

Selling Academe to the Technology Industry

By David F. Noble

In the past year, diametrically opposed approaches to the use of technology in learning by two major universities have signaled dramatically the confusion and uncertainty that reigns in the academy over the role technology should play in the university.

In the summer of 1997, the University of California at Los Angeles announced that it would require computer Web sites for all of its arts and sciences courses by the start of the fall term. The announcement marked the first time that a major university has mandated the use of computer telecommunications technology in the delivery of higher education.

Taking the opposite approach, the full-time faculty of York University in Toronto struck Canada's third-largest university in 1997 to win—for the first time anywhere—contractual protection against precisely the kind of administrative action taken by UCLA.

The York action—the longest

university strike in English Canadian history—was taken partly in response to unilateral administrative initiatives in the implementation of instructional technology. The most egregious example of the administration's approach was an official solicitation to private corporations inviting them to permanently place their logo on a university online course in return for a \$10,000 contribution to courseware development.

The York University administration has spawned its own subsidiary (Cultech). This venture, directed by the vice president for research and several deans, works, in collaboration with a consortium of private sector firms, to commercially develop and exploit online education. UCLA also entered into collaboration with a for-profit company, in partnership with several private corporations, to peddle online education (the Home Education Network).

Significantly, at both UCLA and York, students gave clear indica-

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tion that they are not enthusiastic about a high-tech academic future. At York, students lent their support to striking faculty and launched their own independent investigation of the commercial, pedagogical, and ethical implications of online educational technology. This fall, the student handbook distributed annually to all students by the York Federation of Students contained a warning about the dangers of online education.

At the outset of this new age of electronic higher education, the lines have been drawn in the struggle that will determine its shape.

On the one side, university administrators line up with their myriad commercial partners. On the other side, those who constitute the core relation of education: students and teachers. The chief slogan during the York strike: "The classroom vs the boardroom."

It's no accident that the high-tech transformation of higher education is initiated and implemented from the top down with no student and faculty involvement in the decision-making or despite it.

At UCLA, the administration launched its Web initiative during the summer when there was little possibility of faculty oversight or governance. Faculty were kept in the dark about the new Web requirement until the last moment.

UCLA administrators went

ahead with the initiative—funded by a new compulsory student fee—despite a formal student body recommendation against it.

Similarly, the York administration initiatives were taken without faculty oversight and deliberation, much less student involvement.

What's driving this headlong rush to new technology, with so little deliberation on the pedagogical and economic costs? A short answer might be the incessant pressures of "progress." But there is more to it.

Universities are not simply undergoing a technological transformation. Beneath this change—and camouflaged by it—lies another: the commercialization of higher education.

Over the last two decades, the campus has become a site of capital accumulation. This change has resulted in the systematic conversion of intellectual activity into intellectual capital and, hence, intellectual property.

There have been two general phases of this transformation. The first—the commoditization of university research—began 20 years ago and is still underway. Scientific and engineering knowledge has been transformed into commercially viable proprietary products to be owned and bought and sold in the market.¹

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The second, which we see now, entails the commoditization of the educational function of the university. This includes transforming courses into courseware and the activity of instruction into commercially viable proprietary products.

In the first phase, the universities became the site of production and sale of patents and exclusive licenses. In the second, they are becoming the site of production of—as well as the chief market for—copyrighted videos, courseware, CD-ROMs, and Web sites.

The first phase began in the mid-1970s when, in the wake of the oil crisis and intensifying international competition, corporate and political leaders of the major industrialized countries recognized that they were losing their monopoly over the world's heavy industries.

Their continued supremacy, they decided, depended on their monopoly over knowledge—the lifeblood of the new “knowledge-based” industries (space, electronics, computers, materials, telecommunications, and bioengineering).

Corporate leaders turned their attention to the universities as the chief source of “intellectual capital,” implicating the universities as never before in the economic machinery. In the view of capital, the universities had become too

important to be left to the universities.

Within a decade, industrial partnerships and new proprietary arrangements proliferated, as industrialists and their campus counterparts invented ways to socialize the risks and costs of creating this knowledge while privatizing the benefits.

This collaboration gave rise to an elaborate web of interlocking directorates between corporate and academic boardrooms and laid the foundation for joint lobbying efforts, like the Business-Higher Education Forum.

The chief accomplishment of this combined effort, in addition to a relaxation of anti-trust regulations and greater tax incentives for corporate funding of university research, was the 1980 reform of the patent law. The new law gave the universities automatic ownership of patents resulting from federal government grants.

Laboratory knowledge became patents—that is intellectual capital and intellectual property.

As patent-holding companies, the universities set about to codify their intellectual property policies. They developed the infrastructure for commercially viable research, cultivated their corporate ties, and created the mechanisms for marketing their new commodity, including licensing their patents.

The champions of computer-based instruction try to increase the efficiency of already overextended teachers.

The result was a wholesale reallocation of university resources toward research at the expense of education.

Class sizes swelled, teaching staffs and instructional resources shrunk, salaries were frozen, and curricular offerings were cut to the bone. At the same time, tuition soared to subsidize the commercial infrastructure and correspondingly bloated administration. In the end, students were paying more for their education and getting less, and campuses were in crisis.²

The second phase, the commoditization of instruction, is touted as the solution to the crisis engendered by the first.

Ignoring the true sources of the financial debacle—an expensive and low-yielding commercial infrastructure and greatly expanded administrative costs—the champions of computer-based instruction focus on increasing the efficiencies of already overextended teachers.

High-tech remedies, these champions naturally fail to note, are bound to compound the problem by increasing further, rather than reducing, the costs of higher education.

Experience demonstrates clearly that computer-based teaching, with its limitless demands on instructor time and vastly expanded overhead requirements—equipment, upgrades, maintenance, and

technical and administrative support—costs more, not less, than traditional education.

Thus, we see the increase in outside funding and student technology fees. Little wonder that teachers and students don't embrace this new panacea. Their hesitation isn't fear but wisdom.³

The ongoing high-tech transformation of higher education is not the work of teachers or students, the presumed beneficiaries of improved education. The transformation is not really about education at all. That's just the name of the market. The foremost promoters computerizing the academy are the vendors of the network hardware, software, and "content"—Apple, IBM, Bell, the cable companies, Microsoft. They are joined in this effort by the edutainment and publishing companies: Disney, Simon and Schuster, Prentice-Hall, and others who view education as a market for their wares.

This market is estimated by the Lehman Brothers investment firm potentially to be worth several hundred billion dollars. "Investment opportunity in the education industry has never been better," proclaims one Lehman Brothers study.

The report also forecasts that the educational market will eventually become dominated by EMOs—education maintenance

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organizations—just like HMOs now dominate the healthcare market.

Despite the democratic rhetoric about extending educational access to those unable to get to the campus, the campus itself remains the real market for these products. On-campus students outnumber distance learners six-to-one.

Corporate training advocates also view online education as a boon. It is one more way to bring their information-processing, “just-in-time” educated employees up to profit-making speed.

Beyond their in-house training programs that have incorporated computer-based instructional methods pioneered by the military, these corporate trainers expect the electronic delivery of higher education to keep their personnel properly prepared at public expense.

The third major promoters of the transformation of higher education are university administrators. They see the transformation as a way of giving their institutions a fashionably forward-looking image.

More importantly for them, computer-based instruction reduces direct labor and plant maintenance costs—fewer teachers and classrooms—while at the same time undermining the autonomy and independence of faculty.

Administrators are also hoping

to get a piece of the commercial action for their institutions or themselves, as vendors of software and content.

University administrators are supported in this enterprise by a number of private foundations, trade associations, and academic-corporate consortia. Among these are a number of foundations, the American Council on Education, and, above all, Educom, a consortium representing the management of 600 colleges and universities and a hundred private corporations.

Last but not least in the cyber-campus movement are the ubiquitous techno-zealots who view computers as the panacea for everything because they like to play with them. With the encouragement of their private sector and university patrons, they forge ahead—without research support for their pedagogical claims, without any real evidence of productivity improvement, and without any effective demand for their efforts from either students or teachers.

York and UCLA are not the only universities in North America that are rapidly being overtaken by this second phase of commercialization. There are stand-alone virtual institutions like University of Phoenix, wired private institutions like the New School for Social Research, campuses of state universities like the University of Maryland and the

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new Gulf Coast campus of the University of Florida.

Arizona and California have initiated their own state-wide virtual university projects, while a consortium of western states have launched their own ambitious effort to wire all of their campuses into an online educational network, the Western Governors University.

In Canada, a national effort is underway to bring most of the nation's higher education institutions into a "Virtual U" network.

The commercial intent and market orientation behind these initiatives is explicit. This is illustrated by the most ambitious U.S. effort to date, the Western Governors University. The WGU's goals include expanding the marketplace for instructional materials, courseware, and programs that use advanced technology. The WGU is also working assiduously to remove barriers to distance education posed by statutes, policies, and administrative rules and regulations, including U.S. Department of Education regulations and accrediting agency standards.

"In the future," proclaims Utah Governor Mike Leavitt, "an institution of higher education will become a little like a local television station."

Start-up funds for the governors' project come from the private sector, specifically from Education-

al Management Group, the educational arm of the world's largest educational publisher, Simon and Schuster. The proprietary impulse behind the company's largess is made clear by Simon and Schuster CEO Jonathan Newcomb: "The use of interactive technology is causing a fundamental shift away from the physical classroom toward anytime, anywhere learning—the model for post secondary education in the 21st century." This future is based on "advances in digital technology, *coupled with the protection of copyright in cyberspace*" (emphasis added). The publisher needs to follow its audience.

Similarly, the national effort to develop the Virtual U customized educational software platform in Canada is directed by an industrial consortium that includes Kodak, IBM, Microsoft, McGraw-Hill, and a host of other corporations. The commercial thrust behind the project is explicit here, too.

Predicting a potential \$50 billion Canadian market, the project proposal emphasizes the adoption of "an intellectual property policy that will encourage researchers and industry to commercialize their innovations."

The project anticipates the development of "a number of commercially marketable hardware

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and software products and services," including "courseware and other learning products."

The two directors of the project, Simon Fraser University professors, have formed their own company to market these products in collaboration with the university.

At the same time, nearby University of British Columbia has spun off the private WEB-CT company to sell software designed by one of its computer science professors to UCLA, among others.

The implications of the commoditization of university instruction are two-fold, those relating to the university as a site of the production of the commodities and those relating to the university as a market for them.

The first raises for faculty traditional labor issues about the introduction of new technologies of production. The second raises for students major questions about costs, coercion, privacy, equity, and the quality of education.

The commoditization of instruction draws teachers into a production process, in this case, the production of instructional materials. Faculty are subject to all the pressures that have befallen production workers in other industries undergoing rapid technological transformation from above.

In this context, faculty have

much more in common with the historic plight of skilled workers than they care to acknowledge. Their work is being restructured by technology to reduce their autonomy and control over their work and to transfer that knowledge and control, as much as possible, into the hands of the administration.

As in other industries, the technology is deployed by management primarily to discipline, de-skill, and displace labor.

Once faculty go online, administrators gain greater direct control over their performance and course content than ever before. The potential for administrative scrutiny, regimentation, discipline, and even censorship increase dramatically.

At the same time, the use of the technology entails an inevitable extension of working time and an intensification of work. Faculty struggle at all hours of the day and night to stay on top of the technology and respond, via chat rooms, virtual office hours, and e-mail, to both students and administrators to whom they have now become continuously accessible.

Once faculty put their course material online, moreover, the knowledge and course design skill embodied in that material is taken away from them and, by way of the technology, placed in the hands of the administration.

Once faculty members convert their courses to courseware, there is no longer any need for their services.

The administration is then able to hire less skilled—cheaper—workers to deliver the technologically prepackaged course. The administration also claims ownership of this commodity and the right to market the course elsewhere without the original designer's involvement or even knowledge.

The academic institutions that buy this packaged commodity can outsource the work of their own employees, reducing their reliance on their own faculty.

Most important, once the faculty members convert their courses to courseware, there is no longer any need for their services. They become redundant, and when they leave, their work remains behind.

In Kurt Vonnegut's classic novel *Player Piano*, the ace machinist Rudy Hertz is flattered by the automation engineers who tell him his genius will be immortalized. They buy him a beer. They capture his skills on tape. They fire him.

Today, faculty are falling for the same tired line: Their brilliance will be broadcast online to millions. Perhaps, but the broadcast will occur in the future without their participation.

Some skeptical faculty insist that what they do cannot possibly be automated, and they're right. But it will be automated anyway, whatever the loss in educational quality. Remember: Education is

not what all this is about; it's about making money.

In short, the new technology of education, like the automation of other industries, robs faculty of their knowledge and skills, their control over their working lives, the product of their labor, and, ultimately, their means of livelihood.

This fall, the UCLA faculty, as required by the administration, have dutifully or grudgingly—it doesn't really matter which—placed their course work, ranging from syllabi and assignments to the entire body of course lectures and notes, at the disposal of the administration. Their work can now be used online, without anyone asking who will own it, much less how it will eventually be used and with what consequences.

At York University, untenured faculty have been required to put their courses on video, CD-ROM, or the Internet or lose their jobs. They have then been hired to teach their own now automated courses at a fraction of their former pay.

The New School in New York routinely hires outside contractors from around the country, mostly unemployed Ph.Ds, to design online courses. The designers are not hired as employees but simply paid a modest flat fee and are required to surrender to the univer-

York University faculty won a contract that gives them control over all decisions about automation of instruction.

sity all rights to their course. The New School then offers the course without having to employ anyone. And this is just the beginning.

Educom, the academic corporate consortium, recently established a Learning Infrastructure Initiative. This approach includes a study of what professors do, breaking the faculty job down in classic Tayloristic fashion into discrete tasks, and determining what parts can be automated or outsourced.

Educom believes that course design, lectures, and even evaluation can all be standardized, mechanized, and consigned to outside commercial vendors. "Today you're looking at a highly personal human-mediated environment," Educom president Robert Heterich notes. "The potential to remove the human mediation in some areas and replace it with automation—smart, computer-based, network-based systems—is tremendous. It's gotta happen."

Toward this end, university administrators are coercing or enticing faculty into compliance, placing the greatest pressures on the most vulnerable—untenured and part-time faculty, and entry-level and prospective employees.

Administrators use the academic incentive and promotion structure to reward cooperation and discourage dissent. At the same time,

they're mounting an intense propaganda campaign to portray faculty as incompetent, recalcitrant, inefficient, and expensive. In short, they portray faculty as in need of improvement or replacement through instructional technologies.

Faculty are portrayed, above all, as standing in the way of progress and forestalling the panacea of virtual education allegedly demanded by students, their parents, and the public.

The York University faculty had heard it all. Yet still they fought vigorously and ultimately successfully to preserve quality education and protect themselves from administrative assault. During their long strike, they countered administration propaganda with the truth about what was happening to higher education.

Taking this approach, York faculty eventually won the support of students, the media, and the public. Most important, they secured a new contract containing unique and unprecedented provisions that, if effectively enforced, give faculty members direct and unambiguous control over all decisions relating to the automation of instruction, including veto power.

The contract provides that all decisions on the use of technology as a supplement to classroom instruction or as a means of alternative delivery—including the use

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of video, CD-ROM's, Internet web sites, computer-mediated conferencing—"be consistent with the pedagogy and academic judgments and principles of the faculty member employee as to the appropriateness of the use of technology in the circumstances."

The contract also guarantees that "a faculty member will not be required to convert a course without his or her agreement." The York faculty can ensure that the new technology, if and when used, will contribute to a genuine enhancement rather than a degradation of the quality of education. They have also preserved their positions, autonomy, and academic freedom. The battle is far from won, but it's a start.

The second set of implications stemming from the commoditization of instruction involve the transformation of the university into a market for the commodities being produced.

Administrative propaganda routinely alludes to an alleged student demand for the new instructional products. At UCLA, officials are betting that their high-tech agenda will be "student driven," as students insist that faculty make fuller use of the Web-site technology in their courses.

But, to date, there is no evidence that students have made

such a demand. Indeed, the few times students have been given a voice, they have rejected high-tech initiatives hands down, especially when they were required to pay for it.

At UCLA, students recommended against the Instructional Enhancement Initiative. At the University of British Columbia, home of the WEB-CT software being used at UCLA, students voted in a referendum four-to-one against a similar initiative.

Administrators at both institutions have tended to dismiss, ignore, or explain away these negative student decisions, but there is a message here: Students want the genuine face-to-face education they paid for, not a cybercounterfeit.

Nevertheless, administrators at both UCLA and UBC, desperate for some return on their investment in the information technology infrastructure, decided to proceed with their agenda anyway.

The administrators are creating a market by fiat, compelling students and faculty to become users and consumers of the hardware, software, and content products as a condition of getting an education.

There is another key ethical issue. Few students realize that their computer-based courses are often thinly veiled field trials for product and market development. Students aren't aware that while

they are studying their courses, their courses are studying them.

In Canada, for example, universities have been given royalty-free licenses to Virtual U software in return for providing data on its use to the vendors. All online activity, including communications between students and professors and among students, are monitored by the system for the vendor.

Students enrolled in courses using Virtual U software are formally designated "experimental subjects." Because federal monies were used to develop the software and underwrite the field trials, vendors had to comply with ethical guidelines on the experimental use of human subjects.

All students who enroll have to sign forms releasing ownership and control of their online activities to the vendors.

At UCLA, all of their distance learning courses are likewise monitored and archived for use by company officials. According to the provost's office, student use of the course Web sites will be routinely audited and evaluated by the administration.

The creator of WEB-CT software used at UCLA acknowledges that the system allows for automatic storage and retrieval of all online activities. How this capability will be used and by whom is not altogether clear, especially since Web sites are typically being con-

structed by people other than the instructors.

What third parties will have access to the student's communications? Who will own student online contributions? What rights, if any, do students have to privacy and proprietary control of their work?

In Canada, student organizations have begun to confront these issues head on, and there are some signs of similar student concern emerging in the United States.

In his classic 1959 study of diploma mills for the American Council on Education, Robert Reid described the typical diploma mill as having the following characteristics: "no classrooms, faculties are often untrained or nonexistent, and the officers are unethical self-seekers whose qualifications are no better than their offerings." This is an apt description of the new cyberspace digital diploma mills now in the making.

Quality higher education will not disappear entirely, but it will soon become the exclusive preserve of the privileged, available only to children of the rich. For the rest of us, a dismal new era of higher education has dawned. In 10 years, we will look upon the wired remains of our once great democratic higher education system and wonder how we let it happen. That is, unless we decide now not to let it happen. ■

Endnotes

¹ Noble, "Science for Sale," *Thought & Action*, vol 1 number 1, fall 1984.

² Tuition began to outpace inflation in the early 1980s, at precisely the moment when changes in the patent system

enabled the universities to become major vendors of patent licenses. According to data compiled by the National Center for Educational Statistics, between 1976 and 1994 expenditures on research increased 21.7 percent at public research universi-

ties while expenditure on instruction decreased 9.5 percent. Faculty salaries, which had peaked in 1972, fell precipitously during the next decade and have since recovered only half the loss.

³ Recent surveys of the instructional use of information technology in higher education clearly indicate that there have been no significant gains in either productivity improvement or pedagogical enhancement. Kenneth C. Green, Director of the Campus Computing Project, which conducts annual surveys of information technology use in higher education, noted that "the campus experience over the past decade reveals that the dollars

can be daunting, the return on investment highly uncertain." "We have yet to hear of an instance where the total costs (including all realistically amortized capital investments and development expenses, plus reasonable estimates for faculty and support staff time) associated with teaching some unit to some group of students actually decline while maintaining the quality of learning," Green wrote. On the matter of pedagogical effectiveness, Green noted that "the research literature offers, at best, a mixed review of often inconclusive results, at least when searching for traditional measures of statistical significance in learning outcomes."