A Good Horse Runs at the Shadow of the Whip:

Surveillance and Organizational Trust in Online Learning Environments

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ABSTRACT

Online learning environments have become an integral component of contemporary higher education. As students and faculty interact through these networked technologies, they leave a digital trace, allowing institutional actors to monitor each other in ever more sophisticated ways. This raises the specter of some troubling, if unintended, consequences. Empirical studies on workplace monitoring have demonstrated that certain types of surveillance practices may corrode organizational trust and negatively impact work effort, attitudes, and communication. However, while workplace monitoring has been studied extensively, little is known about the impacts of surveillance practices in OLEs. Drawing primarily on scholarship from surveillance studies and organization theory, this paper identifies gaps in the literature, develops a conceptual framework for understanding surveillance and organizational trust in OLEs, and proposes a predictive model for future research.

KEYWORDS

surveillance, monitoring, organizational trust, online learning environments, higher education.

If I go to church on Sunday
Then cabaret all day Monday
Ain't nobody's business if I do.
— Billie Holiday, Monterey Jazz Festival, 1958.

Not to quibble with the great Lady Day, but times have changed. These days, it seems it is everybody's business what we do – and big business at that. From the workplace to the marketplace, and increasingly within the home, one does not have to be a rabid conspiracy theorist to note the emergence of the surveillance society – a generalized condition of watching and being watched. (Lyon 7-8; McGrath 19). Certain forms of surveillance have been present throughout history, yet the increase in the power and complexity of surveillance systems, particularly since 9/11, represents a profound and often troubling shift in the fabric of contemporary life.

Scholars from multiple disciplines have taken note of these trends. In addition to theorizing surveillance, researchers have concentrated primarily on the contexts of workplace monitoring (Alder, Noel & Ambrose 894-903; Botan 293-313), security (Andrejevic 161-186; Dandecker 225-49), and consumer profiling (Campbell & Carlson 586-606; Turrow 279-307). The broader field of online education has enjoyed tremendous interest in the last decade, yet surveillance practices in online learning environments (OLEs), have received more limited attention. Often referred to as Course Management Systems or Learning Management Systems, OLEs are integrated software applications, such as Blackboard or Moodle, that enable communication and disseminate educational material through the internet, an intranet, or an extranet (Wesley 41). Within OLEs specifically, researchers have focused primarily on the impacts of surveillance on power and identity in online discourse (Anderson 118-9; Wood & Fassett 287-96) and the implications for student subjectivity (Rybas 1-26; Land & Bayne 125-

38). As a topic of inquiry within online higher education, surveillance remains underexplored both theoretically and empirically.

One neglected topic in the literature is the relationship between surveillance practices and organizational trust in OLEs. This relationship deserves critical attention for several reasons. First, OLEs provide an ideal platform for surveillance. During the college application process, students are required to provide extensive personal information to institutions. Adding to these data, individuals leave a digital trace as they interact within OLEs, enabling institutions to monitor patterns of behavior and performance in increasingly sophisticated ways. Further, the current market and regulatory environments create strong incentives to collect and publish performance data (Aldeman & Carey 3; Shanahan 8). As institutions respond to market conditions by shifting educational content online, and accountability regimes demand ever more data on student outcomes, the pressures and opportunities to perform surveillance are likely to intensify.

However, the higher education community should proceed with caution. Empirical studies have demonstrated that certain monitoring practices in the workplace may undermine organizational trust and reduce work effort (Frey 663), increase anxiety (Kramer 590-2), and inhibit communication (Botan 309-10). Surveillance expresses distrust, and therefore monitoring practices may become self-fulfilling prophecies, encouraging many of the untrustworthy behaviors they are designed to prevent (McEvily et al. 99). The corrosion of organizational trust is a particularly troubling possibility for educators, as trust has been shown to be a critical affective component of education, impacting the quality of dialogue (Burbules 37-8), academic achievement (Bryk & Schneider 118-21), and intellectual risk-taking (Hai-Jew 17).

Yet students are not employees, and it remains unclear what effects surveillance practices might have on organizational trust in the context of higher education. Of course, some surveillance practices exist in nearly all educational settings, and few educators would celebrate those who collect no performance data. The classic icon of bad teaching is the inattentive stiff, asleep behind a desk. Moreover, the presence of soft power in education is nothing new. As the story goes, the Buddha once told a wayward student, 'a good horse runs at the shadow of the whip.' The question therefore becomes not whether to monitor, but how. And more importantly, what are the effects on those who teach and learn in these environments?

Drawing primarily on scholarship from surveillance studies and organization theory, this paper identifies gaps in the literature and provides a conceptual framework for future research into the relationship between surveillance and organizational trust in OLEs. Following a brief synopsis of the market and regulatory conditions driving the increase of surveillance in higher education, the paper develops a theoretical conception of surveillance and provides examples of current practices in OLEs. Next, a working definition of trust is proposed, drawing on concepts from organization theory. Building on organization theorists Kurt Dirks and Donald Ferrin's concept of situational strength, a predictive model is introduced which may prove useful for theoretical and empirical work. Finally, the paper concludes with some examples demonstrating how the predictive model might be used and offers suggestions for future research.

Background

In both the U.S. and Canada, the higher education sector is currently undergoing a shift in demographics and program structure. The student population is becoming older and more diverse (Stokes 1; WICHE 28; Saunders 18). As these demographic trends transform the student bodies of institutions, educational content has been migrating online in order to satisfy the

demand for more flexible programs. Returning adults and minorities tend to require more flexibility in program structure to accommodate other responsibilities, such as full-time jobs or family needs (Ragan 3). Traditional students are also showing greater interest in programming that can accommodate work, family, and social obligations (Bates 2). Institutions have been responsive to these changing market conditions. Online enrollments as a percentage of total enrollments have surged in the last decade, and these trends are expected to continue in the near future (Allen & Seaman 5; "State of E-Learning in Canada" 6, 49). In addition, most campuses and instructors are currently incorporating OLEs into face-to-face courses as a means of tracking performance, distributing course materials, and enhancing communications (Brockman). Taken together, the prevailing market trends are pushing educational content towards the flexible, asynchronous structures offered by OLEs.

While the higher education sector is experiencing these demographic and structural changes, institutions are also facing shifts in the regulatory environment that incentivize the monitoring of student behavior and learning outcomes. From politicians to football coaches, it seems one can scarcely avoid the near-constant chants for more 'accountability.' The U.S. does not have a centralized higher education policy, yet the accountability movement has been gaining national traction through various public and private initiatives. For instance, the *Voluntary System of Accountability Program* (VSA) requires participating institutions to fill out an online template which includes student learning outcomes data from one of three approved standardized tests (Aldeman & Carey 3). In the private sector, the Boeing Company recently announced plans to create an alternative college ranking system by matching internal performance data from employee evaluations with college attendance records (Baskin 4). The Canadian higher education system has also been trending towards greater accountability measures, particularly

reporting based on institutional performance indicators. Most Canadian provinces collect performance data, but at present, only two tie this data directly to funding: Alberta and Ontario (Shanahan 8). Across both national systems, the regulatory and market pressures of the accountability movement are creating strong mandates and incentives to perform surveillance.

Surveillance in Theory and Practice

So what exactly is surveillance? Is there a difference between surveillance and monitoring? The term generally arouses suspicion, but is it always malign? Carl Botan distinguishes between monitoring as a general term describing the automated collection of data, and surveillance, which more narrowly refers to a relationship between a control agent and those being monitored. Surveillance is therefore inclusive of monitoring, but not vice versa, since "all surveillance incorporates monitoring, but not all monitoring is used for surveillance" (294-5). The critical distinction is not among practices, but purposes. Following from Botan, then, collecting data on student activity within OLEs does not become surveillance until an authority uses the data as a means of controlling student behavior. David Lyon similarly argues that surveillance practices are "…always hinged to some specific purposes" (15). However, the distinction between monitoring practices and surveillance purposes breaks down as ambiguities emerge in educational contexts. Surveillance systems alter teaching and learning environments in complex ways that are often surprising and at odds with their original intent. What matters is not practice or purpose, but presence.

To explore the implications of surveillance presence in OLEs, Foucault's often-cited theory of panopticism serves as a point of departure. The theory has been well-rehearsed elsewhere (Kitto 2-5; Land & Bayne 125-138), yet two concepts are of particular importance: *automation* and *visibility*. In combination, these elements transform social spaces by increasing

uncertainty. First, Foucault describes an automated model of power and discipline that does not necessarily need to be directed toward a specific purpose in order to perform surveillance functions. In the original plans for the Panopticon, architect Jeremy Bentham envisioned a new type of prison in which a central tower overlooked a circular ring of exposed cells containing the inmates. The unseen authorities could exert control over the prisoners via the unyielding gaze from the tower. Bentham believed that, in order for the structure to function properly, the inmate must "…constantly have before his eyes the tall outline of the central tower from which he is spied upon" (201). Foucault saw these modalities of authority and control operating far beyond the walls of the prison, and viewed the Panopticon as "…a mechanism of power reduced to its ideal form…it is in fact a figure of political technology that may and must be detached from any specific use" (205). Divorced from its tactile manifestations, the 'tall outline of the central tower' dissolves and becomes a shadow, a felt presence in the minds of the watched individual. It is not important that individuals are actually being watched, only that they sense the potential gaze of control agents. Once the guard tower has been built, the structure itself performs a kind of surveillance, whether or not it is directed at a particular purpose or even occupied.

The second related Foucaldian concept involves the relationship between visibility and power. This relationship structures the essential functions of panopticism, as "the Panopticon is a machine for dissociating the seeing/being seen dyad: in the peripheric ring, one is totally seen, without ever seeing; in the central tower, one sees everything without being seen" (202). Because the inmates of the Panopticon are situated in the outer ring, they are exposed to the constant, controlling gaze of the central tower, and this axial visibility results in a loss of power to the all-seeing eye of authority, since "visibility is a trap" (200). Discipline is established not by visible forms of punishment, but rather by the invisible potentiality of force.

Within OLEs, students become visible, for instance, when they log in and out of a courseware system. From the student's perspective, the 'doorway' of the system is visible via the login screen, yet the tracking functions remain veiled to the user, unless these practices are made apparent by the instructor. The fact that some portions of the surveillance system may be visible while other portions are hidden introduces uncertainty into the minds of those being observed. Simon Kitto examined the disciplinary effects of electronic surveillance on students in a mixed online/lecture course, and found that, during lectures, the instructor had a tendency to exaggerate the surveillance capabilities of the software in order to discourage cheating (14). Kitto quotes a male student in the course, who alludes to the uncertainty introduced by the perception of monitoring functions:

> They know when you've been on. They know how many hits you've had…and I think they might even know what sort of hits we get for the required readings and that sort of thing…they can see if you have been trying or not. It's sort of like attention in class. (14)

One may question the ethics of the instructor in this case, but it appears that the uncertainty introduced by the software environment, rather than its particular features, acted to discipline and train students to serve institutional ends.

Thus far, the analysis has focused on the hierarchical properties of surveillance that tend to privilege the observers over the observed. Foucault acknowledges the presence of asymmetrical power relations, but he also saw surveillance operating as a more fluid and dynamic force:

> … its functioning is that of a network of relations from top to bottom, but also to a certain extent from bottom to top and laterally; this network 'holds' the whole together and traverses it in its entirety with effects of power that derive from one another: supervisors, perpetually supervised. (176-7)

A purely vertical conception of surveillance therefore misses important aspects of its functionality, since disciplinary power tends to flow across multimodal, multidirectional networks rather than through hierarchical chains.

Borrowing from the terminology of Deleuze and Guattari, Kevin Haggarty and Richard Ericson portray the structure of contemporary surveillance systems as rhizomes, which have a tendency to expand rapidly and level hierarchies (110). A rhizomatic structure allows for multiple points of access and systems of roots rather than binary, arboreal structures. The rhizome "…ceaselessly establishes connections between semiotic chains, organizations of power, and circumstances relative to the arts, sciences, and social struggles" (Deleuze & Guattari 7). A rhizome is a nexus of code. Or, to put it in spatial terms, rhizomes are multidirectional rather than vertical.

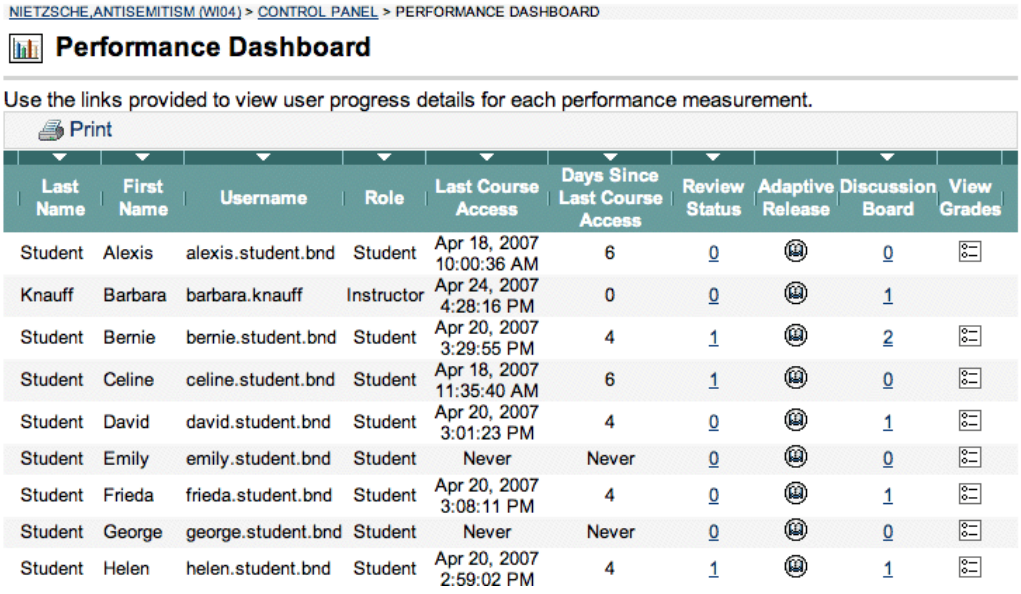
Rhizomatic surveillance structures allow for the rise of what Thomas Mathiesen has termed *the synopticon*; that is, the many watching the few (219). Portable recording devices and public broadcasting spaces such as YouTube allow anyone to perform surveillance, though the synopticon has not entirely displaced the panopticon. As Sean Hier suggests, the two power structures exist in dialectic with each other, as control agents and subjects live in a state of perpetual co-surveillance (118-119). Big Brother remains powerful, but in the rhizome patch he too must be mindful of the prying eyes of Little Brother's cell phone.

While asymmetrical power relations between administrators, faculty, and students remain deeply embedded in most educational contexts, scholars have also observed that surveillance does not always flow in a top-down, hierarchical structure within OLEs (Kitto 3; Rybas 15). The tracking features of the software are typically configured to privilege the authority of instructors over students, and administrators over faculty. Yet OLEs are also nested within larger networks – each with its own surveillance capabilities. The rhizomatic properties of larger systems allow for synoptic surveillance, which may manifest in unexpected ways. For example, students at the École Secondaire Charles-Gravel in Chicoutimi, Canada goaded a teacher into losing her temper while another student recorded the outburst on a cell phone, and the embarrassing video was then posted on YouTube (Steeves 94). This reflects what Andrew Wood and Deanna Fassett call the 'malleable' structure of power in the wired classroom, where "…multiple layers of power and authority are operative at any given moment" (293). Students are not the only ones who leave a digital trace, and they can use surveillance practices to embarrass or intimidate faculty and administrators as well.

Haggarty and Ericson employ another Deleuzean concept to describe the *surveillant assemblage*, a convergence of previously discrete systems into a networked entity (107). Data collection and monitoring practices from multiple spheres of human activity may be combined across networks, multiplying and amplifying surveillance potentials. For example, credit card records by themselves are not a surveillant assemblage, but if combined with the sorting features of facial recognition software, the routing functions of airport security, and the physical practices of 'enhanced interrogation techniques,' then the fusion of these various phenomena creates a true assemblage with surveillance potentials exponentially more powerful than its isolated components. The surveillant assemblage "... operates by abstracting human bodies from their

territorial settings and separating them into a series of discrete flows. These flows are then reassembled into distinct 'data doubles' which can be scrutinized and targeted for intervention" (104). The human body is broken down and coded into information as physical, mental, and social phenomena which were previously invisible to control agents become visible. The surveillant assemblage is a visualizing machine for mapping and tracking the body, and the output from the machine is rerouted back to the flesh as a form of social control. In this way, individuals are continually trained to serve their digital avatars.

In the higher education sector, the surveillant assemblage emerges in the form of performance dashboards, which fuse together previously separate datasets and monitoring practices into an integrated graphical interface. Blackboard, one of the most widely-used OLEs in higher education, offers a prime example. According to the University of West England's *Blackboard Staff Guide*, "Blackboard records every click by a user within a course and allows instructors to generate graphical reports on course usage and activity" (1). These graphical reports are accessed through a performance dashboard that displays student identity, course access data, discussion board posts, and grades (fig. 1). The software automates the collection, storage and display of student interactions and performance data that are typically either tracked separately or only noted anecdotally in face-to-face learning environments. By itself, the Blackboard performance dashboard appears to be limited to interactions between teachers and students. Yet course-level performance dashboards do not necessarily operate in isolation. Individual campuses and even entire state systems are increasingly using performance dashboards to visualize large and complex datasets for the purposes of institutional management. As an important subset of accountability data, student performance measures recorded in OLEs can be routed further up the signal chain to larger and more abstract dashboards.



NIETZSCHE,ANTISEMITISM (WI04) > CONTROL PANEL > PERFORMANCE DASHBOARD

Performance Dashboard

Use the links provided to view user progress details for each performance measurement.

Print

Last Name	First Name	Username	Role	Last Course Access	Days Since Last Course Access	Review Status	Adaptive Release	Discussion Board	View Grades
Student	Alexis	alexis.student.bnd	Student	Apr 18, 2007 10:00:36 AM	6	0		0	
Knauff	Barbara	barbara.knauff	Instructor	Apr 24, 2007 4:28:16 PM	0	0		1	
Student	Bernie	bernie.student.bnd	Student	Apr 20, 2007 3:29:55 PM	4	1		2	
Student	Celine	celine.student.bnd	Student	Apr 18, 2007 11:35:40 AM	6	1		0	
Student	David	david.student.bnd	Student	Apr 20, 2007 3:01:23 PM	4	0		1	
Student	Emily	emily.student.bnd	Student	Never	Never	0		0	
Student	Frieda	frieda.student.bnd	Student	Apr 20, 2007 3:08:11 PM	4	0		1	
Student	George	george.student.bnd	Student	Never	Never	0		0	
Student	Helen	helen.student.bnd	Student	Apr 20, 2007 2:59:02 PM	4	1		1	

Fig. 1. Blackboard Performance Dashboard from Knauff, Barbara. "Performance Dashboard." *Dartmouth College*; dartmouth.edu, 2007; Web; 27 December 2009.

For example, in 2008, the state of Minnesota's public higher education system launched the *Accountability Dashboard*, which condenses a multitude of institutional and student performance data into 10 graphical 'speedometers,' each with three distinct conditions: needs attention, meets expectations, exceeds expectations (fig. 2). Through a drop down menu, the interface allows the user to analyze the system as a whole and draw comparisons between institutions. It is ironic, though perhaps not accidental, that the dashboard applies a visual metaphor of speed regulation to a system that is notoriously sluggish and resistant to change. On the surface, the dashboard appears hierarchical, an overt attempt by policymakers to leverage public opinion and limit institutional autonomy. Yet a closer look reveals its rhizomatic properties as well, since the inputs and outputs offer multiple points of access and flexible routing schemes back to individual bodies within the system. Essentially, the Accountability Dashboard harnesses political and market forces to ensure that each actor in the system serves the same visual metaphor. Depending on an individual's position within the system, their

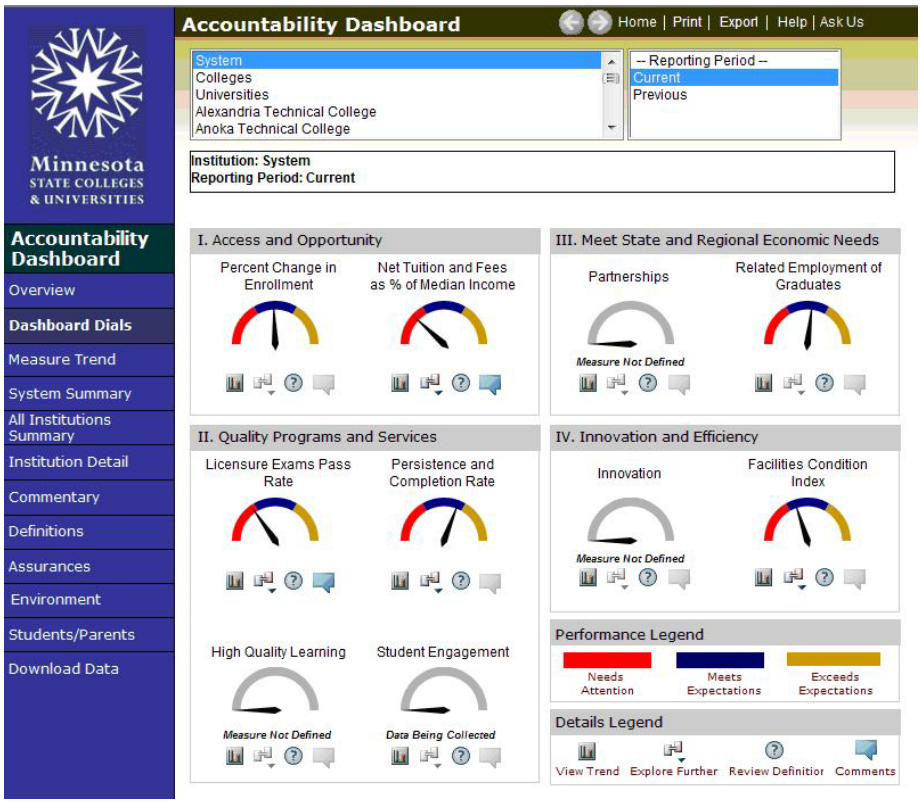


Fig. 2. Minnesota State Colleges & Universities Accountability Dashboard. "Accountability Dashboard"; *Minnesota State Colleges & Universities System*; mnscu.edu, 2010; Web; 10 January 2010.

relationship to the dashboard may vary, but incentives and sanctions will dictate that the speedometer needles should continue to move in the right direction, lest the individual may 'need attention.' Educause's Elazar Harel and Toby Sitko promote dashboard technologies by warning that "you cannot drive a car safely without a dashboard. The same can be said for managing a university" (2). To extend the metaphor, then, for the individuals and institutions that must now serve the dashboard lights, it remains to be seen whether they will be the windshield or the bug.

The previous examples illustrate the potential of contemporary surveillance practices to affect behavior in real-time. Computer simulation, as used in such applications as predictive modeling or profiling, extends the temporal reach into the future. The goal is to predict possible deviations from preferred outcomes in advance, and then stage proactive interventions before

unwanted behaviors occur. If pursued to their extreme, William Bogard warns that predictive technologies may result in an almost total loss of human agency:

> Simulated surveillance, in its imaginary form, aims for a state of perfect deterrence…[and] control as perfect deterrence is, in one sense, not really control at all, but rather a permanent condition of deferral and elusion, a final solution to all the 'problems' arising out of the desire to eliminate surprise and risk... (101)

If control agents can see around corners and anticipate unwanted deviations from predictive models, they can be proactive in massaging and controlling desire itself.

Colleges and universities are beginning to use predictive modeling to identify 'at-risk' students and manage academic outcomes. Purdue University's *Signals* software combines predictive modeling with student data mined from Blackboard Vista. As shown in figure 3, when an instructor runs a Signals 'intervention,' students are assigned to one of three risk groups, which correspond to the three states of a traffic light: green (not at-risk), yellow (may be at-risk) or red (at-risk) ("Signals: Stoplights"). The algorithm identifies at-risk students by collecting data from over 20 variables, such as whether or not the student has read online materials, attended tutorial sessions, or posted to online discussion boards. The model then compares these data with the behavior of prior students (Tally 2). The results are delivered to current students during the second week of classes, predicting their success based on patterns of behavior or effort rather than actual performance. Students deemed at-risk are targeted for interventions delivered through email, texts, or automated voicemail. The university piloted the program in a double-blind study of almost 2,000 students and found that 78% of students who received a red light improved their grades ("Purdue University and Sungard").

Fig. 3. Signals software intervention. "Signals Software"; *Purdue University*; purdue.edu, 2010; Web; 20 January 2010.

These results are impressive when measured purely in terms of academic achievement, yet the long-term effects of predictive technologies on students' behavior and overall well-being are unknown. What might be the impact on the formation of academic identity for students who receive excessive amounts of red lights? What are the implications for student autonomy? Despite a lack of data on the long-term impacts, in the Fall of 2009, Purdue expanded the Signals program to include approximately 11,000 students in over 500 introductory courses (Tally 2). Going forward, the digital trace will cast a long shadow on campus.

In sum, surveillance should be defined as systems of technologies and practices that monitor or predict behavior by means of the accentuation, visualization, collection, and processing of personal or group characteristics. Regardless of their intended purposes, the presence of surveillance systems may destabilize social relations by increasing uncertainty,

altering visibility, or sorting individuals and organizations into categories. Structurally, surveillance systems are characterized by rhizomasticity, fluid power dynamics, and the tendency to amplify and multiply their capabilities over time through processes of assemblage.

However, it is important to avoid lapsing into an overly deterministic view of surveillance systems. Individuals have choices as to how to negotiate monitored space, just as institutions can shape or alter the way that these systems are constructed and deployed. Theater director John E. McGrath argues that, while the presence of surveillance does transform social environments, "…the questions of surveillance cannot be resolved in a controlling discourse…[there is] a suspense as to how we will be affected, how we will respond within this space" (217). Power and coercion are not the only principles at work; pleasure or comfort in watching or being watched may figure as well. Surveillance is essentially contextual. What is accepted as routine, pleasurable, or even helpful in one situation may be regarded as invasive or abusive in another. Sociologist Gary Marx notes the importance of context in surveillance activities, and argues that "…rather than seeing the personal or private as inherent properties, they are more usefully viewed in relation to particular persons, roles, and contexts which may be fluid" (84). By analyzing surveillance in context-specific environments, a more nuanced conception can be developed that accounts for a broader range of experiences and effects within monitored space.

Context is of particular importance for educators. Few would suggest that instructors should avoid observing their students. Moreover, the use of technology to automate or amplify the production of feedback is not in and of itself antithetical to autonomy in teaching and learning; every instance of surveillance is not necessarily an instance of coercion or domination. What is problematic, however, is the uncritical embrace of surveillance technologies and

practices. While avoiding dystopias on one hand and the fetishization of technology on the other, scholars and practitioners should interrogate surveillance where it lives. To that end, the following sections will explore the relationship between surveillance and organizational trust in the context of online higher education.

Coding Suspicion

In general usage, accountability has become synonymous with good government and a variety of reform efforts (Pautz & Washington 656). Moreover, as political scientist Jonathan Koppell argues, the concept of transparency (the disclosure of organizational performance data) has become synonymous with accountability. Transparency is often construed as "…the literal value of accountability…an end in itself" (96). If an organization reveals the 'facts' of its performance to constituents, it may be viewed as accountable. In this way, the production and disclosure of performance data has become a core value of modern institutional governance.

Accountability and transparency are frequently conflated in discussions of higher education reform as well. In 2006, the U.S. Secretary of Education released a highly critical report on higher education. The report argued that "…improved accountability is vital to ensuring the success of all the other reforms we propose. Colleges and universities must become more transparent … and willingly share this information with students and families (United States 4). In order for performance data to be shared with the public, it must first be collected through some form of monitoring. Therefore, just as transparency undergirds accountability, surveillance lies at the core of transparency. In contemporary accountability models, it is assumed that surveillance mechanisms produce the data necessary to increase legitimacy and trust in organizations.

However, scholars from a variety of disciplines have argued that, depending on how they are implemented, the presence of surveillance systems can produce the opposite of their intended effects and serve as powerful structural elements in creating a climate of distrust. McEvily et al. warn that "excessive monitoring and safeguarding have the potential of becoming a self-fulfilling prophecy," (99) and may in turn encourage some of the very behaviors, such as cheating, shirking, or theft, that surveillance practices are designed to prevent. This relationship, known as the 'control paradox' in organization theory, suggests that stricter monitoring results in less control, as employees tend to produce the minimum amount of effort necessary to satisfy the monitors and expend unnecessary energy attempting to resist surveillance systems (Miller 112). While the dysfunctional elements of workplace monitoring are more commonly observed, some scholars have argued that, under certain conditions, monitoring may actually increase levels of trust (Ferrin et al. 481-2). If monitoring is used to provide feedback and support, it may be interpreted positively. Nevertheless, arguments promoting the positive effects of workplace surveillance remain in the minority.

In one of the few scholarly articles to date that addresses surveillance and organizational trust in OLEs specifically, Drew Wesley asserts that, because monitoring has been shown to inhibit work effort and the exchange of knowledge, organizations may want to refrain from such practices in e-learning systems in situations where creativity and innovation are desired outcomes (46). While insightful, Wesley's analysis is restricted to e-learning in the workplace, and does not address electronic monitoring in educational institutions. Yet there is mounting evidence that electronic surveillance can have unintended consequences in schools as well. Criminologist Valerie Steeves notes the rise of online surveillance in Canadian public schools following the implementation of the SchoolNet program, and asserts that surveillance "…erodes

the trust that is central to the learning process and detracts from democratic socialization" (95). Not surprisingly, children under surveillance in Canadian schools reported an increase in anxiety, expressing concern that they will not be able to prove their innocence if they are accused of wrongdoing (92). In the school, as in the workplace, policies and practices that express distrust may breed distrust.

The corrosion of trust should be of particular concern for teachers and students in OLEs. In the absence of face-to-face interactions, the importance of sustained dialogue is heightened in distance education settings (Moore 92-95). Educational theorist Nicholas Burbules describes sustained dialogical relations as central to the processes of discovery and understanding that inform non-authoritarian models of learning (8-9). Further, Burbules argues that cognition and affect cannot be separated within dialogues (35). Interlocutors engage in a certain amount of risk when extending themselves in conversation. Especially with partners who are relatively unknown, participants may be unsure if others will respond sympathetically, or even use information maliciously (37). Because of these risks, trust is an essential affective element which allows for the kinds of risk-taking necessary in sustained, dialogical relationships oriented towards the construction of knowledge. Taken together, the evidence suggests that the introduction of surveillance systems may destabilize the bonds of trust that undergird teaching and learning relationships in OLEs.

Modeling Trust

Trust is a salient topic in a variety of disciplines and is often discussed in divergent terms with different foci depending on the field. The term can therefore present some thorny definitional problems. In a cross-disciplinary analysis of the trust literature, however, Rousseau, et al. found a relatively common theoretical framework across multiple disciplines. The authors

argue that trust should be defined as "…a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" (395). Two common conditions must be present for trust to arise: risk and interdependence. Risk is the perceived possibility or probability of an averse outcome by a trustor. In situations containing no risk or uncertainty, there would be no need for trust to develop. Interdependence exists in situations where the interests or goals of one party cannot be achieved without the cooperation of another party (395). Since both of these conditions are important for educational contexts, this definition of trust will be used going forward.

Organization theorists Kurt Dirks & Donald Ferrin build on Rousseau et al.'s definition, and proffer two trust models that are applicable along a wide continuum of organizational contexts. The *main effect model* asserts that an individuals' trust in another party's competence or intentions directly affects attitudes. High levels of trust lead to positive attitudes, such as high satisfaction and the perception of high quality performance, while low levels of trust depress satisfaction levels and lead to low perceptions of performance. In turn, the authors assert that the main effects of high trust inspire a willingness to take risks, and further that an increase in risk-taking behavior leads to positive outcomes such as cooperation and increased information sharing (452).

In the *moderating effect model*, trust operates more as a heuristic. Rather than directly influencing attitudes or behaviors, trust levels affect how individuals assess the past and future behavior of another party. Because interpersonal interactions generally involve a degree of uncertainty, trust provides an interpretive lens with which to evaluate another party's actions (456-9). The moderating effect model suggests that, under high trust, interactions would be interpreted more positively, and under low trust, more negatively.

Dirks & Ferrin argue that both models are valid, and context will determine which offers the superior explanatory framework for a particular situation (461). The authors assert that organizational contexts should be classified in terms of situational strength. In strong situations, there are relatively clear indicators that provide guidance and incentives to behave and interact in a particular way. The interpretive lens is largely provided by the organizational structure (461). Conversely, weak situations do not provide clear guidance or incentives for behavior, and this lack of clarity leaves more room for ambiguities and individual interpretation. Strong and weak situations do not exist as categorical polarities, but rather as a continuum. Within this situational continuum, Dirks & Ferrin predict that the main effect model of trust will be more applicable in weak situations, while the moderating effect model will be more applicable in strong situations (462). The greater the levels of ambiguity, the more trust levels are likely to exert main effects on individuals' behavior. As situations become more clearly regulated and guided by the organizational environment, the ambiguities recede and trust becomes more of a moderating factor. At the extreme, situations that are very strong become "over-determined" (461) by rules and other external behavioral cues, and therefore trust is unlikely to demonstrate appreciable effects.

To illustrate these two trust models in operation, consider the issue of communication responsiveness in two hypothetical online courses. In course A, there are no formalized expectations regarding discussion board communications between instructors and students, representing an environment of weak situational strength. In course B, the syllabus stipulates that students are required to post two responses per week, and the instructor will respond to each student's post within 24 hours. The students will be monitored and graded for the timeliness and content of their postings. Because of the relatively explicit guidelines for communication, course

B represents an environment of strong situational strength. Suppose further that one high-trust and one low-trust student in each course post to the discussion board and do not receive a response from the instructor for 48 hours. Following Dirks & Ferrin, direct trust effects would be expected in course A. The high-trust student would maintain a positive attitude toward the instructor's performance and may simply accept the delayed response as a professional norm. Conversely, the low-trust student would be inclined to suspect the instructor of shirking their responsibilities. In course B, the moderating effects of trust would be expected, given the relatively clear rules for communication responsiveness. While the instructor obviously did not follow the guidelines in the syllabus, the high-trust student may give the instructor the benefit of the doubt, attributing the lack of response to a technical problem or believing that the behavior is unlikely to continue. The low-trust student would be more likely to assume that the instructor is of poor quality and that the lack of responsiveness will continue, using the expectations outlined in the syllabus to confirm these assumptions. The relative strength and clarity of the behavioral guidelines in course B provide more of the interpretive framework for the instructor's behavior, while trust levels moderate the interpretation. In sum, while trust appears to perform some of the same interpretive functions across both the direct and moderating effect models, trust levels more directly affect attitudes and behaviors in situations with less explicit rules and guidelines. As the environment becomes more regulated, the interpretive functions of trust are 'offloaded' onto organizational structures.

A Predictive Model of Surveillance and Organizational Trust

What follows is a predictive model based on the work of Dirks & Ferrin that may prove useful for investigating the relationship between surveillance and organizational trust in OLEs. The model is inspired by Carl Botan's model for predicting panoptic effects in the workplace.

Botan posits that surveillance environments can be characterized by four key elements: employee perception of surveillance, surveillance potential of the technology, management policy regarding surveillance system use, and maturation (i.e. how integrated the surveillance system is with management policy) (299-300). Botan's model predicts that the presence of surveillance in the workplace should result in a reduced sense of privacy, increased uncertainty, reduced self-esteem, and reduced communication. Taken together, these effects sustain workplace relationships characterized by distrust (301).

However, because students are not employees, the relationship between the student and instructor and/or institution may differ in important ways from the employer/employee relationship. There are multiple levels of exchange; the institution works to attract and retain students; the instructor works for positive student evaluations; and the student works for an impressive transcript. These relationships are unique in the marketplace, and employer/employee models of power relations do not map well onto educational settings.

The following predictive model therefore rejects the assumption that surveillance effects are necessarily panoptic and corrode trust. It may be that students interpret strong surveillance environments as expressions of caring and concern for their learning, and therefore increased monitoring will actually increase levels of student trust. Further research is needed to determine if trust patterns are influenced by surveillance within OLEs specifically. Instead, the model attempts to predict the ways that trust will modulate from direct to moderating effects under different levels of surveillance strength.

Based on Dirks & Ferrin's concept of situational strength, it is possible to classify various institutional or course-level environments along a strong surveillance/weak surveillance continuum. As previously discussed, strong situations contain relatively clear indicators that

provide guidance and incentives to behave and interact in particular ways. Weak situations lack clear guidance or incentives for behavior, resulting in increased ambiguity and reliance on individual interpretation of behavioral cues. Surveillance practices provide many of the indicators that guide behavior, particularly in teaching and learning activities that do not involve face-to-face communication. Examples of such surveillance practices include explicit requirements for the number, content, or timeliness of student postings on discussion boards, instructions for when and how to interact with the instructor, or monitoring of the frequency and length of time spent logged on to the OLE. The presence of a high number of surveillance practices as communicated to students would indicate a strong surveillance environment, while courses with relatively few explicit monitoring practices would increase the ambiguity of expectations, indicating a weak surveillance environment. However, it is also possible that instructors might state the monitoring potentials of the software, and explicitly tell students what they are *not* going to monitor. Anecdotal evidence suggests this practice is rare, but more research is needed to determine its prevalence. For the purposes of this model, though, it is assumed that such practices would be indicative of a strong surveillance environment, since they are explicit guidelines for monitoring. Following Dirks & Ferrin, it would be expected that trust would exert more direct effects in weak surveillance environments, and as surveillance strength increases, trust would modulate to produce moderating effects.

Of course, Dirks & Ferrin's framework is also informed largely by studies of workplace monitoring. One might wonder why it is appropriate to reject prior assumptions about panoptic surveillance effects while accepting the direct/moderating trust framework. Following from the definition advanced in this paper, a purely panoptic conception of surveillance is overly narrow, and fails to account for the more fluid power dynamics of contemporary surveillance systems. In

addition, Dirks & Ferrin examine the effects of trust on a variety of outcomes and behaviors, including performance, satisfaction, negotiation processes, communication, and relationships, among others (453-4). Panoptic models more narrowly focus on dysfunctional elements caused by distrust. If researchers focus exclusively on absolute trust levels and assume dysfunctional outcomes, the broader range of possibilities may be ignored, resulting in an incomplete or distorted picture of surveillance effects in the context of online education. Dirks & Ferrin's framework therefore forms a more appropriate foundation for the trust model proposed here. Figure 4 represents how trust effects, surveillance strength, and individuals' level of organizational trust would be expected to interact within OLEs.

There are several limitations with the model. First, this paper has discussed 'students' as an undifferentiated mass. This is clearly an oversimplification, as students of different age, gender, or cultural background may respond differently to surveillance. The personalities of instructors are also apt to vary between courses, possibly leading to changes in trust levels that are unrelated to surveillance practices. Further, as demonstrated in the previous examples, surveillance systems are often complex, nested systems that extend their reach across multiple domains institutionally and temporally. Drawing boundaries within such systems would be difficult, but necessary in order to test the impacts of surveillance on individuals' trust levels. Despite these limitations, it should be possible to work through most of them by controlling for confounding variables. The following examples, while certainly not exhaustive or fully developed, suggest some applications and possibilities for future research:

1. Classifying surveillance environments. Course syllabi might be analyzed and coded into strong surveillance and weak surveillance environments according to the presence or absence of explicit monitoring practices. From these data, it may be useful to develop a typology

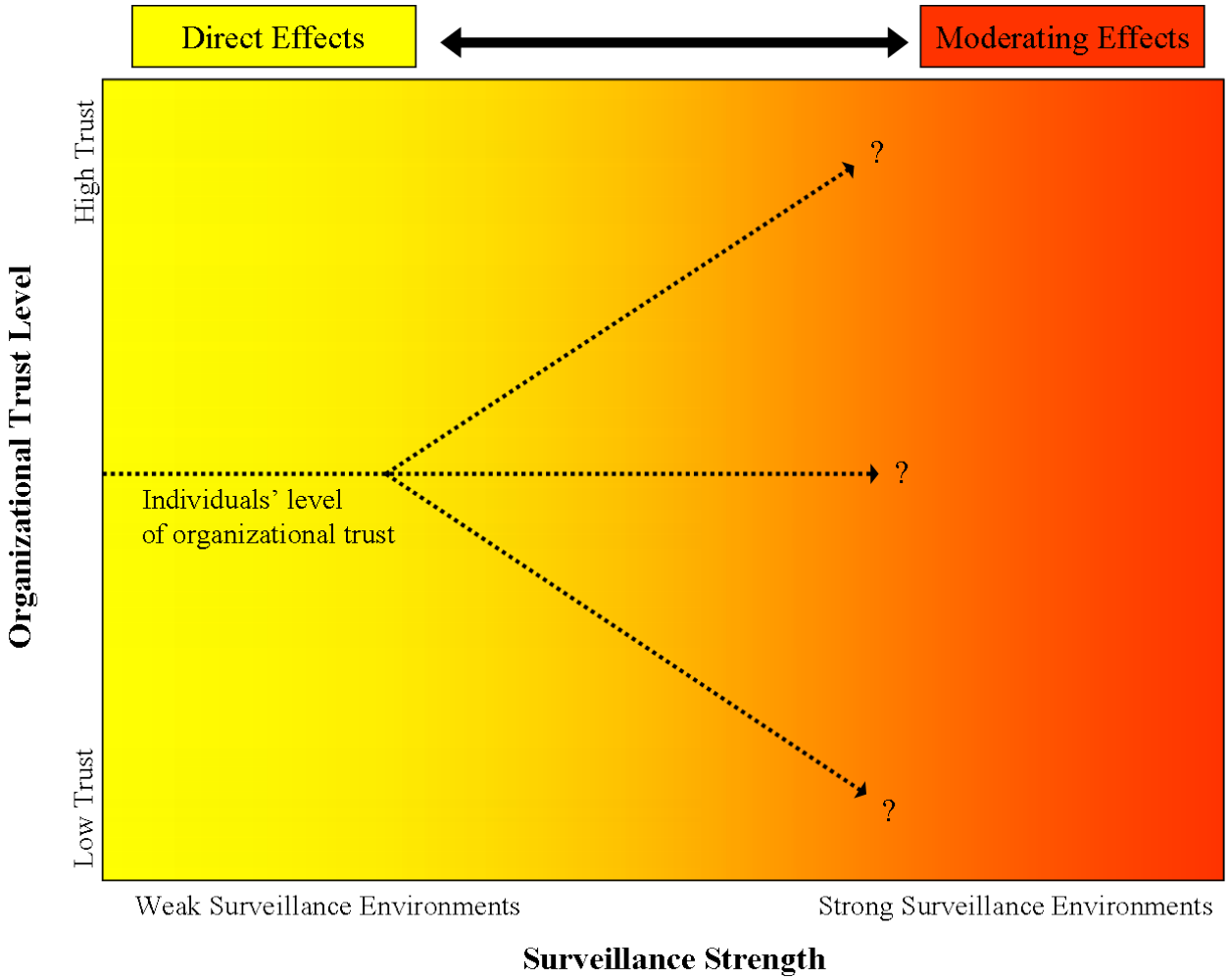


Fig. 4. The interaction of organizational trust effects, surveillance strength, and individuals' level of organizational trust in OLEs.

of surveillance in order to more precisely understand how these systems are currently used in OLEs.

2. Evaluating Dialogue. Student dialogues from online discussion boards could be sampled and analyzed to determine if direct or moderating trust effects manifest themselves in dialogue. The relationship between organizational trust effects and dialogue has yet to be tested in OLEs, yet the findings from a study at Queensland University suggest that this relationship deserves further inquiry. The study surveyed students in an online course and found that

individuals who were unaware of institutional monitoring policies reported significantly altering their writing styles in discussion board postings (Dawson, Burnett & McArdle 6). Both the survey findings and a subsequent textual analysis indicated a constriction of risk-taking behavior in online dialogue. The authors hypothesize that "… students unaware of the policy tend to act more conservatively and self-regulate and discipline their behaviour" (6). According to the trust model, then, these students would appear to be communicating within a low trust/weak surveillance[1] framework. Of course, the study did not seek to ascertain organizational trust levels, so this suggestion is purely speculative. Yet the results do imply that the trust effect/surveillance strength model may offer a useful theoretical framework for the analysis of student dialogue in future studies.

3. *Resistance.* John Gilliom has demonstrated that when surveillance systems are employed as a mode of social control, subject populations engage in various forms of resistance, which he defines as "…practices that seek to avoid, stymie, game, or otherwise manage a system" (201). The model could be used as a starting point to investigate resistance behaviors in OLEs as well. Would faculty or students demonstrate differing levels or modes of resistance according to varying levels of surveillance strength? How might the direct or moderating effects of trust impact resistance behaviors? Contemporary surveillance systems are continually gaining power, yet Gilliom's research shows that human beings have an uncanny ability to confound and resist them.

[1] The surveillance environment could be strong in practice, but construed as weak for these particular students since they were unaware of institutional monitoring policies.

Conclusion

Surveillance practices are a fact of contemporary life, and if current trends persist, they will only increase in power and scope. These practices can be expected to impact behavior and performance in educational settings, just as they have in other spheres of human activity. However, surveillance and organizational trust are as intertwined as they are context specific. As with workplace monitoring, if researchers wish to investigate the effects of surveillance practices on organizational trust within OLEs, then these phenomena must also be studied within their spheres of action. This is a difficult task, to be sure, but a necessary one if the higher education community cares about the quality teaching and learning in OLEs. By adopting a more critical stance toward surveillance, we may not escape the whip entirely, but at least we can bring it out of the shadows.

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Works Cited

Aldeman, Chad, and Kevin Carey. "Ready to Assemble: Grading State Higher Education Accountability Systems." *Education Sector.* Education Sector, 2009. Web. 22 January 2010.

Alder, G. Stoney, Terry W. Noel, and Maureen L. Ambrose. "Clarifying the Effects of Internet Monitoring on Job Attitudes: The Mediating Role of Employee Trust." *Information & Management* 43.7 (2006): 894-903. Print.

Allen, I. Elaine, and Jeff Seaman. "Staying the Course: Online Education in the United States, 2008." *The Sloan Consortium.* Babson Survey Research Group, 2008. Web. 15 December 2009

Anderson, Bill. "Writing Power into Online Discussion." *Computers and Composition* 23.1 (2006): 108-24. Print.

Andrejevic, Mark. *Ispy: Surveillance and Power in the Interactive Era*. Lawrence: University Press of Kansas, 2007. Print.

Baskin, Paul. "Boeing to Rank Colleges by Measuring Graduates' Job Success." *The Chronicle of Higher Education*. 19 September 2008. Web. 9 January 2010.

Bates, Tony. "Distance Education in Dual Mode Higher Education Institutions: Challenges and Changes." *University of British Columbia.* University of British Columbia, 2000. Web. 20 December 2009.

"Blackboard Staff Guide: Tracking and Statistics." *University of Western England, Bristol Blackboard Support.* The University of Western England, Bristol, 2009. Web. 21 January 2010.

Bogard, William. “Surveillance, Its Simulation and Hypercontrol in Virtual Systems.” *The Surveillance Studies Reader*. Eds. S.P. Hier and J. Greenberg. Berkshire, U.K.: Open University Press, 2007. 95-103. Print.

Botan, Carl. “Communication Work and Electronic Surveillance: A Model for Predicting Panoptic Effects.” *Communication Monographs* 63.4 (1996): 293-313. Print.

Brockman, Joshua. “From Chalk to Bytes: The Digital Classroom.” *National Public Radio.* March 29, 2010. Web. 19 May 2010.

Bryk, Anthony, and Barbara Schneider. *Trust in Schools: A Core Resource for Improvement*. New York: Russell Sage Foundation, 2002. Print.

Burbules, Nicholas C. *Dialogues in Teaching: Theory and Practice*. Advances in Contemporary Educational Thought. Ed. Jonas F. Soltis. Vol. 10. New York: Teachers College Press, 1993. Print.

Campbell, John, and Matt Carlson. “Panopticon.Com: Online Surveillance and the Commodification of Privacy.” *Journal of Broadcasting & Electronic Media* 46.4 (2002): 586-606. Print.

Dandeker, Christopher. “Struggling with Surveillance: Resistance, Consciousness, and Identity.” *The New Politics of Surveillance and Visibility*. Eds. K.D. Haggarty and R.V. Ericson. Toronto: University of Toronto Press, 2006. 225-49. Print.

Dawson, Shane, Bruce Burnett, and Felicity McArdle. “Watching Learning from Behind Closed Doors: The Impact of Surveillance on Student Online Behavior.” *Elearn 2005: World conference on E-learning in corporate, government, healthcare and higher education*. Vancouver, Canada, 2005. Web. 15 February 2010.

Deleuze, Gilles, and Félix Guattari. *A Thousand Plateaus: Capitalism and Schizophrenia*. Minneapolis: University of Minnesota Press, 1987. Print.

Dirks, Kurt T., and Donald L. Ferrin. "The Role of Trust in Organizational Settings." *Organization Science* 12.4 (2001): 450-67. Print.

Ferrin, Donald L., Michelle C. Bligh, and Jeffrey C. Kohles. "Can I Trust You to Trust Me: A Theory of Trust, Monitoring, and Cooperation in Interpersonal and Intergroup Relationships." *Group & Organization Management* 32.4 (2007): 465-99. Print.

Foucault, Michel. *Discipline and Punish: The Birth of the Prison*. Trans. Alan Sheridan. New York: Vintage Books, 1977. Print.

Frey, Bruno S. "Does Monitoring Increase Work Effort? The Rivalry with Trust and Loyalty." *Economic Inquiry* 31.4 (1993): 663-70. Print.

Gillion, John. "Lying, Cheating, and Teaching to the Test: The Politics of Surveillance under No Child Left Behind." *Schools under Surveillance: Cultures of Control in Public Education*. Eds. Torin Monahan and Rodolfo D. Torres. New Brunswick, NJ: Rutgers University Press, 2010. 194-212. Print.

Haggarty, Kevin D., and Richard V. Ericson. "The Surveillant Assemblage." *The Surveillance Studies Reader*. Eds. S.P. Hier and J. Greenberg. Berkshire, U.K.: Open University Press, 2007. 104-116. Print.

Hai-Jew, Shalin. "Operationalizing Trust: Building the Online Trust Student Survey (OTSS)." *Journal of Interactive Instruction Development* 19.2 (2006): 16-30. Print.

Harel, Elazar C., and Toby D. Sitko. "Digital Dashboards: Driving Higher Education Decisions." *Educause.* Educause Center for Applied Research, 2003. Web. 14 January 2010.

Hier, Sean P. “Probing the Surveillant Assemblage: On the Dialectics of Surveillance Practices as Processes of Social Control.” *The Surveillance Studies Reader*. Eds. S.P. Hier and J. Greenberg. Berkshire, U.K.: Open University Press, 2007. 117-128. Print.

Holiday, Billie. *At Monterey, 1958*. Black Hawk Records, 1989. CD.

Kitto, Simon. “Translating an Electronic Panopticon: Educational Technology and the Re-Articulation of Lecturer-Student Relations in Online Learning.” *Information, Communication & Society* 6.1 (2003): 1-23. Print.

Koppell, Jonathan G. S. “Pathologies of Accountability: Icann and the Challenge of ‘Multiple Accountabilities Disorder’.” *Public Administration Review* 65.1 (2005): 94-108. Print.

Kramer, Roderick M. “Trust and Distrust in Organizations: Emerging Perspectives, Enduring Questions.” *Annual Review of Psychology* 50 (1999): 569-98. Print.

Land, Ray, and Sian Bayne. “Screen or Monitor? Surveillance and Disciplinary Power in Online Learning Environments.” *Improving Student Learning Using Learning Technology*. Ed. C. Rust. Oxford: OCSLD, 2002. 125-38. Print.

Lyon, David. *Surveillance Studies: An Overview*. Cambridge, U.K.: Polity Press, 2007. Print.

Marx, Gary T. “Varieties of Personal Information as Influences on Attitudes Towards Surveillance.” *The New Politics of Surveillance and Visibility*. Eds. K.D. Haggarty and R.V. Ericson. Toronto: University of Toronto Press, 2006. 79-110. Print.

Mathiesen, Thomas. “The Viewer Society: Michel Foucault’s ‘Panopticon’ Revisited.” *Theoretical Criminology* 24.1 (1997): 3-14. Print.

McEvily, Bill, Vincenzo Perrone, and Akbar Zaheer. “Trust as an Organizing Principle.” *Organization Science* 14.1 (2003): 91-103. Print.

McGrath, John E. *Loving Big Brother: Performance, Privacy and Surveillance Space*. London: Routledge, 2004. Print.

Miller, Gary J. "Monitoring, Rules, and the Control Paradox: Can the Good Soldier Svejk Be Trusted?" *Trust and Distrust in Organizations: Dilemmas and Approaches*. Eds. Roderick M. Kramer and Karen S. Cook. New York: Russell Sage Foundation, 2007. 99-126. Print.

Moore, M. G. "The Theory of Transactional Distance." *Handbook of Distance Education*. Eds. M.G. Moore and W.G. Anderson. 2nd ed. Mahwah, NJ: Lawrence Erlbaum Associates, 2007. Print.

Pautz, Michelle C., and C. Patrick Washington. "Sarbanes-Oxley and the Relentless Pursuit of Government Accountability: The Perils of 21st-Century Reform." *Administration Society* 41.6 (2009): 651-73. Print

"Purdue University and Sungard Higher Education to Collaborate on Product to Improve Academic Success." *Educause.* Educause Center for Applied Research, 2009. Web. 10 February 2010.

Ragan, Lawrence C. "Good Teaching Is Good Teaching: An Emerging Set of Guiding Principles and Practices for the Design and Development of Distance Education." *Cause/Effect* 22.1 (1999): 1-7. Web. 10 February 2010.

Rousseau, Denise M., et al. "Introduction to Special Topic Forum: Not So Different after All: A Cross-Discipline View of Trust." *The Academy of Management Review* 23.3 (1998): 393-404.

Rybas, Sergey. "Contesting the Panopticon Metaphor: Online Education and Subjectivization of the Online User." *The annual meeting of the International Communication Association,* San *Francisco, CA, 2007*. Web. 11 January 2010.

Saunders, Ron. *What's Next? Report on the Forum on the Future of Higher Education in Canada*. Ottowa, Ontario: Canadian Policy Research Networks, 2008. Web. 20 January 2010.

Shanahan, Theresa. "Accountability Initiatives in Higher Education: An Overview of the Impetus to Accountability, Its Expressions and Implications." *The Ontario Confederation of University Faculty Associations*. Toronto, Canada, 2009. Web. 9 January 2010.

"Signals: Stoplights for Student Success." *Purdue University.* Purdue University, 2009. Web. 16 January 2010.

"State of E-Learning in Canada." *Canadian Council on Learning.* Canadian Council on Learning, May 2009. Web. 15 December 2009.

Steeves, Valerie. "Online Surveillance in Canadian Schools." *Schools under Surveillance: Cultures of Control in Public Education*. Eds. Torin Monahan and Rodolfo D. Torres. New Brunswick, NJ: Rutgers University Press, 2010. 87-103. Print.

Stokes, Peter J. "Hidden in Plain Sight: Adult Learners Forge a New Tradition in Higher Education." *The Secretary of Education's Commission on the Future of Higher Education.* U.S. Department of Education, 2006. Web. 9 September 2009.

Tally, Steve. "Signals Tells Students How They Are Doing Even before the Test." *Purdue University*. Purdue University, 2009. Web. 10 February 2010.

Turrow, Joseph. "Cracking the Consumer Code: Advertisers, Anxiety, and Surveillance." *The New Politics of Surveillance and Visibility*. Eds. K.D. Haggarty and R.V. Ericson. Toronto: University of Toronto Press, 2006. 279-307. 279-307. Print.

United States. Department of Education. Commission on the Future of Higher Education. *A Test of Leadership: Charting the Future of U.S. Higher Education.* 2006. Web. 12 April 2010.

Wesley, Drew. “A Critical Analysis on the Evolution of E-Learning.” *International Journal on E-Learning* 1.4 (2002): 41-48. Print.

WICHE. *Knocking at the College Door; Projections of High School Graduates by State, Income and Race/Ethnicity, 1988 to 2018*. Boulder: WICHE, 2003. Print.

Wood, Andrew F., and Deanna L. Fassett. “Remote Control: Identity, Power, and Technology in the Communication Classroom.” *Communication Education* 52.3/4 (2003): 286-96. Print.