Teaching and Technology in Higher Education: CHANGES AND CHALLENGES.

by Gail B. West

Colleges and universities are beginning to change the way they do business. Why? Because their students are changing, and they want to learn is changing, and the tools to accommodate these changes are changing.

Are institutions of higher education doing it cheerfully and quickly? No. There are many reasons, but the greatest deterrents seem to be the faculty, the costs, and the reluctance to change their perception of themselves as the "only show in town" as purveyors of knowledge.

Students Are Changing

It used to be that most students went to college immediately out of high school, left home for the first time to live on campus, and completed a degree in four years to commence to the world of work in their chosen profession, perhaps never to return to the university again, unless to get an advanced degree. Today, fewer than 25 percent represent this traditional student who is 18-21 years old (Twigg, 1994). The growing college population are adult students over the age of 25 who are non-residential, working full-time, perhaps with a family from diverse backgrounds (Katz et al., 1999).

Consequently, they expect the college or university to adjust to their time constraints and to offer courses that are more accessible than just on-campus (Twigg, 1994). Frequently, they view themselves as equals to faculty and do not want to sit idly at the knees of the masters as passive listeners. The "one-text/one-test/one-delivery-mode-fits-all" approach to instruction is becoming less and less appealing. Adult students are more like consumers. They shop for the service-provider that best fits their personal and professional needs (Kember & Gow, 1994). They are becoming more attracted to institutions like the University of Phoenix and the Western Governors University Virtual University whose greeting is, "We're a new type of university centered around you, the student."

The significance of this new group of adult learners should not be ignored by institutions of higher education. Rowjan, Lujan and Dolence (1998) warn: "If this group is dissatisfied, their support for the academy will decline. This dissatisfaction will spread to potential students of all types, to funding sources and to policymakers".
Further, it is becoming more and more apparent that the university's role in developing "life-long learners" is critical. As knowledge in many fields increases exponentially, one cannot learn all that is needed in any profession in a four year program, even if one were to stay in that profession for a lifetime. As the global economy changes, new jobs are replacing old ones to the extent that forecasters predict most people will change jobs six or seven times (Twigg, 1994). The ability to be a skillful, motivated life-long learner is a requirement to survive in the world of work. People are seeking educational opportunities to meet these demands. Consequently, the mission of higher education must expand in order to include these goals of adult learners (Katz et al., 1999).

Technology is being used more and more by companies to facilitate the instructional needs of their employees, and they are finding ways to do it themselves, rather than depending on universities. Some are going even further by establishing universities to offer degrees up to the master's level that aim programs at non-traditional students. Harcourt Brace and Bergdorf Goodman, for example, is creating a university and will offer all of its courses via distance learning technologies (Blumenstyk, 1999b). The company plans to apply for accreditation by the New England Association of Schools and Colleges and to begin offering courses by the fall of 2000. They have hired former Massachusetts Commissioner of Education Robert V. Antonucci as the director of this project and as president of Harcourt's new division called Harcourt Learning Direct (Blumenstyk, 1999b).

Tools Are Changing

Using technology as a teaching tool is not new. As each new technology has been introduced into society, its use in education has been tried and tested. For over 50 years research studies have examined how the use of these tools affected learning. From the advent of radio to motion pictures to interactive television, the expectation of making learning more robust using technology is being advocated. Each innovation has successes and failures, but few have shown any significant difference in measurements of learning (such as on exam scores, standardized tests, achievement tests final exam scores) (Russell, 1997).

Even if there were a significant difference, other studies of technology-enhanced instruction demonstrate that barely 10 to 20 percent of the faculty use these tools. In fact several researchers point out that assimilation of technology is so slow that it took 30 years to move the overhead projector into the university classroom from the bowling alley (Milliron & Miles, 1999).

But something happened in the mid-1990s to demand that colleges and universities respond. That something is affordable information technology through the use of the Internet and the World WideWeb. Even though
distance learning and the use of technology were around for decades, this new technology offers learning opportunities anywhere to anyone at anytime anywhere. Further, the response of higher education institutions to this new technology is uncharacteristically rapid.

In the fall of 1995, The National Center For Education Statistics (1997) studied distance education in higher education institutions. (Keep in mind that Mosaic, the graphical web browser software that made using the Internet and World Wide Web easy to use, did not appear until 1994). At that time, a third of higher education institutions offered distance education courses, another quarter planned to offer such courses in the next 3 years, and 42 percent did not offer and did not plan to offer distance education courses in the next 3 years.

The National Center for Education Statistics' survey in 1995 found that 57 percent of the distance education courses were delivered by two-way interactive video and that 52 percent were delivered by one-way prerecorded video. About a quarter of the institutions used two-way audio with one-way video and computer-based technologies other than two-way online interactions during instruction (e.g., the Internet) to deliver their distance education courses (for a copy of the report, see http://nces.ed.gov/pubs98/distanceAndex.html).

This has changed dramatically in the last five years. A 1999 study by International Data Corporation projects that 85 percent of higher education institutions will offer distance learning courses (mostly online) by 2002, and that 15 percent of all enrolled higher education students will be taking courses via distance learning (as cited in "Distance Learning May Soar," 1999).

Why was the Internet and its associated technologies assimilated so quickly compared to other technologies? Mark Milliron, Executive Director for Educational Enterprise Strategy Oracle Corporation, says it is because "they quickly, easily and more scalably increase an educator's capacity to help students make connections to content, context, and community--resulting in more powerful learning experiences overall. The Internet hasn't changed the essentials of what works in education, it simply has enabled them" (Milliron & Myers, 1999).

Questions Raised

Not everyone agrees. Two reports released in April, 1999, question claims of distance education advocates (Blumenstyk & McCollum, 1999). The Institute for Higher Education Policy (IHEP) conducted a study at the request of The American Federation of Teachers and the National Education Association, two unions that question the rush by colleges and universities into distance education. The other report, by the College Board, raised questions about
"technology's effects on students who lack access to computers and the Internet."

The IHEP reviewed 300 publications for distance education research and reported: distance education research often fails to use randomly selected subjects; focuses too heavily on individual courses, rather than the effectiveness of entire academic pro-delivered via technology; and pays too little attention to whether the limitations of `virtual libraries' constrict the academic direction of courses; ... often does not focus on or take into account the high dropout rates of students in distance-education courses (as cited in Blumenstyk & McCollum, 1999).

The College Board points a finger at the inequality and lack of access in distance education stating that "people of low income, African Americans, Hispanics, and people with less education are less likely to have access to computers or on-line services than those with higher incomes, whites, Asians, and people with a college education" (as cited in Blumenstyk & McCollum, 1999, p. 331). The full report is available online at http://www.college-policy/html/virtual.html.

University administrators are looking at other questions: Why use technology at all? What will justify its cost? What value will it really bring to education? What will its adoption mean for the future of colleges and universities? And what will the future hold?

Faculty members question their university's support (or lack of it), its motivation, and their personal cost for participating in this venture. Paul Velleman of Cornell University (as cited by Ricard, 1999) listed barriers such as lack of policies on intellectual property, lack of support by faculty peers, lack of regard for this kind of work for promotion and tenure purposes.

What about Colleges of Education?

It seems that Colleges of Education faculties would be the leaders in promoting changes in teaching and learning and utilizing multimedia technology to accomplish it. Despite new guidelines and standards from the National Council on Accreditation of Teacher Education (NCATE -- the accrediting agency for teacher preparation programs in the United States), recent surveys of technology use by faculty in preservice teacher education programs confirm that a minority of faculty are involved in such use.

Some of the reasons for lack of infusion into teacher education, identified by researchers include: (1) limited availability of equipment (2) lack of faculty training (3) no clear expectation that faculty will incorporate technology into academic activities (4) lack of funds (5) lack of time to develop facility in using equipment and software (6) doubt about pedagogical validity of using
some of the newer technologies (7) lack of technical support (8) lack of appropriate materials and (9) absence of clear programmatic goals for the teacher education program as a whole.

NCATE is directly addressing the need for new teachers to be competent in the use of technology in their own teaching; by beefing up its standards for the year 2000 which will be performance-based and will emphasize technology. Teacher preparation faculty will be expected to infuse technology into their own teaching and to prepare their students to do the same.

The U.S. Department of Education is addressing the funding need by providing $75 million with its new program, "Preparing Tomorrow's Teachers to Use Technology." This new technology program provides grants to consortia by helping future teachers become proficient in the use of modern learning technologies. This program addresses teacher shortages by developing well-qualified, technology-proficient teachers, who are prepared to teach in 21st century schools, particularly schools in low-income communities or rural areas.

There are some teacher preparation programs in Vermont and North Carolina that require teacher candidates actually to demonstrate competency in the use of technology. The Peabody College at Vanderbilt University, College of Education at the University of Houston, The Curry School of Education at the University of Virginia, all have been infusing technology into their teacher education programs for years, and are considered national leaders (Rosenthal, 1999). Many individual professors are modeling the integration of technology in their own teaching with little support and recognition.

Acknowledging that "some schools of education are in the vanguard of introducing technology into teacher preparation," Arthur E. Wise, President of NCATE, laments however that "there is a long road ahead" (National Council for the Accreditation of Teacher Education, 1997, p. v.). The challenge given by NCATE to make "technology central to the teacher preparation process" eventually will be met by those entrusted to prepare teachers for the 21st Century classroom. But still have we a great distance to go, and it will take a few more years despite all of the excitement about distance learning.

Breaking Down the Barriers

Breaking down the barriers to the infusion of technology into higher education classrooms, not just those that are classified as distance education, will require a commitment by college and university administrators to provide support to faculty, staff, and students. Support for faculty and staff is not limited to money and technical support, but must also include support for training, released time, acknowledgement of intellectual property rights, and academic credibility for tenure and promotion.
The recognition that the university must address is students varied needs and expressed learning desires. Further, the university must recognize its changing role in the instructional marketplace. Companies such as Real Education, Convene, Blackboard are vying for these students. For an industry that is less than three years old, the competition is sharp and growing at supersonic speed (Blumenstyk, 1999A). ConnectUniversity, a new distance education program being developed by Classroom Connect, is rolling out in the fall of 1999 and will compete with teacher training institutions to provide inservice training for teachers. They will custom build inservice modules for school districts and/or schools that will be available 24 hours a day, 7 days a week, 365 days a year.

Higher education is beginning to change in response to these challenges. A new type of university emerged in the last 25 years which John Daniel (1996) thinks will hold lessons for the renewal of all universities. Called "mega-universities" since they enroll over 100,000 students each, they provide a powerful response to access and costs. Examples include The China TV University System, The Korea National Open University, The Indira Gandhi National Open University in India, Universitas Terbuka in Indonesia, Payame Noor University in Iran, University of South Africa, Universidad Nacional de Educacion a Distancia in Spain, and The Centre National d'Enseignement a Distance (CNED) in France (which is the largest distance teaching institution in Europe). Perhaps the best known example is the Open University in the United Kingdom which many observers consider the pioneer in distance education. According to Daniel (1996), "The reputation of these mega-universities varies by country, and none can yet take the credibility of their distance education methods for granted. This makes the mega-university especially relevant to two current issues in higher education: the debate about quality and the potential of technology."

Business guru Peter Drucker gives traditional universities just 30 more years before dying off. As radical as his prediction may be, it does require colleges and universities to take seriously the changes and challenges that technology will bring to them in the 21st Century.

References


Distance learning may soar to 85% at higher education schools by 2002. (1999, March 31). Education Technology News.


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