Traditions to Transformations: The Forced Evolution of Higher Education

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Abstract

Considering the need for fiber optics, hardware, technicians, special staff development opportunities and ongoing maintenance, schools must invest far more in technology-enhanced courses than in “traditional” low-technology courses. Since learner achievement is not significantly different between high-tech and low-tech courses, why would higher education institutions fight so hard to secure funding for instructional technology? The answer comes directly from those whose lives are most affected by education: the learners. Learners demand more than a glorified correspondence course or a televised lecture hall, each of which is relatively inexpensive and easy to develop and deploy through existing technologies.

This article focuses on the advantages and the necessity of infusing instructional technologies in higher education. The article: (a) explores the assumptions about teaching and learning with technologies, (b) identifies changes and reforms in higher education, from tradition to transformation, and (c) summarizes necessary components for successful transformational higher education—transparent and seamless student services, convenience, individualized instruction, high quality/best-in-class delivery and interactivity.
Although schools invest far more in the high-tech courses, the promise that newer technologies would deliver education efficiently and cheaply and save faculty time that could be devoted to individualized student contact has yet to be fulfilled. In reality, technology enhancements have more often been attached to existing traditionally delivered courses, thus adding to the cost of education (Gladieux & Swail, 1999 April). Is this investment justified through student achievement gains? Do students learn more in distance learning or technology-enhanced environments? Is computer-based instruction more effective than lecture-based instruction? These and countless similar questions are asked repeatedly of anyone involved in the field of instructional technology. If we answer honestly, we must say that there is no significant difference in academic achievement between traditional and technology-enhanced courses. However, we will argue vehemently and correctly that there are measurable and critical advantages to investing in technology for teaching and learning, and not necessarily in delivery. It must be clarified that we cannot describe real gains from instructional technology while being consistently asked the wrong questions (Ehrmann, 1997; 1999). Rather than compare live lectures to CD-ROMs, we should reframe our questions to address how technologies are used to enable, facilitate, and support the teaching and learning enterprise, both from the students’ perspective and from an investment perspective.

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Traditions to Transformations

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Teaching and Learning with Technologies

Certainly, educators are concerned with the quality of the education in distance learning environments. Administrators are concerned with the additional cost of delivery and the possible net gain in reaching larger and more far flung audiences of learners. And the public is concerned with the belief that high technology is justified only if it ensures high achievement in learning. However, study after study on comparing traditional courses with computer-based or technology-enhanced courses yields no significant difference in academic achievement (Russell, 1997). In fact, such media comparison studies—studies designed to measure any academic gain due to the use of one instructional medium over another—will most likely produce no significant difference in achievement, given the flawed assumption that the medium alone influences learning (Clark, 1983; 1994a; 1994b; Kozma, 1991; 1994a; 1994b; Jonassen, Campbell, & Davidson, 1994; Lockee, Burton, & Cross, 1999; Russell, 1997).

The danger in reporting such results is that decision makers on campuses and in-state legislatures conclude that there is no need to continue funding technology-enhanced learning when traditional media (the teacher) and traditional settings (the classroom) result in the same amount of knowledge for the student. Even more dangerous are the studies and popular press articles that suggest technology is actually the source of social alienation (Gladieux & Swail,
1999 April) and has set the stage for a new form of classism and racism known as the digital divide (Gladieux & Swail, 1999 April; Murphy, 1990; The Secretary’s Conference on Educational Technology-1999, 1999; US Department of Education, 1999; US Department of Commerce, 1998).

So why are schools, particularly those in higher education, fighting so hard to secure funding for technology? The answer comes directly from those whose lives are most affected by education: the learners. In today’s market-driven environment, higher education has had to respond on many fronts, including workforce training, just-in-time learning, shortages of teachers, geographically limited learners, significant changes in part-time and full-time learning and learners with special needs (Adelman, 1999; Dolence & Norris, 1995; Green, 1999; Schneider & Shoenberg, 1999). Special needs in this case might include the need for asynchronous learning, availability of flexible class time due to work and family obligations, electronic access to distant library resources, as well as the need for a special adaptive or assistive technology for a students with disabilities. As Turoff (2000) notes: “Consumerism will be an evolving force in the future of educational institutions. Without a geographical monopoly, institutions of higher education will be far more sensitive to consumer pressures than they have been in the past” (p. 4).

Lest we think that the “consumers” in higher education have little influence in how higher education responds to its market, we must consider the trends in the growing post-secondary population (Recalibrating Enrollment Strategies, 2000, January). Higher education institutions have worked hard to encourage
lifelong learning, support tax credits for education, provide non-credit courses for
workers, deliver courses through a variety of distance media and provide flexible
scheduling. These efforts appear to be paying off in rising enrollments in higher
education (U.S. Department of Education, 1999) of immediate and delayed-start
high school graduates, and continuing and older first-time post secondary
students (part year and full year). Adelman (1999) describes three possible
scenarios:

“The...begins at the same benchmark: in 1995-96, some 65
percent of 2.6 million high school graduates continued their education
within one year of graduation (Digest of Education Statistics, 1997, Tab.
184 p. 195) [see Snyder, 1997]. The base of calculations, then, is 1.69
million first-time entering freshmen (p. 23).

The first scenario conservatively assumes that there will be no increase in
the combined totals of immediate and delayed-entry high school students. Based
on estimates of high school graduation rates, we could see an increase of 23
percent over the current enrollments within the next 10 years. In this scenario,
that translates into an increase of 450,000 students in this one area.

Adelman’s second scenario assumes that higher education institutions
have some moderate success with outreach programs and programs targeted for
disadvantaged students. He suggests that this would “increase the direct-entry
rate to 70 percent. Adding 10 percent for the delayed entry rate gives us 80
percent of the high school graduating classes” (p. 23) and increases first-time
enrollments to 31 percent more than current rates (about 600,000 more
students).
The third scenario assumes that outreach efforts do not increase the “access rate” but improve retention and graduation rates. Based on National Education Statistics (NCES) 1989-1994 data, Adelman notes that a 10-point reduction in non-completion rates would translate into “240,000 more traditional-age students staying in the system after their first year than is currently the case” (p. 23).

For all of these scenarios, Adelman suggests that the current configuration of higher education institutions may not be able to handle the increased attendance. The capacity of our schools—including the number of faculty, technical support staff, appropriate classrooms and access to courses—may be strained by our successful recruitment and retention activities and the current funding levels. The solution seems to be in shifting the learning to distance delivery. In fact, the promises made in the early 1980s that technology would enable faster, cheaper and convenient learning were and still are legitimate. However, it is a serious mistake to assume that a choice should be made between traditional, campus-based learning and distance learning environments (Adelman, 1999; Brown & Duguid, 1995; Dunn, 2000, March-April; Ehrmann, 1999; Fahy, 1998; Green, 1999; Turoff, 2000).

What has changed since the 1980’s predictions of cheaper, one-to-many delivery methods is the education market itself. Learners demand more than a glorified correspondence course or a televised lecture hall, each of which is relatively inexpensive and easy to develop and deploy through existing technologies (Dolence & Norris, 1995; Gladieux & Swail, 1999). Technology-
enhanced lecturing is simply a delivery system solution rather than a true learning environment.

As learners began to take advantage of technology in learning in the early 1990s, they came to expect distance learning to be high-quality (include current content), convenient (available, accessible and flexible in scheduling), individualized (the instruction matches learning styles and individual schedules), and *interactive* (providing active learning experiences supported by personal contact with the instructor and other students through synchronous or asynchronous means). Such “communities” of learners and teachers (Brown & Duguid, 1995) with attention paid to individual and interpersonal needs is the desired model for *constructing* rather than *delivering* knowledge. Failure to address these market demands in distance learning means that some higher education institutions could be bypassed in favor of the institution offering a more desirable course or program design (Adelman, 1999; Dolence, Rowley, & Lujan, 1997; Ehrmann, 1997; Turoff, 2000). The answer is clearly not found by simply trading on-campus for off-campus experiences.

Notice that the other message from the learning market does not include a recommendation for higher education to adopt any particular technology. Instead, learners are asking for certain characteristics to be present in the learning environment in order for them to experience learning as convenient, affordable, and significant cognitive change. In addition, learners come to the learning environment with many more skills than those identified in the 1980s (NCES, 1998).
...Today’s high school graduates are already children of the “information age,” and tomorrow’s students will be even more conditioned by electronic media. Today’s university students expect to learn with computers and the latest information technology, not least because an increasingly competitive labor market demands no less. (Gladieux & Swail, 1999 April, p. 10)

Learners want to learn something for some purpose, whether that purpose is advancement in the workplace or advanced knowledge in some subject. It is the heart and soul of the education enterprise to facilitate, encourage and enable cognitive change in learners with respect to specific and interconnected domains of knowledge. The challenge is to do all of that and keep pace with the demands of the market.

The assumptions of the media comparison studies (Russell, 1997) are based on a mistaken notion that a new medium of delivery can or should result in higher student achievement. By focusing attention on the media and not the interaction of teaching, learning, thinking and media, researchers have masked true positive gains with reports of no significant differences with one medium over another.

There is an interaction of teaching, learning and enabling elements that facilitates cognitive change in learners. Teachers and learners have at their disposal a variety of supports that, for convenience, may be categorized as teaching, learning and thinking tools. These “tools” are not limited to one particular medium interacting with one particular kind of learning. Rather, teachers and learners bring certain skills and awareness to the learning context and are free to use whatever technologies are appropriate for promoting cognitive change (Bullen, 1998; Wild & Quinn, 1998). In all cases, the tools
include some form of access to a variety of production materials and delivery systems (media) that facilitate and enable teaching and learning.

The rich mix of learning, teaching and thinking tools—supported and enabled by whatever technologies and classrooms are appropriate—describes a more realistic learning environment than do the carefully manipulated quasi-experiments of past media comparison studies. Our assumptions about how learners and teachers use technologies in learning should shift to the knowledge gains made in learning environments that meet the needs of market-driven convenience, affordability, accessibility and opportunity for significant cognitive change. Use of the technologies becomes a secondary and supportive requirement: “Those who use computers on a regular basis are more apt to use them routinely in problem solving and critical thinking. They use computers as past generations used pen and paper” (Gladieux & Swail, 1999 April, p. 20).
Notice that the learning environment—whether it is a campus-based classroom, combination distance and campus-based or an entirely distance learning situation—contains certain critical elements of convenience, interactivity (with content and instructor), flexibility, access and availability of appropriate and supportive technologies (teaching, thinking and learning tools) and quality assurance (in both content and institutional certification of the quality of knowledge gained). Successful courses and programs in transformational higher education are sensitive to these elements (Adelman, 1999; Dolence, Rowley, & Lujan, 1997; Ehrmann, 1997; Green, 1999; Gladieux & Swail, 1999 April; Turoff, 2000).

From Tradition to Transformation

Today there are few purely “traditional” classrooms in US higher education institutions. With the increase of computer and other technologies in secondary and elementary schools (NCES, 1998; 1999), higher education educators have had to respond to students’ new skill base. Even those faculty who hesitate to use basic presentation software in class are likely to use e-mail to correspond with students and colleagues (NCES 1998, 1999; Green, 1999; Gladieux & Swail, 1999 April).

Transitional Classrooms

Most courses offered in higher education are supported by hybrid or blended methods and multiple media. This mixing and matching of media and methods allows schools to offer a range of on-campus, off-campus and distance learning elements. Many colleges and universities have focused on delivering
programs completely online, though it is “premature...to announce the coming
demise of residential colleges, let alone of ‘traditional’ higher education, as
entities about to be swept under by the tsunami of online learning” (Green, 1999,
p. 15).

Despite the growing number of online experiences, courses and programs
that focus solely on one enabling medium for teaching and learning tools have
been shown to be less effective and appealing to learners (Dixon, 1996; Schrum
& Luetkehans, 1997). In fact, most courses and programs identified as “online”
are actually a blend of distance and periodic campus-based learning. That is,
learners may be required to gather on campus as often as once per month or as
little as twice per academic year, and complete the rest of their learning
experience from a distance. Several studies and evaluation plans suggest that
combinations of different strategies and media and synchronous and
asynchronous access to information and the teacher result in positive learner
outcomes (Baker, 1999; Cavanaugh, 1999; Heinecke, Blasi, Milman, &
Washington, 1999; McNabb, Hawkes, & Rouk, 1999). This makes sound
pedagogical sense: of course cognitive change would increase in this kind of
environment, since learners are given a variety of media and teaching strategies
in a multiple media environment and are able to match their learning style
(learning and thinking tools) and their personal situations to the intended learning
goals.

In blended or multiple media courses, instructional technologies not only
enable and facilitate learning, they meet the demand to provide convenient,
affordable and significant cognitive change. In all cases, some form of the
traditional classroom and face-to-face interactions—such as e-mentoring—are a
necessary part of the blended environment (Keeping classroom, 2000; University
and Community College System of Nevada, 1999; Turoff, 2000).

Indeed, all parties would do well to view distance, distributed and
online learning as a new, fourth sector of higher education, residing
alongside (and not behind) research universities, residential colleges, and
commuter institutions. The boundaries that separate the sectors and their
respective clientele are increasingly porous. Growing numbers of
institutions firmly planted in one sector now serve (and indeed recruit!)
students from other sectors: universities pursue part-time adult learners,
while community colleges develop honors programs to serve the growing
numbers of middle- and upper-ability, middle- and upper-income students
who matriculate directly from high school. (Green, 1999, p. 15)

The Report on Distance Education produced by the University and
Community College System of Nevada (1999) echoes Green’s observations:
“Eventually, distance education will not be for those at a distance anymore, but
just another way of serving students” (p. 6). Transitional classrooms tend to
blend the best of campus-based and distance-learning access (Brown & Duguid,
1995; Green, 1999; Schrum & Luetkehans, 1997). They allow learners to make
choices about the mechanics of scheduling courses or working and provide a
means of merging campus-based and off-campus learners. Most learners
perceive a greater depth of learning in these “classrooms” due to the expanded
multiple media tools and paths through the content (Wild & Quinn, 1999).
Transitional classrooms are purposely designed to bring people together in a
variety of ways using different technologies and “not, as some interpretations of
‘distance education’ suggest, for reinforcing their isolation” (Brown & Duguid,
1995).
An interesting parallel is developing in e-business models. The merging of physical storefronts and Internet access—so called “click-and-mortar” or “brick-and-click” enterprises—places brand recognition at the forefront of the business, rather than a particular physical or cyber location (Stuart, 2000). Truly transformational higher education institutions will likely begin to sound more like high level click-and-mortar corporate executives:

“If we’re going to dominate the brick-and-mortar world, we want to dominate the Internet as well,” says Nancy Babine-Kucinski, president of the self-described killer that sells 10 million hats a year. “We didn’t see [Lids.com] as a separate business entity, because we couldn’t imagine that our customers saw it that way. The customers see Lids as a brand”—no matter where they’re seeing it. In a nutshell, that’s what click and mortar is all about. (Stuart, 2000, p. 78)

It is a very small step to substitute any click-and-mortar brand with your preferred local higher education institution. Why should campus leaders think of their blended course offerings as being any more or less effective than their campus-based offerings? Why should students think that taking web-based courses from their chosen university is any less prestigious or rigorous than taking courses at that university’s bricks-and-mortar location? Getting past the feeling of discomfort over this type of blending is the first step in transforming higher education from campus-centered delivery to student-centered learning.

Transformational Classrooms

Such merging of traditional education, market demands and technologies contribute to a “convergence” of trends that are rapidly transforming higher education. Green (1999) sees three convergence factors: increased access to higher education, lifelong learning and information technology. Ward (2000)
identifies four convergence trends: technical (the communications revolution), intellectual (shifts in the intellectual division of labor), fiscal (shifts in the funding stream) and demographic (demographic and accessibility shifts). Essentially, both Green and Ward are seeing the same changes in what learners need and expect of higher education.

Transformational higher educational institutions “must aspire to expand the learning experience well beyond the traditional classroom to include residential learning communities, voluntary service opportunities, enhanced uses of informational technology and increased field and research opportunities” (Ward, p.29). Transformational classrooms are responsive to the interdisciplinary nature of learning and the blurring of old boundaries between school and communities. The campus, itself, must transform from departments and disciplines (Schneider & Schoenberg, 1999) as sacred “silos” to interdisciplinary strategic niches (Ward, 2000).

Again, taking a cue from e-business, these changes require a sensitivity to providing the best service possible and associating that service with the brand (college or university):

Ultimately...any successful click-and-mortar business boils down to two attributes. First, It must be transparent to the customer. “Successful means seamless,” Seybold says. Ideally, customers should be able to shop when and how they want: online, in a store, by telephone, by fax, by mail, even by e-mail.

Equally important: Everything must work perfectly. Success means “providing a best-in-class customer experience, regardless of channel,” says Ann Chau, KPMG International partner for customer relationship management in consumer markets. In addition, all companies selling anything online should know their customers’ preferred channels, “whether it’s the Web for teenagers, brick-and-mortar stores for families or catalogs for senior citizens.” (Stuart, 2000, p. 80)
The sacred silos of higher education exist in the academic and administrative aspects of the educational enterprise. The history of disdain among academic disciplines is well documented and experienced daily on campuses across the country. Fortunately, changes in workforce demands, reductions in resources and the need for cross-disciplinary solutions to new problems has helped academics make great strides in collaborative efforts (Ward, 2000).

The administrative areas on individual campuses also appear to be making great changes in how business is conducted. However, higher level collaborations between and among different institutions still present barriers. Students expect to make choices about courses and programs, particularly within a state or land grant university system. Issues of transfer credits, registration practices, faculty load and tuition dispersal among institutions present major barriers to the success factors of “seamless and transparent” access to higher education. Such adherence to administrative silos of control will likely impede or even halt the transformational process.

Necessary Components for Transformational Higher Education

By changing the focus from technology to the needs and necessities of the learning environment, we can begin to identify major components for post-secondary transitional and transformational education. Beyond the requisite questions on student satisfaction and quality of education offered—an issue that is best addressed by accreditation agencies, faculty and degree-granting institutions—we can examine our success or failure from very different angles.
and focus on those that will likely determine success. Keegan (1996) proposed a framework for evaluating distance learning environments that could be adapted for transformational learning environments. The first two components focus on students: the quantity of learning (attrition, new learner markets, completion of courses) and the quality of learning (effectiveness of courses or program to enable desired learner outcomes). The next two components focus on perceptions about what was achieved by the learners in a course or program: the status of the learning (transferability of coursework or employer recognition of degrees and certificates) and the cost of the learning (institutional cost effectiveness and cost benefits). While this framework is critical in an evaluation process, it may also guide our thinking as higher education transforms for the knowledge age.

Based on the discussion thus far, Keegan’s framework can be readily translated into a short list of student/market demands on higher education: transparent/seamless services, convenience, individualized instruction, high quality learning and interactivity. Costs are always a factor, but most research shows that students are willing to pay a bit more if other market demands are met, which changes the focus from costs to cost effectiveness. It appears that the savings that students realize in terms of time and travel, alone, account for this acceptance of slightly higher tuition.

1. **Transparent/seamless** student services—one-stop registration, easy access to information about courses, transcripts, prerequisites for programs, ease of building a program. This issue is a major concern for students. When
registration is difficult or managing and gathering credits and manuscripts from multiple schools places a burden of time and paperwork, most students are likely to go elsewhere for a more user-friendly environment.

2. **Convenience**—availability, accessibility and flexibility for scheduling, including access through electronic travelling vans and cable TV. Convenience is also connected to the need for transparent and seamless access to student services, particularly in terms of moving within a higher education system. If certificate and degree programs are not offered at convenient times, if library and bookstore materials are hard to locate, or if students must experience a convoluted registration activity, they are likely to seek a more convenient means of obtaining the certificate or degree. In other words, they will find a different provider.

3. **Individualized instruction** (the instruction matches learning styles and individual schedules and is designed for a variety of audiences). Most faculty members realize that they must have a certain proportion of individualized activity built into each course. This may be in the form of multiple delivery media, multiple teaching strategies, opportunities for group work, etc. Increasingly, individualized instruction includes time flexibility, personal attention (see interactivity) and individually tailored courses (just-in-time learning).

4. **High quality and best-in-class delivery** on any channel—web-based, CD-ROM, ITV/Cable TV, satellite, campus-based, blended. The issue is simple brand recognition. The idea is to provide quality learning experiences—or high-quality products)—no matter where the student may wish to access the course.
The high-quality learning, we assume, is built into the institutions’ accreditation processes. Learners should expect that School ABC provides high-quality courses regardless of the means used to access the course. If School ABC has a reputation as a campus-based institution but allows low quality web-based courses, the brand name of School ABC will suffer.

5. **Interactivity**—providing active learning experiences supported by personal contact with the instructor and other students through synchronous or asynchronous means. Along with individualized, convenient and high-quality education, learners expect some form of one-on-one contact with instructors and other students. In addition, materials such as web sites should be more than static page-turning information dumps. Engaging learners is critical to higher-order thinking *and* to the image of being a high-quality, best-in-class educational experience.

A sincere attempt to address this mix of traditional educational goals, business realities and responsiveness to recruitment efforts for equity in educational access (Gladieux & Swail, 1999 April) places transformational higher education at the heart of true lifelong learning. By evaluating our efforts from the perspective of the student *first*—which means responding to the critical short list previously identified—higher educational institutions may finally evolve from old models that could be recognized by teachers 150 years ago. Newer technologies used to enhance and facilitate learning are a major part of this evolutionary process: “as they adapt to current practice, new technologies become less
visible. Yet, simultaneously, by adopting these new technologies, current practice continuously evolves” (Brown, 1996).
References


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