

THE WEB OF LEARNING

Web access is already affecting learning, but will it transform traditional schooling, eliminating such fixtures as face-to-face classroom teaching?

by Donald N.S. Unger

Schools across the nation are wiring up. Colleges and universities are moving to second-wave technologies. Wireless campus networks offer anytime, anywhere Internet access for students and faculty. Dozens of companies are providing net-based services ranging from research access to course-companion Web sites to online distance education that may remake the academic landscape in the next few years.

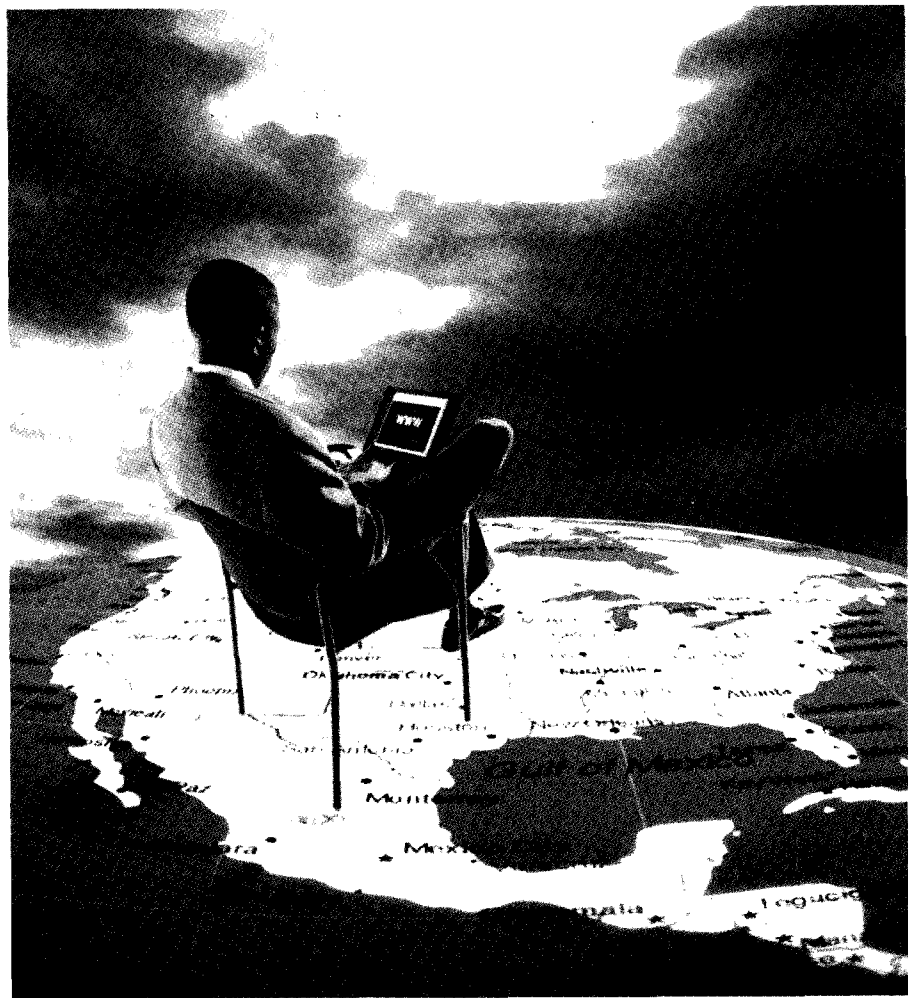
What does all this mean? What further changes can we expect in education? In the K-12 arena, two major issues have emerged—the need for basic technological literacy and the question of cost. For post-secondary education, the issue of cost is also relevant. Is technology meant to supplement traditional methods of education or to replace it?

“Computer literacy,” Vice President Al Gore has said on the campaign trail, “is a fundamental civil right.”

Being technologically illiterate, the job market has affirmed, is an “employment wrong.”

This is one reason that public schools across the nation have been grappling with how to make sure their students are not left on the wrong side of the technological divide. While some debate continues about efficacy, for the most part school systems with the means are trying to get laptops into the hands of the maximum number of students as fast as they can.

At the K-12 level, what students and teachers are doing with computers depends on the student age group and available resources. At bare minimum, students of all ages need some basic exposure to computers. While many grandparents



are sending e-mail now, plenty of parents still blanch at the thought of physical contact with a computer; their children don't have that luxury.

Students at this level unquestionably benefit from Internet access, particularly in schools where libraries are sparsely stocked. The Internet as online library and peerless archive is invaluable in that context.

Who Pays and How?

The key question for most school districts, with their limited funds and nearly unlimited spending demands, is how to pay for the technology they believe their students need.

In Maine, Governor Angus King has proposed taking advantage of the state's overflowing coffers, at a time when many

states are running surpluses. He suggested creating a \$50-million endowment (the legislature cut this back to \$30 million) that would begin paying for laptops and Internet access for seventh graders in 2002, and keep doing so each year. By 2007, every student in Maine, from seventh grade up, would have a computer.

Other districts, including the nation's largest, New York City, are considering programs that would essentially trade advertising opportunities, on the computers

features ads from corporate sponsors and public service announcements. Participating schools promise at least four hours of use per machine per day, while permitting demographic tracking of the students.

Many parents like the deal. It's more for less, they say. Educators are more ambivalent. Some don't see any problem. Some see a problem, but figure it's worth the price to provide computers to the students.

Will the increased use of technology be a democratizing force or will it widen the gap between the haves and the have-nots?

and on the school district's Web site, along with the sale of the data generated by student computer use, for free equipment and services. Students are a hot demographic, and even information that adheres to fairly strict privacy standards—allowing the system maintainers to monitor only a user's age, gender, and zip code—do a great deal to allow more precise target marketing.

This is nothing new. In 1989, Christopher Whittle, of Whittle Communications, launched Channel One (www.channelone.com), a company that offers free TVs and VCRs to schools. Participating schools show 12 minutes of Channel One programming each day; this content includes up to two minutes of ads and public service announcements, as well as educational videos. That company rolls on, as does the debate between its supporters and detractors.

ZapMe! is a California-based company that provides the analogous computer deal to junior and senior high schools: free computers, printers, and satellite-based broadband Internet access to the "ZapMe! netspace," a proprietary interface that includes over 14,000 preselected and indexed educational sites, applications, and services, including Microsoft Office, and productivity tools for teachers. The ZapMe! interface includes an onscreen billboard that

Groups like The Center for Commercial-Free Public Education (www.commercialfree.org) disagree, and they have support from cultural commentators as far right as Phyllis Schlafly's Eagle Forum and as far left as Ralph Nader's Commercial Alert. We should be buying equipment *from* companies, not selling our children *to* companies, they say vehemently.

"In essence," says Commercial Alert's Web site (www.essential.org/alert), "ZapMe! plants computers in the schools as advertising delivery, market research, and surveillance machines. It turns the schools and the compulsory schooling laws into a means of gaining access to a captive audience of children in order to extract market research from them and to advertise to them.

"We oppose ZapMe's business operations in the schools," the site continues. "ZapMe! violates the privacy of schoolchildren, misuses the schools and compulsory schooling laws to force children to watch ads during school time, and degrades the moral authority of schools and teachers by turning them into instruments of corporate advertising and marketing."

Writing of programs like ZapMe! in her Eagle Forum Web site newsletter (www.eagleforum.org), on April 19, 2000, Phyllis Schlafly agreed, saying, in part: "Public schools have emerged

as the advertisers' dream come true. The advertisers have figured out how to turn schoolchildren into a captive audience forced to watch commercials and forbidden to turn them off."

In New York City, the Board of Education has been investigating the development of a Web portal for the school system, which would carry ads from companies like Toshiba, Cisco, and IBM. The system would also allow users to click through to companies and make transactions on which the board would earn a percentage. Speaking to a *New York Times* reporter, in April of 2000, Robbie McClintock, co-director of the Institute for Learning Technology at Teachers College, Columbia University, and a member of the Board of Education's task force that explored the proposal, was philosophical:

"If somebody came to me out of the blue and said there should be an advertising-based portal for New York City schools, I would have said that is not the way to go.

"But as a way of contending with the issue of limited resources and getting well-developed educational programs, it is something you can make a much better case for. It is being voiced as a means of bridging the digital divide."

ClubMed MD, Meet WWW PhD

Didn't get into Stanford? Don't worry. Any point-and-click experience? Well, congratulations! It just so happens that you have precisely what Stanford is looking for—Stanford, and dozens, soon to be hundreds, of universities worldwide. Many even let you earn your degree this way. Is that what you want? For many, the answer will be yes.

In part, this has to do with the huge changes that have taken place in American education in the last half-century. In 1940, less than 40 percent of Americans completed high school; by 1995, that number had more than doubled to over 80 percent. In 1940, less than 10 percent of Americans held a bachelor's degree; by 1995, that number had more than doubled to almost 25 percent.

In the first half of the twentieth century,

college students were likely to be the sons of the privileged elite. By the end of the twentieth century, the college population in the U.S. had greatly diversified, and more people were going to college not because they wanted to, but because it was becoming a professional requirement. In effect, more students are now going to college for training and certification than for education.

less powerfully so. Here, traditionally education has been local, and still is. I think of the one-room schoolhouse, the funding of schools by local property taxes, and the emergent home-schooling phenomenon.”

A professor of English and a specialist in the teaching of writing, Moran was part of the first wave of academics to look into the ways that computers and

now the Internet are changing the teaching profession. One of his primary interests is the manner in which new technologies affect resource allocation.

“It is interesting,” he notes, “that private colleges are not first in the field, and that public post-secondary systems are. This raises the specter of a two-tier system, where expensive, private colleges deliver face-to-face instruction and public colleges and universities

deliver education at a distance.”

For Moran, the issue is not what will be done—he has no doubt that technology will continue to affect campuses nationwide—but *how* things are done, and, perhaps more important, *why*. Will the increased use of technology be a democratizing force or will it widen the gap between the haves and the have-nots?

The federal government shares some of Moran’s concerns about the growing digital divide. The Web-based Education Commission (www.webcommission.org), a congressionally created 14-member body chaired by Senator Bob Kerrey, has been charged with exploring the question of improving educational software and Internet use in U.S. classrooms. The commission, which held its first formal meeting in November 1999, aims to complete its work and report back to Congress in November 2000.

President Clinton, Democratic and

Republican congressional leaders, and Education Secretary Richard Riley named the commission’s members. They include Sen. Jeff Bingaman, D-N.M.; Rep. Chaka Fattah, D-Pa.; John Gage, chief researcher and director of the science office at Sun Microsystems; Florence McGinn, an English teacher from Flemington, N.J.; Susan Collins, senior vice president and general manager at bigchalk.com; and Douglas R. King, president and CEO of the St. Louis Science Center.

One area of contention on the commission, according to an article that appeared in the *Chronicle of Higher Education* (August 2000), is copyright law. Some commission members contend that the law should be amended to expand the “fair use” provision so that copyrighted materials that can be used in classrooms can also be used in Web-based programs. Not surprisingly, the authors and publishers who own these copyrights don’t want their work used without compensation.

Who’s Behind the Curtain?

Whether college courses are fully Web-based or use the Web to supplement traditional classroom teaching, much of the tech work is often outsourced. The dominant model for this is the Web portal. Web sites like Blackboard.com, e-education.com, and XanEdu.com provide a space for professors to store everything from a syllabus to a reading list to their grade books. They also provide space for students to access the materials, their classmates, and their instructor. The portal becomes both a virtual meeting space and a virtual archive.

This has the same obvious benefits as the Web storage of other resources. As long as you have Web access, you have access to the class and all its resources. You need not hunt down, or worry about losing, any of the reading material, the syllabus, or the professor’s contact information. No need to wander around campus, seeking the right classroom, the library, or the bursar’s office.

Courses offered as part of bricks-and-mortar institutions are usually standardized. More and more colleges are hiring consultants to help faculty members create Web sites for their



In-school commercial ventures like Channel One continue to provoke debate. Channel One delivers 12 minutes of programming—like Tracy Smith’s report from the Democratic National Convention in Los Angeles—each day, including two minutes of ads and public service announcements.

When politicians and business leaders talk about “life-long learning,” they often mean “retraining.” The economy is moving faster and faster, technology is moving faster and faster. As workers, we can’t stand still; we have to retrain faster and faster.

For that task, distance learning is certainly a good option. For distance learning, the Internet is the culmination of trends that have also been brewing for decades, if not longer. When television first appeared, it was heralded as a medium that would revolutionize education. Even before television, we had correspondence courses, and the first technology to be harnessed to this purpose was radio.

As Professor Charles Moran of the University of Massachusetts at Amherst points out, “Distance education has been around for a long time—correspondence courses on BBC radio, for example. It’s been a presence in America, too, but much

courses. More and more colleges are looking for Web-savvy people when they hire new faculty.

Using these portals, however, anyone can create and run a course. At the lowest levels, many of the portals offer free access and will even, for a fee, facilitate student credit card payments to instructors. More lavish attention is available on a fee-for-service basis, up to and including comprehensive Web design assistance.

Increasingly, we are seeing online courses or even entire degree programs, which are hybrid creations of old-fashioned bricks-and-mortar institutions—colleges and universities—and New-Economy media companies. An example of a joint venture between a prestigious academic institution and a new media company is the recently announced MBA program to be offered by Britain's Cambridge University. Following is an excerpt from a June 29, 2000 press release on the Web site of FT Knowledge, a subsidiary of the media company that owns *The Financial Times* of London:

"FT Knowledge has joined forces with Cambridge University's business school, the Judge Institute of Management, to develop an Executive MBA for the 21st century. Combining close contact with world leading management experts and innovative online and interactive learning options, this prestigious and flexible alternative is expected to be offered to MBA candidates around the globe from September 2001."

On closer reading, we found an interesting aspect of the program, described in the same release. It said: "Students of the new MBA course will access up to 35 percent of the programme via open learning materials developed by staff at the Judge Institute of Management and delivered via new technologies developed and supported by FT Knowledge. The remaining 65 percent of the programme will be delivered in a more traditional face-taught environment during the twice-yearly residential courses." [emphasis added]

The bottom line is that no more than one-third of the students' total work will be done in any manner other than traditional "face-teaching." Rather, the course of study will be radically

condensed into four two-to-three-week periods over the two years of work, not so very different, in the end, from other "low-residency" degrees, which have been offered for some time.

Does Cambridge University feel the need to do something new and different? Or simply to give the *impression* of doing something novel, and in that way appear to be keeping up with the times?

After the issues of access and equity, after the questions of general dislocation and reconfiguration—the same chaos that technological change has brought to other parts of our lives—the main question may be quite simple. We *can* use technology to do interesting and useful things in education. Now, *will* we?

Can Technology Bridge the Learning Gap?

In his January 2000 State of the State address, Michigan Governor John Engler proposed expanding one of the state's online education programs, the Michigan Virtual University (MVU; www.mivu.org), and creating the Michigan Virtual High School and Advanced Placement Academy (MVHS). Six months later, the legislature passed, and Engler signed, legislation that sets up a three-year, \$18-million pilot program to test the idea.

The program is set to come online in the 2000-2001 school year, with an

initial expenditure of \$15 million; \$1.5 million has been budgeted for the two successive years.

The program aims to cover a lot of ground, providing the opportunity for high-achieving students to access Advanced Placement (AP) classes, which their schools may not offer, and for students with a range of learning problems to access online assistance. According to *The Detroit News*, only 45 percent of Michigan high schools currently offer AP courses. MVHS has purchased a two-year license for AP courses and materials from APEX Learning.

One possibility for the future is that the system will also allow Michigan residents to earn graduate equivalency diplomas (GED's) by studying on, and possibly even taking an exam on, the Web.

Courses will not be free. According to the MVU Web site:

1. MVHS will rely on a cooperative model that encourages schools throughout Michigan and elsewhere to share virtual instructors in exchange for a specified number of students from their districts to take MVHS courses.
2. Courses that are provided by Michigan colleges and universities will probably carry the same tuition and fees as their campus-based courses.
3. MVHS expects to secure statewide licensing for online courses developed by other virtual high schools throughout the U.S. and internationally. The cost for these courses will range from minimal fees to

Related Web Sites

COLLEGE/UNIVERSITY SITES

www.ptw.com/~moorepa/college.html
www.mivu.org

EDUCATION PORTALS

www.blackboard.com
www.e-education.com
www.horizonlive.com
www.jenzabar.com
www.peoplesoft.com/go/portal/education
www.webct.com
www.xanedu.com
www.zapme.com



ADVOCACY WEB SITES

www.commercialfree.org
www.eagleforum.org
www.essential.org/alert

prices similar to college tuition.

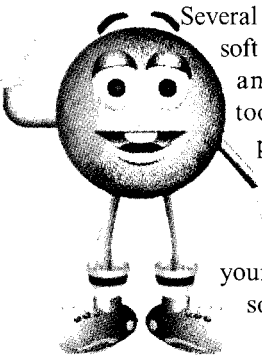
4. MVHS will also promote courses developed by private companies. Reduced pricing may be available through competitive statewide negotiations.

5. MVHS will seek philanthropic support for scholarships and assistance.

Some critics have suggested that the system will largely benefit students from more affluent families, who have computers and Internet connections at home. The state has responded that students with fewer resources can access computers in schools or libraries.

Florida and Kentucky already have similar systems; Illinois and Wisconsin are studying the idea. School districts around the country, independent of statewide plans, are also using such systems, many contracted *ad hoc* from private vendors. □

Ivan, Can I Get Good Sushi Around Here?



Several years ago, Microsoft brought us "Bob," an annoying cartoon character that people quickly rejected; it was like interacting with your computer via a sock puppet.

Next up? Son of Bob: myIVAN, the "Intelligent Voice Animated Navigator."

The myIVAN program is an Internet navigation software package that you can talk to and listen to. Call that a conversation, if you want.

Based on an artificial intelligence engine, myIVAN appears as a blue and green representation of the globe, complete with eyes, eyebrows, and mouth. It looks something like an M&M with spindly arms, hands clad in white gloves, and stick-like legs, his feet shod in athletic socks and sneakers. He has a faintly British, slightly jerky synthesized voice, and you can navigate the Web by talking to him.

He talks back, asks you questions, and calls you by your name. If myIVAN's appearance makes you feel too silly, you can shut off the visual.

According to the Web site (www.myivan.com), the program is "comprised of artificial intelligence, an expert system, a series of knowledge bases, and natural language processing...it understands concepts such as topic, subject, synonym relationship, and enables the computer to ask the user intelligent questions

Have You Seen My Latest Book? It's at xlibris.com

In the beginning, there were vanity presses—"We show you the way to publication."

The way was fairly simple. You paid them and they *printed* your book—which is not *quite* the same thing as published. Depending on what you wanted—graphic-design services, editing, publicity—you could pay quite a bit. A few months later, UPS showed up at your door with several crates of books.

Sometimes, a vanity press was a reasonable way to go. You could print a limited run of Cousin Oliver's history of the family for the next reunion or do a few dozen copies of your niece's collected poems for her 12th birthday. For the most part, however, vanity publishing was a sad scam for the egotistical and the uninformed, along with those matchbook promises that you could earn the respect of your friends by ordering a Ph.D. through the mail.

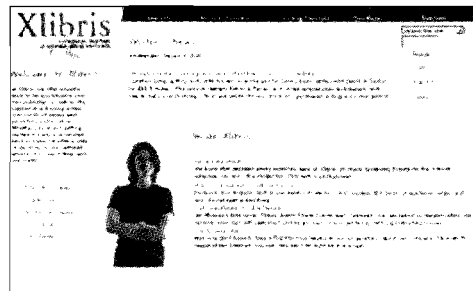
In the last ten years or so, a number of smaller, literary presses, have evolved into micro presses. They do all the setup work involved in putting a book together—a collection of poems, for example. Then, they print the books only as orders come in. Laser printers and inexpensive binding machines have radically reduced the cost of casual book production; putting not a dime of capital into an inventory that might or might not sell made things that much more workable.

It's even easier on the Web.

One of the better known Web incarnations of this idea is xlibris.com.

The basic service, as long as your manuscript is already on disk, is free. You can purchase higher levels of control and more sophisticated graphics for \$300, \$600, or \$1,200 per book. In any of the four categories, your book is listed at Amazon.com and other Web sellers, with a biography and a description that you write. It can be looked up via the author's name, the title, or the subject, and casual browsers can read an excerpt. Those interested in buying can order directly or have a bookstore do the ordering. The royalties are split with the author.

Is it worth it? Well, vanity is vanity, wherever you find it. Cousin Oliver—say what you will, but he could spell better than most of these Web writers. ■



to help clarify and learn from their requests."

This application is certainly worth a look for people with disabilities that make keyboard use difficult or impossible. Children will probably like it, too. Perhaps the most interesting niche for myIVAN will be wireless and keyboard-less connections,

as our cell phones all gradually become Web enabled.

The software is a product of One Voice Technologies, Inc., in San Diego, and can be downloaded free from the Web site (a slow process at 100MB) or ordered on CD (pay just shipping and handling). □