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contents

J-1 DRAWN TO THE LIGHT, BURNED BY THE FLAME? MONEY, TECHNOLOGY, AND DISTANCE EDUCATION
by Kenneth C. Green, Ph.D.

J-9 TELECOMMUNICATIONS: A SHIFTING AND CHANGING WORLD
by James C. Cullen

Editor's Note: We are most privileged to share with you Dr. Kenneth Green's outstanding research on technology, strategic planning and higher education. The materials and statistics presented here provide unexpected and disquieting perspectives on the realities of implementation of distance learning within the educational sector in the United States. We are alarmed at the implications and pass a caveat to all our readership for serious introspection within ourselves as we move to advocacy in the implementation of technologies in distance education and within our schools.

DRAWN TO THE LIGHT, BURNED BY THE FLAME? MONEY, TECHNOLOGY, AND DISTANCE EDUCATION

By Kenneth C. Green, Ph.D

Many in the higher education community will ultimately view the Feb. 12, 1997 issue of the Chronicle of Higher Education as a small treasure chest of evidence supporting institutional investments in distance education. Paging through the Chronicle that week, faculty, administrators, program coordinators, and aspiring entrepreneurs in the publishing and technology industries could find a serendipitous cornucopia of articles that seem to bode well for distance education ventures. Specifically, Chronicle readers learned that:

• Online learning may be more effective than traditional classroom-based approaches. From California State University, Northridge came a report that students randomly assigned to an online section of a statistics course "outscored their counterparts [in a traditional class] by an average of 20 percent" on both the mid-term and the final exams. Professor Jerald Schutte intentionally overenrolled students so he could assign them to either traditional (classroom-based) or online (cyberspaced) sections. Schutte reported that "the motivation for doing this was to provide some hard, experimental evidence" about the impact of online instruction "that did not seem to exist anywhere." (p. A23)

• Harvard has blessed the Internet. "Is the educational

promise of the Internet real?" asked Harvard president Neil Rudenstine in a visible, if belated, backpage "Point-Of-View" article. Although the digeratti will find little that is new in his supporting argument, Rudenstine answered his own question with an affirmative, "I believe it is." Perhaps writing more for his presidential peers (or aging, "unwired" alumni and donors) than for the working professorate, Rudenstine strongly endorsed the role of the Internet and multimedia in instruction: "[The] Internet has distinctive powers to complement, reinforce, and enhance some of our most effective traditional approaches to university teaching and learning. We should embrace those capacities, not resist them." (p. A48)

• Distance education can be profitable. "You called on a good day," Robert J. Lucas, director of the New Orleans Educational Telecommunications Consortium, said to a Chronicle reporter: "I just opened a Fed Ex package with a check for $200,000 from BellSouth." Although the Consortium, a group of eight colleges and universities in New Orleans, lost money on an earlier venture, Lucas sees new, profitable markets for its distance education programs. This same Chronicle article, focused on relationships between universities and wireless cable companies, identified several other campuses engaged in revenue-generating distance education ventures with commercial partners eager to license surplus broadcast frequencies and market campus-developed courses. (pp. A21-22)

• Distance education ventures are recruiting campus talent. Looming large among the photos in the Gazette section, which tracks academic appointments, is the picture of John E. Kobara, the newly appointed president and CEO of The Home Education Network (THEN), a Los Angeles-based, for-profit distance education venture. Prior to his new executive position with THEN, Kobara was the vice-chancellor for university relations at UCLA. (p. A 45)

From various perspectives — pedagogy, profits, presidential endorsements, and personnel — the Chronicle's coverage of distance education-related issues would appear to be a casebook for investment.

Still additional sound bites for the casebook come from a March 1997 Forbes article featuring management sage Peter Drucker: "Universities won't survive ... Higher education is in deep crisis," Drucker said. "Already we are beginning to deliver more lectures and classes off-campus via satellite or two-way video at a fraction of the cost. The college won't survive as a residential institution. Today's buildings are hopelessly unsuited and totally unneeded." (March 10, 1997, p. 127)

Taken together, the four Chronicle articles and Drucker's comments are clearly symbolic of the forces pushing and pulling institutional interest and investment in distance learning. Demographic factors, market demand, new technologies, the quest for new revenues, as well as opportunities to develop corporate alliances and serve cash-paying clients all help fuel interest and aspirations. Too, many campus administrators and public officials view technology-enhanced distance education to be a low-cost, high revenue solution to the rising demand for postsecondary education.

Clearly distance education is a booming business. The University of Phoenix (www. uophx.edu), a fully accredited, for-profit, publicly-traded postsecondary enterprise proudly boasts that it is now the second largest private college or university in the United States. Chartered in 1978 and currently enrolling more than 31,000 students, Phoenix has been an aggressive competitor in both classroom- and cyberspaced-based distance education programs targeting an adult clientele. National Technological University (NTU) has a well-deserved international reputation for providing timely, high-tech telecourses in engineering and computer science. And Mind Extension University (MEU) (now the Knowledge Network, a division of Jones International) distributes college courses from a growing array of institutions via cable networks.

But the increasingly technology-driven distance education movement extends well beyond the University of Phoenix, NTU, and MEU, or the dozens of colleges and universities broadcasting telecourses on local cable systems. Ten minutes on the Web at Yahoo!, Lycos, or Alta Vista yields literally hundreds of academic and commercial URLs for distance education programs and services.

Perhaps the most ambitious academic or commercial venture into distance education is the Western Governor's University (WGU), a cooperative effort among more than a dozen western states. Start-up costs are estimated at $6-10 million. Charter documents, available at the WGU's Web site (www. westgov.org), outline a technology-driven "regional virtual university through which instruction will be accessible at the learner's convenience via advanced technology. This learning can be certified to the satisfaction of both employers and academic institutions through the assessment of competencies, and states and the private sector will share in the development and use of instructional materials." An ambitious mission, fueled by great aspirations.

But are aspirations alone adequate? The California 49ers who rushed to Sutter's Mill some 150 years ago were certain they would find gold just a few inches below the soil; similarly, many campuses, academic programs, and commercial ventures are rushing into the distance and online education market certain that they too will find "the gold." They promise to "do good" (i.e., deliver high quality educational programs) and are confident they will "do well" (i.e., make money). Technology is an increasingly important component of the overall plan, a core resource for both content and distribution promising to make programs both viable and accessible.

Like the 49ers eager to stake their claims, growing numbers of colleges and academic programs are rushing forward with little real planning or a good map of the terrain: certain there is gold in distance education, many campus and public officials believe that institutions absolutely must "be there" ahead of or at least "shoulder-to-shoulder" with the competition (other colleges and universities as well as commercial ventures and in-house corporate training centers). Having spent some time wandering the WWW or captive to MEU's cable offerings in hotel rooms while they travel, administrators and program coordinators are often surprisingly confident that instructional technologies (cable, video, and the Internet, among others) will provide a low-cost, high revenue distribution channel. Program officials also are often highly confident about the likely success of their efforts, even as they happily discuss the core problems that will undermine their competitors offerings.

Alas, technology-laden distance education is neither simple nor inexpensive. It is best viewed as a business, one that involves real and recurring costs: money, time, personnel, content, and a significant technological infrastructure.

For many campuses and programs venturing in, it may well be risky business.

While drawn to the light (and to the money), it is likely many will be burned by the heat in the forge. Some institutions and programs have built their instructional development and delivery models on the premise of underutilized capacity and leveraged resources: the underlying assumption is that technology resources and instructional personnel involve marginal rather than core costs. Yet there are limits to leverage in every market and enterprise.

Only when educational institutions and educational entrepreneurs view distance education as a fully-capitalized business will campuses and private ventures begin to understand the options and opportunities, real risks and real costs. The business case advancing investments in technology-driven distance education must focus on factors driving the market and affect delivery of services: demand, driven by demographics and a changing labor market; infrastructure, affected by the technology; and content, including the full costs of initial instructional development and future enhancement.

What then, is the business case for distance education? And what are the traps in the terrain making this a challenging venture for colleges and universities?

DEMOGRAPHIC DRIVERS

Demography is a major factor fueling the current demand and future growth of distance education. Indeed, demography has been a key factor in the destiny of U.S. higher education since the end of the Second World War. Growing demand for higher education, fueled by the post-war baby boom and supported in part of state and federal policies, led to significant "mortar and brick" investments in new classrooms and campuses. Growth was dramatic: at one point in the mid-1960s, higher education was like McDonalds, opening a new site (college) each week.

But the baby bust — a 23 percent decline in the size of the high school graduating class that began in 1980 — sent institutions searching for new clientele to fill the seats once occupied by traditional students. Concurrently, other factors — major shifts in the U.S. labor market created by corporate restructuring; the rising tide of women returning to campus to begin, complete, or pursue new degrees; the rising educational aspirations of baby boomers; the growing recognition among more adults that they must continually update their skills and competencies — all contributed to a growing clientele of adult learners and the rising demand for distance education. Evening, weekend, part-time, and off-campus programs, all catering to the newly enfranchised adult learners, exploded as campuses developed new programs for new clientele in search of much needed enrollments and revenue.

There's little doubt that institutional efforts to recruit adults to campus-based programs have been successful. From 1970 to 1991, adult enrollments almost tripled, rising from 2.3 to 6.5 million students. Currently, more than 40 percent of the total enrollment in U.S. colleges and universities (including two-year colleges) consists of individuals age 25 and older. (See Figure 1)

Ahead lies Tidal Wave II. Following a 16-year decline, the traditional college age population is rising. The size of the high school graduating class will grow by more than 20 percent between 1996 and 2005, returning to the peak levels of more than three million graduates last seen in 1979. But beyond this dramatic gain in the numbers of high school graduates is the fact that more students are enrolling in college a year or two after high school: college matriculation is approaching 65 percent of the graduating high school class, up from just 56 percent in 1980. Consequently, the coming increase in the size of traditional college cohort is fueled by both a growing numerator (more students going onto college after high school) and rising denominator (more students of college age).

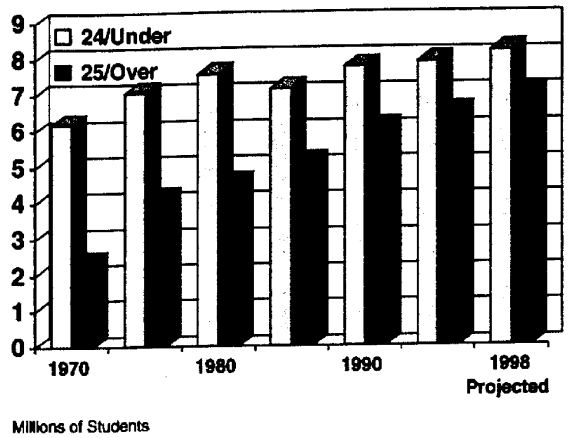

Figure 1: Enrollment Trends, by Age, in U.S. Colleges and Universities, 1990-1998 (projected). Source: National Center for Education Statistics, Digest of Education Statistics, 1995.

Concurrently, the traditional college student represents a shrinking majority of the college-going population. U.S. Department of Education projections suggest that by 1998 the age 25 and older population will account for five of every 11 college students attending U.S. colleges and universities: perhaps most surprising is that the number of students age 35 and older will exceed those age 18 and 19.

The adult population is heterogeneous: single parents enrolled as part-time students in community colleges; MBA students at elite universities who returned to graduate school after a few years in the work force or as participants in executive education programs; working adults, ages 30-50, who come to campus for individual courses rather then lengthy degree programs, among others. Unlike their younger peers, older students typically concentrate in applied and professional areas such as business, technology training, and health care certification (e.g., nursing or occupational therapy); few campuses report robust adult enrollments in liberal arts majors.

Taken together, these two "customer cadres" will push enrollments in two- and four-year colleges and universities from current levels of some 15 million students towards 20 million "enrolled college students" by 2010, a 25 percent increase in just a over dozen years. However, the 3,600-plus accredited two- and four-year degree-granting institutions in the United States simply will not able to accommodate a 25 percent enrollment gain over the next decade. Moreover, enrollments and the coming enrollment gains are not evenly distributed across the system: some 410 institutions currently account for more than half of the total enrollment in U.S. colleges and universities. Based on current enrollment patterns and institutional resources, it is clear that the largest

four-hundred-plus institutions will clearly play a much larger role in serving the growing distance education market than the smallest 1,400 or 2,000 campuses. Moreover, it is unlikely that many states will finance the creation of new colleges or build new campuses. Higher education will have to act aggressively to retain its share of state and federal dollars given competing (and compelling) demands for state and federal social service dollars from elementary education, health care, road construction, and prisons.

In sum, demographic data suggest significant opportunities in the distance education arena. Taken together the numbers are a potential siren's song, laden with a melody of opportunity: growing markets, rising demand, and an expanding clientele, coupled with virtually no new "mortar and brick" expansion of capacity would appear to bode well for technology-driven distance education ventures.

THE MISSION FACTOR

But demographic data and enrollment projections only describe the characteristics of a market. Higher education is, and will remain, a mission-driven social institution. What does this mean for distance and online education initiatives?

Begin with the mission question. Most college presidents typically talk about three core functions of higher education; research (and scholarship), instruction (and learning), and public service.

Distance education is an instructional activity. Focus on the instructional mission of higher education and three primary functions emerge; content (what is taught), context (the environment that fosters or supports instruction and learning), and certification (documenting outcomes). (See Figure 2)

Content, of course, is the most traditional of the instructional functions: courses and the curriculum expose learners to new information, the structure and validity of data and information in specific disciplines and fields, methodologies linked to the generation of information, and the application of information in specific settings. Traditional assessment models focus on mastery of content: faculty routinely test students on their knowledge of accounting, chemistry, literature, and psychology.

The Instructional Mission of Higher Education

Content	Context	Certification
• Information	• Time & Place	• Course
• Structure	• Campus	• Sequencing
• Value	• Learning Environment	• Program
• Application	• Resources	• Degree
• Skills	• Access	• Skills
• Materials	• Socialization	• Licensing
		• Outcomes

Figure 2: The Instructional Mission of Higher Education

Context reflects the instructional and experiential variables giving colleges and universities their distinctive character. Context can be defined in many ways: the time and place of the learning experience, interaction among students and faculty, as well as access to campus resources (e.g., libraries and computer networks) that support instruction and learning. Context also reflects the special mission of many institutions: technical colleges, church-affiliated institutions, women's colleges, etc. Indeed, decades of research about the impact of college on the student experience and student outcomes documents the critical impact of contextual variables on a range of outcome measures, including learning, intellectual and social development, and satisfaction with the college experience, as well as student retention and degree completion.

The third key instructional function, certification, is critical to both students and to society. The structured learning sequence reflected in a course syllabus or a degree program has a certain market value based on content (engineering vs. English), assessment (grades and licensing tests), and program or institutional reputations. Absent certification, potential students might invest their time and educational dollars at Borders, Barnes & Noble, or Crown Books, rather than in college courses. (Indeed, many do.) For the moment, however, neither frequent book buyer cards nor Oprah's Book Club provide the outcome measures to test content and assess competency that are required by prospective employers: the certification function remains with colleges and other credible education providers, although not without growing challenges from other agencies and for-profit organizations.

Higher education typically has addressed these three functions concurrently: the classroom and the curriculum focus on content, the campus attempts to foster a learning environment, and the institution (or departments within an institution) certify educational achievement, specific skills, and professional accomplishment. These functions are reflected in college catalogs and the promotional literature institutions, particularly residential colleges, use to recruit potential students: these materials emphasize curricular quality, the campus experience and resources, and the market credibility of the degree upon graduation.

Yet a careful look at the growing population of largely part-time adult learners who drive the current distance (and coming online) education market suggests that most are primarily interested in content and certification. They want to learn new skills and to acquire a certificate (a transcript documenting completion of specific courses or a degree program): context has little priority in their education aspirations or self-assessed educational needs. Moreover, many want specific content rather than the comprehensive offering: they need a course or two to learn or update specific skills, rather than a degree (or in many cases, yet another degree).

Technology, of course, makes porous the boundaries that traditionally separate content, context, and certification. Technology brings new, rich resources into the learning experience; it can enhance the interaction between instructors and learners, as well as the interaction among learners. Too, technology can fundamentally change the way students and institutions approach assessment and certification.

Can technology an do all the things that many claim and others suspect? Perhaps; over time, probably. However, the truly compelling, carefully-constructed assessments that might document enhanced outcomes and improved academic performance have yet to emerge; to date, much of the research literature reports no (statistically) significant gains. Moreover, the research, current and coming, must assess capacity against costs. Although technology may have tremendous capacity to enhance educational services and experiences, this capacity must be assessed against the initial and recurring costs.

THEN AND NOW

Although distance education is currently a booming market, it is an old practice. Agricultural extension programs begun some 140 years ago in the early days of the land-grant college movement are the programmatic precursors of today's distance education initiatives. Just as much of the pedagogy in today's college classrooms has changed little from the instructional practices common a century or even three centuries ago, individuals responsible for coordinating many distance education and agricultural extension efforts 50 years ago would no doubt see much that is familiar in many of today's practices and programs. The underlying mission to facilitate access and serve the educational needs of off-campus learners remains the same.

But technology changes the instructional methodologies as well as the content, costs, and delivery of distance education. The coming ubiquity of information technology across all sectors of the economy — business, education, and the home — means growing numbers of traditional college students as well as adult learners come to higher education (and into distance education programs) not so much to learn about technology; rather, they are eager to use technology as resource for learning.

The consumer experience helps drive these rising expectations: upwards of 40 percent of American households now own a computer. Technology is almost ubiquitous in the workplace. Today's computer users and owners include corporate executives and administrative assistants, business owners and middle managers, traveling sales reps, school teachers and school children — children, adolescents, and adults without technical training or careers who, a generation ago, never would have seen themselves as individuals who need (or indeed increasingly depend on) computers and information technology. The direct (what we use or do) and indirect (what we see/hear/talk about) experience with technology is pervasive and commonplace.

Consequently, gone are the days when colleges could launch a distance education program simply by sending rented (i.e., part-time) faculty into rented, off-campus facilities. Also gone are the days when a bag of books and coursepack of reprints distributed on the first day of class constituted a complete reading list and an adequate "library" for students in distance education programs. Rather, a new clientele that is increasingly comfortable with technology seeks, indeed expects, online resources (a digital library, WWW resources, simulations, video, and more) as part of the learning tools and learning experience.

Indeed, it is the legacy of distance education practices common just a few years ago — part-time faculty in leased facilities — that creates problems for many campuses planning new distance education initiatives. During the 1980s, many institutions, including but not limited to the rapidly expanding University of Phoenix, could mount aggressive and extremely profitable distance education programs because off-campus costs were generally much lower than comparable costs for on-campus offerings. For example, per-course costs for part-time instructors are far less than those for full-time faculty: in some cases the difference can be 60, or even 75 percent. Moreover, the overhead costs for off-campus programs are also often lower: leased facilities often cost less than the real costs of similar classrooms and administrative offices on a traditional campus. Additionally, programs can expand or contract based on market demand: campuses can easily add or cut off-campus courses (and the accompanying part-time instructors), an option not available with tenured, full-time faculty.

Taken together, these factors (low-cost faculty, low-cost facilities, and "packaged" curriculum resources) helped make distance education viable and profitable for many institutions and programs. Cash-paying adults, often subsidized by the educational benefits provided by their employers, have became an increasing important clientele for growing numbers of institutions and programs over the past decade.

But the technologies that are an increasingly important part of the instructional infrastructure for distance education programs (computers, online libraries, video production facilities, low- and high-speed data and video networks, among others) are expensive. Moreover, the electronic infrastructure has a short, often unpredictable half-life. The lowest common denominator factors that are part of the cost structure of rented facilities and part-time instructors play out in different ways when the content and instruction are delivered via various technologies: successful implementation and dissemination depend on both instructor and learner having easy access to common resources such as cable channels, computers, and the Internet.

THE CONTENT FACTOR

Indeed, 10-minutes spent surfing cable channels quickly brings into focus many of the content and delivery issues affecting the role of technology in distance education: Can a campus-developed telecourse or WWW-based learning module on art history, astronomy, biology, history, or physics complete with the content, quality, and production values routinely found in the programs broadcast each week on The History Channel, the Discovery Channel, or the PBS Nova series? Can "campus products" successfully compete with the computer-based instructional tools and content-rich digital resources that commercial developers — both small start-ups and large corporations — are bringing to the market? In the new realm of campus-independent, technology enhanced education, how does a video of a faculty member lecturing in front of a class or a TV camera compare and compete with the proliferating distribution of high quality instructional content available via cable channels, on CD-Roms, and over the Internet and WWW?

Indeed, many institutional officials have simply opted to avoid (or ignore) the core financial question: What are the costs of content and supporting instructional resources in the new, technology-laden world of distance education?

- $2 for a digitized version of a book chapter or scholarly article?
- $20-$50 to have a work-study student or a media specialist videotape a faculty lecture?
- $20-$200 per hour for faculty time?
- $200-$2,000 for 60-minutes of an unedited classroom video?
- $20,000 for 30-minutes of a production-quality lecture?
- $100K for 60-minutes of commercial-quality video?
- $200-400K for commercial quality digital (or computer) simulations?

Compare these costs, real costs, against the way many campuses and academic programs build financial models for their distance education programs: supplemental pay for faculty to bring a course and syllabus from the classroom into an on-campus video studio. Work-study wages for under-

graduates to write computer code and to develop multimedia resources. Extended hours for graduate students, committed to an academic apprenticeship, to help senior faculty identify supporting materials for the transition from real-time classrooms to online or video environments. Unbilled hours committed by curriculum design specialists and technology support personnel. "Free" (or significantly subsidized) access to technology resources such as desktop computers, networks, servers, software, and more.

This is familiar if often forgotten terrain. Higher education's first wave of desktop computing, during the mid-1980s, was accompanied by some ambitious faculty efforts to create courseware intended to supplement and enhance instruction. Some of these initial efforts were little more than "widget" templates for spreadsheets; others were more sophisticated endeavors. The expanding use of technology by students and faculty between 1984 and 1994, coupled with the lure of (and hype surrounding) multimedia subsequently tempted still more faculty to try their hand at developing instructional materials. Often these initial campus efforts were supported by foundations, technology firms, or small, seed-money institutional grants; others were fueled only by the good intentions and instructional aspirations of individual faculty drawn to the potential of instructional technology.

By 1996, the exploding use of the Internet and the WWW provided yet another catalyst for faculty, institutions, and instructional publishers to revisit the role of technology in classroom and distance education. The cross-platform ubiquity of the WWW in the campus community, not bounded by IBM-compatibles, WinTel systems, Macintosh computers, or Unix workstations, has helped to resolve some earlier infrastructure and compatibility problems linked to hardware, software, and access. The explosive growth of potentially useful content on the WWW, coupled with new, easier to use development tools, pushed some faculty and pulled others to again examine the role of information technology in their instructional activities and scholarly work.

But the return on the dollars and faculty time invested in instructional development has been mixed: the campus experience of the past decade reveals that successful instructional development often depends on an interdisciplinary team of content specialists, instructional designers, and codewriters. The late-night efforts of "early adopter" faculty to create "courseware" generally were not successful: many underestimated the challenge of developing instructional materials, as well as the real financial costs and accompanying time commitments. Additionally, faculty developers (and their student assistants/ codewriters) frequently encountered some variation of the 80/20 rule — the last 20 percent of the development/software task often requires 80 percent of the effort.

The all-too-common campus investment strategy in technology-based courses, small seed money grants of $5,000 or $10,000, clearly helps to fuel individual aspirations. But the accompanying great expectations for significant (if supplemental) classroom modules or distance education courses typically require significantly more money.

Similarly, major college market publishers have spent millions over the past decade developing video and digital ancillaries linked to their textbooks: here too the return on investment, as measured by sales revenue and educational impacts, has been modest at best. Indeed, many college publishers acknowledge in private conversations that their investments are often a defensive investment made to protect the position of a leading textbook.

But what about the campus project that readily consumes $50,000, or $100,000, or maybe even $500k? Indeed, probe beneath the surface at some campuses that invested heavily in serious efforts to develop courseware and multimedia content; it is often easy to find the stories of well-intentioned development projects that were a sponge for institutional and foundation dollars. Although fueled by good intentions and great aspirations, many (perhaps most?) of these efforts unfortunately failed to produce an instructionally useful or commercially viable product.

Seen in this context, content development begins to look like a venture capital business generally acknowledged as risky business. Venture capital (VC) like a campus seed grant, seeks the innovative idea and individual. But even with extensive due diligence, venture capitalists know that at best only one in 10 or one in 20 investments will be successful. For every VC-financed startup that turns into an Apple, Compaq, Netscape, or Yahoo!, there are literally hundreds of small, venture-financed companies created by smart people with compelling ideas that never survive. Most will burn through the initial money and crash; a few will break even, while less than 10 percent (or perhaps even five percent) survive, let alone thrive.

Although the sums are small compared to the money involved in venture capital, the campus experience over the past decade reveals the dollars can be daunting, the return on investment highly uncertain. Consequently, growing numbers of institutions are looking to external sources (textbook publishers, curriculum entrepreneurs) to provide technology-based instructional modules, rather than invest in faculty efforts.

THE COST OF INSTRUCTION

Given past experiences, one part of the academic house now says "been there, tried that, let's move on" to the challenge of instructional development. Yet another side, lured by the potential market for distance and online education says, "let's jump in." The hard questions involve the costs links to the jump.

Be it the core syllabus or supplemental courseware, higher education typically has measured the cost of instruction via salary and individual service, rather than hours on task: faculty are hired to teach a course, not to produce instructional content. The common practice of bundling instructional costs is not necessarily good or bad, rather bundling instructional activities into one single cost (faculty salaries) has been a given part of the instructional process and operational infrastructure. Under the current model of designing and delivering "for credit" classes, faculty assume the "overhead" costs of course and content development as part of their instructional responsibilities: developing a syllabus, preparing for individual classes, teaching in a classroom, meeting with students after class, grading papers and exams — these and related tasks are typically viewed as a single category of instruction development and delivery costs.

However, not all instructional costs are equal: senior faculty "cost more" than their junior colleagues or part-time associates who teach the same course; syllabus development "costs less" for an "old" class than for a new one; "unit costs" are lower for large, lower division lecture classes than

for upper-division and graduate seminars; humanities courses typically are "less expensive" than those in science and engineering because salaries and infrastructure costs are lower. Institutions — presidents, provosts, deans, and faculty — implicitly accept these cost differences as part of the nature of the academic enterprise.

Yet extension programs, at many campuses the "not-for-degree credit" side of distance education, typically work under a somewhat different budget model. While individual instructors still assume course development costs as part of their job responsibilities, institutions typically do not subsidize extension programs the way they underwrite instruction in the "for credit" curriculum. Consequently, some real costs that occur across the curriculum actually are paid with real cash in extension programs.

But what happens to development costs as the content of distance education moves from short-cycle extension classes into mainstream (i.e., for degree credit) course and curricular offerings? What about the technology resources and infrastructure that are increasingly important to a growing proportion of distance education initiatives and offerings? Can all campuses and programs build a revenue stream against the real costs of developing commercial quality, technology-enhanced distance education resources? Admittedly market pressures, competitive postures, and (actual or inferred) state mandates will push and pull many institutions into distance education initiatives. Yet at the end of the day (or course, or instructional cycle, or even some measure of the useful life of the instructional resource), would a CPA accept the allocation of costs against revenues?

Certainly many campuses will (attempt or continue to) leverage their distance education initiatives against existing resources: faculty, graduate students, media centers, libraries, and campus networks. But if managed as a "real business" (i.e., absent both state subsidy (for public institutions) and institutional subsidy (for all institutions)) how many distance education programs (most programs? all programs?) would be both educationally viable and financially profitable?

WHERE'S THE (TECHNOLOGY) PLAN?

Indeed, campus and program officials planning to leverage institutional resources as part of a technology-enhanced (or dependent) distance education initiative should ask pointed questions about the institutional technology plan. On many campuses, the plan simply does not exist.

Data from the annual Campus Computing Survey suggested that as of Summer 1996, less than half (43 percent) of the nation's two- and four-year colleges and universities had a strategic plan for the role of information technology in instruction and scholarship (Figure 3). Moreover, barely one-fourth (28 percent) had a financial plan for routinely amortizing and replacing computers, software, and other key components of an increasing critical and complex campus technology infrastructure. The same survey also revealed that only one campus in six (17 percent) has a formal plan for the role of information technology and WWW resources in their distance education strategy.

Taken together, these data suggest an ad hoc strategy underlying much (perhaps most?) institutional planning in the realm of technology. For too many campuses, great aspirations about the use of technology in instruction and scholarship play against institutional drift in the area of technology planning.

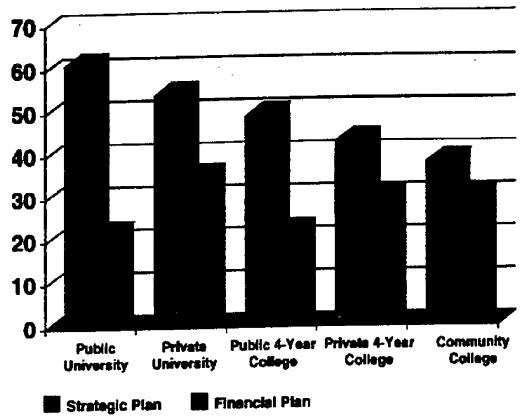

Figure 3 : Percentage of Colleges and Universities Reporting Strategic and Financial Plans for Information Technology, Fall, 1996. (Source: Green, Campus Computing, 1996).

These data, along with the Campus Computing Survey's finding that user support and instructional integration are the most important information technology challenges confronting U.S. colleges and universities over the next two-three years (Figure 4), do not bode well for distance education programs planning to build or expand technology components (both content and delivery) leveraged against existing institutional resources. Beyond the cost of content development, discussed above, there are also broad issues of technology access and user support: institutions struggling to develop or enhance their technology infrastructure for their core clientele of campus-based students will encounter additional challenges and expenses as they attempt to make these resources available to off-campus clientele.

A FOURTH SECTOR STRATEGY

Given the range of push and pull factors affecting distance education initiatives (demography, market opportunities, state mandates, expanding markets, competitive pressures and postures, content development, start-up and operating costs, new instructional and delivery technologies, and more), is there a "macro" strategy that should guide institutional efforts and planning in realm of distance education? Perhaps.

The higher education community, college administrators, deans and department chairs, individual faculty, and public policy officials, would do well to approach distance and online education as a fourth sector of the non-profit postsecondary enterprise. The entrepreneurial initiatives and growing enrollments of the University of Phoenix, MEU and others notwithstanding, the advent of Western Governor's University means that distance education officially joins residential colleges and universities, commuter comprehensive institutions, and community colleges as yet another broad point of access to postsecondary education. Distance (and online) education warrants a distinct identity because of its special mix of pedagogy and clientele.

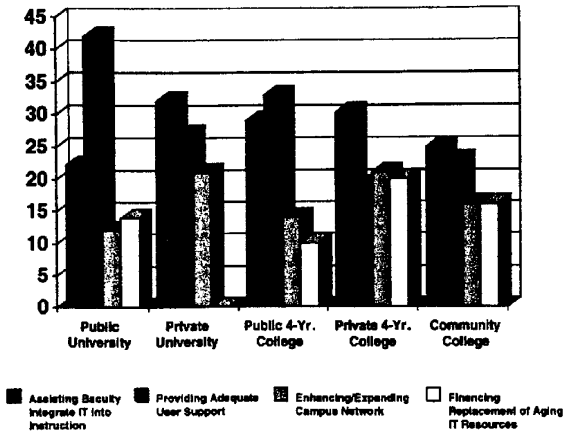

Figure 4 : The 'Single Most Important IT Issue Confronting Colleges and Universities Over the Next Two-Three Years," percentages (Source: Green, Campus Computing, 1996).

Over the past two decades, two- and four year institutions have come to recognize that the educational needs and expectations of the rapidly growing adult market are different than those of traditional students. The kind, quality, and format of educational services adults might want, need, and accept in a single course or complete degree program are often different than the aspirations of and expectations for "college" these same individuals have for their children. Adults are often willing to pass on the contextual aspects of college; alternatively, some will demand new alternatives to traditional offerings. In contrast, they may explicitly demand, or at least silently hope, that the college experience of their 18- or 20-year-old daughter and son has some components of a collegiate experience — context along with content and certification.

A fourth sector strategy has long-been explicit in the offerings and operations of university extension programs — different clientele and curricula, to be sure, along with a different business and revenue model. Because extension programs typically operate without an institutional (or state) subsidy and under a mandate to generate real dollars (i.e., profits), the fiscal operations look more like a small (or often a large) business, rather than not-for-profit organization: programs and personnel live in a real market, immediately affected by market shifts.

How then should institutions and academic programs assess their options and explore opportunities to launch (or expand) distance education programs? Three issues should drive and direct the institutional and programmatic initiatives; the business plan, content development, and faculty reward and recognition.

The Business Plan. The first task confronting any institution or program planning launch or expand distance (and online) education initiatives is the business plan: a concise definition of markets, products, consumers (who will buy it) and producers (who will create/offer it). Viable business plans are not built on assumptions of fallow capacity. Yet too often academe's version of "build it and they will come" play out as "let's reposition or leverage this to see if someone might want it." No more.

Additionally, a key component of the business plan must be a solid financial foundation for all online and distance education initiatives. This means that everything, literally everything, that involving potential costs such as instructional personnel, technology infrastructure, administrative management, and support services, content development, overhead, and other direct and indirect expenses must be recognized as a real cost and addressed as such.

Moreover, amortization, virtually unknown in the campus community but well understood in the corporate environment, must become a critical financial tool for understanding and managing real costs. Too often we in academe define amortization of our technology tools as the willingness of a recently hired humanist to use a 15-year-old IBM Selectric typewriter. We leverage, and extend, and defer at almost every opportunity. Yet Moore's Law, the driving dynamic of the information technology industry, should force institutions and programs to address amortization as part of their technology plans. Technology involves real costs that current budget models defer or ignore. The "budget dust" strategy of paying for technology infrastructure (using year-end money to fix problems and buy products) is no longer effective; indeed, the budget dust strategy, based on year-end funds, is somewhat irresponsible. This is particularly true in distance education programs, where the clientele may have very specific needs for and expectations about the technology component of the instructional experience.

Content Development. A second key issue involves content development. Technology-assisted (or enabled) distance education is different than its classroom-based analogs. It involves more than simply adding a few WWW sites to the course syllabus or posting a static syllabus on the WWW. Content development involves real costs. Yet like the technology infrastructure, too often campuses have ignored (or deferred) the real costs of content development, or have lumped them under a broad heading of "instructional personnel."

Yet successful content development, individual modules as well as complete units, is a team effort. Consequently, the real costs of the "content development team," faculty, code writers, curriculum specialists, web designers, and others, must be factored into the assessment of content development costs.

Here too, Moore's Law comes into play: drawing on the WWW and other technology resources means that the half-life of certain courses and curricula may be very short — perhaps a year, perhaps two. Consequently, the costs of content development and updating should be part of the financial plan for online and distance education initiatives.

Recognition and Reward. Finally, campuses and academic programs must begin to recognize and reward faculty for their efforts to integrate technology into their classrooms, syllabi, and instructional activities. This applies to both traditional, classroom-based efforts and also to online and distance education initiatives.

The technology experience of American higher education over the past 15 years reveals that infrastructure drives innovation: campus officials readily tag computers, software, networks and support personnel as key elements of the technology infrastructure. Yet ample evidence indicates that there is very little in the way of formal rewards or informal recognition for faculty who invest in developing technology-enhanced courses and classroom-modules. Indeed, too often faculty feel that their technology efforts are penalized when their portfolios go forward for promotion and tenure review.

Institutions and program must expand the review and promotion criteria to end the penalty and enhance the reward

for faculty efforts to integrate technology into teaching and instruction. This is not to say that technology skills might supplant scholarship or teaching skills as part of faculty review; rather, technology integration efforts might be one of several factors that could supplement the usual review criteria.

Institutional aspirations to integrate technology into instruction really do depend on faculty involvement and engagement. To this end, "work for hire" strategies that capture content for institutions and provide disincentives for faculty and others involved in content development for online and distance education programs. Even in the fourth sector strategy, faculty remain the core resource of the educational initiative.

THE GENIE AND THE BOTTLE

Higher education has changed dramatically over the past two decades; the next 10 and 20 years promise still more change. Information technology and distance education have been key factors in the contributing to the current and coming changes in the postsecondary enterprise.

The genie will not go back into the bottle: adult enrollments will expand, not decline; demand for technology will continue, not diminish; the opportunities for distance and online education will grow, not recede. In this context, institutions and individual programs confront interesting options and opportunities. For some, distance and on-line education will be a reasonable and appropriate extension of institutional mission, mandate, and resources; for others, distance education and online initiatives will be little more than an inappropriate grab for revenue and clientele that seem quick, easy, and expedient.

Without question, technology will be a driving force in higher education in the coming years, as it will be elsewhere in the economy, in the workplace, in elementary and secondary schools, and in our homes. We are attracted to the light, to the promise, and to the potential. As the postsecondary community chases the promise and potential, we in academe must also be aware that information technology can easily become quagmire; once invested, it can also be difficult, expensive, and ineffective. Aspirations, mission, mandate, and resources are key factors that determine the success efforts to integrate technology into classroom-based and distance/online education programs. Yet perhaps the difference between experiencing technology as a guiding light and technology as a quagmire ultimately depends on an institutional and programmatic vision, a strategy, and a plan. The planning component is not easy and it is not quick; but it is essential.

About the Author

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