Virtual

BY CARRIE CONAWAY
ILLUSTRATIONS BY JOEL HOLLAND
PHOTOGRAPHS BY KATHLEEN DOOHER

University

Is online learning changing higher education?

College education hasn't changed much since the first modern university was founded in Bologna, Italy, in 1119. Higher education was then, and is now, at its core about communication. It is a continuous dialogue between teacher and learner, who work together to find a path toward a new understanding about the world. Nearly a millennium later, despite many changes in the technology of communication, professors and students are still participating in this same exchange.

This is not to say that new communication technology has had no impact on higher education; indeed, it has played a key role in expanding the university's boundaries. Johannes Gutenberg's movable-type printing press, for instance, enabled the rise of the modern university itself. No longer was the expansion of knowledge limited by the scarcity of manuscripts, since books could now be reproduced quickly and cheaply. As more people became literate, universities sprang up to meet the new demand for higher education. But until the mid-nineteenth century, education was still

primarily a face-to-face affair. Students could read books on their own, for certain, but the interaction with a teacher so critical to the learning process could only happen in person. Mail-based correspondence courses, offered in Britain as early as the 1840s, for the first time allowed personal contact between teacher and student outside the time and space constraints of the classroom. From then on, the many improvements in communication have all been used to extend education's reach. Instructional films were introduced in the early 1900s, and later advances like satellite broadcasts, videotapes, and teleconferencing were exploited for their teaching potential, as well. But in the end, none of these technologies could hold its own against the traditional classroom. Students worked in isolation from one another, faculty were not easily accessible to students, and there were frequently considerable time lags in feedback and communication—all poor substitutes for a campus-based education.

Today the Internet is staking a claim as the solution to the problems of teaching and learning at a distance. Its popularity in the higher education setting is indisputable. Online courses enroll almost 2 million students at nearly 2,000 U.S. universities, according to the National Center for Education Statistics. A quarter of these universities offer entire certificates or degrees that can be earned without ever setting foot on campus. Distance learning enthusiasts argue that the Internet can speed up interactions into real time, reduce the barriers to communication between students and faculty, and make the university accessible to more people by eliminating the need to come to campus physically. As a result, online classes can replicate the traditional university environment with more success than any previous distance learning tool.

Students like the convenience of online courses

On the one hand, this is good news for students who have difficulty working with a campus-based curriculum; the Internet will make higher education more accessible to them. But it also means that online learning, unlike its predecessors, is a potentially formidable competitor for students' higher education dollars. Education specialists worry that it could knock marginal schools out of business or reduce the quality of higher education overall. Some say it might even end face-to-face instruction as we know it. Is online learning the death knell of the university?

THE CLASSROOM GETS CONNECTED

In her graduate-level "Leadership and Management" course last May, Professor Deborah Nutter of Tufts University's Fletcher School of Law and Diplomacy posed the question, "Who do you think is the most successful and effective foreign policy leader of the twentieth century?" One student defined successful and effective as "a person who has been able to spread his thoughts, ideas, and activities internationally and has thus influenced the whole world significantly." He then noted that Lenin could be seen as such a leader since he was a powerful purveyor of Communist ideas both before and after his death. Another disagreed, arguing that Lenin's influence was no more than a myth perpetuated by the Communist Party. The two parried for a while, and then the discussion turned to other candidates.

None of this classroom debate is so remarkable, except that it all occurred online. Stepping into an Internet classroom is at once familiar and alien to anyone who has experienced a traditional college education. All the usual elements of a class are there—the professor, the students, the syllabus, the lectures and discussions. But each has metamorphosed into something recognizable as, but thoroughly changed from, its in-person counterpart. For instance, rather than face-to-face introductions, online students often meet the professor and their fellow students by reading online biographies, or perhaps by downloading prerecorded audio or video clips. The syllabus is accessible with a click of the mouse, and it may change frequently as students and faculty work together to chart the direction of the course. Lectures, broadly defined, still play an integral part in conveying course material for many classes, but they often take advantage of the Internet's interactivity by including links to relevant sources or providing alternate explanations to mesh with different learning styles. Course discussions like the one in Nutter's class do not require all students to participate at the same time. Instead, they happen via "asynchronous chats" in which students log in at their leisure, read the prior discussion on the topic at hand, and participate by responding in kind. Students even do group projects, communicating with group members via email or instant messaging facilities. All these features are made possible by courseware such as WebCT and Blackboard, a new generation of software that integrates all these classroom-related functions into one seamless and easy-to-navigate package.

Why would universities adopt this teaching model, so far outside their usual purview? Student demand is a primary reason. As the nation becomes increasingly wired, students expect to communicate online with their professors and their university as easily as they do the other businesses they patronize. It makes sense for universities to invest in courseware to facilitate this interaction—and once courseware is available for on-campus courses, it's not much more effort to move a course completely online. As universities have added technical capacity, they've also discovered other advantages of teaching over the Internet. For one, the lack of physical boundaries in Internet-based learning can help public institutions and community colleges achieve their goal of serving the whole community. John Christensen, a coordinator of academic services at the Community College of Vermont (CCV), says, "Online learning is the ultimate fulfillment of what's been our mission since we started 30 years ago. We're bringing college into people's homes." Furthermore, online learning can be cost-effective; most online courses are no more costly than their in-person equivalents. "The software for teaching online is not inexpensive, but online courses don't have the facilities cost," says CCV's president, Tim Donovan. The price is worthwhile since distance learning helps expand the student base, increasing revenue potential.

Institutions that see the advantage of developing an online cur-

WORKING TOGETHER

Connecticut's colleges have solved the problem of the costly initial investment in online learning technology by joining their online offerings together into the Connecticut Distance Learning Consortium. Every higher education institution in the state is a member. "We have access to a dependable server, qualified people to help with course design, technical support, and a think tank to bounce ideas off," says Judith Slisz (right), dean of online programs at Teikyo Post University in Waterbury, Connecticut. "Because we partner with the Consortium, we've been able to offer online courses cost-effectively. If we had to pay for and supply and staff all the services that the Consortium provides, it would be much more difficult." Students benefit because their financial aid carries over to online courses at any university in the Consortium. In total, the Consortium coordinates 23 online degree programs with six more in development, plus a dozen certificate programs, all for a reasonable fee to its membership.

Judith Slisz, dean of online programs, Teikyo Post University

riculum have myriad choices about how to proceed. At the course level, depending on the topic and the resources available, online classes can vary from little more than a correspondence course to an extremely interactive learning environment requiring high levels of student participation. Institutions must also decide how their entry into Internet-based learning should fit within their broader organization and mission. For example, at the Massachusetts Institute of Technology, online learning has meant making all their course materials available online within the next decade, but without providing any teaching content. For the New Hampshire Community and Technical Colleges System, it has meant obtaining a license for courseware to support the several dozen online courses currently offered and the 50 to 100 courses in development for next semester, as well as ensuring that credits for online courses transfer throughout the system. The Community College of Vermont, which has been teaching online for five years, has gone a step farther than New Hampshire by offering entire degree and certificate requirements that can be completed without ever going to a physical campus. Connecticut has created a statewide distance learning consortium so that each school does not have to reinvent the wheel of developing online courses. Elite institutions, such as Tufts University in Medford, Massachusetts, are developing professional master's programs with residency requirements and substantial name-brand cachet. And the potential to reap riches has attracted new entrants to the field—institutions such as Jones International University and Cardean University that exist only online, with no bricks-and-mortar campus to speak of. (The best-known of these, the University of Phoenix, is in fact neither new nor online-only; it was founded as a for-profit university with traditional campuses in 1976 and added an online campus in 1989.)

Whatever its form, this new approach to education has proved popular among students who find campus-based courses restrictive or impossible to manage. "My work schedule is very inconvenient," says Joann Nguyen, a student in legal studies at the University of Maryland University College (the online branch of the University of Maryland) who also works full-time as a loan representative for the Connecticut Student Loan Foundation in Rocky Hill, Connecticut. "It's extremely difficult for me to take morning classes, and by the time I get out of work most evening classes have started. But with an online course, I can attend class on Sunday morning in my pajamas with a cup of coffee if I want." Like Nguyen, the prototypical online student is an adult learner working full-time who has taken previous college-level coursework in a campus setting and who is highly motivated to finish a degree. This is a population on the increase; according to the National Center for Education Statistics (NCES), only about one-third of college students fit the description of an 18- to 21-year-old attending college full-time. Forty-one percent of students (and 69 percent of part-timers) are age 25 or older.

Online learning is initially attractive to this growing group of students because it makes balancing school, work, and home duties much easier. They come back for more because they are also satisfied with online course content and quality. A recent survey by NCES shows that three-quarters of students who have taken a course over the Internet liked it at least equally as well as traditional courses. As a result, the number of online classes is increasing rapidly. According to technology industry analysts, 47 percent of U.S. colleges offered some form of online learning in 2000. This percentage is expected to increase to almost 90 percent within the next three years. Likewise, schools that already offer online courses are seeing big upticks in enrollment. To accommodate the increased demand, university investment in distance learning technology, faculty, and support is expected to rise nationally from $900 million in 1999 to an estimated $2.2 billion by 2004.

The Internet has expanded university boundaries

COMPETITION IN THE LAND OF BRICKS AND IVY

Online learning has brought new competition to the previously insulated world of higher education. For one, the geographic boundaries of the university have exploded. Elite research universities and liberal arts colleges have always attracted a national, even international, student body. But the range of education options for most students, especially the adult learners who comprise the largest portion of online students, used to be restricted to the schools within a reasonable drive from home. That usually meant community colleges, branch campuses of state universities, and small private colleges. But according to Donovan, "With the Internet, geography starts to mean nothing." Many universities are now vying for students against schools that wouldn't have even been on their radar screen a decade ago. Nguyen, for example, chose the University of Maryland University College when she couldn't find a legal studies program near her Enfield, Connecticut, home that fit into her nontraditional work schedule.

Furthermore, while some educators have argued that the quality of education via distance learning is inferior to that in a traditional classroom—and therefore is not a competitive threat—research evidence shows this need not be the case. It is certainly true that universities that do not include enough interactivity and communication in their online courses will be shortchanging their students. But more often than not, students learn just as much online as they do in the classroom since, as one distance learning expert put it, "Good teaching is good teaching is good teaching." The Community College of Vermont experienced this with their very first Internet-based course, a political science course with concurrent online and on-campus sections. At the end of the semester, the professor found that students performed equally well in both sections. This type of result is by no means unusual. Thomas Russell, director emeritus of instructional telecommunications at North Carolina State University, set out to examine whether technology improved classroom outcomes by reviewing every scholarly study on the topic. After assessing over 350 studies, he reported in his book, *The No Significant Difference Phe-*

MEETING ITS MISSION

Starting an online master's degree program helped the Fletcher School of Law and Diplomacy at Tufts University in Medford, Massachusetts, find a new way to fulfill its mission of educating professionals for international leadership positions. The Fletcher School is now in its second year of offering its highly regarded Global Master of Arts Program (GMAP) to high-level international affairs specialists around the world. "We started GMAP because we couldn't reach some of the students we really wanted," says Deborah Nutter (right), senior associate dean and director of the program. "For example, we have a student who is an undersecretary in the office of the president of Uganda. How can we get him to come to a campus-based program? We can't." Unlike the online offerings at many schools, GMAP incorporates an intensive residential component into its one-year curriculum—two weeks at the beginning of the program, plus two more two-week stints later in the year. Meeting each other in person, according to Nutter, ensures that the students feel a part not just of GMAP, but also of the broader Fletcher community. (It doesn't hurt that they have the same access to student services, from library resources to job placement, as regular Fletcher students.) The courseware itself is surprisingly low-tech. "We have students dialing with very slow connections. It's nice to have different kinds of streaming media, but it's not practical for our students. We keep the technology simple, but effective," says Eric Burkhart, manager of technology for the program.

Deborah Nutter, senior associate dean, Fletcher School of Law and Diplomacy

nomenon, that "No matter how it is produced, how it is delivered, whether or not it is interactive, low-tech, or high-tech, students learn equally well with each technology and learn as well as their on-campus, face-to-face counterparts." This doesn't surprise CCV's Donovan. "Face-to-face interaction with faculty is less important than we'd like to believe," he contends. "In an on-the-ground course in a lecture, you may have face-to-face contact with your professor, but do you have a learning relationship? Not necessarily."

But this need not mean that the campus-based university is an endangered species. For one thing, not all courses translate easily into the online environment. Traditional lecture courses and discussion-based seminars usually fare well. But laboratory science classes like biology and chemistry and hands-on courses like computer repair tend to be less successful, since the learning process requires demonstrating techniques and using expensive scientific and technical equipment. Likewise, master-apprentice relationships, common in graduate programs, are hard to sustain without frequent in-person contact. And for some students, there is just no substitute for a traditional class. Some want the residential collegiate experience of living in a community of scholars, something hard to replicate on the Internet. Others find the independent work required of an online student difficult. "In an online environment, much more self-motivation is required to be successful than in a traditional classroom. Some students don't function well online, partly because just having to come to class is a reminder that they need to do something—do the reading or produce the assigned classwork," comments John LeBaron, distance learning expert and professor of education at the University of Massachusetts Lowell.

An on-campus living experience is still valuable

But even if online schools could compete on all these factors, they would still have a critical problem to contend with: their legitimacy. The students who take online courses and the faculty who teach them say that distance learning is the real thing, but many employers still look askance at online-only degrees. Only 26 percent of human resources managers surveyed recently by Vault.com, a career development website, agreed that an online bachelor's degree is as credible as a traditional degree. Internet extensions of bricks-and-mortar schools, though still less esteemed, are more acceptable because of their brand-name advantage. It's hard for an employer to differentiate a lesser-known online university from a diploma mill churning out phony degrees for a moderate fee and no effort on the student's part. A degree from a school with a familiar name seems more genuine.

Adding to the legitimacy problem, universities themselves sometimes bestow a different degree to distance learning students than to on-campus students; for example, undergraduate students in Harvard University's division of continuing education receive a bachelor of liberal arts, rather than the more traditional bachelor of arts or bachelor of science. This is particularly common at elite schools, which want to maintain the value of their brand name while still reaping revenues from Internet-based courses. By differentiating the degrees, however, universities in effect dilute the worth of credentials obtained from a distance. The potential lack of credibility and, hence, market value for online programs ensures the persistence of traditional degree programs, at least in the short run. "Education is expensive. It's hard to convince people to fork over ten or twenty thousand dollars without evidence of a return on the investment," says LeBaron. But on the other hand, he also feels the legitimacy issue may dissipate as online learning becomes more commonplace. "The proportion of people who say that distance learning is fluff is dropping precipitously," he contends. "Five years from now, very few people will say that. They'll be living in an ancient world if they do."

THE FUTURE IS NOW

Who will be winners and losers in the market for students' educational dollars? Regionally based private colleges geared toward adult learners will likely face the toughest battle with online providers, since they offer degrees that can be obtained more cheaply from public institutions and more conveniently from online schools. "There's a lot of competition for that market, which is why many of those schools are starting to offer online courses," says Judith Slisz, dean of online programs at Teikyo Post University in Waterbury, Connecticut. Community colleges and regional public universities will probably emerge relatively unscathed. They offer a less-expensive alternative to both nationally recognized online universities and regional private schools that will continue to prove popular among educational bargain-hunters. The most selective institutions will encounter the least competition from online providers. They make their money from the scarcity of their product, not its accessibility, and thus can afford to enter the online market on their own terms—or to choose not to enter it at all.

It's hard to imagine that the traditional university as we know it will be gone anytime soon. So perhaps the most interesting outcome of the new competition in higher education will not be which institutions last, but how online learning affects the rest of the university. Already the line between online and on-campus learning is blurring. "Professors are bringing back the new teaching paradigms that they use online into their regular classes. There is more interactivity and more access for all students," says Ed Klonoski, executive director of the Connecticut Distance Learning Consortium. Students at many schools may choose to take courses in each format as best fits their schedules and learning needs. And online-based coursework will likely become less stigmatized as more online students join the workforce with newly minted skills in hand. Thus, just as the written word and the printing press expanded the boundaries of education, so too will online learning. But at the end of the day, what universities do will be much the same as what they did a millennium ago. Though the medium may be different, professors and students will still be producing knowledge by interacting with each other. The more things change, the more they stay the same. ✳

INCREASING ACCESS

The Community College of Vermont (CCV) was an early entrant into Internet-based learning; it has been teaching online since it first offered American Politics and Government over the Internet in 1996. Since then it has expanded its offerings to over 70 courses each semester in topics ranging from accounting to Vermont history, and its online program has become a full-fledged "thirteenth campus" complementing its 12 physical campuses scattered around the state. By the end of the year, CCV students will be able to complete the concentration requirements for associate's degrees in liberal studies, business, or criminal justice entirely online. Offering classes over the Internet helps solve one of the institution's perennial problems as a rural community college—not having enough students in any one place. "We can't provide all our programs every place in the state and have them succeed economically," notes CCV's president, Tim Donovan (left). "But with online classes, we can raise the class size average and build a critical mass of students in a course." It also allows them to provide students with unique learning opportunities; for instance, one political science course held an online discussion with Vermont's senior U.S. senator, Patrick Leahy.

Tim Donovan, president, Community College of Vermont