DISTANCE LEARNING IN
HIGHER EDUCATION

n April 1998, *Assuring Quality in Distance Learning: A Preliminary Review*, a report prepared for the Council for Higher Education Accreditation (CHEA) by The Institute for Higher Education Policy, examined technology-mediated distance learning in higher education and the policy questions its growth has raised. Distance learning is an exciting component of postsecondary education, providing opportunities to expand the reach of education and change its impact. But because the technology that is involved is ever changing, it is necessary to reexamine the issues from time to time. This narrative provides an update to the information and issues discussed in the report. It is anticipated that additional updates will be published approximately every six months.

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OF DISTANCE LEARNING
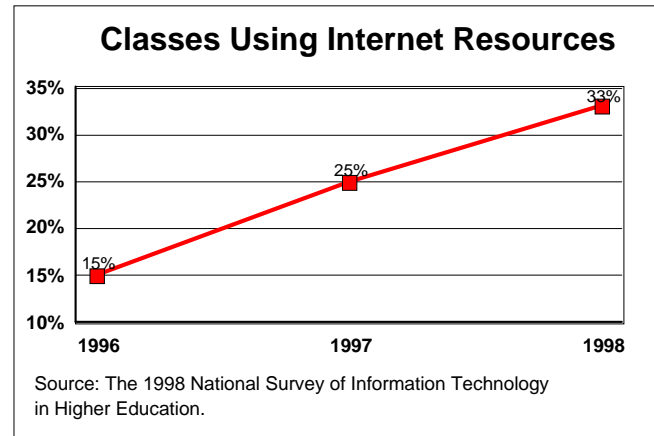
Computer Growth

According to a survey by ZD Market Intelligence, approximately 52 million homes—half of all U.S. households—now have at least one personal computer. Low prices and a desire to be linked to the Internet drove nearly 4 million buyers to purchase their first personal computers in the first half of 1998. A sea change appears to be occurring among people of modest means. Currently, households with annual incomes of less than $30,000 make up a quarter of PC-equipped households; yet they account for a third of all new PC purchases in 1998. According to commentator Andrew Glass, to gauge a comparable potential impact on U.S. society, one has to go back two generations to when access to television became widespread, and four generations to when the number of motor vehicles of all types hit five million.

The 1998 National Survey of Information Technology in Higher Education

The Campus Computing Project, which focuses on the use of information technology in higher education, recently released the results of its ninth annual Campus Computing Survey. Conducted during the summer of 1998 and based on data provided by officials at 571 two- and four-year colleges and universities across the United States, the survey reveals the following findings.

■ Top information technology challenges confronting colleges and universities include (1) helping faculty integrate technology into instruction, (2) providing adequate user support, and (3) financial planning for information technology.

■   More college courses are using technology. The percentage of classes using e-mail increased to 44 percent in 1998, up from 33 percent in 1997, 25 percent in 1995, and just 8 percent in 1994.

■   One-third of all classes are using Internet resources as part of the syllabus, compared with 25 percent in 1997, and 15 percent in 1996. Almost one-fourth of all college courses are using World Wide Web (WWW) pages for class materials and resources, compared with 8 percent in 1996 and only 4 percent in 1994.

■   It is estimated that 45 percent of undergraduate students use the Internet at least once a day, compared with 52 percent of the faculty. Both the student and faculty percentages are highest in research universities (over 50 percent for both groups). In contrast, 29 percent of the students and 40 percent of the faculty in community colleges have daily contact with the Internet and the WWW.

■   Forty-six percent of the institutions in the survey report a mandatory student information technology fee, up from 39 percent in 1997 and 28 percent in 1995.

■   Despite the growing importance of intellectual property rights, only 28 percent of public four-year colleges and 27 percent of community colleges have institutional policies about web-based intellectual property, and only 14 percent of four-year private colleges have addressed the issue. In contrast, 39 percent of public universities and 30 percent of private universities report some type of
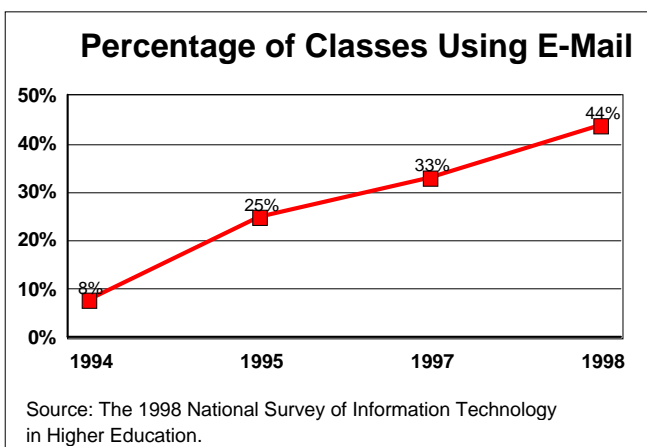
Classes Using Internet Resources

Source: The 1998 National Survey of Information Technology in Higher Education.

policy addressing faculty-developed intellectual property on the campus web site.

■   Across all sectors of higher education, a growing number of institutions are using the WWW to provide access to admissions forms, financial aid applications, course catalogs, and related materials.

Explosion of High Speed Networks

The now familiar Internet, which accommodates millions of Web surfers to and from commercial, government, and university sites around the world, is increasingly being called the "commodity Internet" to distinguish it from several emerging high speed networks. In addition to using the Internet, more and more higher education institutions are being hooked up to a new generation of networks, which allow researchers to transmit data at speeds 100 to 1,000 times as fast as those of today's Internet. Internet 2—a consortium of 135 colleges and universities organized to develop uses for high speed networks and build better network technologies—is an active participant in this initiative. The following examples of high speed networks provide a flavor of this emerging phenomenon.

■   **Very-high-performance Backbone Network Service (vBNS).** Operated by the National Science Foundation (NSF), the vBNS is used by 128 institutions, which have received two-year "high-performance connection" grants of $350,000 to cover the cost of connecting to the network. To win a grant, an institution must submit a proposal showing ways in which its faculty members plan to use the connection for research.

■   **Abilene.** Operated by Indiana University, the Abilene network—scheduled to begin in January 1999—is faster than vBNS and is expected to

Percentage of Classes Using E-Mail

Source: The 1998 National Survey of Information Technology in Higher Education.

operate as a research-only network for at least five years. Unlike vBNS and other networks, which share wires with their commercial and research traffic, Abilene travels on a wire all its own—a single, hair-thin strand of fiber-optic cable. The NSF allows universities to use their high-performance connection grants to pay for connections to either vBNS or Abilene.

■ **Gemini2000.** In January 1999, IXC Communications announced a new high speed network called Gemini2000 that will serve commercial customers and universities. IXC plans to seek NSF's certification to allow universities to use their grants to connect to Gemini2000.

■ **Qbone**. In December 1998, the Internet 2 consortium unveiled a project to help researchers collaborate across multiple high speed networks and use advanced applications such as virtual reality and videoconferencing. Qbone (short for "quality-of-service backbone") will allow networks such as vBNS and Abilene to favor certain types of traffic over others. This initiative is necessary to ensure that advanced applications are not impeded because of the amount of other communications traffic. Quality-of-service technology will allow network administrators to assign a high priority to some information, therefore giving it a clear path through the network while lower priority communications wait their turn.

Internet Corporation for Assigned Names and Numbers

The federal government, which oversees technical functions of the operations of the Internet, plans to transfer its authority to an international non-profit body. The Internet Corporation for Assigned Names and Numbers (ICANN) is the front-runner for the job. In November 1998, ICANN held a meeting of 150 business leaders, scholars, and others to discuss how the organization should be structured, who should be offered membership in it, and how open to the public its proceedings should be. Shifting control over network operations has been under discussion for more than two years.

Network officials at colleges and universities are concerned about the stability of Internet operations, regardless of who takes control. In addition, there is some apprehension regarding how many new kinds of Internet addresses the

new group will allow. Currently, there are seven major domains on the Internet, each represented by a three-letter extension, such as ".com" and ".edu." There is pressure to create new domains, such as ".biz" and ".arts."

Until a consensus is reached regarding ICANN, the technical workings of the Internet will continue as they have thus far. In October 1998, the federal government agreed to a two-year extension of its contract with Network Solutions, the company that manages addresses ending in ".edu," ".com," ".net," and ".org." The contract stipulates, however, that the company open the address-registration business to competitors by the summer of 1999 and that it transfer technical control to a group like ICANN by March 1999.

DISTANCE LEARNING ACTIVITIES

In the ever-changing mosaic of the distance learning universe, new educational providers are being born, technology is being upgraded, software is being developed, and alliances are being formed almost on a daily basis. The following examples, which reflect the variety of initiatives and activities related to distance education, may help readers grasp this accelerating phenomenon.

Western Governors University

In November 1998, Western Governors University announced the creation of a distance-education consortium with the American arm of British Open University. The new organization, called the Governors Open University System, will allow students enrolled in either institution to take courses through the other.

Southern Regional Electronic Campus

The Southern Regional Education Board, a consortium of 16 southern states, estimates that the more than 100 colleges and universities that make up the board's Southern Regional Electronic Campus enrolled 15,000 students in distance-education courses as of November 1998. The Electronic Campus brokers more than 900 courses and 25 programs through distance education.

University of Florida Brain Institute

The University of Florida Brain Institute announced the opening of an all-digital medical technology center. Databases, images, interactive teaching, distance learning,

surgical training, and planning will all be part of the center's functions. Researchers across the country will be able to teach and be taught through the Institute's video.

Real Education

Located in Denver, Real Education provides the design, construction, and management of online campuses. It has grown to be the largest online education technology provider in the world: Real Education employs 100 people—up from just 15 a year ago—and expects to hire 200 more within another year. Real Education was recently awarded a $1.8 million grant from the U.S. Department of Commerce's National Institute of Standards and Technology (NIST) to help develop a Real Adaptive Intelligent Learning System (RAILS). The intent of RAILS is to address the need for a cost-effective and efficient way for non-programmers to create information-rich and interactive online courses. One feature of RAILS allows the system to automatically provide customized instruction to each student through the use of intelligent tutoring systems. The system will develop an internal model that will automatically deliver instructional content tailored to the learner's needs. Thus, students who need additional help on a specific topic will be directed to appropriate content, while advanced students will be offered an alternate format that will enable them to bypass content where they have already demonstrated mastery.

Kansas State University

Kansas State University has received a three-year, $300,000 grant from the Fund for the Improvement of Postsecondary Education (FIPSE) to fund faculty training for the revision of curriculum for online delivery of instruction. Sixty-six science and mathematics faculty will revise their on-campus courses for distance learning and will design most of the courses for the Internet and CD-ROM.

California Virtual University

The California Virtual University (CVU), composed of more than 100 non-profit and public campuses in the state, estimated that by the end of 1998, 25,000 students participated in online courses in California, although not necessarily through CVU.

Cable and phone companies

Cable and phone companies are aggressively attempting to enter the market for Internet access, eliminating the need for dial-up modems. Over the next year, hundreds of additional communities will be served by high speed cable modem service at prices of about $40 a month, in addition to the normal cable bill. The telephone companies are pushing their own high speed alternative, termed Digital Subscriber Lines (DSL). Although these technologies will still reach only a small minority of homes, the momentum is growing.

New York University

New York University (NYU) has established a for-profit subsidiary, known as NYU On-line Inc. The subsidiary will market educational courseware over the Internet to other institutions, corporations, and students who prefer the flexibility of learning online. Joining a growing number of institutions that view online learning as a potential revenue source, NYU will market non-credit courses over the Internet to corporate training programs or individuals in need of continuing education. NYU is partnering with publishers and media companies for course development. Initially, courses will be in real estate, finance, and information systems management.

Sylvan International Network

Sylvan Learning Systems, Inc., a publicly traded educational provider based in Baltimore, Maryland, has recently announced plans to found an international network of private, for-profit colleges. Sylvan has long been a leader in distance-based education, student testing, and remedial education. Commencing with the purchase of University Europa of Madrid, a 7,200-student, private for-profit university based in Madrid, Spain, Sylvan plans to expand its holdings by moving into the international market. If all goes as planned, Sylvan President Douglas Becker hopes to expand the network with the acquisition of another 10 or so European institutions. Joseph Duffey, formerly Director of the U.S. Information Agency as well as President of American University and the University of Massachusetts, Amherst, will lead the new venture.

REAUTHORIZATION OF THE HIGHER EDUCATION ACT OF 1965

Public Law 105-224, which extends the authorization of programs under the Higher Education Act (HEA), was enacted October 7, 1998. It contains three provisions related to distance education: the Distance Education Demonstration Program, Learning Anytime Anywhere Partnerships, and the Web-Based Education Commission.

Distance Education Demonstration Program

The purpose of the Distance Education Demonstration Program is to allow pilot projects that are strictly monitored by the U.S. Department of Education to test the quality and viability of expanded distance education programs that are currently restricted under Title IV. In addition, the program is designed to provide for increased student access to higher education through distance education programs and to help determine:

- the most effective means of delivering quality education through distance education course offerings;

- the specific statutory and regulatory requirements that should be changed to provide greater access to high quality distance education programs; and

- the appropriate level of federal assistance for students enrolled in distance education programs.

In the first year of the program, the Secretary of Education is authorized to select up to a total of 15 institutions, systems of institutions, or consortia of institutions, which are anticipated to participate in the program for five years. In the third year of the program, the Secretary is authorized to select up to 35 additional participants. The provisions explicitly state that Western Governors University shall be HOJLEOH to participate in the demonstration program.

The Secretary may waive statutory provisions for participants in the program in the sections of the HEA that:

- make an otherwise eligible institution ineligible if more than 50 percent of its courses are offered by correspondence and telecommunications;

- make an otherwise eligible institution ineligible if 50 percent or more of its students are enrolled in correspondence or telecommunications courses;

- define a telecommunications student at an institution as a correspondence student if 50 percent or more of the institution's courses are offered by correspondence or telecommunications;

- provide that an academic year must require at least 30 weeks of instructional time; and

- provide that an eligible vocational program must be provided during a minimum of 15 weeks or in limited circumstances, 10 weeks.

The issue of whether the Distance Education Demonstration Program would be subject to negotiated rule-making was the subject of some controversy. In early meetings with higher education organizations, Department of Education officials noted that, in keeping with their policy of regulating only when absolutely necessary, they were inclined to abandon the negotiated rule-making process so that the initiative could move ahead expeditiously. This drew strong reactions from some in the higher education community who feared that limited input from the higher education community would unfairly advantage certain institutions that were selected by the Department. There was also concern that waivers would weaken some of the safeguards that were put into law during the 1992 reauthorization of the HEA to reduce fraud and abuse at questionable institutions. The Department responded to these concerns and agreed to participate in expedited negotiations with higher education groups and other interested parties over the rules for administering the project.

At the same time that it authorized the demonstration program, Congress asked for an independent evaluation of the program from the Advisory Committee on Student Financial Assistance (ACSFA). The ACSFA is an independent congressionally-created committee charged with providing advice to Congress on the consequences of potential program and policy changes for meeting the goals of the student aid programs. ACFSA's perspective on the demonstration program, and on the consequences for the student aid programs of reducing or eliminating site-based eligibility restrictions, will be of keen interest as this process moves forward.

Learning Anytime Anywhere Partnerships

The purpose of Learning Anytime Anywhere Partnerships (LAAP), authorized at $10 million, is to enhance the delivery, quality, and accountability of postsecondary education and career-oriented lifelong learning through technology. The Secretary is authorized to make grants to, or enter into contracts or cooperative agreements with, eligible partnerships. The definition of "eligible partnership" encompasses two or more independent agencies, organizations, or institutions and may include higher education institutions, community organizations, and other public and private institutions, agencies, and organizations.

The full $10 million was appropriated for FY1999, and the grants, which cannot exceed five years and require 50 percent matching funds, would fund:

■   the development and assessment of model distance learning programs or innovative educational software;

■   the development of methodologies for the identification and measurement of skill competencies;

■   the development and assessment of innovative student support services; or

■   the support of other activities that are consistent with the purpose of this provision.

Applications are anticipated to be ready for distribution in January or February and grants will be made during the summer of 1999.

Web-Based Education Commission

The reauthorization of the HEA created the Web-Based Education Commission. It is charged with conducting "a thorough study to assess the educational software available in retail markets for secondary and postsecondary students who choose to use such software." Public hearings will be held in each region of the country.   The majority and minority leaders of the House and the Senate each will select two members of the Commission, and the President will select three members representing the Internet technology industry. The Secretary of Education will appoint three members who specialize in accreditation, statewide curricula, and education technology networks to round out the 14 member body. No later than six months after the first meeting, the Commission will submit a report to the President and the Congress containing findings and conclusions, along with recommendations for legislative and administrative actions and the appropriate federal role in determining quality educational software products. The Commission was authorized at $450,000 and received an appropriation for the same amount for FY1999.

INTELLECTUAL PROPERTY

In October 1998, the Digital Millennium Copyright Act was enacted into law. One of the provisions of the Act is a limitation on the potential monetary damages that Online Service Providers (OSPs), including libraries and educational institutions, could face when they function like a common carrier, allowing online users access to copyrighted material placed there by someone else. The statute, which became effective upon passage, requires that for an OSP to qualify, it must implement several novel requirements immediately, including:

■   the designation of an agent to receive statutory notices from copyright owners about infringements and to send statutory notices to affected subscribers;

■   notification to the Copyright Office of the agent's name and address;

■   the development and posting of a policy for termination of repeat offenders; and

■   the assurance that the system accommodates industry-standard technical measures used by owners to protect their works from unlawful access and copyright infringement.

A special exception has been created for public and non-profit higher education institutions that allows them to qualify for the limitation HYHQ ZKHQ WKH RIIHQGLQJ XVHU LV D PHPEHU RI WKH IDFXOW\ RU D UHVHDUFK JUDGXDWH VWXGHQW. It is not necessary to actively monitor material on the Internet; the limitation requires an OSP to take action when it has "actual knowledge" of an infringement (by facts brought to its attention or by notice from the copyright owner), but it does not impose the burden on the OSP to monitor or discover infringing behavior.

The new law should give library and educational service providers greater legal protection at a time of great uncertainty about the direction of intellectual property law.

INITIATIVES RELATED TO DISTANCE LEARNING

The ACCESS Project

In general, student information and services are still primarily institution-centered and geography-based. Many institutions currently offering distance learning programs assume that students are local/regional constituents who will access pertinent institutional information and student services through the conventional campus-based systems. Similarly, many institutions have established state and regional articulation agreements and transfer policies.

To overcome the gap experienced by many students who face increasingly complex learning solutions that may overwhelm the limited resources of traditional advising/counseling areas, the Public Broadcasting Service (PBS) is embarking on an initiative called Project ACCESS. Funded for $330,000 over three years by FIPSE, the initiative will design, establish, and operate at PBS an interactive Internet/web-based student decision-making and advising system that gives students information about colleges and distance learning programs nationwide. As a user-friendly student information "brokering center," the ACCESS project will offer students a "suite" of services designed to help them explore their academic and career options and to decide on the best colleges and distance learning programs—irrespective of where they physically reside—for their educational and career goals. Adult learners will be the direct beneficiaries of this project.

National Postsecondary Education Cooperative

In 1994, Congress authorized the National Center for Education Statistics (NCES) to establish the National Postsecondary Education Cooperative (NPEC). Its mission is "to identify and communicate ongoing and emerging issues germane to postsecondary education, and to promote the quality, comparability, and utility of postsecondary data and information that support policy development, implementation, and evaluation."

As part of the charge to NPEC, a policy panel was convened to address technology's effect upon the collection of national data. As a result, a report entitled 7HFKQRORJ\ DQG ,WV 5DPLILFDWLRQV IRU 'DWD 6\VWHPV was published in October 1998 The report is based upon the premise that using telecommunications-based technologies to deliver instruction and provide access to information resources has the potential to change postsecondary education significantly—its organizational relationships, financial operations, student participation patterns, and faculty roles and responsibilities. Some of the panel's observations include the following.

- Expanded use of technology seems to point to an increased need to focus on both students as the source of data and the development of new analytical conventions.

- Current institutional-based surveys, such as the Integrated Postsecondary Education Data Systems (IPEDS), need to be reviewed.

- Asynchronous delivery of instruction will call into question time-based measures such as opening fall enrollments, student credit hours, full-time vs. part-time, full-time equivalency, and retention and graduation rates.

- Students will be simultaneously affiliated with multiple providers.

- Definitions of program completion will reflect a broader array of learner objectives and certifications.

- Technology could undermine the relevance of many quality indicators that are currently used in postsecondary education, such as retention and graduation rates, student/faculty ratios, and number of books in the library.

- Institutions are no longer the obvious source of data about postsecondary education.

- New providers will emerge and decisions will have to be made as to which will be encompassed by future NCES surveys.

- Basic data building blocks such as student activities and instructional functions will become less well structured and more diverse across providers.

For further information on the resources cited in this report, please contact:

The 1998 National Survey of Information Technology in Higher Education
> The Campus Computing Project
> c/o Kenneth C. Green
> PO Box 261242
> Encino, CA 91426-1242

Intellectual Property
> Educause
> 1112 16th St., NW, Suite 600
> Washington, DC 20036
> www.educause.edu

The ACCESS Project
> Jacques H. Dubois
> Project Director, PBS Going the Distance
> 660 S. Brevard Avenue, #1541
> Cocoa Beach, FL 32931-4461

National Postsecondary Education Cooperative
> NPEC Project Office
> U.S. Department of Education
> National Center for Education Statistics
> 555 New Jersey Avenue, NW, Room 311
> Washington, DC 20208

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