An Introduction to Web-Based Distance Learning

The past several years have been characterized by a rapid proliferation of technologies and solutions flooding the market. This study evaluates institutional strategies and models for supporting Web-based distance learning, defined as instruction delivered at a distance via the World Wide Web, primarily in the form of credit-based courses that are part of programs leading to certification or a degree. This definition excludes correspondence courses, teleconferencing, and satellite and other distance-learning technologies, though institutional experiences and lessons learned in those arenas undoubtedly influence current Web-based efforts. In addition, the study focuses on traditional, campus-based institutions such as Pennsylvania State University and Nova Southeastern University that have pursued online opportunities to fully serve geographically dispersed students. It does not consider purely online “virtual university” efforts such as the Michigan Virtual University and Capella University.

The Internet as a Catalyst

While distance learning isn’t new, the Internet’s emergence represents a fundamental shift in the capabilities and benefits of distance learning. Prior to the Internet, interaction between instructors and students in distance-learning programs was primarily one way, through videotaped lectures, telecourses, and traditional mail correspondence courses. Now, conferencing technologies, Web-based whiteboards, file sharing, chat rooms, and instant messaging software enabled by Internet technologies provide for rich, real-time interactivity between teacher and learner that was not available in preceding distance-learning formats (see Figure 2-1). These technologies have enabled vibrant online communication and the development of broad academic communities—critical attributes for successful pedagogical models.
With the Internet’s rapid adoption and unparalleled rate of penetration, the Web became an attractive channel for expanding the accessibility and distribution of learning opportunities. This trend aligned with a core objective of many public and private institutions: to provide educational opportunities—including degree programs, workforce development, and lifelong learning—by leveraging innovative technologies to better serve existing students and reach new student communities. In support of this mission, institutions of all stripes have embraced Web-based distance learning, making it one of the most exciting and challenging areas in higher education.

**Speculation: The Boom, the Bust**

The arrival of Web-based distance learning as a credible and feasible proposition in the mid to late 1990s coincided with industry’s “dot-com” boom. Investors and entrepreneurs saw this as a significant opportunity: They would capitalize on demographic trends, the shift to a knowledge-based economy, the reach and scalability of Internet technologies, and unmet global demand for higher education by delivering education over the Internet.

Numerous high-profile institutions launched online initiatives so that they wouldn’t miss out on an unprecedented opportunity to generate additional funds through distance-learning tuition revenues and content licensing deals. Many institutions were attracted by the prospect of an initial public offering of their distance-learning venture that would augment institutional endowments. A number of for-profit spinoffs were launched and/or announced with the goal of accessing venture capital. Private equity firms and venture capitalists poured $1.2 billion into technology-related postsecondary ventures in 1999 and 2000 as the stock market soared (see Table 2-1).
Table 2-1. Selected Web-Based Businesses Supported by Traditional Institutions

<table>
<thead>
<tr>
<th>Company</th>
<th>Participating Institution(s)</th>
<th>Background</th>
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| Fathom           | Columbia University                                                                         | Launched in 2000 as a consortium of leading education and cultural institutions to provide knowledge and education to business and individual users.  
                    |                                                                                             | Challenged to identify and target lifelong learners.                                                                                     |
|                  |                                                                                             | Continues to provide innovative content, but still struggling with revenue-generating model.                                              |
| Global Education | Williams College  
                    | Brown University  
                    | Faculty from other liberal arts institutions                                                                                           |
| Network          |                                                                                             | Founded in 1999 by Williams professors to offer high-quality online liberal arts courses.                                                  |
|                  |                                                                                             | Struggled to get institutional buy-in and develop viable business model.                                                                  |
|                  |                                                                                             | Currently piloting courses to students through their colleges, universities, and alumni associations.                                      |
| UMUC Online      | University of Maryland  
                    | University College                                                                         | Launched in 1999 as a for-profit company to market UMUC’s courses.                                                                       |
|                  |                                                                                             | Ran into difficulties over financial aid policy as a for-profit entity and other issues.                                                  |
|                  |                                                                                             | The for-profit entity ceased operation and was reorganized in July 2001.                                                                  |
| UNext            | Columbia University  
                    | Stanford University  
                    | Carnegie Mellon University  
                    | University of Chicago                                                                                                                  |
|                  |                                                                                             | Founded in 1997 to offer high-impact courses and content through its subsidiary, Cardean University.                                      |
|                  |                                                                                             | Struggled with business model and sales strategy.                                                                                         |
|                  |                                                                                             | Thomson Corporation currently holds a majority stake and provides enhanced distribution opportunities.                                    |
| NYUonline        | New York University                                                                         | Founded in 1998 to offer career-focused courses and certificate programs.                                                                |
|                  |                                                                                             | Received approximately $25 million in capital from NYU.                                                                                  |
Headlines and cover stories in notable magazines and newspapers, including *Newsweek*, *Time*, *The Wall Street Journal*, and *The Chronicle of Higher Education*, touted the launch of these ventures and actively tracked their progress—or lack thereof. It was a heady time, as institutions announced grand plans for distance-learning ventures, spin-offs were launched, institutional consortia were formed, and partnerships were pursued and consummated. Then the bubble burst.

**Analyzing the Fall—Reduced Expectations**

When the NASDAQ index began what would become a prolonged descent after peaking in March 2000, it became clear that much of the “new economy” hype was a veneer of irrational exuberance. Throughout 2001, many Internet-related businesses saw their stock prices plummet 90 percent; others simply closed shop. The torrent of venture capital that once had flowed into online learning ventures slowed to a trickle.

Many for-profit university spin-offs and businesses targeting the education marketplace with offerings of content, technology, and/or services had been operating under the assumption that venture capital would remain available to finance growth. For colleges and universities, a key motivation in creating an independent, for-profit distance-learning business had been that this structure would let the institution tap private financing. External capital sources, it was believed, would give online efforts a degree of freedom from traditional university operating procedures and expectations while minimizing concerns that certain university constituencies were losing resources as funds were redirected to new online programs. However, access to private financing nearly vanished when financial market conditions changed dramatically.

These university spin-offs and for-profit businesses struggled for reasons beyond a simple lack of access to capital. It became apparent that many efforts were launched hastily, with insufficient consideration of key strategic and operational issues and limited connection to the associated institutions’ overarching mission. Some ventures saw the entire world as their market, without regard to competition or demand. Others found that revenue forecasts didn’t correspond with actual performance and the business’s financial requirements. Some institutions incorrectly assumed that a prestigious academic brand would translate into rapid online enrollments. Regardless of the particular misstep, the outcomes were nearly the same: troubled online ventures that lacked a viable business plan.

In general, many of these high-profile initiatives failed to build an organizational model and a set of expectations for Web-based distance learning consistent with the institution’s goals and objectives. In their haste to be first to market with Web-based solutions, institutional leaders and online advocates didn’t conduct the type of rigorous evaluation of infrastructure needs (technology, administration, faculty) that generally accompany on-campus program investments. Moreover, the spectacular early successes of public Internet companies and the apparent ease with which a dot-com business could create wealth undoubtedly influenced decisions by institutions such as Columbia, New York University, and the University of Chicago, among others.

At the same time, and much more quietly, institutions such as Penn State, Eastern Oregon University, the University of Central Florida, and Johnson County Community College were developing effective online programs and institutional strategies for serving geographically dispersed students. These college and university efforts achieved
greater success through a more comprehensive and diligent assessment of key strategic considerations (for example, aligning online initiatives with institution vision/mission and anticipating the program’s market reach). They also focused on internal competencies such as leadership/management and institutional and faculty flexibility, which are critical in establishing a foundation for online distance learning. The case studies of Penn State, Nova Southeastern, Eastern Oregon, and Cornell University—presented later in this study—evaluate and highlight these factors.

After the Gold Rush—Driving Programmatic Success

Today, following the burst of the dot-com bubble, institutions, online education critics, and others in higher education continue to invoke the specter of the for-profit, Web-based distance-learning spin-offs and online technology ventures that failed as a rationale for avoiding online distance education. To some extent, their attention to these few setbacks is misdirected when they fail to consider the many Web-based distance-learning program successes experienced by traditional colleges and universities and the dramatic growth in online course offerings and student enrollments.

Too many institutions and observers are still asking whether any institutions are making money from online efforts. The real question revolves not around revenues and profits, but around institutional mission, access to education, and enhanced pedagogy. And if one asks whether colleges and universities are effectively employing Web-based distance-learning solutions to fulfill their institutional objectives and support off-campus growth, the answer is unequivocally yes. Institutions such as Duke University and eCornell have successfully supported off-campus growth with a narrow focus on specific populations, while Penn State and the University of Maryland University College have fulfilled their outreach mission by offering Web-based distance learning to a broad audience.

Although vast profits have not materialized from either university spin-offs or university-corporate e-learning partnerships, the demand for Web-based distance-learning programs continues to grow remarkably. This comes at a time when many campuses are literally overflowing with students while simultaneously facing the fiduciary challenges of budget cuts, shrinking endowments, and reduced state support. In this environment, colleges and universities are quietly building their Web-based distance-learning programs, expanding their online course and degree offerings, and implementing the services required to support rapidly growing student enrollments.

Nontraditional Students Gain Importance

In tandem with the rapid pace of technological change transforming the higher education community, colleges and universities in the United States have witnessed remarkable shifts in student demographics over the past two decades. The proportion of "traditional" university students—that is, 18–23-year-olds enrolled full time in a residential campus program—is shrinking while the percentage of nontraditional students grows. Some observers believe nontraditional students already represent the majority of enrollments in postsecondary institutions. Colleges and universities interested in serving these students—to extend their core academic mission, counter declining enrollments, or capitalize on new market opportunities—will find Web-based distance learning a valuable component of a more comprehensive strategy.

A growing number of students defined as nontraditional by the National Center for...
NCES enrollment projections suggest that these students will account for half of all postsecondary students in 2002. Moreover, NCES reports that the adult student segment has been growing far more rapidly than enrollments in any other age bracket in the last decade.

These nontraditional students are pursuing a variety of certifications and degrees to gain new skills and advance their careers as workplace demands continue to change rapidly. In addition to seeking programs that meet their academic and professional interests and objectives, these savvy consumers seek an educational experience that addresses their needs for convenience and flexibility—attributes that characterize Web-based distance learning.

Community colleges and for-profit postsecondary firms (for example, the University of Phoenix, DeVry, and Career Education Corporation) have been among the most evident beneficiaries of this trend. The nation’s community colleges have experienced annual student enrollment growth of 8 percent since 1998 (compared with just over 5 percent for all other postsecondary institutions). For-profit providers increased their Web-based distance-learning revenues by 90 percent in 2001, to more than $430 million. In fact, a Web-based distance-learning market that effectively did not exist five years ago will capture tuition revenues of more than $780 million in 2002, with the majority of those tuition fees attributed to nontraditional students.

**Growing Enrollments: A Testament to the Reality**

The story of Web-based distance learning is really a story of growth, as many institutions reach out beyond their physical campuses and traditional geographic boundaries (see Figure 2-2).

A number of widely cited statistics and forecasts have suggested that millions of students are enrolled in Web-based distance-learning courses and programs. However,
these statistics most often refer to the number of enrollments, as opposed to the number of unique students, in online learning programs. These statistics also include a large portion of “hybrid students”—individuals taking courses both on campus and online—and therefore significantly inflate the true market size.

Those citing statistics need to consider that higher education institutions offer a variety of online educational programs. These include Web-based supplements for on-campus courses, hybrid courses delivered in both online and face-to-face formats, and wholly online courses. Table 2-2 briefly describes these distinctively different online offerings and strategies.

Table 2-2. The Online Learning Spectrum

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Benefits</th>
</tr>
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<tbody>
<tr>
<td>Web-based supplements</td>
<td>Support courses conducted in a traditional classroom format. Function as a required and or ancillary component of the course. Offered to residential students and/or those students attending programs in a physical classroom.</td>
<td>Enhance communication through use of threaded discussions and chat room capabilities. Enhance accessibility to core and supplementary course resources and information. Improve students’ technology literacy and skills.</td>
</tr>
<tr>
<td>Hybrid courses</td>
<td>Combine online and offline course delivery and resources to reduce classroom seat-time. Significant percentage of course interaction and activities take place online. Offered to students with limited access to physical classroom locations and/or by institutions with facility constraints.</td>
<td>Improve accessibility to courses and/or programs for students constrained by time, distance, personal obligations, etc. Potential to lower university costs while delivering equal and/or better learning environment for students.</td>
</tr>
<tr>
<td>Web-based distance-learning courses</td>
<td>Conducted exclusively in an online format. Taken as part of an online certificate or degree-granting program. Offered to students with limited or no access to physical classroom locations or comparative academic offerings.</td>
<td>Creates academic opportunities for students who may not have been able to otherwise access educational resources. Delivers education to students for whom convenience and flexibility are paramount considerations.</td>
</tr>
</tbody>
</table>
Informed estimates place the number of unique students enrolled in fully online distance-learning programs during 2001–2002 at approximately 350,000, or 2 percent of all postsecondary enrollments. This figure represents students exclusively taking Web-based courses within the context of a fully online certificate and/or degree program; it excludes students who may take a handful of online courses in conjunction with a primarily on-campus program. The present study is based on the organizational strategies and models established to support students pursuing their education through fully online certificate- and degree-granting programs.

The emergence of the Internet and online learning has fundamentally altered the concept of educational services for this rapidly growing, fully Web-based distance-learning population. While eager to meet the needs of these students, many colleges and universities find themselves struggling to craft an appropriate organizational response to the realities of Web-based distance education. This study details the critical strategic considerations and internal competencies that institutions should evaluate and regularly assess to enhance their odds for success in Web-based distance learning.

**Research Methods and Market Sizing Assumptions**

This research study is based on primary and secondary research. Interviews and discussions were conducted with an extensive array of senior leaders of universities and colleges, executives of associations and consortia, and managers of companies active in the postsecondary market, including technology organizations and investment firms. Appendix A lists the primary research participants. Secondary research from academic journals, scholarly research, company data and press releases, association and consortia publications, and other news sources was also collected and analyzed. A selected bibliography of notable publications appears at the end of this study.

Eduventures’s analysis is based on data and information provided by the institutions themselves, as well as secondary resources. Additionally, Eduventures leverages proprietary data and resources developed during its 10-year history of serving the education market. Although Eduventures has attempted to verify and cross-check the data wherever possible, the information provided by participating organizations is generally unaudited and may have been compiled using different methodologies and definitions.

Eduventures selected the institutions profiled in depth in this study—Pennsylvania State University/World Campus, Nova Southeastern, Eastern Oregon University, Cornell/eCornell, and the community colleges—on the basis of several factors:

◆ experience and success with Web-based distance learning,
◆ engagement in addressing strategic considerations and institutional competencies,
◆ applicability of best practices to peer institutions,
◆ relevance of institutional challenges and responses to peer institutions, and
◆ overall value of case.

Additional institutions highlighted in the study were selected at the discretion of the authors.

The issues evaluated in this study were selected and agreed upon by senior managers at both Eduventures and the EDUCAUSE Center for Applied Research (ECAR). In addition, a preliminary draft of each case study was completed in early September 2002 and distributed to participating institutions to ensure factual accuracy. However, all opinions and views expressed herein remain those of Eduventures, and Eduventures alone.
Eduventures’s analysis indicates that the number of students active in Web-based distance-learning programs has grown by approximately 45 percent annually since 1997–98, yielding an estimated 356,000 off-campus, Web-based distance-learning students during 2001–2002. Eduventures determined the number of students enrolled in Web-based distance-learning programs, excluding students attending courses on campus who are simultaneously enrolled in online courses for reasons of convenience or preference, by analyzing the data available for overall distance-learning enrollments, identifying Web-based distance-learning enrollments, and then estimating the number of unique students who are enrolled in off-campus distance learning.

In its most recently available data, NCES reported 1.34 million enrollments in college-level, credit-granting distance-learning courses during 1997–98. These enrollments are defined broadly and include courses delivered via videotape, CD-ROM, audio, and satellite. Internet-based courses accounted for approximately 59 percent, or 791,000, of these enrollments. However, this figure includes a significant number of students who enrolled in on-campus programs while taking a fully online course. Eduventures believes these hybrid students accounted for approximately two-thirds of these enrollments, with exclusively Web-based distance-learning students accounting for the remaining third. This latter group, therefore, represented nearly 261,000 enrollments during 1997–98.5

Furthermore, these 261,000 enrollments do not represent the number of unique Web-based distance-learning students, because this figure accounts for multiple enrollments—that is, a single student enrolled in more than one course. On the basis of primary research, independent analysis of institutions’ distance-learning programs, and public company data, Eduventures estimates an average ratio of enrollments to students at three to one. Applying this ratio gives us approximately 87,000 unique students enrolled in Web-based distance-learning courses during 1997–98.

Endnotes

1. U.S. Department of Education, National Center for Education Statistics, The Condition of Education 2002 (NCES 2002-025), Washington, D.C.: U.S. Government Printing Office, 2002. Adult students are loosely identified with a larger group characterized as “nontraditional” students. While definitions vary, NCES details seven characteristics that typically define nontraditional students: (1) delayed enrollment into postsecondary education; (2) part-time attendance; (3) financially independent from parents; (4) full-time employment while enrolled; (5) dependents other than a spouse; (6) single parent; and (7) lack a standard high school diploma.


3. Ibid.

4. See the Course Redesign Award Program within the Pew Technology and Learning Program (http://www.center.rpi.edu/PewHome.html).