn that data-centric modes of education

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threaten to subject vulnerable children to regimes of control via technologies “that allow them to be identified through digital traces of their activities and then acted upon by those who seek to govern their lives” (Lupton and Williamson 2017: 64). Technologies of dataveillance have become so fundamental to the enterprise of contemporary schooling that a sense of fatalism accompanies reports of their ever-expanding reach, a sense that dataveillance “cannot be refused point blank” (Nemorin 2017: 251).

Studies of surveillance effect a critical stance toward technology, a “hermeneutics of suspicion” that takes as given the “inevitable and often cunningly devious expansions and intensification of surveillance in the service of social control” (Haggerty 2006: 35). But information technologies—including the many kinds of artefacts, platforms, rules, routines, and procedures that constitute dataveillance—often give rise to complex and unexpected actions when studied in their institutional, organizational, professional, and social contexts (Kling 2000; Latour 2000). Digital technologies function in highly contingent ways, according to routines and scripts that are developed within complex sociotechnical interactions (Kling et al. 2005; Bijker and Law 2010). Likewise, the material dimensions of any given artefact or system may shape organizational and institutional behaviors (Dourish 2017).

This paper begins and ends with a fairly mundane observation on dataveillance, one gleaned from a sustained, close look at a set of technologies that were used to accomplish dataveillance in a particular school setting: data cannot speak for themselves, so they must be *made* to speak. As in the broader culture, digital data stand in for a variety of complex phenomena, despite a number of unresolved ontological and epistemological contradictions in the now widespread practice of equating human activity to various kinds of digital traces (van Dijck 2014). The increasing variety of sources used in dataveillance results in a proliferation of representational claims and, at the same time, a concomitant conflict about the nature of the reality captured via data (Mol 1999). In the detailed ethnographic scenes presented in this paper, local actors use this uncertainty to evade or frustrate efforts at control. If dataveillance, as a form of surveillance in schools, exists to accomplish control, then the manipulation of the ambiguity between digital data and the people, things, and phenomena for which data stand as proxy is significant (Monahan and Torres 2010). These observed contestations over the representational status of data can be thought of as a space of resistance to control, a resistance engendered by the very mechanisms of dataveillance. As Gilliom (2006) writes, resistance is the “politics through which ordinary people can express and mobilize their opposition to surveillance policies while at the same time achieving short-term gains that are important in their daily lives” (113). Thinking through this politics might give theorists who are interested in surveillance in schools a way out of fatalism.

This paper describes the implementation of a one-to-one tablet computer program based in a South Los Angeles public high school, focusing in particular on the responses of teachers and students to dataveillance regimes meant to control specific behaviors. Over a period of two years, newly deployed tablet computers supported the integration of dataveillance regimes with previously established modes of pursuing teacher and student accountability. As tablets achieved ubiquity, students, teachers, and administrators manipulated the ambiguous relationship between digital data and the behavior of subjects putatively described by these data. This study uses a theoretical framework based on the performativity of digital data to contextualize the implications of observed contestations around representation. Effectively, performativity conceptualizes digital data not as a set of objective, value-neutral observations but as the ability to “produce a regularity which then enables both the clear appearance of norm and deviance” (Matzner 2016: 206). Negotiations over digital data—what data could mean and what they could stand in for, what could be deemed normal or aberrant—emerged as a zone of conflict between authorities and the targets of dataveillance. This conflict took the form of a politics (in Gilliom’s sense of the word) centered on representational claims. Where school authorities often depicted their own surveillance capabilities as immediate, inescapable, and predictive, contests over the interpretation of data attenuated this power, showing it to be partial, negotiated, and retroactive. This study names this dynamic *interpretive resistance*.

This work adds to the scholarly record on surveillance in schools. It depicts dataveillance and interpretive resistance in action in an urban school that serves a minoritized¹ community. This paper also contributes to post-Foucauldian theories of dataveillance, using performativity and interpretive resistance to examine two specific areas where data analysis was meant to shape behavior: evaluating teacher performance and monitoring student compliance with college application rules. The next section draws together some of the literature on performativity and surveillance in urban schools. It depicts the interpretation of digital data as a space of contestation, one where power is differentially distributed but also where interpretive resistance makes assignments of norm and deviance manipulable.

Dataveillance and Urban Schools

Studies of dataveillance—“data collection as a way of managing or governing a certain population”—have drawn into question some of the guiding explanatory theories of surveillance (Browne 2015: 18; Bossewitch and Sinnreich 2013). In the specific context of education, Nemorin (2017) questions the predicted transition from Foucauldian to post-Foucauldian theories of surveillance, the “trajectory of panoptic to rhizomatic surveillance,” arguing that surveillance in contemporary schools simultaneously occurs across both modalities (240). At issue here is the significance of dataveillance in schools—the aggregation, analysis, and visualization of various flows of data that describe aspects of learning or learners for purposes of control—and how theories of surveillance might incorporate its prominence. This study argues that the datafication of education entails many kinds of dataveillance, both in English-speaking schools in general and in the more specific case of American urban education (van Dijk 2014).

Pressure on schools to demonstrate particular educational outcomes, to produce desired behaviors in students, and to address security concerns have resulted in the proliferation of surveillance. These include school-based police units, closed-circuit cameras, metal detectors, physical inspections, zero-tolerance policies and, increasingly, various forms of data collection and analysis (Gilliom and Monahan 2013; Monahan and Torres 2010). Changes in computing, telephony, and media technology have inserted many kinds of computing devices and technological platforms into classrooms (Ito et al. 2009). Moreover, logics of managerial efficiency and accountability have impelled transformations in the delivery of public education, largely through emphases on digital media and data analysis (Ball 2003; Stassen 2012; Ambrosio 2013; Cochran-Smith et al. 2013). As Williamson (2014) writes, “powerful data processing technologies, facilitated by software code and algorithmic processes, are displacing sociological concerns with the socially structured regulation of children’s access to powerful knowledge” (12). Governmental and philanthropic investments in data-intensive modes of education (i.e., edtech) indicate a consensus that the complexity of learning, teaching, and administration can be captured as digital data, that education itself is “knowable, explainable, and intervene-able” (Williamson 2017: 275). Individual students undergo a reductive process of “datafication,” wherein authorities “assume a self-evident relationship between data and people, subsequently interpreting aggregated data to predict individual behavior” (van Dijk 2014: 199). Public policy has engaged with perceived threats to student privacy through laws to prohibit certain kinds of commercial use of student data, again implicitly affirming the consensus that there exists a fairly simple, direct representational relationship between data and the things for which data stand as proxy (Zeide 2017).

Descriptions of the logistical and representational mechanics of dataveillance and concerns over its sociological significance have been obliquely addressed by scholars working in the setting of urban schools. Racially segregated American public schools are the sites of extensive surveillance regimes that aim to shape student and teacher behavior. These regimes largely depend on the capture, aggregation, and analysis of digital data produced in the course of mundane daily activities, such as schoolwork, personal

¹ As opposed to terms like underrepresented, minority, or underserved, the term minoritized draws attention to the historical specificity of American racial and sexual hierarchy and the potential multiplicity of identities of individual persons. “Minoritized” is a way to name social location in a pervasive atmosphere of white supremacy, heteronormativity, and misogyny (Muñoz 1999).

communications, and social media updates (Hirschfield 2010; Madden et al. 2017; Shade and Singh 2016). Public schools in the United States are sites of massive economic inequality, the result of racialized concentrations of poverty and policies aimed at preserving racial segregation in schools (Erickson 2016). Urban schools are high-poverty public schools that serve minoritized communities, primarily black and Latino, primarily in central cities previously hollowed out by white flight and now the sites of intense housing displacement (Costa Vargas 2006; Means 2013; Pearman and Swain 2017; Rury 2012; Kraft et al. 2015). Studies of surveillance in urban schools address school discipline, standardized testing, and technological intervention, noting in particular how surveillance technologies demand the resources of already under-resourced institutions and recast public school students as security risks and suspects (Taylor 2013; Monahan 2008). Surveillance contributes to a high-discipline school environment, where accountability regimes threaten far-reaching consequences (Lipman 2013). Urban schools, produced through residential segregation and sustained economic disinvestment, directly contribute to racialized mass incarceration (Sojoyner 2016). In these schools, the whole ensemble of technologies of surveillance directed to personal accountability and discipline accomplish “a soft coercive migration of youth of color, especially poor youth of color, out of sites of public education and into militarized and carceral corners of the public sphere” (Fine and Ruglis 2009: 20). Schools that serve minoritized communities face pressure to assure students’ access to digital technology so as to promote social and economic mobility, but these interventions rarely address the dataveillance these tools enable (Warschauer and Matuchniak 2010; Buras 2014; Winston 2007). The expansion of dataveillance that accompanies the use of education technology in minoritized communities has as yet met little organized community opposition. When families struggle with the consequences of racism and structural poverty, parents and community members have limited ability to address surveillance or privacy concerns on behalf of students (Boutte and Johnson 2013).

The next section lays out the theoretical framework for the empirical sections to come. This framework is based on articulations of performativity; that is to say, if digital data are performative rather than strictly representational, then their use in school dataveillance must be problematized.

Performativity as Analytical Framework

Common to work on dataveillance in education is a reckoning with the cultural authority of digital data, an authority that largely depends on data’s representational power (van Dijck 2014). Digital data have become hyperabundant in education, where they are captured at little cost, in great volumes, over the course of the everyday activities of teaching, learning, and socializing (Kitchin 2014; Ito et al. 2009). Wherever they are used, digital data are understood almost exclusively in a representationalist paradigm, in a belief “in the ontological distinction between representations and that which they purport to represent” (Barad 2007: 46). Data (digital or otherwise) are primarily understood as quantifications of real phenomena captured by some measuring instrument or apparatus; from this perspective, data merely represent the measured qualities that are inherent in real objects themselves (Barad 2007; Thrift 2008). Non-representationalist analyses have argued persuasively that the material world itself is performative and that no “symbolic code—graphical, visual, audible—ever represents a preexisting entity” (Drucker 2013: paragraph 25). Despite whatever solidity and trustworthiness it might project, a representation depends on “the establishment of a whole costly and fragile set of connections that has value only provided that it is regularly maintained and that will never be stronger than its weakest link” (Latour 2013: 62). Studies on surveillance have allowed that data might be imperfect representations of real people, places, and things; for example, data can be biased or may contain errors, but these criticisms still rely on representationalist thinking (Clarke 1988: 506). For example, Haggerty and Ericson’s (2000) influential theory of the “surveillant assemblage” relies on the formation of the “data double,” a virtual, de-territorialized stand-in for a person that is composed of data aggregated on the fly by corporations or the state. The “data double” serves as an imperfect but effective surrogate for the real, but imperfection does not trouble the representational relationship between data and the people they represent; instead, this concept foregrounds metrological rather than representational concerns, a question of ultimately corrigible error or calibration. Scholars concerned about discrimination have rightly pointed out that dataveillance as it is practiced by state and corporate actors involves “hidden intentions, systematic and random errors, partial information or biased visions,” but to observe that a person

so depicted might be inaccurately, partially, or erroneously recorded merely affirms the core conception that data mimetically represent inherent qualities of real people, places, and things (Esposti 2014: 212; Barocas and Selbst 2016). As later sections of this paper will show, the representational relationship between data and phenomena cannot be taken for granted and is often contested by subjects in the field via strategic moves and countermoves (Ganesh 2016).

The analysis offered later in this paper concerns performativity, defined here as a way of thinking about the digital data that make dataveillance possible and the way these data create norms and deviance under the guise of a naturalized, assumed representational capacity. Performativity in the sense it is used later in this paper is part of surveillance studies' general interest in performance, the way "cultural scripts are formed and re-formed through embodied experiences and negotiated practices" (Hall, Monahan, and Reeves 2016 :153). Performance in its broadest sociological sense concerns a historically constituted social reality that unites organizational, cultural, and technological domains, "an onto-historical formation of power and knowledge" (McKenzie 2002: 18). In this framing, performance replaces discipline as the primary mode of power in postmodern societies, the result of "geopolitical, economic, and technological transformation associated with the performative stratum" (ibid: 18). In academic work, performativity as it specifically relates to surveillance in schools has been defined in several ways. The first sense of performativity comes primarily from Lyotard via the sociology of education and refers to a critique of the administrative and bureaucratic powers that are brought over human endeavor, specifically over education (Perryman 2006; McKenzie 2004). The performativity referred to here has to do with evaluation, as in the manner of performing the annual reviews commonly used for employees in white-collar workplaces, "a mode of regulation that employs judgments, comparisons and displays as means of incentive, control, attrition and change" (Ball 2003: 216). A second sense of performativity, performative regulation, comes from scholars who are interested in Goffman's concept of the total institution and concerns the many kinds of surveillance adopted among voluntary communities that are dedicated to self-improvement (Scott, 2010: 221). While these uses of performativity are relevant to this paper, for the purposes of clarity, the use of the term performativity is restricted to another sense, one more relevant to the representational capacities of digital data.

The notion of performativity as it is applied to digital data in the sections that follow is identified with Butler and is useful in understanding how authorities use dataveillance to effect control and how the subjects of dataveillance attempt to evade, ignore, or frustrate these efforts (Matzner 2016). Butlerian performativity theorizes a process of subject formation via ontology: "[P]erformativity works, when it works, to counter a certain metaphysical presumption about culturally constructed categories and to draw our attention to the diverse mechanisms of that construction" (Butler 2010: 147). Performativity defines a symbolic system not as a tool for capturing qualities of an observer-independent reality, but as a matrix that creates subject positions; symbolic systems "produce a regularity which then enables both the clear appearance of norm and deviance" (Matzner 2016: 206). Speech acts, writings, and deeds constitute a menu of discursive actions that, in order to achieve intelligibility to others, must cite dominant relations of power (Butler 2006). According to this notion of performativity, performative utterances are successful only when they index the ambient relations of power that organize society. Butler focuses in particular on gender, on how the supposedly inviolable, natural separation of two potential anatomical states into male and female sexes comes to constitute an ontological separation of two genders via language, one that is always in the process of being made and remade (Butler 2006). As McKenzie (2002) writes, performativity "has been employed to theorize utterances that constitute rather than represent local actions" (12). This Butlerian sense of performativity troubles any popular conception of data as an unmediated measurement of some external, preexisting reality.

The performativity of digital data draws the contested status of the meanings of digital data into an ontological politics that involves the negotiation of where options are located and what is at stake in the choice of these options (Mol 1999). Performativity in this respect has been used by scholars working on understanding the specific function of digital data in dataveillance: Perrotta and Williamson (2016) employ theories of performativity to explain the emergence of "a new form of unquestioned educational consensus

around educational data science,” one that serves to occlude civic concerns (2). Raley (2013) points to the performativity of digital data in constructing the terrorist subject in everyday surveillance routines. Likewise, Matzner (2016) argues for an understanding of digital data “beyond representation” in data-enabled surveillance and describes a process whereby digital data cite extant power relations to reproduce a particular kind of subjectivity. Critically, Matzner rejects the possibility of reconciling representation via data as “a problematic distancing from an originary subject” (206). In Matzner’s analysis, representationalism fails to explain the contemporary uses of data for multiple purposes, including the simultaneous construction of familial, personal, professional, and official relations: “Eventually all ways in which we can become a subject are also ways to become a suspect” (207). In other words, a performative accounting of digital data cannot appeal to some original, authentic representation at its core. Instead, a successful representation draws that which is represented into relation with an established power structure.

In a later section, performativity—the workings of symbolic systems to confer normative statuses—is applied to contextualize a series of contests that hinge on administrative attempts to control specific behaviors. Disputes abound on the field of representation, appearing as a series of claims and counterclaims about what data are supposed to represent, a dynamic this study refers to as *interpretive resistance*. The next section summarizes the larger ethnographic project from which these scenes are excerpted, a two-year-long study of an urban school in the midst of experimenting with digital learning technologies and the dataveillance they enabled.

Project Summary: Novelty Versus Accountability

This paper reports on an ethnographic study of a one-to-one tablet computer program; data collection took place from 2013 to 2015. The primary field site, Los Angeles Academy Schools College Prep # 7, is a free public high school run by a non-profit charter management organization (CMO) that operates approximately 20 middle and high schools in South and East Los Angeles.² Number Seven accommodates 650 students in grades nine through twelve. The school employs 27 full-time teachers, two guidance counselors, and three principals. In the 2015-2016 academic year, Number Seven reported a student population that was 94% Latino and 6% African American; 96% of students at the school qualify for free lunches, and nearly 14% are designated as English Learners, or students in the process of learning English as a non-primary language. These statistics reflect the high degree of racial segregation in Southern California’s public schools and exemplify the broader national trend of increasing re-segregation in American public education (Orfield et al. 2016). Number Seven has no library, cafeteria, or gymnasium.

Institutional ethnography, “a sociological method of inquiry which problematizes social relations at the site of lived experience, while examining how series of texts contribute to the coordination of actions, consciousness, and forms of social organization,” has been a useful approach for understanding how people in a community bounded by a specific institution live with surveillance (Walby 2005: 190). Accordingly, this research employs a continuum of participant-observation techniques, ranging from the unobtrusive observation of students to eliciting responses specifically for research purposes. This approach rejects a binary distinction between the subjective or objective reality of culture, instead preferring a thick description of cultural interaction as it is understood by the subjects and as they are, in turn, understood by the researcher who enters into and becomes habituated to the field (Geertz 1973). Ethnographic research in schools can incorporate any number of theoretical frameworks (Kincheloe and McLaren 2002). This paper describes a single case study and does not make statistical claims. The research was organized around the following question: What kinds of data are generated by tablets in the course of the school’s daily activities—e.g., instruction, discipline, evaluation, surveillance—and how do such data circulate? Teachers and students were told the purpose of the researcher’s presence in the school was to learn from and write about their experiences with technology.

² Aliases are used extensively in this paper to refer to the school, its employees, and its students.

The primary sources of data for this project are field notes recorded at Number Seven over 275 hours of observation; informal meetings with teachers, students, and administrators; photographs taken at the site; and documents used to administer the use of tablet computers in the school. Additionally, 30-minute semi-structured interviews of administrators and teachers (n=17) were conducted, each of which was recorded and transcribed. Finally, to better understand the experience of the students, focus-group-style meetings were held with 25 students who worked as ad hoc tech support. This group was closely followed (Crooks 2019). Visits were made to the school at least once a week for an entire school year.

Despite the rhetoric around the novelty of digital technology and its transformative capacity, teachers largely ignored the tablet computers in their classroom instruction in a paradoxical pattern of “high access” and “low use” previous studies of one-to-one programs have observed (Cuban 2003). However, school administrators found many ways to put tablets to work, including functions related to college advising, student discipline, and standardized testing. Multiplying the number of computing devices within the school created new sources of data to sort and monitor students, new routines built around access to computers and computer-like devices, and new networks of communication for sharing information about students. The tablet computers were used to extend the instructional and administrative techniques already in place and not to change or disrupt them in any meaningful way.

This specific vision of education teachers and administrators at Number Seven practiced in the school’s approach to technology hinged on accountability, a common theme used to legitimate surveillance and discipline in urban schooling (Lipman 2013). The school’s head principal, Mr. Montoya, described this overarching philosophy:

Here we have a really special classroom culture. We are a true educational environment, the kind where students can really learn. Most importantly, we practice accountability of ourselves, our teachers, and our community. Accountability is in everything we do. We graduate 100% of the kids and they all go on to attend a two- or four-year school.

The accountability Principal Montoya described as the school’s philosophy is doubly articulated. First, as an ethos of individual responsibility, accountability holds that every person involved in a student’s education (e.g., the student him or herself, teachers, administrators, parents, or community members) must produce needed contributions and, critically, that such contributions will be measured. This measurement is assumed to be the collection of data that are both categorically equal to these mandated contributions and self-evident. Second, accountability refers to various forms of surveillance, to the modes of data collection meant to assure the accomplishment of specific educational outcomes and to police general norms of behavior. Accountability, either in the form of an institutional value or in the form of a practice of surveillance, presumes a meritocratic universe: individual students, regardless of their position in society, life experience, personal attributes, or educational history, are made responsible for their own sorting via the outcomes-based hierarchy, a hierarchy that ignores documented determinants of academic achievement such as institutional racism or poverty (Lack 2009). Love of children, fear of the future, the precarity of economic life, philosophies about learning, the economic interests of educational publishers and technology manufacturers—all of these powerful forces find expression in the collection of data about students, much of it captured by tablet computers.

In the next sections, two descriptions of school routines show how data created by tablet computers alternately aided and frustrated attempts to control behavior. These stories resist any naïve presumption of the representational relationship between digital data and the many things for which these data served as proxy, such as cognition, mastery, teacher quality, life chances, and so on. Instead, performativity opens up a way to see a narrow and provisional space for a strategy of everyday resistance that is centered around how data come to speak.

“I Can Target Exactly Where They Are”: Teacher Evaluation

The account that follows is drawn primarily from observations and interviews. It summarizes a series of contests that hinged on the interpretation of digital data of various kinds and their use in disciplining teachers. Despite the ability of administrators to capture and manipulate data that was made to represent a variety of phenomena (specifically, student learning, parental opinion, and peer reputation), interpretation of digital data came to provide teachers with some respite from a controversial evaluation scheme. In effect, arguments about what data represented, particularly as a measurement of parental opinion, protected teachers from disciplinary measures school administrators devised.

The proliferation of standardized testing in schools is a topic of contentious debate in education research and public policy. Regardless of whatever educational merits it might have, standardized testing itself has become the dominant form of surveillance in schools (Gilliom 2010; Vinson and Ross 2000). The presumptive objectivity of testing data holds that the results of standardized testing produce a value-free measurement of some aspect of learning, “a fair and accurate measurement of individual effort,” which in turn allows authorities to sort, rank, discipline, or reward based on data (Au 2016: 40). In contrast to this presumption of objectivity, a performative account argues that data create and reinforce the meanings they claim to capture. In order for any performative utterance to succeed and carry meaning, it must cite the dominant relations of power. As this example will show, school administrators claimed a power to discipline the school’s teachers based on data they had collected. But as power shifted in an ongoing labor dispute, what data were understood to represent also changed. In the end, by reinterpreting and re-contextualizing what data could mean and what they could stand in for, school administrators revoked an implied threat.

In the second year of the tablet program (2014 – 2015), administrators announced that they would institute a new program to establish merit-based rewards for teacher quality. Merit pay plans have a long history in education reform, but have not been shown to be effective at increasing student learning (Murnane and Cohen 1986). In May 2015, administrators cancelled all normal classes and dedicated the entire month to a battery of standardized tests, all delivered via the new tablets. The idea was that new sources of digital data would finally provide administrators with incontrovertible evidence of teacher quality and that the administration could reward (or punish) based on this evidence. In an interview, the vice-principal in charge of teacher evaluation, Mr. Tustin, reflected on this process:

Being able to use tablets and being able to use technology helps us gather the data faster and easier... I can generate a spreadsheet with all of their scores, I can plug in functions that tell me how much each student has grown. In the past, to do something like that you’re doing it all paper and pencil and you’re doing all the math yourself and everything. But, with the use of the technology, we’re able to plug numbers in and plug functions in and have it generated immediately for us.

Data generated from various sources were easily separated from all the things they were taken to represent (e.g., growth, learning, cognition, competence, mastery, scores on a specific assessment) and combined with other kinds of data. Once aggregated, these data then moved through other software environments, ending up as a data visualization. Mr. Tustin described this material transformation of data and how this work allowed him to target low-performing students and their teachers:

I’m looking at the scores school-wide... Once I put it together, I color-code everything. And so I can target that, I can target exactly where they are, and then I can figure out what needs to be done to get them to move up.

Here, the creation of colored targets from data creates a powerful mechanism for directing accountability measures. Students were subject to remediation, often in the form of mandatory after-school boot camps aimed at improving scores. Likewise, these indicators of success or failure also linked directly to teacher evaluation, in effect allowing data to simultaneously stand in for two different things. This re-interpretation

of test data, generated via a whole battery of platforms and software environments, greatly differs from the traditional pedagogical interest in assessment in that it relies on decontextualized quantification, lacks any coherent methodology, and has been appropriated by decision-making bodies located far away from the classroom (Stassen 2012). However, test data were not the only kind of data used to evaluate teachers. Ms. Quezada, a math teacher, explained how test data were joined to other kinds of data in the design of the composite metric that determined teacher rewards or punishments:

One-third is based on test scores, one-third on parent input, and one-third on your peer evaluation. The community input is fine. Everybody got all the points because the parents didn't really have anything to say. The testing is whatever it is. Then the peer-evaluation is really the most important. It's supposed to be weighted the same, but really it's the most important one. That's how [school administrators] treat it.

A few weeks after the May 2015 tests, just before the end of the school year, Mr. Tustin was tasked with telling each teacher what his or her merit-based pay increase would be, or what punishment would be leveled should scores require it. During this same period, a number of negotiations of various kinds occurred, including a unionization effort at the school and a number of lawsuits related to these efforts. While the promise of performance-based pay in its brute form would mean that teachers would be rewarded or punished based on their composite scores, the actual implementation of the metrics did not accomplish such action. As Ms. Quezada put it, "If they can see you are trying and they like you, you get the maximum raise. I think everyone got the maximum." School administrators determined retroactively that all their teachers had performed well and gave this judgment a veneer of quantitative authority. Despite their technical and logistical success at collecting many kinds of data related to test performance, school administrators balked at using this information to mete out rewards or punishments. This retroactive judgment turned, in part, on that portion of the teacher accountability metric that was supposed to represent a community (i.e., parental) input. As scholars in urban education have shown, parental involvement in schools relies on classist, normative judgments about how to participate in public, assumptions that do not account for conditions in minoritized communities (Means 2013; Boutte and Johnson 2013). Although the CMO had ostensibly instituted the merit-based pay made possible by their expanded data collection powers, every teacher received a significant raise (in many cases, a nearly 30% increase in annual compensation) and this increase brought their pay closer to that of their union counterparts in other school districts. The values assigned to each teacher for community input, an empty signifier, tempered the potential influence of the students' highly variable scores on the standardized tests, effectively acting as a buffer.

Between the data collection stage and the eventual implementation of annual raises, school administrators recalibrated what data were supposed to represent, in effect redrawing the bounds of norm and deviance after the fact. This is an example of interpretive resistance, where the various meanings assigned to data become a "politics through which ordinary people can express and mobilize their opposition to surveillance policies" (Gilliom 2006: 113). The data were performative in that they allowed the establishment of norm and deviance, but arguments over representation allowed teachers some protection from an accountability regime that might have punished them. What data could represent depended on citing existing power relations (for example, between the school's administration and its labor force). The question, then, is not about the fidelity with which data represented teacher quality but about the power relations to which these data would be attached. Teachers and administrators then were attuned to the multiple performances of data captured via tablet computers, even as they participated in a number of activities that explicitly upheld dataveillance as the interpretation of objective, self-evident data. Viewed from up close, as teachers lined up in the halls outside Mr. Tustin's office to get the news or gossiped with each other in their classrooms, dataveillance showed a different face, one that worked not through electronic eavesdropping or data aggregation but through reputation and the imperatives of the labor market. In this sense, data collected from the students' tests and transformed into administrative spreadsheets were, at least in the area of teacher pay, made to stand in a different relation to the things they symbolized, to educational quality, to rewards and punishments, to the contents of students' minds, and so on. In this case, the relevant data did not change, rather what these data were allowed to represent changed and did so rather abruptly.

“Kids Like to Act Stupid”: Mandatory College Applications

The account that follows is primarily drawn from observations and interviews. It describes how school authorities used data with the intent of controlling a specific student behavior, the completion of a prescribed number of college applications. Despite the ability of administrators and counselors to capture, view, and analyze data about what students had done or not done with respect to tablet-based college applications, the interpretation of digital data became a narrow space of student resistance. In effect, assumptions about what data represented, clever interventions by students, and tolerance for mischief by school officials allowed some of the subjects of dataveillance to escape coercion.

From the perspective of the school’s principal and its two full-time guidance counselors, the incorporation of tablets had been unambiguously successful in student advising (as opposed to the less successful integration in instruction). Access to tablet computers allowed for more college applications to be processed. In the 2014 – 2015 school year, in order to maximize the number of graduating seniors who enrolled in college, the school principal announced a rule that every graduating senior must apply to at least four colleges, using the newly available tablet computers. To manage the application process and its oversight, the school used a commercial platform called Naviance, the use of which has been correlated to an increased college acceptance rate among some student populations (Christian et al. 2017). A failure to apply to the required number of schools (or to apply to more schools should the first four applications be denied) could result in a student being transferred out of the school or, in less euphemistic terms, expelled.

Data manipulation and the management of multiple interfaces became part of the work of school counselors. Students created data in the form of digital versions of official forms (e.g., transcripts, letters of recommendation) and supporting documents (e.g., essays, personal statements, resumes); other forms of descriptive data were imported into student profiles (e.g., standardized test scores). Students used their tablets to manage this flow of information, to complete a profile, and to electronically submit this information to college admissions offices. Simultaneously, the system generated data about these students in the form of logs, summaries, and dashboards that were accessible to the counselors. In turn, the counselors used dedicated interfaces within the Naviance system to supervise this process, add supporting documents (e.g., admissions fee waivers), count completed applications, identify non-compliant students, and receive notifications of admissions decisions. School counselors used these various sources of data to assemble spreadsheets about student applications, which they then shared with the principal, who would ostensibly punish non-compliant students.

Several areas of conflict emerged. First, the Naviance platform offered different interfaces depending on a user’s status: the counselors saw one “screen” (as counselors referred to an interface) on their tablets while students saw another. Changes made to student applications could produce changes to the recorded values counselors used to do their work. While this feature allowed counselors to stay current with student activity, it also allowed students reciprocal access to components of the administrative interface, thereby giving students a means to deceive or trick counselors. Students discovered—sometimes by chance, sometimes through coordinated effort—that they could manually overwrite the outcome of a college application to change their status from rejected to accepted (or vice versa). Students who discovered this hack altered some of their rejections to acceptances for bragging rights, or as Ms. Archer, the school’s head guidance counselor, speculated, “just to make themselves feel better.” These tactics could frustrate the school’s mandatory college applications system, sometimes temporarily, sometimes for long periods of time. As Ganesh (2016) writes, individual strategies of response to surveillance regimes are “often manifested in casual, unexpected, ironic, playful, and feeble ways” (168). Ms. Archer and her counselors generally tolerated these feeble efforts so long as students remained compliant in other areas.

Second, some students who wished to evade the monitoring system or its associated punishments could appear to meet their quota of completed college applications by creating and uploading documents filled with gibberish, a strategy of obfuscation. From the administrative interface, a college application would appear complete, but the counselors could not determine that a student had disobeyed unless they were to

open and read every individual document for every single profile. In this way, the administrative view was partially obscured. In situations of asymmetrical power, tactics of obfuscation can be effected playfully or mischievously (Bossewitsch and Sinnreich 2013). As another teacher described this familiar tactic, “Kids like to act stupid. If you give them a chance, they’ll mess with stuff.”

Finally, counselors summarized their work with college applications via a set of spreadsheets they created and shared with their district’s administrators. This final transformation could prove difficult because of students’ data manipulation: counselors spent long hours reconciling the contents of their spreadsheets with data in the Naviance system or data held at district headquarters. The ratio of graduating seniors accepted to colleges was used for various administrative purposes, including determining future compensation for the school’s principal and counselors. But this ratio was always a rough approximation of some future outcome, a probabilistic reading of who might later enroll in college. As Ms. Archer explained the importance of this metric, “I’m going to do whatever I can to make that number go higher.” Her comment invoked the tenuous relationship between the metric derived from various digital objects and the external world.

For Ms. Archer (and other sympathetic adults), the dataveillance the tablets enabled highlighted a problem with the mandatory applications, one they addressed by tolerating a certain amount of looseness between data and the things that data represented. Poor students, first-generation college students, and students of color face a number of hurdles in completing college degrees (Harmon 2012). A longitudinal study of American high school graduates found that after a decade, only 14% of students of low socioeconomic status had completed a bachelor’s degree as compared to 60% of those of high socioeconomic status, despite a measured similarity in intention to do so at the outset of the study (National Center for Education Statistics 2015). These statistics are well-known to Number Seven’s staff and faculty. The school’s newly expanded monitoring regime struck Ms. Archer as possibly misguided. Also important was school authorities’ knowledge about students’ use of obfuscation or data manipulation and their tolerance for this behavior. In an interview, Ms. Archer explained that students might attend the school not out of an endorsement of the school’s college application rules but out of desperation:

We’re in an extremely low-income neighborhood. A lot of our kids’ family income for like the year, is maybe \$10,000, maybe 15 max, for a family of like four or five. These kids are really, really poor... There’s nothing else around here that is a light of hope, and so this school is, for a lot of these families.

If performativity is the ability to “produce a regularity which then enables both the clear appearance of norm and deviance,” the school’s use of tablet computer-generated data to monitor student compliance could be said to be performative: it pretended to describe preexisting states (i.e., “bound for college” and “not bound for college”) it was in the process of creating and enforcing (Matzner 2016: 206). By compressing the ambiguity of student futures into two opposed statuses, school authorities claimed to present an intelligence-gathering power that predicted student behavior, monitored for deviation from protocol, and covered all of the targeted students. As Ms. Archer put it in her interview, these measures “make it hard for you not to make it,” explicitly pointing to a coercive power of authorities. In practice, however, some students found strategies to resist these efforts, strategies that did not accept the assumed coherence between data and some other separate thing so represented. In the end, as it concerned the college acceptance rate’s importance, Ms. Archer concluded, “Home office is all about numbers. It’s all about numbers.” In this appraisal, she emphasized that what is really at stake here is the reputation of the CMO and her ability to provide the numbers (i.e., the data) that her superiors required from her inferiors, all the while acknowledging that these numbers did not necessarily comport with an uncooperative reality.

There is a great distance between the long hours students spent working on admissions essays, the operations of a vast and complex content management system accessed via tablet computer, the bureaucratic workings of college admissions offices and, finally, a comma-separated values file downloaded from the Naviance system and transformed into a series of spreadsheets. In a sense, the data collected at each step was held as more or less equivalent to every other kind of data. Each data object was

functionally conceived of as a link in a chain of representations that reached back to the completion or non-completion of a college application, which in itself was an object composed of all kinds of digital stuff. And while most students played along with this collective agreement, certain students realized, through chance or by wit, that they could divest one or more of the steps along the chain of data objects of its representational power so as to decouple their behavior and the digital traces that stood in for that behavior. The point here is that students and some teachers developed means of satisfying the demands of dataveillance while resisting the control these measures sought to effect: they did so by making a strategic show of compliance while exploiting the ambiguity of the representational relationship between digital data and behavior. This narrow space of interpretive resistance depended on the fragility and contentiousness of representation, of the way digital data were made to speak.

Conclusion: Performativity at Scale

Although the school authorities at Number Seven touted the control of subjects via dataveillance as ubiquitous, in the way the system actually worked, the use of digital data did not always confer upon the administration the control it sought. This turned dataveillance from a coercive vector of power into a game of moves and countermoves in the space of representation. As the preceding analysis of these contests of control and obfuscated defiance has shown, one should not imagine surveillance to be all-knowing, nor should one make the mistake of reducing resistance to a series of shrewd reactions by individuals and, in so doing, miss out on aggregate tendencies and trends. In decoupling the establishment of dataveillance routines from the social control these routines were meant to achieve, this study does not intend in any way to diminish the harm caused by surveillance abuse, particularly in minoritized communities (Browne 2015). To the contrary, this exploration of dataveillance and control in situ is meant to probe weaknesses in dataveillance and to contest a central premise of digitally mediated surveillance: the link between behavior and trace. The point is not that some representations faithlessly stray from an originary entity. The argument is that, at Number Seven, the belief that data captured inherent qualities exaggerated the capacity to control the behavior of teachers and students. Interpretive resistance is the politics of calling into question, again and again, the tenuous relationship of digital data to the things they are supposed to be linked to. Sometimes the subjects of surveillance called this relationship into question (in the case of the mandatory college applications), but at other times, the chain of representations that was meant to effect control collapsed under its own weight (in the case of teacher evaluations). Interpretive resistance occurs in moments where data must be made to speak; it also manifests as a struggle over what possible meanings digital data may take on and what power relations they may cite.

The object lesson here is that omniscient surveillance is a fiction: real surveillance regimes depend on interpretation, even in highly automated systems. Digital data do not merely represent some reality that is waiting to be categorized; instead, they dynamically order and reorder the world. In a performative analysis, digital data are made to stand in relation to complex phenomena via interpretive moves. Performativity then provides a way for making disputes about the meanings of data useful. In addressing digitally mediated surveillance, critical research must pose such questions about data: how they are used, what kinds of control they achieve, how they can be operated upon, and which of their material properties regulate their ability to make meaning. These issues are part and parcel of what data are. If, like the clever students at the school studied here, we problematize the way data are meant to provide unambiguous accounts of past action in order to inform future behavior, we might imagine an alternative to the fatalism that accompanies the study of dataveillance in schools.

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