Academic
Matters

The Ivory Tower in
Cyberspace

The Ivory Tower
IN CYBER SPACE

The university has been at the forefront of the tectonic shift in information and communications technology that has occurred over the last two decades. From the hardware engineers and software programmers nurtured in our finest universities to the cutting-edge applications demanded and devised by students, faculty, and staff, North American higher education has been both pioneer and patron of the new technologies.

But when all is said and done, how much has information and communications technology changed university life? What has been its effect on faculty and students? Has it made a meaningful difference in the quality and quantity of learning that takes place on our campuses? These questions and others are explored by our contributors.

Three of our authors look at the influence of technology on learning and on the university's role in society, while another three examine its implications for the university workforce.

In our lead-off article, Heather Kanuka, who holds a Canada Research Chair at Athabasca University, challenges what appears to have become the conventional wisdom that these technologies improve student learning. She argues that it's time those touting technology's advantages actually prove such a benefit obtains.

Peter Sawchuck from the University of Toronto looks at the impact of technology on the faculty labour market, observing that changes in copyright laws have increased the pressure on the university not just to hire more contingent faculty but also to ask them to sign copyright agreements as part of their employment arrangements.

Cliff Bekar, associate professor of economics at Lewis and Clark College, and Richard Lipsey, professor emeritus of economics at Simon Fraser University, describe the undoubted changes technologies have wrought but assert that the

> **When all is said and done, how much has information and communications technology changed university life?**

university, nonetheless, has absorbed this latest shock to its system with a time-tested sense of self that has seen it ride out other "revolutions" over the centuries.

Heather Menzies, an adjunct professor at Carleton University, and Janice Newson, who is with York University's Department of Sociology, are perhaps less sanguine than Bekar and Lipsey, noting that while faculty may be readily acquiring the skills needed to integrate the technologies into their work life, they are nonetheless noticing a deleterious change in the way that time is experienced and allocated on our campuses, with potential dangers to the university's very mission as a place of reflection.

In a article looking at the labour implications for faculty of the new technologies, Queen's University Canada Research Chair Vincent Mosco alerts readers to the danger they pose for contemporary academics' relatively privileged status.

In our final feature article, Carl Weiman, a professor in the Departments of Physics and Science Education at the University of British Columbia, who won the Nobel Prize in physics in 2001, laments the scientific illiteracy of much of the general public, especially given the importance of such science-based issues as global warming and genetically modified food. Also concerned about the current condition of science education on campuses, he prescribes a remedy: more concerted application of the scientific method to science education.

This issue marks another first for *Academic Matters*, a movie review, a description that does not give full justice to Carleton film studies professor Mark Langer's shrewd and lively description of Hollywood's portrayal of university life. As well, we have an excerpt from award-winning novelist Lee Gowan's forthcoming book, provisionally entitled *Confession*. Steve Penfold, our humour columnist, graces us with the reminiscences of a superannuated overhead projector, whose memories of the good old days appear through a mist of chalk dust.

We also provide readers with reviews of important books related to our theme of technology in the classroom, and *Academic Matters* Editor Mark Rosenfeld, like Penfold's overhead projector, reminds us how far we have travelled down technology's road. Yet, he says, the destination has not changed: the essential responsibilities of faculty and students alike have not altered with the ivory tower's launch into cyberspace. **AM**

La tour d'ivoire dans le
CYBERESPACE

L'université a été au premier plan des fortes secousses qu'a subi le domaine de la technologie de l'information et de la communication au cours des deux dernières décennies. Qu'on pense aux ingénieurs de matériel et programmeurs de logiciels formés dans le milieu stimulant de nos meilleures universités ou aux applications à la fine pointe demandées et conçues par les étudiants, le corps professoral et le personnel, l'enseignement supérieur en Amérique du Nord a été tant pionnier que client en ce qui a trait aux nouvelles technologies.

Mais en fin de compte, dans quelle mesure la technologie de l'information et de la communication a-t-elle changé la vie universitaire? Quelle a été son incidence sur le corps professoral et les étudiants? La qualité et la quantité des connaissances acquises dans les universités a-t-elle augmenté de façon significative? Nos collaborateurs analysent ces questions et d'autres encore.

Trois de nos auteurs considèrent l'incidence de la technologie sur l'acquisition des connaissances et sur le rôle de l'Université dans la collectivité, tandis que trois autres auteurs examinent ses implications pour l'effectif universitaire.

Dans notre premier article, Heather Kanuka, titulaire d'une chaire de recherche du Canada à l'Université Athabasca, conteste ce qui semble être devenu une idée reçue selon laquelle ces technologies améliorent l'acquisition des connaissances chez les étudiants. Elle soutient qu'il est temps de vérifier si ces avantages technologiques racoleurs représentent de réels bienfaits.

Richard Lipsey, professeur émérite en économie à l'Université Simon Fraser et Cliff Bekar, professeur associé en économie au Collège Lewis and Clark, décrivent les changements indubitables apportés par les technologies mais affirment que, néanmoins, l'université a absorbé ce dernier coup porté à son système avec une conscience d'elle-même éprouvée qui lui a permis de surmonter d'autres « révolutions » au fil des siècles.

Heather Menzies, professeure adjointe à l'Université Carleton, et Janice Newton, de la faculté de sociologie de l'Université York, sont peut-être moins optimistes que Lipsey et Bekar, alors qu'elles font remarquer que si le corps professoral acquiert facilement les compétences nécessaires pour intégrer les technologies dans son milieu de travail, elles remarquent néanmoins un changement nuisible dans la façon de ressentir et de répartir le temps sur les campus; ce qui pourrait mettre en danger la mission principale de l'université qui doit être un lieu de réflexion.

Dans un autre article qui examine les implications des nouvelles technologies au niveau du travail du corps professoral, Vincent Mosco, titulaire d'une chaire de recherche du Canada de l'Université Queen's, met en garde le lecteur contre le danger qu'elles posent pour la situation relativement privilégiée des universitaires contemporains. Peter Sawchuck de l'Université de Calgary examine aussi l'incidence de la technologie sur le marché du travail du corps professoral; il fait remarquer que des modifications aux lois sur le droit d'auteur ont augmenté la pression exercée sur les universités, non seulement d'engager un corps professoral plus contingent, mais aussi de demander aux membres de signer de nouvelles ententes sur le droit d'auteur dans le cadre de leurs accord d'emploi.

Dans notre dernier article de fond, Carl Weiman, professeur dans les facultés de physique et des sciences de l'éducation à l'Université de la Colombie-Britannique et lauréat du prix Nobel de physique en 2001, déplore l'analphabétisme scientifique d'une grande partie du public, particulièrement étant donné l'importance d'enjeux scientifiques comme le réchauffement de la planète et les aliments génétiquement modifiés. Étant aussi préoccupé par la situation actuelle de l'enseignement des sciences dans les universités, il prescrit un remède : une application mieux concertée de la méthode scientifique à l'enseignement des sciences.

Ce numéro marque une autre première pour *Academic Matters*, la critique de film, une description qui ne rend pas pleinement justice à la description habile et vivante que fait le professeur d'études cinématographiques de Carleton, Mark Langer, du portrait de la vie universitaire dépeint par Hollywood. De plus, Nous avons un extrait du prochain livre de l'écrivain primé Lee Gowan, intitulé provisoirement *Confession*. Steve Penfold, chroniqueur humoristique, nous honore avec des réminiscences d'un rétroprojecteur suranné, dont le souvenir du bon vieux temps apparaît à travers un nuage de craie.

Nous donnons aussi aux lecteurs des comptes rendus de livres importants relatifs à notre thème de la technologie dans la salle de cours. Mark Rosenfeld, rédacteur en chef d'*Academic Matters*, nous rappelle, tout comme Penfold et son rétroprojecteur, le long chemin parcouru dans l'avenue de la technologie. Cependant, dit-il, la destination est toujours la même : le lancement de la tour d'ivoire dans le cyberespace n'a en rien changé les responsabilités essentielles du corps professoral et des étudiants. **AM**

Has e-learning delivered on its promise?

Des résultats de recherche généralement décevants sur l'efficacité de la cyberformation, jumelés aux déclarations exagérées des groupes d'étude et des groupes consultatifs ont créé une situation où les « tenants de la technologie de la cyberformation » doivent maintenant démontrer la valeur de la cyberformation.

Change in higher education is largely attributable to the rise of the information society and the new technologies that have created it.
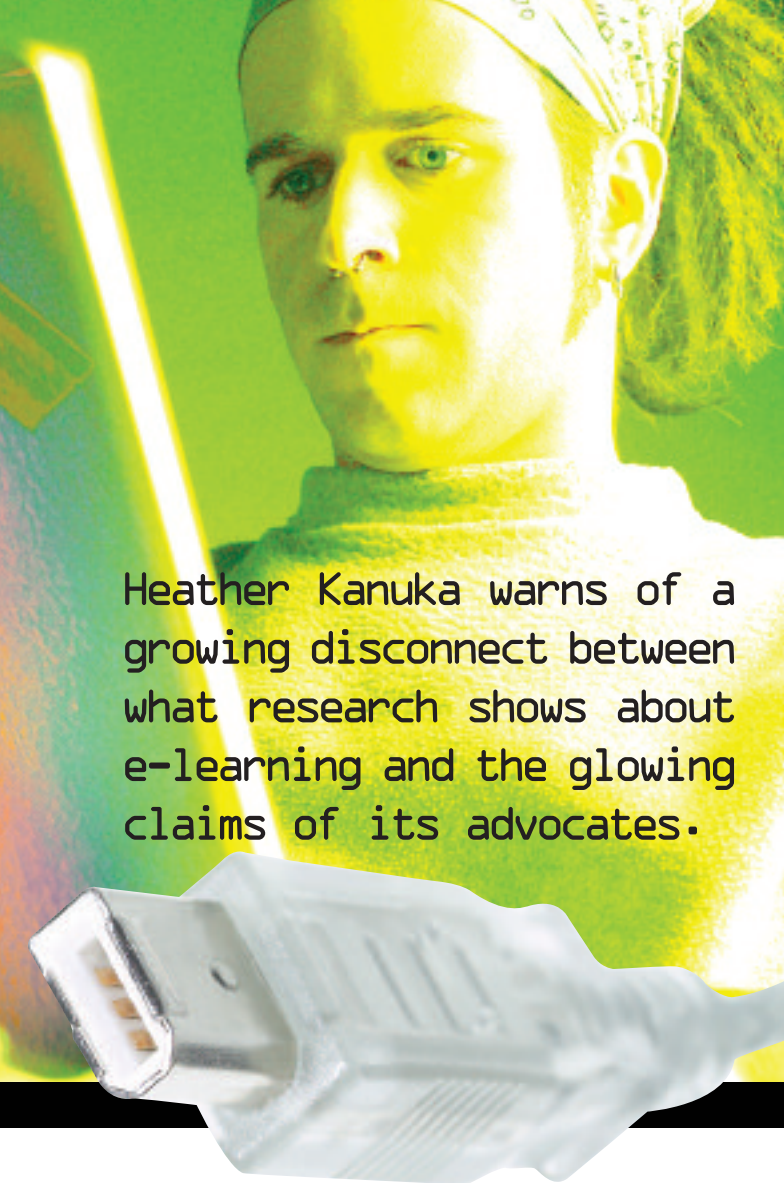
Most Canadian universities began implementing policies and strategies for educational technology in the mid-1990s, once they recognized the need to adopt technological innovations related to teaching and learning. These policies often included the institution-wide use of learning-management systems, now commonly referred to as e-learning.

E-learning policies in Canadian higher education have for the most part been inspired by leaders in the fields of distance education and educational technology, who have argued that e-learning can respond to many of the pressures that universities currently face, such as: accelerating global competition; the need to improve the quality of learning experiences; the requirement to remove situational barriers; and the imperative to become more cost effective. A quick search on the internet reveals widespread support for the assertions of e-learning advocates.

For example, Exomedia's website states:

It's simple: e-learning delivers more training to more people for the fewest dollars. E-learning saves time, money, resources, and it delivers measurable, tangible results. Instant access to information is one of the driving factors in today's economy. The key to success is moving knowledge from the people who have it to the people who need it. E-learning gives you the power to do exactly that.

Similar kinds of messages can be found, quite literally, on thousands of e-learning websites. This enthusiasm about e-learning intensified around the turn of the century, with pundits such as Larry Ellison (chair and CEO of Oracle Corporation), management guru Peter Drucker, and Jaron Lanier (a virtual reality pioneer) warning universities that they faced an end to their monopoly if they did not become more technologically innovative and consumer oriented. Drucker, for example, claimed that the physical presence of universities would cease to exist within 10 years. Indeed, post-secondary education would either be delivered by

Heather Kanuka warns of a growing disconnect between what research shows about e-learning and the glowing claims of its advocates.

number of mature students—many of whom worked full-time and had family commitments—by offering off-campus courses through e-learning technologies. It was argued that if providers of higher education did not offer adult learners this flexibility, the universities would see low- or no-growth enrolments. In particular, mature students who were experiencing time, place, and situational barriers would seek out and find institutions that would meet their demands, to the detriment of those institutions that did not provide flexible alternatives.

In an effort to legitimize claims made by pundits and futurists, as well as to understand how best to address the changing student demographics, task forces and advisory committees were created across Canada. The advice developed by task force and advisory committee members—whose aim was to provide leadership and direction for e-learning in higher education—is worthy of special attention. Of particular significance was their assumption that there is a consensus that internet information and communications technology has the capacity to transform learning experiences in positive ways. For example, "e-learning e-volution," a report widely disseminated in 2000, describes the following vision:

> [T]he virtual classroom will offer a high-quality leaning experience….These improvements will stem from the ever-expanding depth and breadth of knowledge in our colleges and universities, the innovations unleashed by online learning.…These will bear fruit in an online learning experience that is enriching, deep, and varied, and capable of passing on the most basic skills and capacity for critical judgment and reasoning.…Learners will find the learning opportunity most suited to their individual needs, situation, income, language and learning styles, whether online at home, at work, or at a public access site…they will find online learning opportunities they need as a basis for personal fulfillment.

Likewise, a task force comprised of administrators, researchers, and other specialists in e-learning was initiated by NSERC (Natural Science and Engineering Research Council) to explore the opportunities and challenges presented by virtual programs in the post-secondary sector. The conclusion of this task force for future policy with respect to post-secondary research funding was that online learning and distributed online research:

> … comes at *an excellent moment for Canada* [sic]. It enables research collaboration to begin to conquer geographic limitations. It provides the key to a radical expansion in the national research effort. And it opens doors for Canadian leadership in innovation for online learning. This report shows how the *granting agencies can be catalysts* [sic] for these changes.

technology through the internet, or would become a wasteland, he wrote. There would be no such thing as a campus, and there would be no need for university students to meet face-to-face with their lecturers since their courses would be overseen by Nobel prize-winning scholars, he claimed. Ellison, for his part, said the news would not be all bad for institutions of higher education. Universities would make thousands, even millions of dollars, teaching courses like Physics 101, he predicted. There would be some bad news, however, as there would be a need for only about 60 instructors in the United States as great lecturers' courses would be converted for electronic transmission. And according

Noticeably absent from task force reports on e-learning are any vignettes on the challenges or disadvantages of e-learning

to Richard Katz, vice-president of EDUCAUSE, an association with a mission to promote information technology, some colleges and universities might disappear. Some might acquire other institutions. A Darwinian process could emerge, with some institutions devouring their competitors in hostile takeovers.

Another driver for change in universities, which appeared at the same time as the enthusiasm for e-learning, was the desire of many established universities to turn to e-learning technologies in order to serve their "new players" better. Who were these new players? They were higher education's fastest growing student population: adult learners. And to their credit, many Canadian universities responded to the need to accommodate the growing

While the aim of these task forces was to explore both opportunities and challenges, the focus of the documents by these committee members was on the benefits of virtual universities and e-learning. These reports are filled with vignettes on the benefits of e-learning, *especially* for a diverse set of disadvantaged and marginalized Canadians. Noticeably absent are any vignettes on the challenges or disadvantages of e-learning.

Yet, even though e-learning has become—and continues to be—pervasive within institutions of higher education, uncertainty and scepticism have emerged. Some of these concerns have been expressed with sarcasm, such as the future of "McUniversities" (a term coined by George Ritzer, in his book, *The McDonaldization*

Thesis: Explorations and Extensions.) Using less disparaging language, other commentators have identified commonly-held uncertainties about the increasing use of e-learning, such as the de-professionalization of faculty; the erosion of academic freedom and agency; the commercialization of teaching, lack of face-to-face time between students and faculty; technocentric models that are given higher priority than campus culture; the devaluing of oral discourse and discussion practices; the centralization of decision making and service provision; the increased technological and pedagogical uniformity; the concern about the growing digital divide; and the downloading of costs to students.

Such criticisms have often been disregarded by advocates of e-

are not easily achieved in the e-learning classroom. This should not be surprising, as three decades of research have shown that higher levels of learning are not easily achieved in the on-campus classroom either. E-learning has not delivered on the promise its early fans ascribed to it.

The reasons for the gap between the growing belief in the effectiveness of e-learning and the results of empirical research about it are unknown. There is a need to set the record straight: the benefits and advantages of e-learning are uncertain. This state of affairs has created an interesting situation. The generally disappointing research results with respect to pedagogy and cost effectiveness, coupled with the exaggerated or unsupported claims made for e-

This schism of opinion between the techno-optimists and techno-pessimists has created a deep divide about the direction of higher education in Canada

learning as mere uninformed opinion by Luddites stuck in the status quo. These criticisms, however, should not be dismissed. Such views are often from highly respected scholars who are exceptionally proficient at substantiating their opinions. Examples of respected scholars who have questioned new communication technologies (including e-learning) and mass media include: Erich Fromm, Marshall McLuhan, Neil Postman, Andrew Feenberg, and Jean Baudrillard. Many of these scholars have condemned modern technologies for disseminating an onslaught of incoherent and fragmented trivialities to the world at the expense of engagement, reflectivity, and depth. Others have cited a concern about modern technologies and growing neo-liberalism extending to the university, resulting in a rising capitalistic ideological climate that includes political-economic interests such as the commodification, commercialization, and corporatization of higher education.

This schism of opinion between the techno-optimists and techno-pessimists has created a deep divide about the direction of higher education in Canada. Will the progressive development of e-learning technologies lead to much needed pedagogical and economic advances in higher education? Or do e-learning technologies present a socio-political account of corporate power in higher education that will inevitably result in a loss of independence of markets and economic production? There is much we don't know about the possible long-term, socio-political effects of e-learning in higher education. It has become difficult, however, to ignore the growing body of research within the field of e-learning that has revealed uneven support for pedagogical and economic advantages. Recent research is showing that the techno-optimism of task forces and advisory committees might be premature. A recent review sponsored by the Canadian Council on e-Learning revealed that in Canada it is clearly not the case that e-learning is always the superior condition for educational impact. Oddly, in spite of the lack of empirical evidence showing that e-learning facilitates more pedagogically sound and cost-effective learning, the widespread perception held by post-secondary educators and administrators that e-learning is capable of facilitating higher levels of learning and thinking skills continues. Even more peculiar is the evidence that their faith in e-learning is growing. The only aspect of e-learning that research has consistently illuminated is that outcomes as important to universities as higher levels of learning and meaningful thinking

learning by task forces, advisory groups, pundits, and futurists, presents a situation where the "priesthood of e-learning technology" is now required to demonstrate its worth more completely.

This growing imperative to prove e-learning's worth (motivated by the disappointing research results about e-learning) has resulted in an increasing number of socially responsible researchers. The aim of socially responsible research is to make higher education better by finding practical solutions to the everyday problems faced by higher education practitioners and administrators. This has presented us with a situation where we can finally move from relying on the unbridled enthusiasm of advisory groups, task forces, pundits, and futurists—who often have vested career interests in new technologies—to using credible and trustworthy evidence produced by socially responsible research about e-learning. **AM**

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Curbing our enthusiasm:
the underbelly of educational technology

Peter Sawchuk argues that e-learning has a place, but it must be kept in its place

Arguably, the most pressing issue of technology in post-secondary education today is online distance education, or e-learning. Indeed, its development has stimulated vital debate, and it continues to hold significant potential for supporting educational goals. But I hope to renew a call to re-think the enthusiasm that has captured so many post-secondary educators and leaders.

Love or hate it, David Noble's *Digital Diploma Mills: The Automation of Higher Education* (Between the Lines, 2002,), is perhaps the best starting point for this re-thinking, raising issues the e-learning enthusiasts rarely acknowledge. Noble marks as an important turning point the 1990 amendment to Canadian patent law that gave universities ownership of the outcomes of federally funded research. It is against this backdrop, as well as creeping under-funding, that new profit-centre strategies have pragmatically emerged in both American and Canadian universities. These new strategies are expanding to include the appropriation of copyright control and the commodification of teaching and learning, which threaten to re-shape educational institutions, the purposes that shape our curriculum, and much, much more.

As Noble argues, "copyright is the sine qua non of the digital diploma mill." Over the last decade in the United States, the copyright issue has been central to new university-corporate arrangements establishing private and semi-privatized ownership of online curriculum (and interaction records). This, in turn, has created additional pressure to establish an army of non-permanent instructors who are asked to sign new copyright agreements as part of their employment contract. We might ask ourselves in this context: Does it make sense for profitability to determine what gets taught?

An equally important question is, "What is the effect of e-learning on education? It's true that research has established that satisfaction levels in e-learning are about the same as in traditional learning. Yet we must also recognize that, as engaging as either synchronous or asynchronous e-prose may be, the fullness of human communication and, through it, the collective accomplishment of rich "learning experiences" are largely absent in e-learning environments.

This critique is supported all the more when we admit that e-learning can't help but isolate students from the kind of informal, collective "campus-life" learning that many students find fundamental to a full education. Although, certainly, one can serendipitously "meet" new people in cyberspace, how can these social experiences not pale in comparison to the emergent circles of friends and co-learners found face-to-face on campus?

E-learning options can and do make acquiring a credential more convenient. But we should think carefully about the financial backdrop of this convenience, which supports the downloading of costs to individual students in two principal ways. First, while some students might choose to complete their education from home, this must be seen, in some part, as a coping behaviour in response to an inadequate grants system that does not allow students to experience the fullness of formal and informal educational life. Secondly, there is the well-established phenomenon in the research that, in fact, e-learning more often serves those marginalized by lack of time, rather than by distance. Where does this time-crunch come from? Are rising tuition and the need to perform more paid work not connected? No research proves that e-learning produces better results in head-to-head comparisons. We should admit that the enthusiasm for e-learning in the administrative halls is connected to under-funding.

As support to bricks-and-mortar education, e-learning has value

Does all this mean that e-learning has no place in education? Hardly. E-learning has a place, but it must be kept in its place. As support to bricks-and-mortar education it has value. However, even under the most progressive of conditions, this calls for serious inquiry into faculty collective bargaining over workload; intellectual property rights; support for new forms of faculty training; student funding; the role of e-learning in the shaping of curriculum through corporate partnerships; and, lest we forget, careful attention to the fullness of educational experience. AM

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Information technology and the new university

Will the information revolution
threaten the traditional university?
Cliff Bekar and Richard Lipsey are sceptical

Les auteurs soutiennent que les changements provoqués par les technologies de l'information et des communications seront profonds. Cependant, ils soutiennent aussi que les objectifs fondamentaux et les valeurs des universités survivront aux transformations apportées par le développement continu de ces technologies.

We are living through one of history's great technologically driven transformations, the revolution in information and communication technologies (ICT). One driving force behind this revolution is the networked computer. The computer is an example of what some economists call a general purpose technology (GPT). GPTs start as crude, single-purpose technologies, sometimes developed in response to a specific technological hurdle, sometimes as historical accident. Regardless of their origin, GPTs ultimately evolve to pervade society. They dramatically lower a range of costs and enable a range of new products, processes, and organizational forms. An exhaustive list of the impact of ICTs would be vast. A few examples include: new products (global positioning systems), new production processes (computer-controlled robots replacing labour in mass-production factories), new forms of organization (management structures have become horizontal rather than pyramid-shaped), political dynamics (web-based fund-raising has dramatically changed the nature of political parties in the United States), social dynamics (people interact globally in chat rooms in ways that were previously impossible).

This revolution is having a profound impact on one of the West's oldest institutions, the university. Starting in the tenth century, Western universities evolved into corporations whose existence was independent of its members. This allowed for the development of standards separate from the individuals administering them at any given time. They provided what sociologist Toby Huff calls "…neutral zones … within which large groups of people can pursue their genius free from the censure of political and religious authorities." The medieval scholars created, in the words of science historian David Lindberg, "…an educational effort of international scope, undertaken by scholars conscious of their intellec-

tual and professional unity, offering standardized higher education to an entire generation of students [throughout all of Europe]."

Universities have survived multiple shocks. They survived the Roman Catholic Church's rejection of the geo-centric view of the universe. They survived the invention of the moveable-type printing press that revolutionized both scholarship and commerce. More recently, they have survived the democratization of learning, in which a large proportion of the young go on to higher education (compared to the tiny elite that did so over most of history). The great increase in student numbers has led to the development of universities that span a wide spectrum of activities: from teaching colleges to research universities, with almost every possible intermediate mixture. In each case, universities have adapted and changed, sometimes dramatically, while preserving their core purpose of providing Huff's "neutral zones" to facilitate research and teaching.

How will universities be affected by the ICT revolution? We

argue that—contrary to what some of our academic colleagues think—the induced changes will be profound. We also argue, however, contrary to what is often said in the popular media, that the universities' core purposes and values will survive the transformations wrought by the further development of ICTs. Changes are happening both on the demand side (what scholars, student, and funders want) and the supply side (how the universities provide their services).

On the demand side, new technologies are changing the demand for skills. For the first 150 years after the Industrial Revolution, physical capital (embodying new technological knowledge) was the key to economic growth. In the modern knowledge economy, however, it is the accumulation of human capital that drives growth. In some cases, such as with call-centre personnel, demand has driven the acquisition of a relatively narrow set of skills, but many of the skills now demanded are "general purpose." Given the dynamic and ever-changing nature of the modern job market, there is a need to invest in general "thinking" skills. Also, there is a need for adaptability since people are increasingly expected, and expecting, to change occupations many times during their working lifetime. The acquisition of these sorts of generalized skills is where traditional educational methods excel. In developing analytical skills, enabling students "to learn how to think," there are no really good substitutes for the classroom experience and direct exposure to faculty.

On the supply side, ICTs have already had an impact on teaching and research. They have dramatically lowered the marginal cost of distributing information by decentralizing its production and transmission. Almost every institution of higher education is implementing some aspect of the virtual university, providing some portion of their offerings on-line, by mail, or via other methods of distance learning. At the same time, new technologies are having an impact on the delivery of traditional classroom lectures. Notes written on virtual whiteboards are digitized and made available to students by way of wireless laptops. Materials are digitized and placed on-line, with virtual chat rooms existing alongside traditional classrooms. Some faculty now podcast their lectures, leading Apple to spend significant resources promoting the use of the iPod in higher education. Who would have predicted a convergence in the method of delivering and watching music and lectures? At the same time, the increased use of part-time faculty, visitors, and adjuncts, along with new technologies, has facilitated the development of commuter campuses and "learning centres." The largest private university in the United States, the University of Phoenix, claims 17,000 faculty and 200,000 students,

the bulk of whom do not attend classes on campus on a regular basis. In Britain, the Open University, another almost completely virtual institution, also flourishes. While both of these new-style universities started in the 1970s, they have blossomed with the advent of new digital ICT. They have also benefited from an increased demand for educational services from demographics that in earlier times might have been largely outside the market. At another end of the educational spectrum the traditional liberal arts college, in some ways the closest relative of the medieval university, with its focus on the small classroom experience, a broad liberal arts education and direct exposure to faculty doing research, has come under tremendous market pressure. The response of many of these institutions is to resist going virtual and returning to their strengths of even smaller classes and a truly integrated educational experience.

Research in the natural and social sciences is becoming increasingly expensive. The resulting search for private sources of research funding threatens to reduce the independence of investigation and publication traditionally enjoyed by academics. The trend to undertake more commercial research outside of the traditional research university will probably become even more pronounced as the stakes grow larger. As for student research, it is becoming increasingly difficult to persuade students that any hardcopy item in the library is actually worth reading. Of course, when not long from now, everything now in print will be available on-line, this

The universities' core purposes and values will survive the technological transformations

will matter less and less, an interesting illustration of how the supply side catches up to developments on the demand side (making some effects less revolutionary than they might seem at first).

Thus we see far-reaching changes in how and what students are taught, and how scholarship is financed and undertaken. But we see nothing to suggest that the traditional core tasks of research and teaching will not continue to be centred in institutions that look very similar to today's traditional universities. Research intensive firms continue to form clusters, and academics continue to attend their conferences, suggesting that personal physical interaction is still important to fundamental research, even though much routine interaction is efficiently carried on through virtual media. Nor do we see the core values of providing "neutral zones" for independent thought being changed dramatically from outside forces, political or technological, even though these missions are being pursued at the margin in many instances and fully in some institutions. Finally, we should mention that neither of the next two, transforming GPTs that can be seen on the horizon—bio-technology and nano-technology (both of which are being largely incubated in universities)—seem to have the potential to alter universities in anything like the way ICTs are doing. This is primarily because their channels of effect are so different; although these same technologies will transform just about everything else in our lives. **AM**

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Les auteurs documentent l'utilisation des technologies en ligne par les universitaires et découvrent une apparente contradiction entre le confort de la connectivité numérique et l'anxiété causée par la distraction et un sentiment d'isolement. Ils analysent ces constations en pensant à la compression du temps et au rythme « non précipité » qu'exigent normalement la réflexion et la pensée critique.

No time to think?

Technology, far from freeing up an academic's time, has compressed it to stressful levels, argue Heather Menzies and Janice Newson. What does this means for the future of the university as a site of creative and critical reflection?

The role of the university as a cultural institution appears to be changing dramatically. Yet, academics themselves are often too busy, too distracted, or too stressed to participate in the debate we think should attend this significant cultural shift.

In our pilot study of Canadian faculty's use of time, involving 80 academics at universities across the country, 58 per cent of our participants said that their ability to stay focussed on their work had decreased. Forty-two per cent said that their susceptibility to being distracted by the amount of information and communication coming at them had increased. Fifty-one per cent identified with the statement: "I don't have enough free chunks of time in which to think," reinforcing the findings of an Icelandic study that documented the loss of the "timeless time" academics normally covet for reflecting on their research and writing.

Superficially, much of this busy-ness can be attributed to the new technologically-enhanced work environment. Academics are routinely on-line with their students, colleagues, research partners, and even research subjects from around the campus and around the world. Equally, their quick and easy on-line accessibility exposes them to many others' expectations and demands on their time.

The shift to a wired-to-the-world campus is also entangled with deeper changes in academe, beginning with universities' responses to the dramatic funding cutbacks to post-secondary education dating from the mid-1970s. As under-funding became entrenched, universities adapted organizationally, by centralizing budget-related decision making and adopting a managerial style focussed on strategic planning and "accountable" performance, in contrast to the more dialogic, collegial style of traditional campus governance.

Universities also began to reposition themselves closer to business and government as new organizations like the Corporate Higher Education Forum identified university research as critical to Canada's economic competitiveness, and governments adopted strategically-focused funding policies to steer universities in this direction. University-business partnerships and spin-off research helped to rescue universities from their funding woes while delivering cutting-edge advances to business and the economy. High-tech businesses made "in-kind" donations of technology, which, augmented by government grants for equipment and connectivity, resulted in a swift and thorough retrofitting of university campuses.

By the late 1990s, an on-line infrastructure had been put into place that facilitated not just the more centralized and data-centered approaches of university administrations, but also the extensive collaborations between academics and university administrations on the one hand, and numerous new partners in business, unions, the non-profit sector and government departments on the other.

At the same time, as indicated by our survey, this new infrastructure permeated the culture and began to transform the way academics went about their work. Our participants reported widespread and regular use of information and communication technologies (ICTs) for everything from web-based instruction and student chat groups to e-mail, e-research, on-line reporting, curriculum planning, consultation, and research collaboration.

For most academics, it seems, ICTs are simply the new "tools of the trade" and accepted as part of what higher education has to be in the twenty-first century, to attract students and to keep current and on the breaking edge of research. The findings of our pilot study suggest that academics have adapted to the new medium/environment to the point of ease and comfort, though not without anxiety and asking some deeply troubling questions.

On the one hand, the majority of our respondents (especially women) reported enhanced productivity and a greater sense of connectedness to students as well as to professional networks owing to their use of on-line technology while, on the other hand, 30 per cent reported feeling isolated (again, especially women).

Moreover, not only did 69 per cent report that they do not thrive on the time pressures and fast pace of the new working environment, but 45 per cent also reported feeling anxious about keeping up with work demands frequently. Another 12 per cent feel this chronically. Forty-seven per cent feel as though they're fighting to keep control on occasion, while another 27 per cent feel that way frequently. Similarly, 57 per cent indicated that they

A majority of academics are not reading as deeply and reflectively as they used to, nor as they'd like to

are "reacting, not acting on my own initiative" on occasion, while another 19 per cent feel this way frequently.

Equally significant we think, 65 per cent reported a decrease in their ability to follow through on commitments of a more professional and informal nature (as compared, for example, to externally driven agendas).

We surveyed academics about their allocation of time and their use of technology because our concerns go beyond how overworked and stressed academics are these days, however important this may be as a health and safety issue. Indeed, a majority or substantial minority of our respondents experience one or more of the common symptoms of stress, from sleep deprivation, to short-term memory loss, problems concentrating, and strained relations with colleagues and friends.

But we wanted to know whether deeper changes might be at work behind the fog of fatigue and culture of overwork in which many academics are operating. We believe it significant, therefore, that an overwhelming majority of academics (64 per cent) are not reading as deeply and reflectively as they used to, or as they'd like to.

In similar numbers, they're not reading as broadly and interdisciplinarily as they used to, or as they'd like to. Instead, the majority indicated, they are skimming sources for useful bits of

information. A time-crunched coping mechanism? An adaptation to a more instant-results oriented knowledge culture? Perhaps both, and they're mutually reinforcing.

For us, they point to the sometimes specious efficiencies of the time-compressed digital environment, as suggested by Dutch sociologist Ida Sabelis. She argues it's becoming more difficult for people to "de-compress," to slow down enough to think deeply, compromising that most vital aspect of human communication: "the expression and exchange of meaning."

In follow-up interviews, we asked some of our participants to interpret these time-and-attention shifts and to comment on what these shifts might imply for changing the role of universities and academics in society. For instance, what does it mean that with on-line communication, some academics feel more "in touch," while a sizeable minority now feels more isolated?

What we discovered, at least tentatively, from the two dozen interviews we conducted, is that academics are drifting toward a more broadly distributed, yet superficial, sense of presence and engagement.

A professor of occupational therapy at one university confessed, "I feel very connected to people I don't expect to see. But what I do find is that people I expect to see, like my colleagues who are in the same building, I may not see." When she does see them, it is at meetings. But then, "I find I'm often now quiet in meetings, when I'm not by nature quiet. And I think part of it is because I'm now with people who I only see at meetings! And so, it's like meeting quasi-strangers…."

There is an urgency for academics to take up these issues because of what they portend for the future of the university

A professor of English at another university laments, "There's the absence of voice and all of the lateral thinking that goes on when you actually have a real conversation, instead of just a focused interchange….The actual isolation from people in a local community has increased enormously."

Interview comments like these alongside the questionnaire responses suggest to us that it's not that academics aren't in touch and engaged with each other and others. It's more that the nature of that engagement is changing, and the trade-offs made in the quotidien management of life seem to value quantity more than quality, and instrumental goals more than reflection.

For example, when we asked participants to reflect on Marcel Proust's lament for the loss of a way of "being in time" that allowed for deep memory association and creative thinking, 15 per cent said they thought their capacity for this had increased, while 41 per cent said that it had decreased. As well, nearly 30 per cent identified with the statement: "I can't slow down enough to be in touch with myself and my innnermost thoughts," and "Everybody is too busy to just talk."

Oxford University time geographer Nigel Thrift argues that a new fast-subject temporality is permeating academia, infused in the medium of new organizational practices such as performance and productivity measures and through the general application of logistical reasoning to expedite information flows. Yet when the information flow in question is learning material that people,

being people, digest at their own particular rate, some apples-and-oranges contradictions emerge that bear thinking about.

Social theorist Dik Pels advocates for "unhastening" the academy, arguing that through re-structuring, universities have shifted position in public culture and no longer occupy a slow zone separate from, and offering ballast to, the faster-paced zones of business and politics. Instead, the "infrastructural routines" associated with the wired and managerially governed campus are integrating campuses with the previously separate institutions of business and political administration, to the possible detriment of a democratic public culture.

Other studies of academic life have observed that faculty members' participation in departments, faculty councils, and academic senates has dropped to a critical level, suggesting that bringing to bear professional and academically focussed judgments on university decision-making has become a low priority in academics' allocation of their time.

There is an urgency for academics to take up these issues because of what they portend for the future of the university as a site of creative and critical reflection. It is particularly urgent in light of their role as educators of today's students, whose lives are so encased in the speed and immediate pay-offs provided by techology-enhanced connectivity.

Should academics not be concerned whether they, by their own, even if enforced, superficial, multi-tasking presence and engagement, fail to challenge and provide an alternative to students' self-reported "consumerist" approach to education and their expectation of instant, ubiquitous service?

Should they not instead be attempting to model a university education that is about sustained dialogue in learning communities and asking questions about the long-term public good?

One of our interviewees, a professor of mathematics, worries about the demise of weekly collegial seminars where faculty would share their research information with students and each other:

"We are becoming loners…. We are creating in our offices….because we have more access to information and we have tools to do things faster, but we are not sharing with other people …. The big questions aren't being asked anymore … I feel that we are giving students the wrong idea about what learning is. I think the students are now coming to believe it's just reading a lot, being familiar with a lot of information, trying to get information somehow. We are not teaching them to use that information, to process it and then to create something. I think … this is what they call passivity. If they are passive, they don't create."

To be sure, some academics are actively resisting these trends, for instance, by modelling face-to-face contact and taking time for authentic dialogue as they encourage students to come in for brainstorming sessions.

Will others think this matters, too? Working collectively through faculty and other organizations, will they raise questions about the role of academics and universities in the cultural life of a democratic society and engage in a meaningful debate about them?

We'd like to think so. **AM**

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Will knowledge workers

of the world unite?

Vincent Mosco warns that new approaches to higher education threaten hard-won faculty privilege, especially if academics remain "labour aristocrats" isolated from other knowledge workers

The rise of computer networks revived utopian thinking about scientific, technical, and professional labour. With distant echoes of St. Simon in their writing, Fritz Machlup, Marc Porat, and, most notably, Daniel Bell, charted the rise of a post-industrial information society led by a technical elite of knowledge workers, foremost among them, the scientists and scholars who work in higher education. Knowledge was the new capital, and those who produced, distributed, and exchanged it would lead what Manuel Castells called "informational capitalism."

From the start, there were critics. Herbert Schiller attacked post-industrialism because transnational media and information businesses would promote commercialism and use their market power to marginalize oppositional voices. Harry Braverman concluded that information-technology labour would be as regimented and ultimately de-skilled as labour in assembly-line manufacturing. Indeed, given technology and the immateriality of information, it would be easier than in the industrial era to separate conception from execution, and to concentrate the power of conception in management.

The debate continues with each new generation of computer networks and each new scheme for organizing work, including the labour of knowledge workers in universities. PowerPoint, online courses, faculty meetings in cyberspace, virtual office hours, and Google-driven research are just a few of the unmistakable changes. But what does it add up to? Frankly, much of the "edutopia" talk smacks of déjà vu. It was said about radio: "The lid of the classroom has been blown off, and the walls have been set on the circumference of the globe." And: "Every home has the potentiality of becoming an extension of Carnegie Hall or Harvard University." Similarly, one university president declared that television would eliminate brick-and-mortar classrooms and would likely make "the attendance of classes in any one place ... as obsolete as the buggy of twenty-five years ago."

We make myths whenever we make technology. So what is left after a technology becomes little more than fodder for cultural historians, reminders of our propensity to social amnesia, when newer technologies come along? Technologies do not make knowledge workers, any more than radio turns every living room into Harvard. It depends on how we organize ourselves and our tools. But today, because the tools are so powerful, the stakes are very high. Higher education increasingly operates on business models that treat students as customers, professors as labourers or entrepreneurs, and technology as a means to expand and diversify revenue streams. If it pays, then there is no debating the value of eliminating, outsourcing, or downgrading academic labour. But there are also opportunities for intellectual workers.

> **Knowledge workers are increasingly organizing to defend creative work and its public purpose**

Out of necessity and often using the tools of their trade, knowledge workers are increasingly organizing to defend creative work and its public purpose. Across the converging communication and information technology sectors, they are organizing trade unions that respond to technological convergence and the convergence of companies that have created massive concentration in the knowledge industry. For example, the Communication, Energy, and Paperworkers Union of Canada (CEP) has brought together workers across the media, telecommunication, and information technology sectors. A similarly convergent union, the Communication Workers of America (CWA), now represents 700,000 workers in these and other occupations. Demonstrating the value of labour convergence across borders, the CEP used its power to successfully unite on-air and technical workers to defeat the 2005 lockout of CBC workers. At the international level, the Union Network International (UNI), a global federation spanning the converging knowledge arena calls itself "a new international for a new millennium." UNI was founded in 2000 and includes 15.5 million workers from 900 unions in 140 countries. Finally, even high-tech workers, typically an enormous challenge to organize, have, with the help of the CWA and other unions, revived social movement unionism in the United States by organizing disgruntled workers who write code and produce content at Microsoft, IBM, and other big firms.

University and college professors long ago recognized that technology, education, and professional status did not lift them out of the realm of workers. Many responded by organizing trade unions that follow the craft model. This has provided a privileged status, and academics are arguably the new aristocracy of labour. But it has separated teachers in higher education from the process of labour convergence. As a result, they cannot enjoy the benefits of joining workers across the knowledge arena and the opportunity to extend to other knowledge workers the principles that university faculty have fought with some success to maintain: full-time, secure jobs, with tenure and good pensions. Instead of setting the standard for knowledge workers worldwide, university faculty have hoarded their privileged status. But commercialization with new technologies continues to nip at the heels of academic labour and threatens to shred that status. Perhaps it is time for university faculty to reconsider their relative isolation. Indeed, the future of higher education is likely to depend less on the next new thing and more on whether knowledge workers of the world, including professors, will unite. AM

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SCIENCE EDUCATION IN A NEW CENTURY

Carl Wieman, a Nobel Prize winner in physics, lamenting the state of science education, says the solution is to use the scientific method for teaching science

The poor understanding of science and technology and the lack of scientific problem-solving skills are apparent in many aspects of society. Surveys of the scientific literacy of the general public or large-scale testing of students always give shocking results, and employers routinely lament how the workforce lacks the skills needed in the modern, high-tech economy. The public debates about such critical societal issues as addressing the human impact on the global environment, genetic mod-

ification, and food safety are usually a muddle of science and pseudoscience that reveal how little most politicians and the public grasp about what science can and cannot tell them.

In addition to these frequently cited reasons, I would like to suggest there is also value in people understanding science as a unique way of thinking.

This is something that I only came to appreciate after spending a few years teaching a physics course, "The Physics of Everyday Life,"

which was specifically for students who were not going into science or engineering. The more thoughtful students would often talk to me about how the process of careful reasoning from evidence and established theory and tying conclusions to testable predictions was a strange but intriguing way of thinking for them. I came to realize that science was a way to answer questions, or a "way of knowing," if you like, that was distinctly different from common human thought processes. The unusual nature and fragility of a scientific approach is emphasized by the way that even practising scientists will quickly abandon it when examining questions in arenas outside their discipline, their thoughts on science education being a notable example.

At the risk of sounding dangerously pompous and self-important as a scientist, I would suggest that, while limited in its scope and applicability, science is unique in its ability to establish answers to human questions that transcend individual opinions and societal beliefs. Part of this uniqueness is the way science explicitly addresses the limits on knowledge; not in a philosophical, but rather in a quantitative sense. Any proper scientific prediction or conclusion carries with it a rigorously established level of uncertainty and applicability. This is not to suggest that scientific predictions are always correct, or that scientists do not let their own biases and emotions cloud their judgment; they are just as human as everyone else. However, science as practised collectively has shown it can transcend such human frailties in a way that few, if any, other human approaches to dispute resolution can.

Given this sentiment, it should be no surprise that I advocate an evidence-based, or what I would call a "scientifically based," approach to improving science education. Throughout history there have been debates over the best way to educate students. However, these have been carried out like most arguments; right and wrong is shaped by emotion, unsubstantiated claims, and biases often arising from socioeconomic and cultural background. At best, conclusions have been based on random anecdote or vague impression, and at worst purely on tradition and superstition. As a result, different ideas about improving science education have gone in and out of fashion, and little net progress has been achieved. I, along with many others, am trying now to put this debate on a scientific basis that relies upon rigorous, objective data about student learning.

This data would start by looking at the outcomes of our science classes in an effort to understand the reasons for students' poor understanding of science and lack of scientific problem-solving skills. This is generally easier to do in college classrooms than in K-12, because the variables are more limited. It has also been studied somewhat more in physics than in the other sciences, but the results are consistent across disciplines and grade levels. Careful assessment of student learning indicates that the typical student in the typical science class is learning memorization of facts and problem-solving recipes that are useful for little beyond passing exams, and they are not learning useful understanding. They are also learning that science is uninteresting and disconnected from the world around them.

These results are consistent with what one would expect from principles emerging from cognitive science and educational psychology research on how people learn and what factors and activ-

ities hinder or aid that learning. These principles include:

- The understanding of a subject such as science requires an active mental construction by the individual that is built upon their prior thinking and knowledge.
- Processing and understanding is limited by the cognitive capacity of the human brain, so minimizing unnecessary or excessive cognitive load aids learning.
- Expert-like thinking involves unique mental organization systems for the enhanced retrieval and application of factual knowledge, as well as the ability to monitor and test one's thinking.
- Construction of such expert-like thinking requires extended "effortful study" and instruction explicitly devoted to that end.
- Beliefs and motivation play an important role in the learning of science and need to be addressed in effective instruction.

As science-education researchers have developed experimental instructional approaches that embody these principles and other research results, they have been rewarded with improvements in carefully measured learning gains.

There is value in people understanding science as a unique way of thinking

This leads into my vision for the future of science education. I hope that all science instruction will be based upon these research-based principles and utilizing approaches and activities that are rigorously tested to ensure they achieve the desired impact on student learning. And, just as is the norm in scientific research, these improved results and materials will be disseminated, duplicated, and built upon. In this way, just as science itself continuously advances as each generation builds on and improves what came before it, the teaching and learning of science will show similar ongoing improvement.

Realizing this vision is the goal of the newly launched science education initiative at the University of British Columbia and its partner initiative at the University of Colorado. AM

Carl Wieman is a professor in the Departments of Physics and Science Education Initiatives at the University of British Columbia and University of Colorado at Boulder. In 2001 he won the Nobel Prize for physics and was named United States Professor of the Year in 2004.

Screen universities: Hollywood goes to college

O ne of the pleasures of being a film studies professor is that I can always rationalize going to the movies as research. A couple of years ago, this involved taking my daughter to see the film *Spider Man* (2004). I was distracted during the scene where Peter Parker is bitten by a radioactive spider, transforming him into a superhero. This sequence happened to be shot in the old library at Columbia University, my alma mater, and I was thrilled to see it once again, just as I had been pleased to see the outside of the same building as a backdrop for a scene in the thriller *Marathon Man*(1976). My reaction to these films was based on my recognition of a university that I know and love. More frequently, depictions of universities bear little resemblance to the institutions in which we work.

Like many people, my first exposures to universities were not gleaned from personal experience, but from the movies that I watched in my youth. My impression of campus life was very different from my later experiences, and I still sometimes wish that I were a professor *in* movies, rather than a professor *of* movies. For one thing, if I were a fictional professor, my surroundings would be vastly improved, as huge wood-paneled offices with glass-fronted bookcases chock-full of first editions appear to be standard issue at movie universities. These offices are within charming Victorian-era structures located on park-like campuses. In mundane reality, the building where my closet-sized office can be found looks like the boxes in which movie-university buildings were delivered. My activities and those of my colleagues seem vastly different from our movie counterparts. No one I know has battled evil Nazis for the possession of the Lost Ark; we don't sit around in our offices drinking tea or sipping sherry with graduate students while we discuss art and philosophy; and none of us appears to be hosting soirees in our mansions in our off-hours. I've often wanted to emulate Professor Kingsfield in *The Paper Chase* (1973). When confronted by the performance of a dullard student, Kingsfield summoned him forward in front of the entire class, pressed a coin into his hand, and told him to telephone his parents and inform them that it was unlikely that he would pass the course. I suspect that if I did that, I'd be called up in front of the dean for harassment.

Many of us have laughed at the references to scholarship that infuse Woody Allen's films. In *Annie Hall* (1977), when the title character asked Alvy Singer for advice on what courses to take at NYU, he replied "Just don't take any course where you have to read *Beowulf*." When standing in line in the lobby of the New Yorker Theater, Alvy and Annie are subjected to the pontifica-

> **What is central revolves less around what was happening in academe but what was happening in society at large**

tions of a junior faculty member who taught a course on Marshall McLuhan. To dispute the man's analysis, Alvy magically produced McLuhan, who told the academic that he knew nothing about McLuhan's work.

Of course, academic pursuits tend not to be emphasized in movie universities. What is central revolves less around what was happening in academe at any given historical period, but on what was happening in society at large. Lois Weber's *The Blot* (1920) dealt with the lack of respect that knowledge and inner values had in the materialistic culture following World War One by documenting the struggle of a professor's family to survive on the meager salary paid to academics. By arguing that an academic or a minister ought to enjoy the same standard of living as a factory worker or craftsperson, the film implicitly denounced the ethos of the 1920s.

Such serious treatment of university concerns was rare in that period. In the classic Harold Lloyd comedy *The Freshman* (1925), Tate College was described as a large football stadium with a small school attached. Post-secondary institutions became places attended by students to be a Big Man On Campus, show pep, and find a suitable mate—all of which depended on proficiency on

Horsefeathers (1932), Groucho portrayed Professor Quincy Adams Wagstaff, who became president of Huxley College in order to help his son Frank graduate after 20 years of attendance and to help Huxley beat Darwin College in "the big game."

Universities became subjects of social criticism in films like *College Coach* (1933), where a success-driven football coach pushed his team to the breaking point, neglected his wife, and compromised students' education; or in *College Scandal* (1935), where the editor of a student newspaper was murdered just as he was about to expose a professor suspected of having an affair with a student. Perhaps the best of these films was screenwriter Ben Hecht's 1933 adaptation of Marcel Pagnol's play *Topaze*. In it, John Barrymore played Professor Topaze—a chemistry professor who lost his job for refusing to alter the grades of a business tycoon's son. The tycoon then purchased the professor's formula for a curative water but actually sold a cheaper product that lacked the medical ingredients it claimed to have. Topaze was approached by a blackmailing colleague, who shocked him with the revelation of fraud, but although the professor expected to be arrested for this crime, he was awarded an academic prize by a corrupt government committee. The now-disillusioned Topaze decided to embrace the values of society and blackmailed the tycoon. Rich and honoured, he was invited back to the college that once dismissed him, where he lectured to graduates on the importance of ethics and honesty.

With the beginning of World War Two, universities were portrayed as sites where the ideological struggles between Nazism and the free world took place. In such films, professors were transformed into both victims of the Axis and the leading fighters in the struggle against fascism. In director Frank Borzage's *The Mortal Storm* (1940), the family of Viktor Roth, a professor in a German university, was torn apart by division over the new Nazi government in Germany. Roth lost his teaching position for refusing to acknowledge the racial superiority of Aryans and eventually was murdered in a concentration camp. His daughter and wife were detained while trying to leave Germany with the professor's manuscript, and later, the daughter was shot and killed by a Nazi patrol led by her former fiancé while she was attempting to cross the border through the mountains. In Fritz Lang's *Cloak and Dagger* (1946), an American professor (somewhat improbably played by Gary Cooper) was recruited by the Office of Strategic Services to rescue nuclear experts who were being forcibly held in Europe to further the Nazi nuclear weapons program.

This is not to say that lighter approaches to academe vanished. Howard Hawks' film *Ball of Fire* (1941) continued the zany research subgenre of university films in its tale of eight professors working in isolation on an encyclopedia, who had their work disturbed by their research subject on contemporary slang, who happened to be a stripper (played by Barbara Stanwyck) on the run from gangsters. With a screenplay co-authored by the German refugee Billy Wilder and a cast that mixed prominent European exiles such as Oscar Homolka and S.Z. Sakall, with British and American actors like Richard Haydn and Gary Cooper, the film functioned as a metaphor for international wartime cooperation in the face of hostile forces.

During the postwar McCarthy period, eggheads were considered politically and morally unreliable. Consequently, Cold War fears about threats to society were projected onto academics.

the gridiron and making a star appearance at the annual "Fall Frolic" dance. *The Freshman* set the pattern for a cycle of college pictures in the Jazz Age, "flaming youth" were able to defy Victorian convention in a convenient way station between childhood and adulthood provided by universities. In films like *College* (1927), *White Flannels* (1927), *The College Hero* (1927), *Sweetie* (1929), *College Lovers* (1930) or *Good News* (1930), protagonists played by stars such as Buster Keaton or Jack Oakie engaged in a period of hijinks and physical activity before settling down in marriage and career responsibilities. Education had little to do with this process.

Indeed, education appeared parenthetical to the university experience in films from any period. During the Depression, when hard-boiled gangster or socially conscious films like *Public Enemy* (1931) and *I Was a Fugitive From a Chain Gang* (1933) alternated with frothy musicals, screen universities became sites both of social concern and escapism. Post-secondary institutions were depicted as places where zany professors conducted bizarre and amusing research projects or occupied themselves exclusively with non-academic matters. Bing Crosby appeared as a singing professor in *College Humor* (1933) and Jack Benny as a professor engaged in a wacky "Body Beautiful" eugenics experiment with his students in *College Holiday* (1936). In the case of the Marx Brothers' film

Alfred Hitchcock's *Rope* (1948) featured two disciples of a professor espousing Nietzschian philosophies who commit a murder in twisted emulation of his thought, before inviting the professor and other guests to dinner in the room in which the body was concealed. Similar concerns inform Richard Fleischer's film *Compulsion* (1959) based on the Leopold and Loeb murder case, where two college students committed murder in order to turn a philosophic system into practice. Frequently, academics were seen as fifth column collaborationists with alien invaders as seen in such films as *It Conquered the World* (1956) where a scientist helped invading Venusians, or *The Thing* (1951) where the head scientist at the Arctic base where a flying saucer was uncovered aided the hostile Thing to reproduce. As film historian Peter Biskind described this scientist: "He's soft on aliens, a Thing-symp, the J. Robert Oppenheimer of the Arctic base." In a period of loyalty oaths and dismissals of leftist academics in universities, cinema often portrayed professors in terms of mistrust. At best, they were harmless eccentrics whose proper function was outside of academia, such as the chemistry professor played by Ray Milland in *It Happens Every Spring* (1949). After accidentally discovering a formula that made baseballs avoid wooden objects, he left university life and began a sensational career as a major league pitcher—a far more laudable career than aiding and abetting alien invaders.

With the coming of the youth culture in the waning years of the Eisenhower Administration that would usher in both the sexual revolution of the 1960s and the anti-war movement, universities were again reinscribed in American cinema, this time as a test bed for new mores. Films like Jerry Lewis' *The Nutty Professor* (1963), which portrayed geeky professor Julius Kelp in a Jekyll and Hyde relationship with his formula-induced lounge lizard alter-ego Buddy Love, gave way to the Mike Nichols' adaptation of Edward Albee's play *Who's Afraid of Virginia Woolf?* (1966), in which academic life was defined by alcoholism, manipulation, impotence, infidelity, and careerism. Many films of the period set the Woodstock generation's preoccupation with peace and love on protest-riven campuses, in such films as Stanley Kramer's *R.P.M.*(1970), where liberal sociology professor Anthony Quinn

Education appears parenthetical to the university experience in films from any period

became president of a university beset by campus radicals and had to call in riot police to control the situation. Jack Nicholson's directorial debut, *Drive, He Said* (1972), dealt with an alienated student who had an affair with the dean's wife and became involved in political protest, while students and faculty tried out more liberated forms of sexuality in *The Harrad Experiment* (1973). But perhaps the most enduring treatment of universities in American cinema began with the box-office success of *National Lampoon's Animal House* (1977), in which a group of academic under-achievers created havoc at Faber College. Faber (actually the University of Oregon) was an institution with the lofty motto "Knowledge is good," but was run by faculty who were hypocritical control freaks. *Animal House* inspired numerous imitations, such as *Revenge of the Nerds* (1984) and *Assault of the Party Nerds* (1989), and the television series, *Delta House*. It also spawned what is now known as the "grossout" comedy genre.

Since then, most films dealing with university life tend to perpetuate the old stereotypes—either through remakes, such as Eddie Murphy's version of *The Nutty Professor* (1996) or applying earlier characterizations to new stories. For example, the professor as a weak-willed philanderer, alcoholic, or mental case, informs such films as John Sayles' *Lianna* (1983), where a faculty wife turned to lesbianism after learning of her husband's infidelity, or *Terms of Endearment* (1983) where Jeff Daniels played an English professor who neglected his wife in favour of amorous pursuits with students. Derek Jarman's biography *Wittgenstein* (1993) was less an examination of philosophy than a portrait of a great man from the waist down, while the Academy Award winning *A Beautiful Mind* (2001) treads a well-worn path depicting the professor as lunatic.
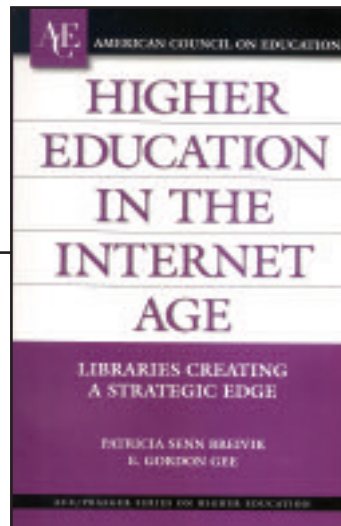
As Moira Farr observes, "You can't blame Hollywood for taking a few liberties whenever it portrays academic life—it's hard to dramatize electronic submission of research papers to peer-reviewed journals, marking essays, reading books, and sitting through committee meetings." Fiction is always sexier than fact, and Tinseltown's depictions of university life will probably always be fanciful. **AM**

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Computers make a difference...
but libraries haven't changed

We all know computers have made a difference. As an undergraduate, I used the indexes in print journals to find papers, slow and tedious work. Now the indexes are online, and the work goes much faster. But that doesn't necessarily make the research any more thorough. I recently spoke with a Ph.D. in engineering who commented that during the early years of his doctoral research, he often spent days amongst the journals in the library's stacks and stumbled upon numerous articles that became key background material for his thesis. He wouldn't have found any of these online, he noted, because the electronic sources either didn't go back that far or didn't contain the more obscure journals. Doing his research in print, in addition to doing it electronically, made all the difference between producing adequate research and excellent research. When he is asked at conferences how he came upon these sources, he says: "The old fashioned way."

Hearing of such instances is what makes me somewhat skeptical about books like *Higher Education in the Internet Age: Libraries Creating a Strategic Edge*, written by Patricia Senn Breivik and E. Gordon Gee as part of the ACE/Praeger Series on Higher Education. As a librarian and a person who has been kicking around educational systems for several decades, I have seen my share of new ideas and tech-

nology. Remember the New Math? Or whole language learning? What about those WebCT-type courses that were supposed to transform education (that is, until anyone signed up for them—as I actually did once upon a time—and discovered they were no substitute for the class room)? As for electronic products in libraries: how many times have we heard we're heading toward a paperless society, even though we continue to see the same number of books being purchased by the library? Even more tellingly, patrons are making hard copies of electronic journal articles because it is unbearable reading them on the screen. Paperless indeed.

To give the book its due, it's all about

> **Doing research in print, in addition to doing it electronically, made the difference between adequate research and excellent research.**

making libraries a "primary strategic tool" on campus in the information age. Libraries, the authors say in chapters 2 and 3, can play a significant role in supporting instruction. Faculty are encouraged to move beyond the "old approach" to learning to become "facilitators of learning." Librarians are encouraged to help them. The authors assert in the chapters 4, 5, and 6 that libraries, now more than ever, can help improve research productivity, enhance services to the community, discourage plagiarism, and support adminis-

trative priorities such as faculty development and orientation. The remaining chapters explain, in some depth, how these laudable goals might be accomplished: it seems libraries in the internet age can participate in everything from classroom learning to assisting administrators with fundraising.

I don't dispute much of this. Libraries in the internet age certainly have the potential to do things they couldn't do earlier, but perhaps only in a superficial way. When all is said and done, this is no brave new world as the authors seem to be suggesting. Libraries' mandate and mission don't seem to have changed that much from the days of print. Our goal has always been to help patrons find the information they need. In the old days we used to do it exclusively with print. Now we do it electronically as well as with print. In other words, formats have changed, but that's happened before, through clay tablets, papyrus, Gutenberg, microfilm, and so on. Regardless of the medium, I would argue that the purpose of libraries has remained relatively constant, even if certain kinds of information are now available electronically. I'm glad the authors believe this new format gives us library folks a strategic edge, but if the book had been entitled *Higher Education in the Age of the Printing Press,* much of what they contend would have been just as *a propos*. AM

Nancy McCormack is a librarian and assistant professor at Queen's University Law School.

Reviewed by Indhu Rajagopal

Pros and Cons of the Contingent Prof's Life:
the Adjunct in American Academe
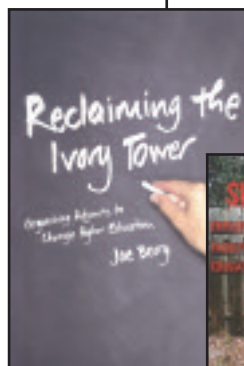
Joe Berry, *Reclaiming the Ivory Tower: Organizing Adjuncts to Change Higher Education* (Monthly Review Press and North American Alliance for Fair Employment, 2005, 160 pp), and Wendell Fountain's *Academic Sharecroppers: Exploitation of Adjunct Faculty and the Higher Education System* (AuthorHouse, 2005, 176 pp).

I n the last three decades, few among the professoriate regarded the study of temporary academics as germane to research inquiry, and most viewed the financial stringencies since the '70s as a temporary phenomenon. Further, fiscal determinism distorted their perception of pro-tem academics as an aberration.

Compared to the 1970s, there is now plenty of both scholarly and popular literature on adjuncts. From 1960-1985, Education Resources Information Center (ERIC), a comprehensive American database, listed 166 journal articles and 58 books on adjuncts, part-time, and temporary faculty. In the following two decades (1986-2006), the journal articles doubled in number, to 398, a third of them published in peer-reviewed journals. The books also increased in number.

The common thread that binds Joe Berry's *Reclaiming the Ivory Tower: Organizing Adjuncts to Change Higher Education*, and Wendell Fountain's *Academic Sharecroppers: Exploitation of Adjunct Faculty and the Higher Education System*, is the crisis of the "corporatizing of United States education," in Henry Giroux's phrase. Both authors, albeit using different idioms and conceptual language, discuss the corrosive intrusion of market culture and corporate management into higher education and the resulting exploitation of adjuncts. While Fountain dwells on adjuncts' problems, Berry offers a blueprint for harnessing the adjuncts' discontent, for positive ends. Whereas Fountain compels

us to reflect on the ethics of worker exploitation, Berry forces us to examine why higher education, a critical public sphere in a democracy, has become less protective in its role as a guardian of ethics.

Berry blames the fiscal forces for the increased hiring of adjuncts and explains their condition using three themes: proletarianization, consciousness, and organizing. The proletarianization of these academics was rapid and imperceptible under the corporate-style management imposed on the "enterprise" of higher education. Berry attributes adjuncts' submission to workplace inequities to their consciousness: they believe in attaining social mobility through merit and hard work. But, he fails to analyze this false consciousness,

> ## Why do equity and ethics, the cornerstones of the Ivory Tower, no longer inform the public sphere?

which inhibits them from organizing themselves into a segment of the working class.

Fountain asks why equity and ethics, the cornerstones of the Ivory Tower, have disintegrated and no longer inform the public sphere. He laments the corporatization, bureaucratization, and marginalization of higher education and its transformation into a profit-driven business enterprise. To be cost-efficient, education is outsourced to adjuncts who are hired and fired without justice and fairness. Technologization advances the input of

computers and broadband communication to replace faculty. Once online, course offerings are mass-customized, their dissemination routinized, technology costs drop off, and profit accumulates.

The most powerful contribution of both Berry and Fountain is their plea for ethics in organizations and for equity in the teaching profession.

The shortcomings of the two books are, first, that neither of them has reliable demographic data on adjuncts. Fountain's sources appear mostly secondary, while Berry's are circumscribed by methodological inconsistencies related to the definition of contingent faculty in the national databases and by uncorroborated lists provided by administrators. In contrast, the Canadian databases on temporary faculty that were established in 1990 provide more elaborate data on their numbers, characteristics, roles, and working conditions.
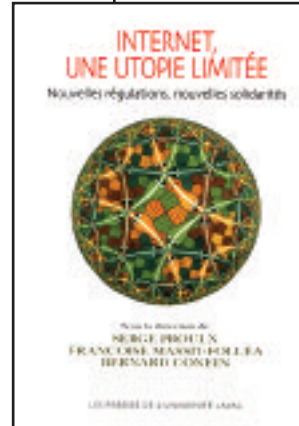
Secondly, both the books do not go beyond the American system for international comparisons. Such a comparison would have enriched their arguments and strengthened their conclusions. For instance, a comparison with Canada would have revealed that in the late 1980s, a part-time faculty union negotiated the policy of "converting" long-service part-timers with doctoral degrees into tenure-stream appointees.

Finally, although both works are rich in ethnographic details on adjuncts' plight and their resistance, the authors have not contextualized them in the globalized phenomenon of casualization of the labour force. With some rigour in theoretical analyses of false consciousness and of the class-degradation process, Berry's arguments on consciousness and class would bear more conviction. **AM**

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Réseaux cognitifs et nouvelles solidarités connectives

Internet n'aura finalement pas mené au nouvel âge radieux rêvé par ses fondateurs

Quinze années après l'apparition du web, la nature et la spécificité des transformations sociales qui ont suivi restent toujours aussi peu circonscrites. Trop souvent, les études sur Internet ont privilégié une échelle d'analyse globale surestimant les changements au niveau macrosocial et sous-estimant ceux qui se produisaient à des niveaux intermédiaires.

C'est à mieux cerner la nature et la réelle portée de ces changements qu'est consacré *Internet, une utopie limitée. Nouvelles régulations, nouvelles solidarités*, un ouvrage collectif réunissant 18 chercheurs français et québécois issus de disciplines diverses.

Loin d'approcher Internet comme une immense boite noire n'offrant qu'une expérience unique, les chercheurs y restituent, au moyen d'enquêtes et d'observations empiriques, la pluralité, la spécificité et la dynamique de ses usages, les nouvelles formes de solidarité qui s'y créent et la diversité des opportunités politiques générées.

L'ouvrage comprend trois parties consacrées respectivement au mouvement de l'informatique libre, aux pratiques des jeunes internautes et aux mécanismes et difficultés de la régulation d'Internet.

Le mouvement de l'informatique libre (*Free Software*) recouvre un ensemble de pratiques informatiques s'inspirant de principes libertaires, prônant une économie de l'entraide fondée sur la libre distribution des codes et la coopération en réseaux. Contrairement au logiciel propriétaire qui repose sur le secret commercial, le logiciel libre est modifié et redistribué ouvertement par les usagers.

Culture du *hack*, constitution de communautés d'usagers et de développeurs, gestion des tensions entre les objectifs de connaissance et d'entraide et controverses au sein du mouvement du logiciel libre font l'objet des quatre chapitres de la première partie.

Espace collectif d'expérimentation et d'apprentissage, lieu de négociations continues entre acteurs, le logiciel libre y apparaît comme un bien public faisant l'objet d'une politisation ouverte. Les rôles usuels de producteur/consommateur, concepteur/usager et demandeur/répondant y sont gommés et réversibles et le cercle des créateurs de normes, épistémiques et sociales, s'y élargit.

La deuxième partie, "Une culture numérique émergente", regroupe cinq chapitres portant principalement sur les pratiques des jeunes adultes internautes français et nord-américains. Trois sont d'intérêt académique.

Les usages communicationnels, informationnels, scolaires, ludiques et réflexifs des jeunes français font l'objet d'un premier chapitre. La collaboration intergénérationnelle via le cybermentorat auprès des jeunes nord-américains fait l'objet du deuxième. Le programme Academos, offert au Collège de Bois-de-Boulogne au Québec, y est examiné et les éléments novateurs favorisant le développement scolaire du mentoré y sont détaillés. Un troisième chapitre porte sur l'appropriation d'Internet telle que vécue par des étudiants universitaires.

Les deux derniers chapitres portent respectivement sur les leçons du codéveloppement du logiciel libre pour les télévisions de proximité et les normes s'élaborant autour des pratiques de clavardage en groupe.

La troisième et dernière partie est consacrée aux "conditions d'une gouvernante démocratique d'Internet". Parlements, tribunaux, organisations internationales et autorités de régulation diverses sont dorénavant aux prises avec la nécessité de repenser les cadres réglementaires, les politiques publiques de communication et l'articulation de leurs compétences respectives. A qui revient-il de réguler quoi ? Et comment ?

L'examen du statut des web-radios françaises, des tribulations juridiques des retransmetteurs nouveaux médias, de la régulation de la cyberpublicité et de la protection des mineurs sur le web, de la controverse au sujet de la gestion des adresses IP et des enseignements à tirer de l'histoire de la régulation des systèmes de communication font l'objet des cinq derniers chapitres.

Il en ressort qu'Internet ne peut être régulé comme le sont les médias conventionnels, qu'il appelle des mécanismes de régulation plus souples, aptes à s'adapter à une réalité mouvante, et qu'il offre de nouvelles possibilités de gouvernance. L'autorégulation serait le mot clé.

Lecture faite, une interrogation sociopolitique majeure traverse l'ensemble des textes rassemblés : quelles sont les relations entre usages et politique?

L'originalité de l'ouvrage à cet égard repose dans l'approche sociotechnique et la démarche exploratoire de son collectif d'auteurs. Ce qu'il perd en systématicité, il le gagne en sensibilité à la pluralité des expériences microsociales et des associations entre humains et non humains sur la toile.

Internet n'aura finalement pas mené au nouvel âge radieux rêvé par ses fondateurs. Concepteurs et usagers semblent plutôt poursuivre une utopie limitée et raisonnée : ils n'aspirent plus à révolutionner le monde mais à y apporter des changements à leur portée immédiate. AM

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"I want you to know your grandfather"

An excerpt from Lee Gowan's forthcoming novel, provisionally entitled *Confessions*.

When I was a little boy I wanted to be great, but unfortunately I have grown up with only one talent: I'm a janitor. When I was a little boy, though, I was the greatest hide and go seek player in the history of the world. To be truthful (and I am nothing if not truthful) my seeking left something to be desired. Once your grandmother hid under a blanket six feet from my counting post and I walked right past her—practically stepped on her. She was home free in three seconds. It might have been a record. But they don't keep records for hide and go seek.

You never knew your grandmother, my mother, Eva Froese. That's pronounced "Froze". You may not have ever seen my name spelled before. There's no nameplate on my office door. "Dwight," your grandmother said to me that day, "You may be a good hider, but you're no great shakes at seeking." She was proud and she was clever, but she was not a great hider like me. She took too many chances. Sooner or later she was bound to get caught. I tried to teach her, but she was a poor student and there's just so much to learn about hiding. For instance, a good hiding place isn't everything. Once found, no matter how well camouflaged, it's ruined. Never share a hiding place with anyone, unless you plan on killing him. Or her. You have to remember that eventually the other hiders are bound to be seeking you. Be especially careful not to be seen leaving your hiding place at the end of the game, even if it means you have to wait until everyone gets bored and goes away. Or dies. Eventually everyone dies.

A talent for hiding is no small thing. The fundamental importance of hiding goes all the way back to the Holy Bible. As God walked through the Garden of Eden, Adam and Eve tried to hide from Him because they had eaten the apple from the tree of knowledge and learned that they were naked. They were ashamed and so they covered up their skins, but their hiding gave them away and He banished them from His Garden. With their shunning, we lost the Garden, but we gained knowledge. We became like the gods in every way, except that we were not immortal. I quote from Genesis: "Then Yahweh God said 'See, the man has become like one of us, with his knowledge of good and evil. He must not be allowed to stretch his hand out next and pick from the tree of life also, and eat some and live for ever.'" And so he kicked us out of His Garden and hid Himself away behind his cherub guards and the flame of a flashing sword.

It's understandable to feel that now it's He who hides from us. But don't forget

that if we stop looking for Him, He hunts us down. He's getting warmer. I can hear Him outside my window, humming a tune I can almost recognize. What'll happen when He finds me? Who was He talking to that day in the Garden? I can hear him over the noise of the traffic right this moment, wandering the streets, mumbling to His reflection in my window. He's been very lonely since the other gods died. Lonely, and irritable when crossed. No one except me could have avoided the wrath of His eyes for so long. It's by successfully concealing myself from Him that I've earned the right to be called great.

But I'm talking nonsense, of course. You can't hide from God. He is the limitation of our freedom. But He should be the only limitation. We should be able to shed our clothes and walk out into the street and shout, "Here I am, God. I'm beautiful. Come and find me!"

But if we did that, they would come and arrest us. That is the world of our making. We hide for a living and we live by what we hide. Some hide away wealth, some hide away power, some hide away love. I hide away dirt from the school hallways. I make your garbage disappear. Did you know that in old England a "hide" was defined as the minimum amount of land required to support one family unit? And consider that when Adam and Eve were booted out of the Garden they began killing their old friends the animals not only to eat them, but also so that they could use their hides to cover their own, not only out of embarrassment, but because outside the Garden it got very chilly at night.

Ironically, I developed my talent for hiding in order to avoid work. Your grandfather, Jacob Froese, was not impressed by my skill. He was not impressed by greatness in general: "Turn on the television and every day you hear somebody new they've decided is great. Great athletes, great actors, great millionaires. The reporters have got great politicians picked out, and great thinkers who figure out what the great politicians are gonna think, and great reporters to tell us what the great thinkers are telling the great politicians to think. But think about this for a minute, you lazy little shit: have you once in your life heard anybody on television talk about a great farmer."

No.

"The world would be a lot greater place if people would try to do a great job of whatever they're doing instead of just try-

ing to be great."

This was after a day he hadn't been able to find me. But even if I tried to help him, I couldn't make him happy. I wasn't much good at anything but hiding.

"Why is it you've always got to look for the most difficult way possible to do anything? I could do a better job with one hand tied behind my back." This was one of his jokes: he only had one hand.

Actually, my father and I weren't really so different. If the CBC had gathered together a panel of agricultural experts for the Sunday Evening News they certainly wouldn't have pronounced Jacob Froese a great farmer. He too had only one talent, and that was guns.

Your grandfather was a great mystery. Possibly the only great thing about him, but I want you to know he wasn't evil. I'd even go so far as to say, without fear of a lightning bolt, that he was in his way a good man, even if he didn't believe in God—not only didn't believe in him, he hated Him. You're

Your grandfather was a great mystery. Possibly the only great thing about him

wondering if you can hate what you don't believe in. You can, and your grandfather made it a religion. You're wondering whether a good man can hate God. How can you help but wonder, after having Him stuffed into your heart through your ears since before you can remember? And I tell you that it is possible. For a good man to hate God. Maybe your grandfather is proof. He liked proofs. He was always trying to prove that God didn't exist. He wasn't a mathematician but he was always thinking up equations. You never got a chance to meet him and so I'm writing this because you ought to know something about him, even if it's only letters and numbers on white paper, which is not much at all but better than nothing. At least, mathematicians think so.

You *do* know me, but I don't plan for you to read this until you're grown up to be the same age as I am now—I turned twenty-five, a quarter century, today. You know me, but until you read this you will not know that I am your father. For all I know I may be dead like your grandfather when you are reading this and if that is so you'll likely feel you never had a chance to know

me at all. You'll have always thought of me as funny Mr. Froese, the janitor at your elementary school and not as a father. A nice man, a good janitor, but nothing more than that, and so finding that I am really your father will make you feel strange about me and that you did not know me even though I used to call you Chloe-O and throw balls down from the roof to you and sing silly rhymes to you and count you off when you were skipping. That is exactly the same way I felt about my father because, like you, I did not really know him until after he was dead. I always thought he was evil.

Of course, it is also possible that I will still be alive when you read this, and, if so, you will have the chance to know me better. I hope that's true.

Probably you won't even remember me as you begin to read these words and will have to cast your mind back and struggle to make a picture of me inside your head: the man who smelled like wet mop and cleaning liquid; the man with the tiny office behind the red door at the end of the basement hallway by the kindergarten classrooms; the man with the red hands and scars on his neck. You might even remember that once you asked me where the scars came from and I told you I was burned by a dragon's fire as I was running away. That was not true. They are only acne scars. Even if you do remember me right off, you probably will not have noticed what a good janitor I was. That would not be surprising. It's not the sort of thing a person notices. But I am. I might even claim to be a great janitor. If there were any such thing as a great janitor.

I'm writing this to you because I want you to know your grandfather. Of course, in telling you about him I can't help telling about myself and your grandmother, who you don't know either, and your mother and your other grandfather who you think you already know (but you don't) and all the other people who've made your story even though you do not know your real story.

You have the right to know your real story. AM

By Paulette Dubé

Witness

Below are excerpts from Alberta poet Paulette Dubé's collection of poems, "Witness"

a path is born
if it is taken

————◦◦◦————

there is a calm here
a liquid light everywhere
no creeping or spilling
as winter's want through cracks of darkness*

this light simply begins
accepts
rain lays down a simple miracle

————◦◦◦————

this day is born in the wake of geese flying lance formation
threading the air with calls to come
come home
gather yourselves to me
come home to me

if yearning was a shape
it would be the lance thrown south
if yearning was sound
it would be geese
longing

the acrid smell of trees burning
rubbing their roots together
anxious to be off
wrapping their shawls of sparkling round themselves

they turn and wave
wave great arms
wave the smallest finger
turn gracefully on skeletal legs
and melt
to a hard point
on the pale horizon*

————◦◦◦————

our promises shape who we are and what we will become*

————◦◦◦————

a promise chaffs only if
you want to abandon it
otherwise it is another set of arms to hold us*

————◦◦◦————

The Standing Ones
groan and swish the wind with their bark
try in vain to catch the moon
she sieves her way through mesh of branches
splashes the world
waiting below

————◦◦◦————

shadow and light play the path of the forest
silent
listen too
a door opens
today

the light fingers fix themselves deeper
mix up the darkness

shadows run backwards
mindful that without an object to attach to
light becomes love*

————◦◦◦————

to walk and closely step in the tracks of another
makes the path easier to swallow
but less your own

————◦◦◦————

Ants foam over the Standing One
trying to target the thing
I breathe on the bark
they smell
on tip of leg points on shiny point shoes they click to the warmth
never doubting what they find will be useful
as my species eagerly searches heat or light
never knowing if it will be for the loving or the learning
both are useful*

AM

The Overhead Projector: An Oral History

Historians of technology need to be ever-alert to research opportunities. In this spirit, I present some material from the Social Science and Humanities Institute for Technological Education-funded "collaborative research network" on shifting paradigms of classroom technology in postwar North America. One stream of the research network examines "educational technology from the bottom up," privileging classroom-level perspectives and multiple voices. To this end, I interviewed a recently retired overhead projector at the University of Toronto, focussing on themes of progress, social memory, and identity.

(For a discussion of the perils of gathering and transcribing the oral testimony of machinery, see Steve Penfold, "Re-Thinking the Orality of Obsolescence: Machine-Talk from Recorder to Page," Bulletin of the Organization of Historians with No Business Having Jobs, Vol. 0, No. 2, (Summer 2006), pp. 2-15;(22).

Steve Penfold (SP): Perhaps we could begin by having you tell me your first memory of the classroom?

Overhead Projector (OP): I started working here in the 1960s, over in the old Department of Political Economy. There weren't many of us around, so we moved around a lot. I projected lectures in history, literature, sociology, culture and technology. You know Marshall McLuhan? The first job I ever had was projecting "the medium is the message" during one of his talks.

SP: What was the university like back then?

OP: Well, geez, it was mainly chalk and blackboard back then. You can't imagine how primitive it was. They would give professors a little white stick, and they were supposed to scrawl things on this big black slab of slate at the front of the room. Damn sticks always broke and fell all over the place, and if you touched the blackboard, you got covered in white powder. The professors didn't stand a chance. How can you be dignified and authoritative when you have powder all over you?

SP: How did you get on with the other machines?

OP: There really weren't that many around. The typewriters always kept to themselves. We had some good battles with the chalk, though. We figured we were pretty important. All of us, we felt like giants, working the centre of the room, right at the front, arms thrust to the ceiling. Like a cyclops: one big, all-projecting eye. I mean, the chalk had it pretty good for a century, right? And here we were, all sleek, clean, shining our bright light on the screen, which usually covered the blackboard right up, eh? How could they compete with that?

SP: Was there a time, when, well, this is a bit delicate, you know [pause] where you realized that times were changing?

OP: It came hard, that moment. One time, a whole crowd of people came right in, but they just moved me over to the corner, right near the chalk. Some new-fangled, blue-light projector with something called PowerPoint was showing a talk on classroom technology. Bullet points about "transforming" and "liberating" and how the revolution would be projected.

Bastards. I wanted to scream, I've never crashed once, not in all these years! Oh sure, a couple of times, my light burned out, but there was always another one right there under my hood. I guess, now, all our lights are out.

SP: So what happened next?

OP: Well, after that, the whole arms race began, you know—video links, laptops for students to play solitaire while they pretended to take notes, wireless nodes for the kids to surf for porn while the professor talked.

SP: Yes, I see.

OP: Well, sitting by the chalk that day, that's when I realized the jig was up. We were like the chalk to them. Disposable. You know, I didn't see it like that until just now. But we were like chalk. I guess now, in my old age, I see that the old timers were right. Too much pride in being at the centre, we overheads—all us machines, really, but did we make such a difference? That's all anyone talks about, machines and technology, but is PowerPoint so much better than me, and am I so much better than chalk? Did I know what you wanted them to know? It was like that McLuhan lecture. The medium is the message? Dead wrong. Who cares about the machine? The message is the message, isn't it? AM

Steve Penfold is *Academic Matters'* humour columnist. He moonlights as an assistant professor of history at the University of Toronto.

Mark Rosenfeld

Technology: Then and Now

It is a truism that technology has changed the nature of the student – and faculty—experience of higher education.

The university of three or four decades ago, when many current faculty first set foot on campus, was in many respects a world that moved more slowly and had more distinct boundaries and limitations than today's campus.

Consider the reality of most university students in the 1970s. They registered for courses by what is now quaintly called "snail mail" and stood in long lines to pick up their course confirmation kits. Depending on the course and level of study, lectures were held in large or small rooms, with the most technologically advanced equipment being a television, an overhead projector, and a lectern with a microphone.

Course research—at least for diligent students—consisted of going to the library, riffling through the card catalogue, browsing the stacks, and taking copious notes with pen and paper. Science students wrote down the results of their lab experiments using special graph paper, compasses, and other mechanical paraphernalia.

Papers were typed on electric typewriters, or handwritten. For students intent on plagiarism, passages from books and other sources of information had to be laboriously copied or, alternatively, essays were clandestinely purchased in person or through mail from newly emerging "research coaching" enterprises. Plagiarism detection by faculty depended on the recognition of the incongruous passage in an essay or the glaring discrepancy between the student's brilliant treatise in hand and his or her less-than-promising performance in class.

Outside of lectures, seminars, and labs, student communication with professors usually consisted of pre-arranged, office-hour meetings. Student evaluation of faculty involved informal conversations among friends and classmates, filling out appraisal forms for the local student association's course anti-calendar, and sometimes formal class evaluations. Among themselves, students would either phone one another or arrange to meet on or off campus to share information about courses, work on group projects, or just to socialize.

Today, students register, choose courses, and respond to a variety of administrative requirements online. Lectures may still be held in large or small classes with a professor standing in front of the class—or seen from a thousand kilometres away through video-conferencing. Replacing the overhead projector is the LCD projector and a PowerPoint presentation incorporating animation, sound, and other striking visuals.

Students who miss a lecture might be able to download a podcast of the lecture on their MP3 player and listen in their own time. Or, they might go to a designated website and watch a video of the lecture. Others may choose to take only web-based courses.

At home or in the cafeteria, using a laptop with a wireless connection to the university network, students do course research involving online browsing through the library catalogue, a Google or Wikipedia search, or downloading articles from ProQuest, LexisNexis, and other data bases. In the library, a bank of computer terminals permits students to do the same.

Producing papers on word-processing software allows for endless revisions, with spelling- and grammar-checking tools coming to the aid of the writing-challenged. Spreadsheets and other programs enable students to automatically generate charts and graphs or design three-dimensional models. Those tempted to dabble in plagiarism have endless opportunities to cut and past online text or pay for the download of an "original essay." In turn, faculty have the option of running essays through plagiarism detection software such as Turnitin.com.

Communication with faculty is now on a 24/7 basis through e-mail and instant messaging. Student evaluations are no longer limited to the course anti-calendar and restricted-access appraisal forms—they have gone global. Sites such as RateMyProfessor and Pick-A-Prof allow anyone to view highly subjective comments on an academic's class performance or grading history. Students also have many more opportunities to "connect" with one another through cellphones, text messaging, blogging, web-based MySpace and Facebook, and other social-networking sites.

Despite these changes in the experience of higher education, however, a question remains. Has the *technology of learning* really changed? For faculty, the need to convey concepts, facts, methods, and analytical approaches to foster knowledge and critical judgement is an enduring requirement, regardless of the sophistication of the technology used. And for students, the ability to sift and appraise information, to develop knowledge and critical perspectives, and to re-evaluate what has been acquired, remain imperative to learning. Amid change, some things remain constant. **AM**

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