



The Network University in Transition

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In 1979, in regards to identity in relation to the scenario of computerization, informatics, and telematics, Lyotard noted, “A self does not amount to much, but no self is an island; each exists in a fabric of relations that is now more complex and mobile than ever before (1984: 15). “Data banks,” he continued, “are the Encyclopedia of tomorrow. They transcend the capacity of each of their users. They are ‘nature’ for postmodern man” (51). It is tempting to see the last thirty-five years as a confirmation of the predictive value of his hypothesis that processes of delegitimation and the predominance of performativity sounded “the knell of the age of the Professor: a professor is no more competent than memory bank networks in transmitting established knowledge, no more competent than interdisciplinary teams in imagining new moves or new games” (53).

Following in Lyotard’s footsteps, Readings (1996) described how the University of Excellence displaced the University of Culture’s cultivation of citizen-subjects within the liberal nation-state. He recognized that the cash nexus of the post-historical, capitalist bureaucratic university was coming to the fore and that computerization was altering the technological context of writing, publication, and reading. Lyotard’s focus was the status of scientific knowledge in a computerized society while Readings’ was the detachment of the contemporary university from the “historical development, affirmation and inculcation of national culture”

(6). Taken together, we could see that the end of the age of the professor was the beginning of the age of the administrator, while the “idea of culture as the object, as both origin and goal, of the human sciences” (10) was replaced by the technobureaucratic notion of “excellence.”

Since these two reports on knowledge and culture in the twilight of the modern university, “informational culture” and the “informational university” have converged (Terranova, 2004; Bousquet, 2008). Moreover, the history of the unmaking of the U.S. public university has been written (Newfield, 2008) and the language of corporate culture has replaced the language of education (Woodhouse, 2009). According to Angus (2009), the “emerging science-technology-communication unity is undermining the traditional basis of the university” (62). Furthering this point, he suggests that the “network university” is “an emerging form of, and role for, the university in the network society, which is based on technoscience” (Angus, 2009: 64). Revising Readings, the idea of excellence has been superseded by innovation and an ethos of entrepreneurialism.

In the fifth edition of *The Uses of the University*, Clark Kerr revisited the U.S. “multiversity” to observe the end of the “golden age” of the U.S. research university. In his 1995 commentary, he noted, “The operation of the nerve system of academic life is now more dependent on computer terminals and facsimile machines . . . and less and less on face-to-face contact” (Kerr, 2001: 146). Among the great uncertainties for the new millennium, one source was “whether or not the greatly improved hardware and software for the new electronic technology may, at last, start to penetrate teaching as it already has research and administration” and bring about the “fourth revolution” of instructional technology that the Carnegie Commission on Higher Education already expected in the early 1970s.

Kerr was of two minds: on the one hand, “experience to date suggests that each new technology adds to but does not totally supplant prior technology—oral teaching added to the apprenticeship experience, the written word added to the spoken word, printing added to handwriting, and it seems likely that the ‘chip’ will add but not replace all the methods that have gone before” (Kerr, 2001: 195). On the other hand, the first item of “new business” was to use information technology more widely and more effectively. In the face of uncertainty, he wished for “careful studies” of “the new information technologies—what is working and what is not?” (Kerr, 2001: 228). In 2010, the U.S. Department of Education granted Kerr’s wish and issued a meta-analysis of online learning studies that compared face-to-face and online learning; hybrid teaching methods

were found to be more effective than either face-to-face-only or online-only courses (Means et al. 2010). For Kerr, video and e-mail were new media in higher education; today, course management systems, podcasts and video chat forums, intelligent tutoring systems and MOOCs represent the latest means of teaching and learning.

In this chapter, I examine the network university in transition. The digital nexus of activity in general, and the relation between digital technology and techniques in particular, have been instrumental to the transmutation of the university. It has been difficult to move beyond the issues of access to information, knowledge, and expertise to other matters of concern, such as hypermanagerialism and the reproducibility of teaching. To make sense of what has happened over the past two decades, this chapter will make the case that the university has become a “network enterprise” (Castells, 2010) that shapes the “internal outside” that is the “unassimilated background” of our academic professions (Moten and Harney, 2004). Innis and McLuhan’s thought illustrates how Hansen’s (2010) notion of “mediatic regime change” is an historical occasion for thinking about media and the university. By adding Kittler’s account of university-based media history to their viewpoints, we can trace the impact of mechanization, cybernation, and binary code on the liberal humanist subject. As I hope to make clear, the current scene of scholarly communication and pedagogy is still between print and digital codes and conventions, but we need a new kind of inquiry to talk about the network digital media-based university. Information technology strategy can be understood as a mode of institutional development that fuses technological and organizational change, facilitates administrative control, and alters the relational ecology between the faculty and student body. We can describe the institutional context as a milieu of circulation. To gain a deeper understanding of academic being within the mediated academic world, we must remain attentive to media and spacetime.

The black-boxing of campus network infrastructures (combined with the performativity criterion, presentism, and the novelty of new media) is only the first set of difficulties. Achieving clarity about the contemporary university presents further problems. In these neoliberal times, due to corporatization, commercialization, managerialism, and bureaucratization, the problem of the public university has been framed as a “crisis.” Elsewhere, I have spoken about the university’s triple crisis: faculty employment, global finance, and knowledge (Hanke, 2011). From a classical Marxist perspective, cost-cutting was the spearhead of neoliberal restructuring; for faculty and students the changes could be

summed up as “proletarianization” and “precarity” (Callinicos, 2006). In the wake of the financial meltdown of 2007–08, Canadian universities are facing further budget cuts. This kind of shock doctrine and resultant underfunding exacerbates structural changes such as job shedding and casualization of academic labour, unfilled academic positions and bigger teaching loads, course and program closures, bigger class sizes and more e-learning to increase access and accelerate graduation. To this, we can add two qualifications. First, there is the symbolization of university finances. On the one hand, top-level administrators represent York University’s “financial gap” as the result of a vicious circle (financial downturn►expenditures exceed revenues►annual budget cuts►new efficiency measures and tuition fee framework) that is leading to an unsustainable future. On the other hand, there is increased spending on presidential salaries and bonuses, administrative salary increases, consultants, campus building construction and renovation projects, a new athletic stadium, artificial turf and field lighting for stadiums, security measures and equipment, as well as rebranding campaigns. Second, there is the political-economic reality outside any particular university. Economic “crisis” has ceased to be an intermission; as Žižek (2010) argues, we are in a period “where a kind of economic state of emergency is becoming permanent: turning into a constant, a way of life” (96). But rather than declaring bankruptcy and asking for a government bailout, this crisis has been used by administrators to implement neoliberal policy. As the eighty-five-day 2008–2009 strike of contract faculty and teaching and graduate assistants at York University and the recent labour dispute at Simon Fraser University reveals, growth-at-any-cost strategies are paid for by the most vulnerable workers—teaching assistants, sessionals, contingent faculty, and staff (Various Authors, 2012).

In the third place, there are the difficulties that arise from making the university an object of intellectual inquiry and critique. As Weber (2001) notes, the specific university we work in may not provide a justification for generalizing about the university. Nonetheless, in what follows I shall sometimes take my own university as emblematic of the Canadian public university. To put it on another scale, we may assume that the structuring effects of the neoliberal “global university” are more or less taking place in every local university in Canada. Consider the “internationalization” of Canadian universities. In his address to the Empire Club of Toronto, York University’s president—a mechanical engineer by profession—spoke about higher education services in the “knowledge-based economy” as a value-added Canadian import (Shoukri, 2013). From this perspective,

international education is an “economic advantage for the host country.” The proof is in the statistics on consumer spending; between 2008 and 2010, international students’ spending on tuition, accommodation, and other discretionary goods and services increased from \$6.5 billion to \$8 billion.

My project draws upon the materialistic theory of media and networks. When it comes to academic being-there, technics, and time, the academic form of life is a “repetitive life” (Sloterdijk, 2012). And yet, after the digital turn, our embodied engagement and practice of reading and writing in network culture is not what it used to be in a book culture. As Ian Angus (this volume) explains, “Digitization functions as both a universal medium of translation and also as a specific medium comparable to others, in that its specific network social relations prevail when re-embedding is within the digital form”(71). This generic communication depends on the production of networks and their utilities. In the mid-1990s, campus-wide networks were built with commercial hardware from the private IT systems industry. Today, as Mejias points out, privately owned “social network services exhibit dual processes that enable both the creation of new public spaces and the controlling and monitoring of these spaces through mechanisms facilitated by the architecture of the network itself” (2010: 603). He goes on to make a useful distinction between “nodocentricism”—if “something is available on the network, it is perceived as part of reality”—and the “paranodal”: “if it is not available, it might not be real” (611). With these concepts in mind, we can grasp how the dual processes of the publicly assisted network university have consequences not only for knowing what is capitalist or noncapitalist about the university but also for what exists beyond the borders of a node within it or outside it that might animate the network university. Network university space, despite control of the edges, has expanded, and network university time, despite the shortage of time, is open to events.

NETWORK

Rather than joining the long line of scholars who have pursued the idea of the university, I start with the concept of networks. The first problem is a definitional one – the suitability of the term “network” itself. There have been various contenders for renaming the university—corporate, virtual, entrepreneurial, ecological, and more—but I find “network” to be a useful conceptual tool. The term “network” has five senses. In the first place, the network university reflects the birth of network society and the transition from a pillar model to a web model of

university life (Standaert, 2009). A campus network is not merely a metaphor but a sociotechnical network articulated to organizational culture (Lewis, Marginson, and Snyder, 2005). In the second sense, by the early 1990s, academic culture could be defined as “the network of interrelated and explicit beliefs about academic practices of teaching, learning and research and about the social significance of those practices” (Ringer, 1992: 13). Latour (2005) has proposed dropping the polysemy of “network” in favor of *worknet* or *action net*. In the third sense, I prefer to retain the concept because “work” is embedded in “network.” We do knowledge work (Liu, 2004) while our computers work to process information and manipulate data. The faculty body is connected to the same universal machine and Internet with flexible ties to epistemic networks within and across departments and organized research units at varying scales. However, information technology (IT) professionals are also actors who design, build, test, configure, secure, repair, and maintain campus networks. In actor-network theory, actors and networks constitute each other: IT professionals constitute the technical network and faculty constitute epistemic networks. Fourth, drawing on Shaviro, who follows Deleuze, the network is “political to the core” because it is a system of distributed control (2003: 21). The university displays the hybridization of physical and digital space that characterizes virtual environments (Dourish, 2001); moreover, network space is “always folding, dividing, expanding, and contracting” (Shaviro, 2003: 7). Finally, understanding networks as they unfold over time is more complicated when the “virtual” is not simply opposed to the real university. To borrow from Thacker, the “abstract-but-real is the network that is always enacted and about to enact itself” (2004, xiv).

By some earlier accounts, the late modern university has lost its unifying idea to a plurality of functions. What unifies the various functions? I take it as axiomatic that communication is the “force that binds together the sociological and the epistemological, giving shape and substance to the links between knowledge forms and knowledge communities” (Becher and Trowler, 2001: 77). After reviewing the idea of the university, Habermas realized that the multiplicity of the disciplines could no longer tie all the functions together. He went on to express his belief that it is “communicative forms of scientific and scholarly argumentation that hold university learning processes in their various functions together” (1989: 124). Even if faculty and students are working alone, they are embedded in a public communication of researchers. Because this cooperative enterprise refers back to structures of argumentation, he claims that truth, or the reputation achieved by a scholarly community, “can never become the mere

steering medium of a self-regulating subsystem” (1989: 124). In his argument, which overlooks the functioning of networks, it is the norms of scientific and scholarly activity that set the university apart from society, even as it shares the communicative rationality of that society.

This normative ideal was undermined by the rise of the “promotional condition” of the university (Wernick, 1991). The university would enter into an exchange with the discourse of advertising—the symbolic system of twentieth-century late capitalism. As a species of rhetoric, it not defined by what it says but by what it does. It targets the reputation of a university, not in the eyes of scholar-professors but in the eyes of consumers. The first casualty is not, as we might assume, the truth but rather the “very meaningfulness of the language material which promotional messages mobilize” (189). Moreover, promotional rhetoric cannot be disentangled from what is promoted—promotionalism is reincorporated back into remaking of higher education. Due to under-investment, this process of promotionalization has been intensified; universities have been busy rebranding themselves and marketing campaigns are deemed to be “strategic investments.” In the competition for higher education market share, media relations units pursue “strategic messaging” by pitching university stories and faculty research achievements to the media and the positive news stories generated are measured by their “PR value” and “media impressions.”

Since the advent of a campus-wide distributed network and the increased use of computing for administrative support, one source of concern over academic quality and freedom is hypermanagerialism. New managerialism embraced new technology. As Reed and Deem (2002) describe it:

The “cultural revolution” that “New Managerialism” sets in motion requires a technology of workplace control, which a restructured governance structure and management structure, in order to make it a viable programme of change, grounded in a set of practices and devices focused upon the highly complex task of re-engineering the labour process within and through which public sector professionals and managers do their work. (130)

Stepulevage (2009), for example, analyzes how Enterprise Resource Planning (ERP) technology in higher education institutions modeled the reality of the university as a unified, ordered, stable system, which, in turn, embodies the myth of “best practice,” which may not take account of how work is actually performed. McNally (2010) goes a step further to argue that enterprise content

management extends Taylorist and Fordist principles into intellectual labour. Faculty have been reskilling themselves to perform digital labour but so have system administrators; the upshot is greater managerial control over the academic labour process.

Today, hypermanagerialism encompasses audit culture, institutional research, spreadsheets, web clients, performance indicators, info capture, remote control by marketing, and more. At York University, for example, staff in the Faculty of Liberal Arts and Professional Studies were subject to a twelve-month departmental review by an HR business partner with experience in “design and implementation of process efficiencies” and “design of job-specific competencies.” This partner came to York from Toys R Us Canada, Eurocopter Canada Limited, U.S. Steel, and the City of St. Catherines. In this way, the work of staff is embedded in work processes that span the private and public sector. The relative autonomy of the faculty body vis-à-vis managerialism’s mandates is a fading memory. As Godard (2010) has observed, “information flows bureaucratically down from the administration’s marketers as a culture of secrecy replaces a ‘community of dissensus’” (30). At the same time, information that flows bureaucratically up positions the faculty as clients within a service organization. As part of the process of departmental review within the Faculty of Liberal Arts and Professional Studies at York, faculty feedback on administrative services and support, following the recommendation of chairs and directors, is taking the form of online surveys.

Meanwhile, the administration’s latest “Academic and Administrative Prioritization” exercise—which has been given impetus by U.S. consultant Robert Dickeson—aims to integrate academic and financial planning by weakening the constitutional role of the faculty senate and its committees in overseeing academic programs (Heron, 2013). The administration has the right to gather information while the senate has responsibility for academic policy. Even if a senate subcommittee participates in designing the template for information, such an exercise would necessitate gathering copious amounts of data from every program to rate them and make decisions about areas of strength and weakness, (re)investment, deinvestment, and growth. This exemplifies how consultation and codification of templates with faculty-generated academic criteria would enhance the managerial gaze into departmental performance indicators rather than curb the rationalization process for making budget cuts. Even with democratic validation, departments may become more visible and professors more assessable. Deploying this managerial technique would further decrease

faculty's power to act and increase the neoliberal government's financial power as a power of public evaluation (Lazzarato, 2012).

There is danger in the pursuit of the reproducibility of teaching through digital network media. The work of teaching in the age of mechanical and digital reproduction has a history that can be traced from Sidney Pressey's 1924 teaching machine (Petrina, 2004). This was a mechanical machine to lift the burden of drill and practice from teacher's shoulders. While there is new software and analytics, the desire to make teaching less labour-intensive is not new. Computer tutoring researchers are working on artificially intelligent tutoring systems for STEM courses (VanLehn, 2011) and automated essay-scoring engines are being developed to autograde student essays (Stross, 2012). Free essay-grading software has been created by EdX, the nonprofit open-source online learning platform governed by Harvard and MIT. This software, which learns the grading technique of a human instructor, represents the fulfillment of the dream of instant grades. Such artifacts are at the experimental stage, however, and may never become part of the enterprise-wide software systems and applications of most universities.

THE NETWORK UNIVERSITY

The network university has emerged out of the modern "university in ruins" (Readings, 1996) to become a node in Castell's "network society" (Pruett and Schwellenbach, 2004). As Agre notes, infrastructure and institutional change are linked; information technology strategy can be understood as a mode of development that fuses technological and organizational change (2002). To go beyond economism—the idea that the network university's form and role are embedded in an economic crisis that it responds to by connecting techno-science with techno-capital—I argue that we must make a detour through media theory and history. Hansen (2010) has proposed that new media can be regarded as "new" in a new way: media do not only store experience, they also "mediate the conditions of mediation" (81). From his viewpoint, we are in the midst of "mediatic regime change." Digital media and their networks have become necessary to the everyday functioning of the public university, circuits of knowledge, and faculties' and students' communication, thinking, and worldly engagement.

In the Canadian context, Harold A. Innis's and Marshall McLuhan's thought illustrate how "mediatic regime change" is an historical occasion for thinking about media and higher education. Picking up where Plato's critique of writing

in the *Phaedrus* left off, Innis writes that, in the age of the printing press and radio, “improvements in communication,” particularly in the mass production of words, “have weakened the possibility of sustained thought when it becomes more necessary” (1946: xiv). From the standpoint of the Western university’s oral tradition of instruction, the textbook and the exam system represented the threat of mechanization. “Machine industry” and the media of print, radio, and film, he argued, accelerated the “dissemination of facts that would lead to the closing of student minds” (Innis, 1951 [1947]). In his view, mechanization undermined the university’s two real functions: “the life of study, whether for a few years or during a whole career, and to bring together during that period, face to face in living intercourse, teacher and teacher, teacher and student, student and student” (1946: 81). Surrounded by totalitarianism during World War II, he was troubled by the disjuncture between the rise of modern science and the post-World War “rehabilitation of civilization”; the “ivory lab,” as he put it, “destroys the ivory tower” (73). Due to political pressures from the state and the “judgment of business men,” he believed that universities would become “one of the kept institutions of capitalism” (75). “To buy universities,” he concluded, “is to destroy them and with them the civilization they stand for” (75).

In contrast to Innis, McLuhan eschewed writing any lament for the university as a crucible of Western civilization and its decline. Rather, he viewed new communication and information technology as an opportunity to experiment and create the educational future. Whereas Innis looked to the past and remained a firm believer in balancing time- and space-biased media, McLuhan advocated the arts as “dynamic feedback” on our technological environment (McLuhan, 1964: xi). In contrast to Innis, McLuhan was historically positioned to attend to the rise of television and to perceive the impact of the scientific revolution as “cybernation.” He grasped that “instantaneous retrieval of information by electricity” would make possible inventories of “materials in continuous process of transformation at spatially removed sites” (1964: 300, 310). He foresaw how “automation affects not just every phase of consumption and marketing; for the consumer becomes a producer in the automation circuit” (1964: 303). Surfing the wave of first-wave cybernetics and its computer-brain analogies into expanded consciousness, McLuhan signaled the consequences of electric media and cybernation for typographic man—also known as the liberal humanist subject.

It would take another forty years for the post-human subject to be registered. In “Universities: Wet, Hard, Soft and Harder,” Friedrich Kittler argues that the hardware of the lecture, the library and the mail enabled a “cumulative

and recursive production of knowledge” (2004: 245). He foregrounds the relation of recurrence between the Greek alphabet and binary code and the parallels between the hardware of the early modern and late modern university. After 800 years of university-based media history, computing has spread from mathematics departments to every other department. In his account of the technological enframing of the university, “universities have finally succeeded in forming once again a complete media system” (2004: 249). The consequence of this technological convergence, he believed, was a “new uniformity of knowledges, disciplines, departments” and “ontology or the logos of Being, has materialized in computing machines” (2004: 250). When binary code replaces letters, images, and sounds, he hopes the “methodological integration of studies in language and music, film and poetry may begin” (Kittler, 2004: 250). In his post-human vision, cultural technologies, not man, will become the proper subject of the humanities (Kittler, 2004: 251).

Despite these happy consequences, Kittler was also concerned about the commercialization of chip designs, operating systems and interfaces and proprietary solutions, patents, trademarks, and copyrights. New software such as Coursera does not eliminate concerns about commercialization and “copy-far-left” has only reached the manifesto stage (Kleiner, 2010). The 2012 Copyright Modernization Act, which contained amendments to fair dealing that recognized reader’s/user’s rights for educational purposes, has set the stage for litigation. In April 2013, Access Copyright, the Canadian copyright licensing agency, filed a lawsuit against York University in the Federal Court of Canada over the off-campus photocopying of course packs. In response to the General Counsel’s “Document Preservation Notice,” which states that any “document that has a semblance of relevance” must be preserved for this legal proceeding, the York University Faculty Association filed a policy grievance based on the memo’s fear-mongering and overreaching requirements.

There is more to university-based media than computerization and copyright. Because of technological convergence, the academy’s lost monopoly over knowledge, and the overlap between education and business, Alan Liu (2004) has explained how knowledge work harnessed to information technology has changed not only “literary” study but scholars as well. In the post-industrial era, he writes, “Scholars are themselves knowledge workers in a complete sense: they are intellectuals but they are also middle managers responsible for an endless series of programs, committees, performance reports, and so on” (21). Following Bourdieu, he argues that information is not ideology; rather, “information

consumed without concern for technological mediation . . . is our contemporary habitus. It is the habitual information environment in which ‘subjective principles of organization’ (as Bourdieu puts it) are deeply informed by a world defined as technology-object” (41). From his perspective on production, IT is a mode of development that “generates what amounts to semiautonomous doxa—a belief in information or in technology” (40) at the same time “new corporatism” identifies “culture with technology and technique” (69). Managers work to align technology and technique for efficiency and productivity.

I now turn to three sets of considerations, beginning with philosophy and Derrida’s seminal essay “Mochlos, or the Conflict of the Faculties.” Kant’s philosophical project was to define the university and the faculty judgment capable of deciding. Derrida contends that Kant tried to save rational discourse by separating knowledge from the publication of knowledge. Whereas Kant’s philosophical demand centered on language, Derrida suggests: “This philosophical demand is best represented by an information technology that, while appearing today to escape the control of the university—in Kantian terms, of philosophy—is its product and its most faithful representative” (2004: 98).

In Derrida’s reading, the contradiction within Kant’s text becomes irresolvable when publication, archiving, and mediatization expand. The new journal *Amodern*, whose inaugural issue is devoted to the future of the scholarly journal, describes the shift from print to digital network media in these progressive terms:

The scholarly knowledge system we have today originated in the seventeenth century. It sanctifies the individuality, originality, objectivity, and intellectual property of scholars working alone (or in small groups) within a knowledge system defined by the fixity, uniformity, and proprietary status of print. Now, networked IT proffers an apparatus in which information and knowledge no longer tend to be fixed and proprietary; where cultural breakthroughs occur as the result of exercises in collective intelligence, large-scale collaboration, assemblage, and continuous revision; and where authorship and authority are increasingly established communally and anonymously rather than individually. (<http://amodern.net/>)

Parallel to forms of production of knowledge are forms of production of subjectivity. Here we can turn to Peter Sloterdijk’s philosophical contribution. In *In the World Interior of Capital*, he describes the consequences of the use of

digital media for subjectivity after the printed book and electronic media. In his philosophical view, “the postmodern ‘user self’, is beginning to replace the more ponderous form of subjectivity, the ‘educated self’ of the Modern Age” (2013: 219). Relieved of the burden of gathering experiences by using techniques for retrieving information, “reader subjectivity dissolves into user subjectivity” (2013: 219). In a culture of search engines and databases, the user collects addresses rather than experiences. For him, downloading “expresses the transition into a post-experiential age” that is accompanied by a “post-personal, post-literary, post-academic cognition regime” ahead (2013; 220). In *The Art of Philosophy*, he provides an account of the rise of the observer in a culture of rationality. Returning to Plato, he contends that the academy was an innovation in spatial creation. It is, he writes, the “architectural equivalent of what Husserl apostrophized as epoché—a building for shutting out the world and bracketing in concern, an asylum for mysterious guests that we call ideas and theorems” (2012: 33). Within this space, he describes how the humanities’ mode of looking, which has its roots in the European mode of reading, was based on an analogy between the world and the book. This “classical analogy,” he observes, “has completely disintegrated in the age of monitor screens and keyboards” (2012: 54).

The second set of considerations is political-economic. As Schiller (1999) has described, the Internet originated in the U.S. and was created for use by universities, government agencies, and large corporations. As a spearhead for globalization and e-commerce, the Internet accelerated the metamorphosis of education and subordinated education to the economy. Economism is the great intruder that trespasses upon the enclosed space of the public university.

Since the late 1980s, critiques of the business-like university have piled up. The information and communications technology (ICT) “revolution” brought technological change to the fore. In 1998, Langdon Winner, a critic of “runaway technology” who teaches science and technology, presented his “Automatic Professor Machine.” In response to the surge of online education, this satire portrays the work of faculty in the age of automation against the will to exploit technology for the higher-learning industry.

David Noble, in *Digital Diploma Mills: The Automation of Higher Education*, launched a serious critique of commercialization, commodification, and administrative mandates to use computers for education. In his view, technology was being deployed by management primarily to discipline, deskill, and displace labour for profit. In his historical view, the danger was that academic labour would be caught within an industrial capital/labour dialectic. However, since

the advent of word processing and email, faculty have been participating in a mass apprenticeship to acquire new digital skills. Moreover, from the perspective of Italian autonomous Marxism, academic work has always already been “immaterial labour,” a new concept of labour that fuses informational, cultural and affective content, work and nonwork, actuality and virtuality. Even if we are composing alone, scholarly work and life is knowledge-rich, and it entails cooperation and coordination. But in both Winner’s and Noble’s visions of the future of higher education, technology is a Trojan horse for efficiency and commodification. They view new technology as an industrial trend that should be resisted. Even though commodification remains a concern, this risks misunderstanding the technological affordances of media and the role of design in shaping technology.

Côté and Allahar’s *Ivory Tower Blues: A University System in Crisis* offers the concept of “disengagement contract” to illuminate the sociological aspects of higher education. Due to various factors, they argue that undergraduate students have become “reluctant intellectuals” and faculty “reluctant gatekeepers.” In their 2011 follow-up book *Lowering Higher Education: The Rise of Corporate Universities and the Fall of Liberal Education*, they assess the question of whether new technologies will save the day. They conclude that “new technologies can facilitate learning, they do not replace teachers” (2011: 174). Second, these technologies “are best used for the fun of learning concrete, personalized material (e.g. popular culture), not for the work of developing critical thinking skills, and learning how to deal with abstractions in written and verbal forms” (2011: 174). While their first point is that professors, not the Internet, incarnate wisdom, their second point seems to hinge upon a simplistic division between cognition and affect, and to overlook the connections between thinking in any disciplines and media.

Looking backward, we are in a better position to see what higher-education future has arrived. The PC, Internet, email, WWW, electronic indexes, digital journals, ebooks, e-reserves, course-management systems, search engines, mobile phones, and tablets have altered scholarly communication and traditional on-campus classes. In the first instance, the flipside of unsubstantiated techno-optimism is top-down administrative control. The threat of virtualization is that the “will to power of university administrators which now use ‘the’ network for information and image control, surveillance, unidirectional communication, edicts and coercive demands on actors lower down” (McCarthy et al., 2009: 48). On the teaching side, we have seen the rise of the blended learning

model. This model put an end to the late-1990s face-to-face versus online platform debate. It borrows from existing practices and assimilates new technology in search of “best practices.” In general, course websites, audio podcasting, content or learning management systems, video capture, and digital media are believed to be more stimulating than any “sage on the stage.”

Course management systems (CMS) such as Moodle also expand the archive of a course and enable the manipulation of the time-axis of the course. Combined with video recording and distribution, they afford the possibility of “flipping a course”—reallocating in-class time that would have been spent listening to a lecture to discussion, small group work, problem solving, or hands-on or peer learning. This development fails to appreciate that the lecture is a form of talk (Goffman, 1981) and that reading with an academic purpose, active listening, and note-taking are academic skills. The flipped model of instruction is on the move from elementary and secondary to postsecondary education as universities develop “institutional learning outcomes” in parallel with provincial government’s feasibility studies on assessing learning outcomes across OECD countries (see Ministry of Training, Colleges and Universities, 2012). Due to the student population explosion, the upper size limit of the lecture as face-to-face communication—even with amplification and projection—has been exceeded. There is a growing belief that networked digital media will free up time in large lecture auditoriums for more authentic learning and space for even more students.

However, connectivity means both connection and disconnection (Shaviro, 2003). Students may believe they no longer need to write down what they see and hear because they have easy access to digital content. Posting documents, however, does not guarantee they will be read just-in-time for a lecture or tutorial. Since adopting Moodle, my activity reports show that the percentage of students accessing the lecture outlines I produce and post before class declines as end of term approaches. Moodle creates a hybrid classroom space but it cannot resolve contradictions in the student’s temporal economy. In this economy, paid work and accumulating debt are the biggest obstacles to students’ academic performance.

Beyond the issue of disconnectivity, there is the transmission model of pedagogy to consider. In his analysis of cyberspace and student bodies, Mark Nunes points out that “any restructuring of the classroom by way of networked spaces of everyday life must therefore involve a restructuring of the student as well (2006: 131–32). Students are instituted, through their interaction with networks, into a “network subject position within a casualized community of transmission

and exchange” (2006: 148). The rhetoric of “student-centered learning” masks how going online reinforces the “conduit fallacy of communication.” The next step is to think about the subject who is registered for courses and addressed by the university as a “client.” This is the network student subject that is flexible, mobile, and easily withdrawn from the life of study.

Notwithstanding any such analysis of the student subject, current managerial style continues to push eLearning. At York University, there are incentives for faculty to develop “best practices” of “technology-enhanced” learning that can be scaled up. At the same time, UIT are building more platforms for eLearning to suit the “mobile nature” of students. Despite warnings from Heather Kanuka (2006) of a disconnect between the belief in the effectiveness of eLearning and the results of empirical research, the York Institute for Research on Learning Technologies has called for more research and development of business cases for increasing the number of e-courses. “Technical Reports” that evaluate blended learning take their criteria from evaluation rubrics but group the questions according to criteria in the universities’ eLearning business case (Owston and York, 2012–13). The first criterion is to “increase York’s ability to respond to enrolment pressures.” The first recommendation pertaining to students is “striving for a higher level of course satisfaction (e.g., 80 percent) and making all decisions regarding course design and delivery with this goal in mind.” In such reports, we can glimpse how organizational agency works to shift teaching in a more online direction. Like earlier initiatives in web-based education, this research is “framed and fanned by the managerial transformation of universities” (Brabazon, 2007: 10). In lieu of a debate on higher educational leadership and responsibility or reflection on the conditions of academic work, “student-centered learning is an excuse for cheap learning” (Brabazon, 2007: 77).

The challenge is to conduct educational research in the public interest that is not determined by enrollment pressures and to design courses that are not influenced by sovereign student-consumers. As Kanuka (2006) also points out, vignettes and websites touting advantages have flooded out findings that eLearning has its disadvantages. In a sociological study of forty-two professors at three research-intensive U.S. universities, David Johnson found that “academics perceive instructional technologies to have limited value in enhancing education and that technology use is rarely motivated by pedagogical innovation” (2012: 126). Instructional technology is not mandated but the pressure of teaching more students at once is sufficient to induce faculty members to adopt technology in ways unrelated to improving learning. According to Norm Friesen,

discussion about web-based education since the mid-1990s has centered on the differences between online and offline. The debate is hindered by a “technologized” understanding of communication, experience and education (2011: xiv). The reduction of debate to a consideration of distinctions between on- and off-line may make for more appropriate educational uses of technology that deflect our attention from technology and the politics of instruction. The more “effective” instructional technology for student-centered eLearning is perceived to be, the more we should perhaps conclude that eLearning has the potential to erode faculty choice and control. When privately owned network services are incorporated, the same door of educational opportunity also swings open to the market and commodification.

The networked space is also reflected in the faculty habitus. According to *University Affairs*, we are becoming “Prof. 2.0.” Media have always been extensions of our scholarly practices. We are still working and living within academic tribes but we have become more nomadic. Due to the grammatization of scholarship, we are in between print and digital codes (Robertson, 2013).

While who we are depends on which academic generation and rank we belong to, and a method is only as good as its teachers, we have all experienced an increase in Internet working and interface time. The social media represent another technological wave: Students with smart phones have real-time access to the flow of social networking media, universities are promoting themselves on Facebook, Twitter, and You Tube, libraries are calling for participation in the growth of their social media networks, and employee intranets with dashboards to access applications, online systems, and social media platforms are being rolled out. In the public university after social media, faculty are becoming adjuncts to platformativity.

To go beyond the satisfactions and dissatisfactions of social media, we need a new kind of inquiry. Media studies is well equipped to study the university-media relation (Rowe and Brass, 2008: 2011). In addition to representation and discursive formations, we should critically examine the metaprocess of “mediatization” (Hepps, 2013). As a concept to direct research, this concept emphasizes that the network university is in formation in a particular time and culture. On this view of the media saturation of our academic life world, we are no longer talking about media in the university, or university-media relations, but the network digital media-based university. As Bernard Stiegler suggests in his multivolume work on technics and time, the programming industries unleash a synchronization that tends to be a “becoming-media of all instruments of work

and socialization (including the school . . .)” which leads to a loss of psychic and collective individuation (2011, 100).

We could begin by looking at administrative practices and IT strategy, and by asking how did my university become a network university? The networking of York University is probably paradigmatic. The 1995 switch from IBM main-frame computing to Cisco Systems shared client-server networks created an IT infrastructure that was decentralized but too heterogeneous to fit the mold of a “comprehensive university.” To facilitate expansion, switched Ethernet became the new topology in line with TCP/IP protocol and another technics of organization would be tried. In the late 1990s, the boundary between “administrative” and “academic” computing was breached. By the mid-2000s, a “utilities-oriented” infrastructure was combined with “service-oriented” applications. By the late 2000s, “The discussion around IT is becoming increasingly about managing the University, not just managing IT” (IT Strategy working group, 2009). During this period, IT professionals acted as technological intermediaries between IT industry vendors and their “clients”—administrators, faculty, staff, and students. University libraries have been at the forefront of digitization to create infrastructure to share eJournals, ebooks, and data sets as well as access to citation management tools. Like other universities, York University has implemented an institutional repository to store the intellectual output of the institution and provide space for programs, departments, and their collections. Another major Canadian initiative is digital journal hosting in the Open Journals System. These developments further support Kittler’s (1990) proposition that all “libraries are discourse networks, but all discourse networks are not books” (369).

For IT professionals, an instrumentalist view of technology is hegemonic. In the former Faculty of Arts at York University, between 2005 and 2010, faculty were called to participate in computer technology planning in their units but they were instructed by managers to view IT as “merely a tool that would enable units to achieve their teaching, research and administrative goals.” The limited role of faculty in making technological choices or decisions parallels the “decline of senates, bi-cameralism and the governance role of faculty” (Wernick, 2006: 7). One has to go back to 1997 to discover the last time that the York Faculty Association weighed in on IT issues in the collective bargaining process: the faculty’s retention of copyright and the right to judge the appropriate use of technology.

The faculty's perceived affordances of email listservs seems to have changed. At York, one professor's email on the changing role of a Senate listserv is worth quoting at length:

I was on Senate from 2001 to 2008. At that time, I found Senate-L to be a useful venue for discussion in advance of Senate meetings. It can lead to more active engagement of Senators in the business of Senate. I find that the floor of Senate is not the best place for serious discussion and reflection, or for suddenly raising new viewpoints on items that are coming for vote. I rejoined Senate in 2012. There seems to have been a change in the role of Senate-L: there appears to be less willingness to engage in discussion. Perhaps in the intervening years there has been an understanding, implicit or otherwise, that Senate-L would be used mainly for announcements, and that two-way discussion would not necessarily be encouraged (even if not actively discouraged). Or perhaps not. In any case, I am not comfortable with the extended silence on Senate-L. (Madras, 2013)

The decline of online discussion corresponds to a decreased attendance at Senate meetings. A July 2013 survey of faculty found that 80 percent cited "interest" as a reason for attending but only 56 percent felt it was their "duty" to attend. Those who attended five or fewer meetings did so because they reviewed documents and had no concerns.

For educational researchers, programmable machines and digital media are media of a pragmatic worldview. In the late 1990s, educational research on the use of the Internet decoupled class size from quality. Since then, discourse of cognitive psychology, social constructivism, and connectionism have framed the development of instructional technologies. Some educational researchers presume that an "educational divide" exists when there is a disjuncture between the academic technoculture and the student experience of new media outside the university. The onus is then on researchers to keep pace with technological innovation. Therefore, educational research tends to focus on novel technologies in order to measure achievement or effectiveness, and to bracket off digital experience from the rest of the university. Notwithstanding these analytical limits and the workshops that promote adopting new media, a recent survey of 15,000 Québec students showed they want an engaging lecture (Charbonneau, 2012). Another noteworthy finding is that only 53 percent of students had a positive perception of how ICTs were used in lectures compared to 86 percent of

teachers (Charbonneau, 2013).) After the rise of social media, it is more difficult to separate educational from social uses (see Chapter 7).

Minority faculty reports on digital media in the classroom are rare yet instructive. One example is Mann's (2012) editorial-opinion "Let's Unplug the Digital Classroom." In response to the Ontario government's white paper on "Strengthening Ontario's Centres of Creativity, Innovation and Knowledge," unplugging is the most radical action that he can imagine. To avoid increasing class size even more, the government is demanding "innovation" to enhance productivity. To quote from this vision of "technology enabled education": "Rather than faculty 'transmitting' lecture data to students sitting in a hall, digital delivery of course content can free faculty in traditional institutions to engage in direct dialogue and mentorship with students" (2012: 10). In this formulation, face-to-face communication is reduced to the exchange of data while online communication is favoured for its immediacy. In addition to ignoring the corporeality of faculty and student bodies, this policy hijacks the concept of culture by linking it to "innovation," and it whitewashes how the public university has been thrown into crisis by neoliberalism.

In the network university, "culture," in the Euromodern sense, has been displaced from the center and replaced by the culture of information. To put it another way, if the network is the medium, the message is the network social relation. To be more specific, "network sociality" is what weakly ties faculty and students together (Wittel, 2001). In the wireless university without walls, the rise of new modes of connectivity parallels the decline of university sociability (Boyer, 2011). The "technical capacities of digital mediation," he notes, "can reinforce greater physical isolation as well as virtual connectivity, senses of alienation as well as emancipation, depending on their particular mode of institutionalization" (184).

Some of the cultural indicators of the network university are information glut and data deluge, scrolling (rather than reading), distraction (rather than fascination), surface attention and stupefaction (rather than discernment). As Sampson (2012) succinctly sums up: "Social subjectivity," in the age of virality and network relations, is a "hypnotic sleepwalk somewhere between unconsciousness and attentive awareness" (13). In the contemporary battle for collective intelligence, one enterprising student has developed an interactive application for professors to engage with their students using the devices they already own. Building upon the classroom technology of student response systems, this is an application to gauge student confusion in real time. Without raising their hand,

students can anonymously click “confused” or “understood” and their real-time Prof 2.0 can see the percentage of students who understood. At the core of this application, “a fiendishly clever algorithm builds in a ‘half life.’ Each response decays and then disappears” giving Prof 2.0 “just enough time to notice it.” The digital ICTs that brought us the “just-in-time” student are linked to a networked application that brings us the “just-in-time” professor. The adoption and use of this application would maintain a student’s techno-bubble while robbing them of the classroom experience of the ambiguity of meaning or clash of ideas.

THE MILIEU IS THE MESSAGE

I want to go on to argue that we can describe the institutional context as an academic milieu of circulation. In his 11 January 1978 lecture, Michel Foucault says the milieu “is what is needed to account for action at a distance of one body on another. It is therefore the medium of action and the element in which it circulates” (2007: 20–21). He transports this notion from physics and biology into town planning in the sixteenth and seventeenth century. The milieu is less a space where discipline is carried out than the planned space where possible events or elements are regulated. Politically, it is also a “field of intervention in which . . . one tries to affect, precisely, a population.” In the milieu, circular links are produced between causes and effects and these effects bear upon all who live in it. Like town planners and builders of bridges and quays, the York University president and the Board of Governors have regarded the university space as a site of real-estate development and IT projects. For IT managers and support groups, it is a matter of organizing the circulation of information and integrating technological developments into the academic plan and everyday functioning of the university.

In his January 25, 1978, lecture, Foucault defines “circulation in a very broad sense of movement, exchange and contract, as a form of dispersion, and also as a form of distribution, the problem being: How should things circulate or not circulate?” (2007: 64). We can also use this question to understand the network university’s neoliberal outside. For example, the Ontario government’s white paper charges the post-secondary system with improving productivity through “innovation” to increase student-consumer “choice” and “labour-market outcomes.” People in their mid-20s are at the “peak of their mobility.” The problem is that this population is more mobile than credentials and credits. What the neoliberal economy requires is more fluidity among learning, training, and the

workforce. Under neoliberal rule, the economic value of credentials and credits depends upon transferability within and across systems.

Other scholars have written about how the age of digital reproduction presents new possibilities for new practices of scholarly communication (Borgman, 2007) as well as open access research and scholarship (Hall, 2008). According to Wilson (2013), over 50 percent of higher education institutions use open-source software on servers and desktops. The Moodle Virtual Learning Environment is considered a “success story” in higher education. He sees customizing open-source code as an extension of academic creativity and freedom. But as Galloway (2012) has suggested, another important question to ask is “How does open source shape systems of storage and transmission of knowledge?” (9). As for open peer review and data sharing after Web 2.0, Accord and Harley’s research reveals how the adoption and use of digital technologies are conditioned by disciplinary cultures (2012).

While scholarly communication has become more open, universities have standardized and centralized their information systems, resulting in “distributed centralization” (Liu, 2004: 147). From standpoint of cognitive labour, Franco Berardi describes two relevant processes. First, there is the capture of work inside the network. Faculty have experienced the downloading of administrative work to their computers. Second, there is the dissemination of labour into autonomous departments that are formally autonomous, but substantially coordinated and dependent (2009: 88). On the one hand, the network form is nonhierarchical, reinforcing the image of academic independence where everyone is engaged in cognitive labour. On the other hand, a new dependency arises in the fluidity of the network university when data on institutional-level research performance is processed and used by upper-level administrators to manage lower-level faculty-administrators.

I shall finish with some closing observations and propositions. Vilém Flusser proposes that communication enterprises could be organized to facilitate “net dialogue” (2002: xvii). Looking at York University’s website and organization, what we see instead is an amphitheatrical communication structure superimposed onto a pyramidal modern institution. York’s imagined community does not dialogue with itself. In 2013, a Better Workplace project group implemented an employee intranet called YUlink. This faculty portal enables customization of home pages and personalization of content. There is a forum for questions “related to working at York” that are answered by staff “subject matter experts,” and a section for soliciting “community feedback” on draft planning documents

without any inscription of dialogue. Overall, the development of centralized distributed networks affords both networked faculty performativity and hierarchical operativity. A centrifugal tendency toward opening up the university through new practices is offset by a centripetal countertendency that decenters faculty agency, imposes and contains innovation, extracts and captures surplus value from knowledge production.

What is new about the network university is the shift from rationalization to circulation (Hanke, 2009; Whitner and Nemser, 2012). The rationalization of whatever resource continues and the depressive effect on faculty morale cannot be overestimated. At the same time, driven by SSHRC and CIHR, knowledge generation has been articulated to mobilization. This function has been added to research and teaching in order to connect research and expertise to government and community agencies. York University is considered to be a leader in knowledge mobilization units that co-create knowledge products that have “research impact” on programs, policy or practice. Within these knowledge networks, research must not only be “good” but “useful.” It is difficult to imagine how traditional or digital humanities scholarship could be translated into a “research snapshot format” that can be transferred to “decision makers.”

What is new about the academic milieu can also be distinguished in terms of space and time. In regards to spatiality, Peters and Bulut offer this formulation: “The new spatialization of knowledge and education in the postmodern age is based on the ‘soft architecture’ of the network, which increasingly defines the nature of our institutions, our practices and our subjectivities” (2011: xxx).

What is at issue is the shape of this networked scholarly space as it expands and contracts. This spacing bears upon our research interests, pedagogic relationships, and what Ronald Barnett describes as the “space of being an academic” (2011: 77). He observes:

This space is opening and becoming more fluid, as academics are invited, encouraged or even cajoled to take on wider identities. Its boundaries with the wider world are more porous. The roles of academic as entrepreneur, manager, quality assessor, mentor, facilitator and curriculum designer (and others) stretch out the ontological space of academic being. (Barnett, 2011: 77)

Following these scholars, we must develop a deeper sense of the interplay of mediatization, space, and time. The university still follows the traditional rhythm of the timetable and the calendar. At the same time, the network

university is embedded in an accelerated technoculture. Multitasking is the norm, time and concentration for solving difficult problems is down, increased tutorial sizes means less time for each individual student, and more students “cramming” before exams admit to using caffeine, sugared energy drinks, and nonprescribed “study drugs” such as Ritalin, Concerta, Adderall, and Dexedrine to increase their mental focus and stamina. In academic planning, more year-round undergraduate courses are being offered, undergraduate curriculum is “streamlined” to decrease time to graduation, and graduate studies have been hastened. In academic employment, “part-time” no longer refers to temporary replacement faculty and full-time faculty compete for teaching-release time that is crucial to research time. At the institutional level of temporal economy, where time for the work of teaching and research is already a finite resource, “corporate time, which is sped up, accelerated, and compressed,” turns this resource into a deprivation (Giroux, 2007: 121).

As Meyeroff, Johnson, and Braun (2011) have argued, the effect of neoliberal policy on workers not only amounts to a shortage of time, it has been felt as a “very real crisis of time.” What is at risk is the academic form of life; hence, “there can be no reworking of the university without an analysis and remaking of the times that it produces” (485). If, beyond a certain threshold of speed, acceleration becomes alienation, and the network is the “empty ground” of our academic being (Liu, 2004), then we are more likely to experience alienation from the mental space and work rhythm of the university (Rosa, 2010). From a systems perspective, chronic underfunding produces constant organizational turbulence. In Ontario, policy experts have declared that the entire public university sector is unsustainable (Clark, Moran, Skolnik, and Trick, 2009). Any public university system that is deprived of new inputs will tend toward entropy. The long-term tendency of subprofessional faculty employment weakens the interconnection between energetics and intellection for some faculty more than others. Due to internal differentiation of functions and the academic division of labour, this vital connection is more sustained for tenured professors working in research areas aligned with strategic research priorities and supported by university vice-presidents of “research and innovation.”

Finally, there is also an emerging biopolitical dimension when the state turns to the management of the health of the student population. In 2011, the Ontario government—in the name of “strengthening student support”—continued to support banks in the student loan business by rolling out an application that enables “busy students to get up to date information and check their loan

status on their smart phone.” Among indebted Canadians, student debt now ranks third behind household mortgages and car loans. Along the continuum between exam panic to money woes to mental disorder, staff are being trained “to look for signs of a change in behaviour; someone suddenly showing up late or disheveled or who no longer makes eye contact or hands assignments in late” (Brown, 2013). Rather than recognizing that student loans are immoral (Ross, 2012), Brad Duguid, the Ontario provincial government’s minister of training, colleges and universities, announced in March 2012 that it will spend \$27 million over three years to address campus mental health problems. This includes \$6 million for a helpline that will provide support for students 24 hours a day, 365 days a year, no matter where they are. Such policies treat the symptoms rather than the causes of a public university crisis founded in expansionist policies that increase access for students “no matter where they live” without any measures for reforming the multitier faculty employment system that degrades the quality of post-secondary education.

To put it otherwise, the spacetime of the network university matters. The milieu is the message in a double sense: the milieu has been shaped by technologies and techniques enfolded within the institution and, in turn, the milieu shapes the way of being faculty and students. The network university can be viewed as a network enterprise—an open, yet bounded, digital nexus of discourses and technology, practices and processes, culture and subjectivity. Academic print and digital culture has its actors, interests, values, agency, and networks but university presidents, boards of governors, and administrators have the upper hand in modulating the milieu to adapt to and implement neoliberal government policy. While the network university is a heterogeneous, nonrepresentable assemblage, the mode of institutionalization orders the milieu for performativity and operativity, and this milieu bears upon all faculty who work within it.

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