

# Signs of the Times

## CHANGE IS COMING FOR E-LEARNING

By Sally M. Johnstone



In my work with higher education professionals in other countries, I am reminded of how fortunate we are in the United States. For the most part, U.S. colleges and universities are well connected, with high-speed access to the Internet. If a student does not have his or her own computer, there are campus computer labs with fairly open access to the Internet. As Kenneth C. Green's *Campus Computing Survey* reveals each year (<http://www.campuscomputing.net/>), more classes are incorporating Web sites, more students and their professors are using e-mail for in-depth communication, and more campuses are enabling students to conduct administrative transactions via the Web. Recently I attended a meeting of individuals from European Union colleges and universities who are examining issues concerning their use of information communication technology. I quickly realized that very few countries have such a wired higher education system as the United States.

Those of us in U.S. colleges and universities have had the luxury of experimenting with new ways to use these technologies to engage students in academic activities, and we have learned a great deal. But I believe there are several trends that will influence the next stage of what we do with these technologies. Because of radical shifts in the economy and because of the flexibility offered by e-learning, both students and the institutions that serve them are approaching education differently. This suggests that we need to rethink some of our fundamental practices and we need to consider the most critical roles of e-learning in the mission of the U.S. educational system.

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Although I do not anticipate immediate radical changes, right now higher education expenditures are being reduced at both public and private institutions. Most states are facing either revenue shortfalls or projected overspending in areas like Medicaid. Some states are facing both. The most vulnerable areas for state cuts in spending are typically transportation and higher education. In a survey conducted by the State Higher Education Executive

concomitant rate while competing for the best students.

It is hard to tell what 2003 will bring. But to make good decisions, institutional leaders, college and university system planners, and legislators want more information about the real costs of integrating technology into teaching and learning. They also want to know how effective such investments have been in the past. But determining “effectiveness,”

highest-priced academic staff members end up providing technical, logistical, and all academic support to the students. This is certainly not the most effective use of that person’s time, nor is it the most efficient strategy for the use of institutional resources. Some new models need to be developed (or adapted from open universities around the world).

In looking at these costs and thinking about strategic planning for e-learning, it



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Officers (<http://www.shceo.org>) in June 2002, only twenty-three states had finalized budget information available. Of these twenty-three states, 39 percent had cuts to the postsecondary budgets from the levels of the previous year. Another 30 percent had a less than 1 percent increase in their appropriations. Though the survey did not reflect information on what will happen in the other twenty-seven states, it is unlikely to be very good for higher education budgets. To make matters even more interesting, historical precedent suggests that the cuts could keep coming. In an audio briefing, staff at the National Conference of State Legislators (<http://www.ncsl.org/>) pointed out to WCET members<sup>1</sup> that even though the recession of the early 1990s was declared over in 1991, the effects on state budgets were most profound in 1992.

It is not only the public higher education institutions that are being affected by the current economy. Dartmouth University announced that it will be cutting its budget for the next fiscal year to make up for losses in its endowment.<sup>2</sup> The endowment investments lost money, whereas the budget planners had assumed a reasonable return on those investments. Smaller private institutions are seeing their costs rise, and many are finding it difficult to raise their fees at a

“performance,” or “savings” is difficult without a generally accepted methodology for calculating the costs of alternative technology models. Too often, traditional measures of technology costs have reflected whatever conclusion a researcher wanted to reach. Thanks to a partnership between WCET and the National Center for Higher Education Management Systems (NCHEMS), planners can now use a series of tools based on objective costing measures that have been tested in twenty different types of settings including single campuses, state university and college systems, and a statewide virtual high school. The tools are being refined regularly, but the latest versions are available for anyone to download.<sup>3</sup>

As many others have pointed out, if technology costs are simply added to traditional teaching and support activities, the result is a nice-looking, fun set of learning activities that cost more than the classroom model but that may not increase either the students’ or the instructors’ performance or productivity.<sup>4</sup> In the most typical approach to e-learning, a professor develops all the online materials for a class, manages the class, and assesses the students. There are a variety of well-designed commercial tools to enable this practice. However, this e-learning model means that the institution’s

becomes clear that serving students on or off a campus with electronically mediated resources involves much more than just putting course materials and support online. For these resources to be effective and efficient, there must be involvement and commitment from the whole institution. Good design of courses is critical, but so is good design of non-course-specific support systems.

### Sharing Academic Materials

The current economic situation may well push those in higher education to be more creative in how they develop new electronically mediated learning materials. Colleges and universities may be reaching a point where not everyone can afford to do everything. Not every member of a faculty needs to develop and support electronic course materials. Campuses need to find ways to share electronic courses. Although faculty members have experience using the same textbook at several campuses, few have experience using imported electronic course materials. A couple of decades ago, the Annenberg/CPB Projects developed an impressive array of electronic course materials, some of which have been updated and are still in use at institutions through arrangements with their public broadcasting stations.

These materials supplement textbooks, instructors' guided support of students, and their assessment. The creation, dissemination, and support for these course materials were centralized.

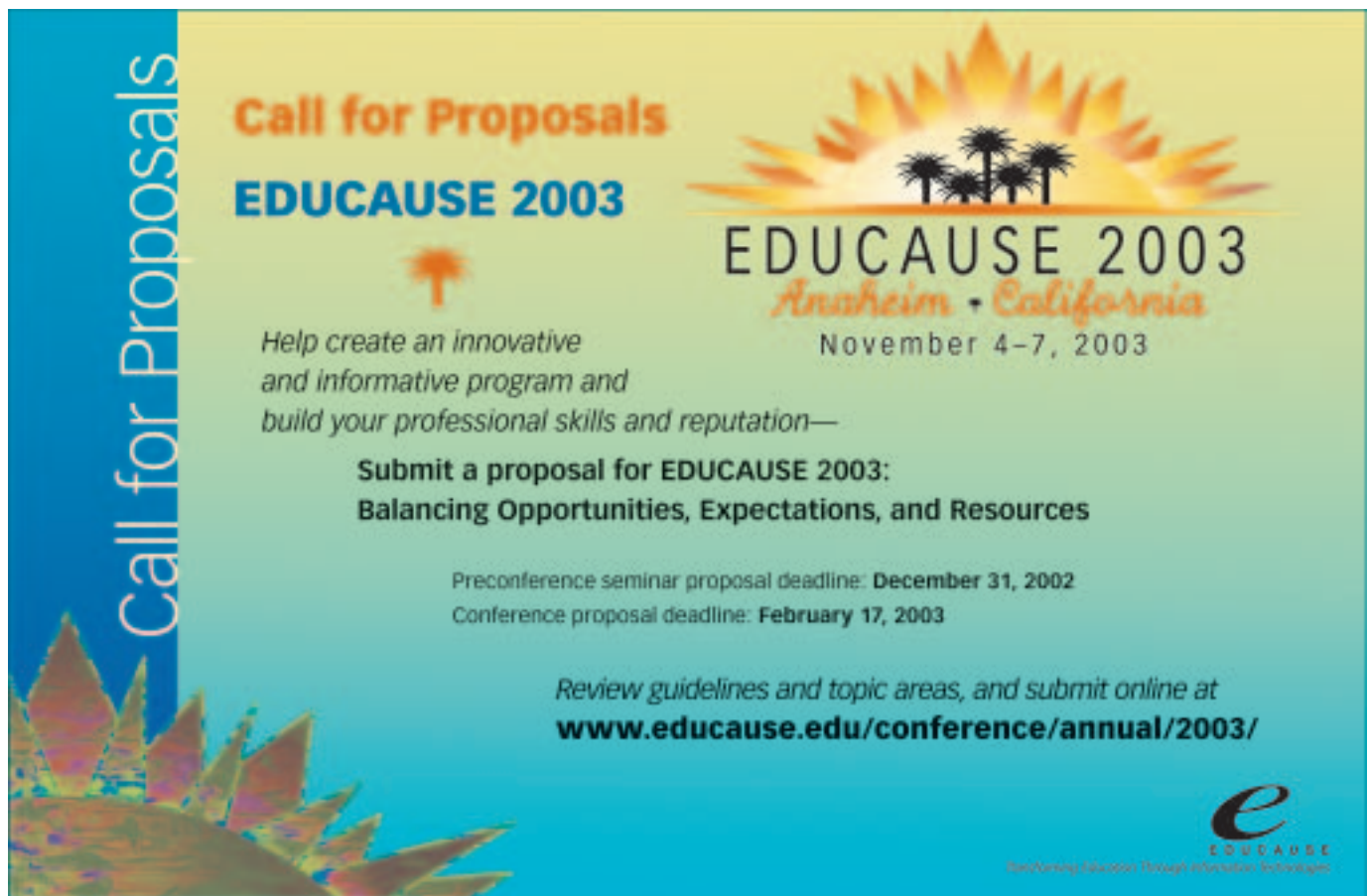
Since there are a lot of courses developed for the Web by individual campuses, the best route may be to establish a distributed network of course developers that sell, lease, share, or swap courses with other campuses. For example, this past year Rhonda Epper, at the Community College of Denver (CCD), helped mount a statewide e-learning program for potential nurses. Given the scarcity of time and resources available to build this program, Rhonda decided to look for opportunities to import parts of the curriculum. She was able to find other institutions that were willing to share online nursing curricular materials. Although no "official" exchange of courses was made, nursing faculty at the cooperating institutions allowed viewing privileges to one another's courses in an effort to accelerate the course-development

process. In a survey conducted in the summer of 2002, WCET found that several institutions across the country are using courses developed at other institutions, especially in two situations: when there is a need to expand the number of courses rapidly in order to meet state mandates or student demand; and when expertise in a specialized subject area is not available at a campus.<sup>5</sup>

In addition to the reasons mentioned by the survey respondents, a couple of environmental factors may push institutions into more course-sharing. The first relates to demographic projections. Between the years 1996 and 2008, eighteen states expect to be facing a greater than 25 percent increase in the number of high school graduates.<sup>6</sup> Some of those states will have over a 50 percent increase. Most of those young people are likely to want access to higher education. Another five states will see a decrease in the number of high school graduates. If these projections hold, the higher education capacity of some states will ex-

ceed demand, whereas a larger number of states will need greater capacity. Another factor to consider is what Cheryl Blanco, director of policy analysis and research at WICHE, calls the "faculty retirement bubble." According to a U.S. Department of Education survey in 1999, 18 percent of full-time higher education faculty members in public four-year institutions were sixty years of age or older.<sup>7</sup> These faculty members are starting to retire. The same survey suggests that of those not ready to retire in the next few years, 23 percent indicated they were likely to accept employment outside higher education. The shifts in the U.S. economy may have influenced that latter 23 percent, but national data are not available yet to be sure. Colleges and universities may be facing a problem in faculty availability as well as a mismatch in higher education capacity among the U.S. states.

There is much to discover and learn about how faculty will work with students using imported electronic materi-



The poster features a vertical blue bar on the left with the text "Call for Proposals" written vertically. The main background is a gradient from yellow at the top to blue at the bottom. At the top right, there is a graphic of a sun with rays and palm trees. Below this, the text reads "EDUCAUSE 2003 Anaheim • California November 4-7, 2003". In the center, there is a small orange sun icon. Below that, the text says "Help create an innovative and informative program and build your professional skills and reputation—". Underneath, it says "Submit a proposal for EDUCAUSE 2003: Balancing Opportunities, Expectations, and Resources". At the bottom, it provides deadlines: "Preconference seminar proposal deadline: December 31, 2002" and "Conference proposal deadline: February 17, 2003". At the very bottom, it says "Review guidelines and topic areas, and submit online at www.educause.edu/conference/annual/2003/". In the bottom right corner, there is the EDUCAUSE logo, which consists of a stylized 'e' and the text "EDUCAUSE" and "Reinforcing Education Through Information Technologies".

als and about how campuses will manage the distribution of these materials. But in light of all these factors, it does seem likely that this type of course-sharing activity will increase, since it is the only way that many colleges and universities will be able to offer their students the highest-quality electronic academic materials.

### **Banding Together**

Another response to the economic realities of designing and supporting electronic learning resources has been the formation of consortia. Over the last five years, there has been an explosion in the number of institutions that are working together to share resources in e-learning. These consortia are taking many forms. Many are based on state geographical boundaries. Some are designed to assist the institutions in the availability of online services. Some are focused on ensuring that the citizens of the particular state have all the services they need. For example, a Connecticut consortium was formed to help institutions save re-

sources as they entered the e-learning world. Among other activities, the consortium staff arranges collective buying services from vendors so that each institution saves some money but also a lot of time by not having to go through individual procurement processes.<sup>8</sup>

Some state and multistate consortia create a common Web site that lists all the courses available electronically from the colleges and universities that participate. This can also lead to the collective marketing of these courses. For example, the Southern Regional Electronic Campus coordinates the listing of e-learning courses available from the sixteen member states of the Southern Regional Education Board (<http://www.sreb.org>). A Colorado consortium not only lists the courses at a single Web site but also uses other media to advertise the Web site (<http://www.cconline.org>).

Eight of the institutions in the University of Texas System have banded together to create a single degree program. Traditionally, these campuses have been

quite autonomous, usually competing with one another for students and funding. But since none of them were in a position to mount the full e-learning degree program independently, they all worked with the University of Texas TeleCampus to parse out the design and teaching of a series of courses that result in the degree. Students can register with any campus but will have taken classes from each of the different campuses by the time the degree is complete. Other states have used similar approaches, in that e-learning courses are not duplicated at

the institutions within the state, but the Texas program is one of the most integrated.

In addition, several international consortia assist members with marketing and with finding partners in different countries. NextEd, operating out of Australia, manages a consortium of colleges and universities in New Zealand, Australia, North America, and the United Kingdom. NextEd is assisting these institutions in their work with partners in China. Other international consortia seem less focused, but all are working at reaching wider markets around the world.

The development of these consortia is a very rational approach for institutions as they face the reality that students do not have to move around physically to be able take advantage of the multiple e-learning opportunities now available. Students can now choose when they want to study and with which institution they want to study.

### **Shifts in Student Mobility**

Even a decade ago, about half of U.S. students did not take all their classes from a single institution. By 1994, almost half of students who had begun college in 1989 had enrolled in more than one institution.<sup>9</sup> Examining national transcript data only a few years later, Clifford Adelman found that 54 percent of those students who ultimately earned baccalaureate degrees had attended two or more institutions; 19 percent had attended three or more. He also found many instances of simultaneous enrollment at multiple institutions and of “reverse transfer” from four-year to two-year institutions.<sup>10</sup> This tendency to move among institutions has been called “swirling,” and the colleges and universities through which such students “swirl” may not even be aware of



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one another. The phenomenon is hard to track because most of the data on student enrollment behavior in higher education come from institutions, not students. But it seems highly unlikely that the trend has slowed in recent years.

The “swirling” student expects all the credit hours that he or she has earned to count toward a degree. The student (or his or her parents) typically does not recognize any difference between the calculus courses taken at a community college and those offered by a research university. But faculty *do* think there are differences, and this sets up quite a challenge for traditional institutions, whose faculty base their degree requirements on the assumption that the courses taken by students fit together as intended.

It seems that students are beginning to act like consumers of education. They are shopping for the best deals or the best teaching approach for their needs. But most institutions did not anticipate this new, consumer-oriented approach to course-taking and are not set up to handle it very well. They are still tracking progress toward a degree based on credit hours. Many institutions do not make it easy for students to transfer credits from a different institution. As noted, their reasons relate back to the assumption that a particular course *fits* into the curriculum in a specific way. This assumption carries with it the idea that regardless of who teaches the course, as long as that person is in the same department that has designed the curriculum, there will be a good fit. To open up the ability of students to have all their collegiate work count toward their academic goal (presumably a degree), institutions may need to think about moving toward a better

measure of academic progress. For this reason and several others, Peter Ewell, Karen Paulson, and I have argued for a better-developed, “learning outcomes” system that might help solve this dilemma.<sup>11</sup> Using a metric of student learning instead of time-in-class has the advantage of allowing students to make use of many different types of electronically available learning materials as well. But it does require some major rethinking of the business models currently used in higher education.

### Critical E-Learning Goals

In his report for the academic year 2000–2001, the president of the Massachusetts Institute of Technology (MIT), Charles M. Vest, considered the following question: “How is the Internet going to be used in education, and what is your university going to do about it?” Part of his answer was to declare that “inherent to the Internet and the Web is a force for openness and opportunity that should be the bedrock of its use by universities.” Vest added: “We now have a powerful opportunity to use the Internet to enhance [the] process of conceiving, shaping, and organizing knowledge for use in teaching. In so doing, we can raise the quality of education everywhere.”<sup>12</sup>

MIT responded to this opportunity by beginning the OpenCourseWare (OCW) project (<http://web.mit.edu/ocw/index.html>). Through OCW, over the next ten years MIT will post on the Web the substance of more than two thousand courses. It will make the course materials available to anybody, anywhere in the world, at no cost thanks to support from the William and Flora Hewlett Foundation and the Andrew W. Mellon Founda-

tion. OCW will not, however, offer online courses. The typical content for a course will consist of lecture notes, course outlines, reading lists, assignments, and similar course elements, as well as experiments, demonstrations, and students’ work. A critical aspect is that the course materials will be in their context of course sequences and programs. MIT’s academic offerings will be fully exposed to the world.

MIT’s OCW is conceptually straightforward: put course materials on the Web and give them away as a worldwide educational resource. The implications for higher education, however, are anything but simple. What will the project mean for local and regional institutions? What will make OCW a useful resource for faculties and institutions? To answer these questions and others, in December 2001 WCET hosted a forum, sponsored by the Hewlett Foundation, to examine some of the issues that may arise as OCW becomes a reality.<sup>13</sup>

Among the issues explored were the implications of OCW for traditional institutions. Most U.S. higher education institutions have long followed the “cottage industry” model: those in the individual institution have defined, designed, implemented, and assessed the entire process of teaching, research, and service as conducted within those walls. They have used technology to enhance the existing cottage-based product rather than considering its implications for the future of the institution. But in recent years there has been pressure to change that model. The University of Phoenix, other entrepreneurial specialized institutions, and the corporate purveyors of postsecondary courseware have demonstrated

key characteristics of information-age organizations: they are oriented toward broader (sometimes global) markets; and they focus on functions in which they excel and can compete effectively. In response, many old-line colleges and universities are gradually moving into the mode defined by Arthur E. Levine, president of Columbia University Teachers College, as “brick-and-click”: they have added a significant layer of technology-based services on top of their traditional structure. A few have launched virtual universities that operate entirely online.

With its OCW initiative, MIT is using these same technologies to pursue a different path. Whereas other institutions

Africa, Russia, India, the Middle East, and the Asia Pacific region.<sup>14</sup> Those from the developing countries had several suggestions about how they could make use of MIT’s open courseware. All the suggestions involved modifying the material to fit their cultural realities. There was wide acceptance for online access to educational resources, with the caveat that the access should not be one-way. It was proposed that once the cultural modifications were made, there should be a “place” to share the modifications. Creating and supporting that “place” is beyond MIT’s intentions, but perhaps UNESCO will take on that role. The forum participants adopted a resolution to call the

old point. Institutions have moved way beyond a few courses being available at a few campuses. Crossing the threshold has resulted in serious attention being paid to e-learning by state and national policymakers. They are expressing concerns about quality assurance and fiscal accountability. The U.S. Congress will be considering new higher education reauthorization legislation and may open up financial aid to e-learners in ways not previously available. The World Trade Organization (WTO) has education services, including e-learning, on its negotiation docket.

In the second trend, institutional planners are beginning, just beginning, to sort out the complexities of using Web tools to



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seek to enroll students in *their* courses and programs, MIT is giving away the substance of its courses, inviting institutions to make appropriate local adaptations. In many ways, the success of OCW will be measured by the skill of the local instructors who use the courseware as a professional resource, building it appropriately into courses designed for their population of students, for the cultures reflected in their institutions, and for their specific curricula. In designing their courses in the past, these faculty members have incorporated textbooks and audiovisual materials; now, MIT offers a wealth of courseware and a helpful set of curricular benchmarks for the consideration of these faculty users.

In July 2002, I chaired a United Nations Educational, Scientific, and Cultural Organization (UNESCO) meeting discussing the open courseware concept with people from institutions in the United States,

international movement “Open Educational Resources.” Since July, members of the group have begun planning the next stages of their work together.

As noted, this international effort was inspired by and based on MIT’s OCW project, one of the genuinely powerful ideas in higher education today. The core idea has profound implications: one of the world’s leading institutions of higher education will publish online the substance of its courses and will make that knowledge freely available to institutions and learners anywhere and everywhere. In a turbulent world, that idea addresses, openly and respectfully, our common society.

### Summary

There are three critical trends on the state, national, and international educational horizon. The first trend relates to the level of e-learning activity in colleges and universities: it seems to have reached a thresh-

restructure many campus services. This is true not just of the academic programs but of all the nonacademic as well. Campus leaders are beginning to rethink the whole support structure for students, requiring some serious adjustments of traditional management systems.<sup>15</sup>

The final trend involves the growing interest in finding a way to share online academic materials. Replicating everything that has been done online not only is costly but also makes very little sense. Planners at smaller or less-well-financed institutions are seeking ways to get access to these materials through partnerships, consortia, and licensing agreements. In several developing countries, college and university personnel are already passively using Web-based academic materials created by individuals who never envisioned that particular use of their materials. The international academic community is starting to find ways to

create interactive relationships around these resources.

Each of the above trends has implications for how colleges and universities “do business.” As in all times of radical change, many different approaches are being tried. Some will fail, but some will show promise and will suggest steps beyond the ones now being contemplated. I feel certain that in twenty years, the U.S. higher education system will look quite different. I suspect that overall, it will be more diverse in scope, offering students more options. I also think that individually, most institutions will have a narrower set of activities. Finally, I anticipate that institutions will have much more formal sharing relationships, which I *hope* will not be limited by national boundaries. I will check back in 2022. *e*

#### Notes

1. WCET (Western Cooperative for Educational Telecommunications) was founded by the Western Interstate Commission for Higher Education (WICHE) in 1989. WCET's members are higher education institutions, state agencies, and non-profit and for-profit organizations from forty-six states and six countries.
2. Martin Van Der Werf, “Endowment Losses Force Dartmouth to Cut Its Budget,” *Chronicle of Higher Education*, August 26, 2002.
3. Thanks to funding from the U.S. Department of Education's Fund for the Improvement of Postsecondary Education (FIPSE) and the Andrew W. Mellon Foundation, WCET and Dennis Jones, from NCHEMS, created the Technology Costing Methodology Project (<http://www.wiche.edu/telecom/projects/tcm/project.htm>).
4. The data emerging from the institutions participating in the Pew Grant Program in Course Re-design, conducted by the Center for Academic Transformation (<http://www.center.rpi.edu/PewGrant.html>), offer a detailed analysis of the differences that occur when institutions totally re-design their courses.
5. This survey was part of a study sponsored by the William and Flora Hewlett Foundation.
6. *Knocking at the College Door: Projection of High School Graduates by State/Race/Ethnicity* (1998), WICHE publications (available from <http://www.wiche.edu/Pubs/detail.asp?id=138>).
7. *National Study of Postsecondary Faculty, 1999* (NSOPF:99), Data Analysis System, CD-ROM (Washington, D.C.: National Center for Education Statistics, Office of Educational Research and Improvement, U.S. Department of Education, 2001).
8. Rhonda Epper and Myk Garn are currently developing a report on these statewide “virtual universities.” The study, jointly sponsored by SHEEO and WCET, should be available early in 2003.
9. Alexander C. McCormick, *Transfer Behavior among Beginning Postsecondary Students: 1989–94*, OERI Publication #NCES 97-266 (Washington, D.C.: National Center for Education Statistics, Office of Educational Research and Improvement, U.S. Department of Education, 1997).
10. Clifford Adelman, *Answers in the Toolbox: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment* (Washington, D.C.: Office of Educational Research and Improvement, U.S. Department of Education, 1999).
11. Sally M. Johnstone, Peter Ewell, and Karen Paulson, *Student Learning as Academic Currency*, ACE/EDUCAUSE monograph series, Distributed Education: Challenges, Choices, and a New Environment, no. 4 (Washington, D.C.: American Council on Education, 2002).
12. Charles M. Vest, “Disturbing the Educational Universe: Universities in the Digital Age—Dinosaurs or Prometheans?” Report of the President for the Academic Year 2000–01 (MIT, 2001), <http://web.mit.edu/president/communications/rpt00-01.html> (accessed September 12, 2002).
13. John Witherspoon, senior advisor at WCET, wrote a report on the forum. See “MIT's OpenCourseWare Initiative: Reading the Implications,” <http://www.wiche.edu/telecom/resources/publications/ocw.pdf> (accessed September 12, 2002).
14. See John Witherspoon's summary report: “UNESCO Forum: Open Courseware for Developing Countries,” <http://www.wcet.info/UNESCO/witherspoon.pdf> (accessed September 12, 2002).
15. For further information about campus restructuring of student support services, see “Beyond the Administrative Core: Creating Web-Based Student Services for Online Learners,” developed from a U.S. Department of Education, Learning Anytime Anywhere Partnerships (LAAP) grant to WCET, <http://www.wiche.edu/telecom/projects/laap/index.htm> (accessed September 13, 2002).