

## FOCUS ON TECHNOLOGY'S IMPACT ON POSTSECONDARY EDUCATION

### In This Issue

...*Network News* provides an overview of technology's impact on postsecondary education. Particular attention is paid to recent studies looking at distance education and access. We start with a recent report from NCES that provides current national estimates on the amount of distance education taking place at 2-year and 4-year institutions. An article based on a report from Ron Phipps follows and discusses how technology can affect access to postsecondary education.

Next we provide a summary of a report from a recent SHEEO and WCET study that looked at the goals, functions, challenges, and outcomes of statewide virtual college/university (VCU) consortia. The authors share their sense of what is required for a successful system. A quick look at several state VCU systems (Illinois, Nebraska and Oregon) then follows. We close with a list of recommended publications and related resources.

The SHEEO/NCES Network staff hopes you find this information valuable. Please let us know of other resources in this area that merit attention and we'll be happy to share those as well.

### New NCES Report: Distance Education At Degree-Granting Postsecondary Institutions: 2000-2001

The National Center for Education Statistics (NCES) recently released *Distance Education at Degree-Granting Postsecondary Institutions: 2000-2001*. NCES used the Postsecondary Education Quick Information System (PEQIS) to provide current national estimates on distance education at 2-year and 4-year Title IV-eligible, degree-granting institutions. Distance education was defined as education or training courses delivered to remote (off-campus) sites via audio, video (live or prerecorded), or computer technologies, including both synchronous (i.e., simultaneous) and asynchronous (i.e., not simultaneous) instruction.

Estimates are available on a variety of topics related to distance education including, among others, the number and proportion of institutions offering distance education courses during the 2000-2001 year, distance education enrollments and course offerings, distance education degree and certificate programs, and distance education technologies.

The NCES findings for the 12-month 2000-2001 academic year include:

- Fifty-six percent of all 2-year and 4-year Title IV-eligible, degree-granting institutions offered distance education courses.

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Institutions offer distance education for several reasons but the majority of institutions reported that increasing student access to courses is a very important goal.

- There were an estimated 3,077,000 enrollments in all distance-education courses offered during that period. The majority of these (2,876,000) estimated enrollments were in college-level, credit-granting courses, with 82 percent of these at the undergraduate level.
- Most of the distance education course enrollments were in public institutions; 90 percent of public 2-year and 89 percent of public 4-year institutions offered distance education courses, compared with 16 percent of private 2-year and 40 percent of private 4-year institutions.
- Of the institutions that offered distance-education courses, about a quarter offered 10 or fewer courses, 25 percent offered 11 to 30 courses, and 15 percent offered 31 to 50 courses. In addition, 19 percent offered 51 to 100 courses and 15 percent offered more than 100 distance education courses.
- Among the institutions that offered distance education courses, 34 percent had degree or certificate programs that could be completed entirely through distance education.
- The Internet and video technologies were most often used as the primary modes of instructional delivery for distance education courses; among institutions offering distance education courses, the majority (90 percent) reported that they offered Internet courses using asynchronous computer-based instruction.
- Sixty percent of the institutions that offered distance education participated in some type of consortium. The majority (75 percent) of these institutions were in a state consortium.

Institutions offer distance education for several reasons but the majority of institutions reported that increasing student access to courses is a very important goal. Sixty-nine percent of the institutions indicated that increasing student access by making courses available at convenient locations was very important, and 67 percent reported that increasing student access by reducing time constraints for course-taking was very important. In addition, 36 percent reported that making opportunities more affordable for students was an important goal. Some institutions (37 percent) also indicated that their interest in utilizing distance education was to help meet the needs of local employers.

Read the full report at <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2003017>.

## How Does Technology Affect Access In Postsecondary Education?

Education and training through the Internet continue to become more common and accessible. Thousands of online courses are now available, and many on-campus courses possess a technology component. Most colleges and universities use the Internet as a tool in admissions. But what effect is this "technological revolution" having on access to postsecondary education? Does technology expand or limit access, particularly to underrepresented groups? Put another way, has the advent of technology in colleges and universities and other emerging postsecondary education providers helped or hindered the ability of certain groups of people—such as underrepresented racial/ethnic minorities and low income groups—to benefit from education beyond high school?

A soon-to-be-released publication from the National Postsecondary Education Cooperative (NPEC) titled *How Does Technology Affect Access in Postsecondary Education? What Do We Really Know?* analyzes the latest information on (1) access to postsecondary education using technology, (2) access to technology-based learning, (3) student preparation for using technology, and (4) the effectiveness of technology in the teaching and learning process.

The publication, authored by Ron Phipps, includes a narrative report and an annotated bibliography related to access and technology. Some questions addressed by the report include:

- Is there still a digital divide?
- Do smaller or minority-serving institutions face increased obstacles in obtaining access to technology?
- What are the current trends in technology-mediated distance education?
- Is a student's postsecondary education experience influenced by their elementary or secondary school preparation for using technology?

In this publication "access" is viewed as having three components: (1) access to postsecondary education in general, (2) access to technology-mediated distance learning, and (3) access to technology-enriched campus instruction. "Technology-based learning" is also viewed as having multiple components: (1) technology-mediated distance education, and (2) technology-enriched campus instruction.

Several noteworthy findings from the narrative include:

- Despite encouraging data that show the rapid adoption of the Internet occurring among most groups regardless of location, income, education, race/ethnicity, age, or gender, the digital divide still remains. Blacks and Hispanics have the lowest Internet penetration rates and two-parent households are twice as likely as single-parent households to have Internet access.
- There is substantial evidence to suggest that larger higher education institutions have a distinct advantage over smaller colleges and universities with regard to access to technology.
- Elementary and secondary school preparation for using technology can shape a student's experience in the postsecondary system. In 2000, about sixty percent of high poverty schools were connected to the Internet in classrooms. By contrast, about eighty percent of schools with low poverty rates enjoyed Internet access in classrooms.
- About four out of five men and women freshmen reported using a personal computer frequently during the year prior to entering college. However, women freshmen were only half as likely as men to rate their computer skills as above average or in the top ten percent.

The accompanying annotated bibliography was developed as a resource to address the questions noted above. Based upon a review of the literature on how technology affects access to postsecondary education and how technology is used in postsecondary education, the bibliography is grouped into the following categories:

1. Access to postsecondary education in general;
2. Effectiveness of technology;
3. Access to technology-based learning;
4. Preparation for using technology; and
5. Academic programs.

The bibliography is selective, rather than all-inclusive. Only those references that focus upon the relationship of technology to access are included. Sources were selected based upon their ability to address this issue and helped to answer the questions noted above.

Look for this publication soon on the NPEC website at <http://nces.ed.gov/npec>.

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Virtual Colleges/  
Universities  
appeared to  
be gravitating  
toward two  
distinctly different  
service models:  
one that was  
centralized—  
providing  
administrative and  
academic services  
to students;  
the other being a  
distributed service  
model—where the  
VCU hosts an  
online catalog,  
but institutions  
provide most of  
the services.

## Elements of a Successful Virtual College/University

SHEEO and WCET (Western Cooperative for Educational Telecommunications) recently undertook a national study to examine the goals, functions, challenges, and outcomes of statewide virtual college/university (VCU) consortia across the United States. The project set out with the following goals:

1. Identify and describe the types of VCU organizational and financial models in use by states.
2. Understand the statewide goals for which VCUs were created, whether the goals are changing, and how well VCU leaders perceive they have met their goals.
3. Discover and describe the policies, programs, and student participation in virtual universities.
4. Develop implications from the study that provide direction for policymakers.

For purposes of this study, the term "Virtual College/University" or VCU was used to encompass those initiatives that comprise membership of the public higher education institutions (two year and/or four year) within a single system or state. Multi-state initiatives, such as Western Governors University or the Southern Regional Electronic Campus were excluded from the analysis. Single institutions sometimes refer to their distance learning programs as virtual universities and some are quite significant. Given these definitional boundaries, the study identified 61 VCU consortia across the U.S.; survey responses were received from 51 organizations. These were followed by in-depth telephone interviews with six VCU leaders.

The study examined critical developments in state and system-wide distance learning consortia from the founding of these organizations to the present. The following are key findings in the related report, *Virtual College and University Consortia* by the principal investigators, Rhonda M. Epper and Myk Garn.

**Programs, Enrollments, and Students:** While over half (52 percent) of responding VCUs reported that the majority of their students were physically at a distance from a campus, 42 percent of VCUs identified campus-based students as their primary users. As most VCUs strived to expand access to geographically underserved populations, the findings suggested that the definition of access had been unintentionally broadened to include campus-based students as well.

**Financing of VCUs:** Most VCUs were initiated with direct or indirect state appropriations and continued to rely heavily on this funding source for operations. As availability of these allocations decreased, however, some VCUs began building sustainable revenue streams. While the research showed a wide disparity among VCU funding levels, one quarter of the responding VCUs reported being self-supporting with approximately another quarter planning to become so.

**VCU Goals & Policy:** The VCU's current goals appeared more attuned to increasing state/system higher education efficiency and meeting state workforce needs than goals earlier observed. While still among the highest priorities, "providing access" and "serving the underserved" (the traditional goals of distance education) declined slightly in importance according to the report's findings. The majority of VCUs (63 percent) now also expect to play a role in system or state level policy change(s) related to distance learning.

**Organization models:** VCUs appeared to be gravitating toward two distinctly different service models: one that was centralized—providing administrative and academic services to students; the other being a distributed service model—where the VCU hosts an online catalog, but institutions provide most of the services. This conclusion

prompted the development of a new taxonomy, classifying types of VCUs into four distinct groupings: Distributed Agency Model, Distributed Enterprise Model, Central Agency Model, and Central Enterprise Model. With degree of centralization as one dimension for predicting the overall success of a VCU in meeting its goals, the use of business practices became the other critical factor in predicting the overall success of a VCU. According to survey respondents, respondents from those VCU's grouped within the Central Enterprise model (high centralization behaving as a business enterprise—engaging in quality control, performance measurement, standardization, and/or benchmarking—while striving to achieve self-sustainability) reported the highest overall success at meeting their goals. These VCUs reported a better balance between providing external services (such as electronic catalog and learner services) and participating in internal activities (including policy leadership and providing a technology infrastructure for providers).

The report concluded with implications for policymakers to help raise awareness about the issues and challenges facing VCUs. The authors recommend that the role of the VCU, its targeted user base, and its role in policymaking should be clearly defined. As well, VCUs should be responsible for measuring their own progress, using other comparable VCUs as benchmarks. Finally, VCUs should be encouraged to incorporate business practices, which will lead them to take a more aggressive role in collaborative program development, quality assurance, standardization, and scalability.

*The full report can be found on SHEEO's website at [www.sheeo.org/disted/vcu.pdf](http://www.sheeo.org/disted/vcu.pdf).*

## Selected State Online Education Systems

This article profiles a few examples of state virtual college/university systems, each presenting a different level of services/articulation while targeting a different subset of the student population.

### Illinois Community College Online

Illinois Community College Online (ILCCO) was first established in 2000 by the Illinois Community College Board to complement the existing traditional offerings of degree/certificate completion for the community college audience. While this system does not grant degrees itself, it allows for easier degree attainment overall by allowing students to apply courses taken anywhere from within the state system to their "home college" degree.

From the ILCCO homepage, students can access an assessment system designed to determine a student's readiness to take a class online, and whether a student's computer is compatible with the course delivery tools. Another web icon takes the student to a tutoring system, IVC Tutor, which can connect students to tutors via email or chat technologies. Courses can also be found through the individual community college sites.

Faculty and staff can link to multiple services including an online evaluation tool that allows faculty to poll students following course completion. The "Learning Academy" provides training and support to faculty, focusing on how to design and deliver online courses as well as the use of online course management tools. The heart of the system, the Internet Course Exchange, is the central database system that any institution in the ILCCO system can use to facilitate the course sharing process, e.g., view active courses, monitor enrollments, and grade students.

Each of these web pages is accompanied by a description of the service and many include a link to a demonstration site. As part of eLearning Illinois, ILCCO also links to the elaborate infrastructure of online systems within Illinois.

*Visit Illinois Community College Online at [www.ilcco.net](http://www.ilcco.net).*

While Illinois  
Community College  
Online does  
not grant  
degrees itself,  
it allows for  
easier degree  
attainment overall  
by allowing  
students to apply  
courses taken  
anywhere from  
within the state  
system to their  
"home college"  
degree.

Nebraska Distance Learning Catalog serves as a portal to course offerings from the public two-year and four-year sectors as well as independent non-profit institutions.

Oregon Network for Education (ONE) serves as "a one-stop marketplace" for distance education courses, programs, and services.

### Nebraska Distance Learning Catalog

The Nebraska Educational Television Council developed the Nebraska Distance Learning Catalog in 1999 for Higher Education (NETCHE), a consortium of Nebraska colleges and universities focused on technology in teaching and learning. The catalog serves as a portal to course offerings throughout the system and houses courses from the public two-year and four-year sectors as well as independent non-profit institutions.

From the homepage, one can easily find desired courses by searching on keyword, subject, region of the state, college, degree, or through an "advanced search" combining multiple characteristics. Details on the courses that fit the criteria are then presented.

This is a catalog system, so the individual colleges address the registration process, questions about individual courses, and requirements for program completion (contacts are accessible from the course description pages). Links to a listing of the individual colleges within the consortium are available from every page.

Visit the Nebraska Distance Learning Catalog at <http://distance.unl.edu/advsearch.cfm>.

### Oregon Network for Education

Oregon Network for Education (ONE) serves as "a one-stop marketplace" for distance education courses, programs, and services. Established in 1998, ONE is a partnership between universities, community colleges and the K-12 sector. While the courses and degrees themselves are offered by the individual schools and colleges, ONE allows a student to search the database of online courses offered within the system as well as connect to a variety of student services and investigate career possibilities.

The homepage displays an expansive amount of information. It includes a section offering general information on the ONE system and distance education, a glossary of terms, and even frequently asked questions from students. Courses (high school through postsecondary) are searchable by keyword, subject, institution, level of study, delivery method and academic term. Results from a search of any combination of these characteristics present detailed course information including tuition amounts and a link for registration. Programs are also searchable by a combination of subject, institution and/or level.

The Student Services section is like a virtual "yellow pages" to college-level support resources. Selecting from categories such as admissions, registration, tuition/fees, financial aid, advising, libraries, and bookstores, links are presented to each of the individual institutions offering that service. Subsections also include information for students with disabilities, including information on study strategies. In addition to these services, the Career Pathways section offers links to career/job searches, graduate school information and other career assistance.

Faculty and staff also have their own support section. This area offers assistance with training in design and courseware, keeping current on copyright laws, maintaining awareness of other institutional online endeavors in the country, and understanding the primary issues involved with distance education.

Finally, K-12 has a dedicated section where a high school student can access schools, courses and services available to the pre-collegiate audience. There is also an FAQ focused on K-12 distance education issues.

Visit Oregon Network for Education at <http://oregonone.org/>

## Recommended Resources

### The American Journal of Distance Education

[www.ajde.com](http://www.ajde.com)

AJDE is the internationally recognized journal of research and scholarship in the field of American distance education. The web site identifies the AJDE as a resource for "educators who are new at developing and delivering training and educational programs at a distance and for administrators setting up systems for this kind of education."

### Innovations in Online Learning: Moving Beyond No Significant Difference

by Carol A. Twigg, 2001.

[www.center.rpi.edu/PewSym/mono4.html](http://www.center.rpi.edu/PewSym/mono4.html)

### Expanding Access to Learning: The Role of Virtual Universities

by Carol A. Twigg, 2003.

[www.center.rpi.edu/PewSym/mono6.html](http://www.center.rpi.edu/PewSym/mono6.html)

The Pew Symposia in Learning and Technology conducts an ongoing national conversation about issues related to the intersection of learning and technology. Their stated goal is to marshal the thinking of acknowledged experts and frame the issues in ways that are useful to the higher education community as it incorporates uses of technology into the academic program. Two recent monographs are presented here.

The first focuses on the question of how to move online learning beyond being "as good as" traditional education and concludes that only by taking advantage of the capabilities of information technology, and the Internet in particular, will we move beyond "no significant difference." The second monograph discusses how and why the collaborative model has become the default model in virtual university initiatives and discusses five critical success factors drawn from the experiences of existing virtual university consortia. Links to a number of case studies are also available from each paper.

### NLII Annual Review 2003

[www.educause.edu/ir/library/pdf/NLI0364.pdf](http://www.educause.edu/ir/library/pdf/NLI0364.pdf)

This publication presents an overview of the National Learning Infrastructure Initiative (NLII) annual meeting from January 2003. Included are notes on featured speakers and sessions along with papers presented at the meeting. Some of the NLII themes addressed include electronic portfolios, learner-centered principles, strategic planning and alignment, and virtual communities.

### Distributed Education: Summary of a Six-Part Series (2003)

[www.acenet.edu/bookstore/pdf/distributed-learning/summary/dist-learn-exec-summary.pdf](http://www.acenet.edu/bookstore/pdf/distributed-learning/summary/dist-learn-exec-summary.pdf)

This paper offers an executive summary of each of the monographs commissioned by the American Council on Education (ACE) and EDUCAUSE for the series, *Distributed Education: Challenges, Choices, and a New Environment*. This final report provides readers a brief overview of each monograph, covering a variety of topics related to distributed education: the contemporary context of distributed education, self-regulation, the importance of institutional leadership, student learning, partnerships, and major challenges to the growth of distributed distance education.

### Thwarted Innovation: What Happened to E-Learning and Why

by Robert Zemsky and William F. Massy, 2004

[www.thelearningalliance.info/Docs/Jun2004/ThwartedInnovation.pdf](http://www.thelearningalliance.info/Docs/Jun2004/ThwartedInnovation.pdf)

This study from the University of Pennsylvania in collaboration with the Thomson Corporation raises the question: "Why did the boom in e-learning go bust?" The authors suggest several reasons why e-learning has not been as successful as early advocates claimed; they also suggest reasons for optimism and suggest a long-term approach to the question is necessary.

## Related Electronic Links

### [www.electroniccampus.org](http://www.electroniccampus.org)

The Southern Regional Education Board's (SREB) Electronic Campus which provides more than 9,000 courses and 425 degree programs offered by more than 200 colleges and universities.

### [www.adec.edu](http://www.adec.edu)

The American Distance Education Consortium is composed of state and land grant institutions and is designed to promote economical distance education programs for diverse audiences.

### [www.educause.edu](http://www.educause.edu)

EDUCAUSE—the nonprofit association whose mission is to advance higher education by promoting the intelligent use of information technology.

### <http://wcet.info>

WCET—the Western Cooperative for Educational Telecommunications, founded by the Western Interstate Commission for Higher Education in 1989, is a membership-supported organization open to providers and users of educational telecommunications.

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