

Distance Education as a Catalyst for Change in Higher Education

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Abstract

Whereas distance education was formerly on the periphery of education and in the realm of institutions with questionable academic credentials, it has been gradually gaining acceptance, is becoming mainstreamed, and is being embraced by traditional universities. The use of distance technologies is challenging the traditional structures of higher education institutions and it has been predicted that distance education technologies will precipitate changes in existing organizational models. This is not an unexpected outcome, as changes in technology precipitate changes in work relationships and in the way output is produced. The exact form that universities of the future will take in response to these changes is uncertain.

This paper discusses distance education in the light of the challenges that it poses to higher education and its role as a driver of structural and cultural change. Emergent models and possible future directions will also be explored. The primary focus of this paper will be online or Internet based distance education.

Introduction

Every aspect of society, including higher education, is being transformed by technology (Groves & Zemel, 2000; O'Sullivan, 2000). As computers become more powerful, the Internet is becoming the principal method of delivering distance education (DE) (Hoffman, 2002). Web-based DE courses are becoming more popular (Hoffman). During the 1980s, higher education institutions invested billions of dollars in computer technology (Hirschbuhl & Faseyitan, 1994). Moreover, over the last decade, the average institution has doubled its investment in information technology services (Office of Higher Education, 2001). The incorporation of technology has been identified as being an important consideration for higher education (Dusick, 1998). As Wagschal (1998) contends, the "explosion" of the worldwide web and advances in digital technology over the past two decades has led to distance education becoming a 'buzz-word' in academia. Whereas distance education was formerly on the periphery of education and the realm of a few institutions with questionable academic credentials, it has been gradually winning acceptance, has now become mainstreamed, and is being embraced by more traditional universities (McNeil, 1990; Wagschal, 1998). Universities are thus finding themselves to be in an increasingly competitive environment (Timmons, 2002), which requires that administrators make decisions crucial to sustaining their institutions' competitive advantage (Reid, 1999). The challenge is to formulate policies that allow for the integration of IT while enabling flexibility in response to a constantly

changing environment (Kemelgor, Johnson & Srinivasan, 2000; Reid, 1999). This requires visionary leadership focused on the achievement of results (Timmons, 2002).

Sifonis and Goldberg (1996) suggested that business technology systems are often underutilized or ignored, reducing actual productivity gains. The literature indicates that is likely to be the case in higher education as well. For example, according to Hirschbuhl and Faseyitan (1994), faculty use of computers for instructional purposes has not kept pace with institutional increases in technology investments. Furthermore, it has been suggested that education lags behind most other enterprises in technology adoption (Edirisooriya, 2000). This suggests a need to identify and address factors and variables that might influence IT use. One manner in which IT is being increasingly utilized in higher education, and with which this paper is primarily concerned is distance education (DE).

Distance education, as has been noted, is a form of IT. Therefore, issues relevant to IT in general pertain to DE. As such, the first part of this paper contains a discussion of technology in education. This is followed by a discussion of technology, in particular Internet-based distance education technologies, and the challenges that they present to the leadership of higher education institutions. An overview of current and emergent models of distance education and their implications for institutions follows.

Technology in Education

Technology has been defined as “a design for instrumental action that reduces the uncertainty in the cause-effect relationship involved in achieving a desired outcome” (Rogers, 2003, p. 13). This definition views technology not as physical or electronic tools but as means for accomplishing goals. As Tornatzky and Fleischer (1990) noted, technological innovation involves the introduction of knowledge-derived tools and devices, which extend the interaction of humans with their environment. Technological innovations imply information and can therefore potentially reduce uncertainty (which implies unpredictability and lack of information) (Rogers, 2003). Computers are particularly suited for the role of reducing uncertainty in that they are tools for managing and directing the flow of information (Jacobsen, 2000).

Tornatzky and Fleischer (1990) have described technology as tools or systems, which humans use to transform their environments. Rapid developments in information technology are, therefore, transforming society (Guideira, 2000). It has been suggested that institutions that fail to adopt or support these changes in technology will be ill prepared to function in current and future environments (McClure, 1997). Citing Landlow (1996), Nyiri (1997) observed that throughout time, educational institutions have been created using existing or contemporary information technologies. As technologies change, therefore, so do (and must) educational institutions.

All technologies comprise both a physical (hardware) component and a social/behavioral component, which are inseparable (Tornatzky & Fleischer, 1990). In order to understand technologies, the roles, incentives, skills and behaviors that influence how they are used must first be understood, i.e., the social context must be understood (Tornatzky & Fleischer, 1990). Within this framework, technology is regarded as existing within the context of human social constructions (O’Sullivan, 2000). As such, technology’s importance consists of both its characteristics and the

social processes and behaviors that determine the manner and extent of usage (O'Sullivan). This conceptualization embodies both deterministic and utopian assumptions of technology as outlined in O'Sullivan's Mutual Influence Model. This model recognizes that:

Educators can use the ways in which technology can affect interaction and information processing to reshape the educational process. These changes can improve, or undermine educational goals. The technology's characteristics are important considerations, but the applications that educators develop will ultimately determine whether the uses are beneficial or not. (p.57)

This viewpoint suggests that the importance of technology in education should be determined by its effectiveness in facilitating the accomplishment of educational goals. Groves and Zemel (2000) cautioned against institutions using computer delivery systems as ends in themselves, but rather thought that they ought to be valued for their contribution in facilitating teaching and learning. Similarly, Williams (2002) counsels against the rush to use technologies for their own sake.

As the focus of learning in higher education moves from being teacher centered to learner centered, technology is being used as both a driver and a tool in the process of increasing student involvement (Rutherford, & Grana, 1995). Furthermore, as information and the speed with and sources from which it can be obtained continue to increase, the concept of information literacy is seemingly replacing that of critical thinking (Rutherford, & Grana). Consequently, it is necessary for educational institutions to equip themselves with and formulate effective educational approaches that capitalize on state of the art technology that meet the needs of students in the information age (Heath, 1996). This poses a dilemma for both institutions and faculty. Institutions have to decide which technologies to invest in, how much technology to invest in, and at what cost, while faculty try to determine which sources of information should be accessed and what technologies they need for accessing them. Additionally, the systems and structures, which facilitate the effective use of DE technologies, need to be assessed and structured accordingly.

The Challenges of Distance Education

Information technologies are undergoing rapid evolution and significantly changing modes of collecting, manipulating and storing knowledge (Duderstadt, 1997). One such class of technologies, Internet-based technology, is changing the way in which universities deliver knowledge through connectivity and increased accessibility (Kemelgor, Johnson & Srinivasan, 2000). Prescott (1997) claimed that the Internet differs from previous technological innovations in that it is "extraordinarily dynamic" and diffusing more rapidly. According to Hannon (1999), academia was the birthplace of the Internet and it has since progressed in parallel with developments in intellectual history and pedagogical theory. Many of the Internet's innovations have originated in higher education (Cookson, 2000) and the Internet in turn has also impacted scholarship and teaching practices (Groves & Zemel, 2000).

The key to successful leadership in distance education derives from leaders' ability to understand the environment in which universities are operating, having sound planning and instituting methods for assessing the effectiveness of initiatives (Timmons, 2002). Human organizations (such as

higher education institutions) are complex systems with multifarious structures, operating in even more complex environments (Fuqua & Kurplus, 1993). Baldrige and Deal (as cited in Hanna, 1998) contend that the external environment of universities serves as a powerful force for internal change. This has been evidenced by a growing demand for increased accessibility, convenience, and lower cost from learners contributing to the drive toward distance education (Hanna, 1998). As access to the Internet has become easier and cheaper, courses delivered via this medium have increased (Lane, 1997). The rapid growth of DE is creating pressure for faculty to participate in and deliver effective online courses (Reisman, Dear, & Edge, 2001). Legislators and administrators are also increasing pressure for educators to adopt and implement distance-learning technologies (Winsboro, 2002). Distance education is increasingly being viewed by many higher education institutions as an avenue whereby they can expand course offerings and meet the needs of an increasingly diverse and dispersed student population (Montgomery, 1999).

Much attention and research in distance education has focused on student and faculty problems and issues, largely ignoring management and administrative issues. However, as Stata (as cited in Cobbenhaegen, 2000) noted, the primary hindrances to progress are not to product and process innovation but management innovation required to take full advantage of technologies. Cobbenhaegen (2000) suggested that in addition to technology development and transfer, organizations need to be aware of the importance of developing an organization's knowledge of innovations required for long-term organizational survival. As Rogers (2003) noted adopting a technological innovation is not passive, rather most adopters tend reinvent or adapt innovations to fit their particular situations. Innovations are also more likely to be sustained if reinvention is possible than when it is not (Rogers).

This suggests that if distance education is to be sustainable, institutions must adapt distance education technology to suit their particular situations. Additionally, they will be required to adapt their institutions to accommodate distance learning. In determining which areas need to be adapted or changed in response to the requirements of distance education, it is essential to identify those elements most important to successful DE systems.

Reid (1999) identified structural, systems, producer, and user issues as important (workplace specific) considerations in developing university strategies for online education. At the systems level, it was suggested that issues of cost efficiency and product functionality were prime concerns (Reid, 1999) and university administrators should seek to make the best possible use of their institution's resources (Reid, 1999). The high cost of technology infrastructures render budget allocation and investment considerations crucial administrative issues (Duderstadt, 1997). Producer issues that need to be addressed are the roles of subject and application developers (Reid, 1999). It is imperative that these two groups be monitored in order to ensure that online teaching materials comply with curriculum standards, are sustainable, and are provided with adequate technical and professional support (Reid, 1999).

The users of online course delivery systems consist of faculty, students, administrators, technicians, and other stakeholders (Reid, 1999). Despite the apparent importance of individuals in the adoption process, one cannot consider the individual in isolation. Senge (1990) reasoned that an understanding of individual behavior within an organization requires looking beyond individuals

to organizational structures. Higher education leaders should therefore consider the potential influences of their policies on the individual faculty. Senge posited that structure influences behavior such that different individuals placed within the same structures have a tendency to produce similar results or qualitative behavior patterns. This occurs because organizational structures generate responses from individuals (Senge). One of the structural realities of introducing new technologies is that it requires systematic infrastructure and appropriate training and support to ensure that it will be used effectively (Groves & Zemel, 2000). As such, the leadership of higher education institutions needs to address systemic issues related to faculty adoption or participation in distance education. Among these issues are tradition, consensus, governance, roles, and responsibilities (Cookson, 2000). Moreover, policies and procedures, rewards and incentives for merit, promotion and tenure, and intellectual property rights, as well as faculty development should be addressed (Cookson, 2000).

Distance education is thought to offer advantages for administrators, faculty, and students. It allows institutions to significantly increase their enrollment without the added cost of erecting new buildings, thereby representing cost savings (Portway & Lane, 1997). It offers the opportunity for faculty to reach a wider audience and broadens the concept of “community of scholars” (Eisenberg, 1998). It also allows faculty to teach at times convenient to them, unhampered by the limitations of physical space (Eisenberg, 1998). Additionally, DE provides access to higher education for underserved segments of the population (Freberg, Floyd & Marr, 1995). Via distance learning, institutions can cater to students who are either unwilling or unable to attend conventional classes (McNeil, 1990). It provides access to education for students whose geographical location, family responsibilities, or work schedules might be incompatible with traditional classroom instruction (Hoffman, 2002; Reasons, 1999). Other push factors driving the expansion of distance education initiatives are the shift to lifelong learning and the changing demographics of students engaged in higher education (Portway & Lane, 1997).

Despite its promises, however, distance education is not without its detractors. Valentine (2002) identified numerous factors as posing problems for distance education. Among them were quality of instruction, cost effectiveness, misuses of technology, role of technicians, problems with equipment, attitudes toward DL, student concerns and, instructor concerns. According to Dhana- rajan (2001), DE has failed to live up to its promise to provide greater access. He noted that despite the apparent accessibility created by the Internet, populations that have traditionally been underserved continue to be so. He also suggested that a lack of adequate or directed resources has resulted in poor product, delivery, and support services for DE. In addition, Dhanarajan (2001) cautioned against the naiveté of regarding new technologies as the panacea for educational deprivation around the globe.

Changes in work relationships in turn imply changes in structure, which governs the performance of organizational roles. In the context of distance education, a need to reconsider and possibly alter existing structures exists. Reviewing the literature on drivers for change, Kemelgor, Johnson and Srinivasan (2000) observed that a wide variety of factors were identified as being drivers of change. However, they identified three common themes as being relevant to educational change: technological drivers, competitive drivers, and workplace drivers (Kemelgor, Johnson & Srinivasan). Using the Internet for instruction and DE were among identified technological drivers of change (Kemelgor, Johnson, & Srinivasan).

However, these authors suggested that the exact form that universities of the future will take in response to these changes is uncertain. Moreover, currently existing frameworks offer no universal solutions to the issue facing DE implementation. Barabasi (2002) suggested that traditional thinking of organizations as linear and mechanistic with simple cause and effect relationships might be responsible for the failure of organizational change efforts (such as DE implementation). Moreover, as Sifonis and Goldberg (1996) observed, traditional Lewinian models of un-freezing, change and refreezing are inapplicable in situations of rapid and constant change. Suggesting that organizations, especially with respect to technological innovations, require dynamic planning and a recognition that changes in technology leadership and governance impact one another.

Emergent Organizational Forms

It has been predicted that distance-learning technologies will precipitate changes in the structures and organizational models of higher education institutions (Dhanarajan, 1998; Hanna, 1998; Latchem & Hanna, 2002; Reid, 1999). However, these authors all suggested that the exact form that universities of the future will take in response to these changes is uncertain. What is known, however, is that the use of distance technologies is challenging the traditional structures of universities. This is not an unexpected outcome, as changes in technology precipitate changes in work relationships and in the way output is produced (Connor & Lake, 1994). This implies changes in structure, which governs the performance of organizational roles. In the context of distance education, it suggests a need to reconsider and possibly alter existing structures. Hanna (1998) identified seven emerging models for Internet based learning in higher education. The emergent and existing organizational models identified by Hanna as higher education's response to distance education technologies were extended traditional universities, for profit adult-centered universities, distance education/technology-based universities, corporate universities, university/industry strategic alliances, degree/certification competency-based universities, and global multinational universities. The following discussion will examine the application of some of these models in higher education.

The Virtual University

The development of Internet technologies has made it possible to deliver education independent of location, but with the possibility of synchronous delivery and interactivity between students and between students and faculty (Hanna, 1998). Capitalizing on these technologies, online or virtual universities have emerged outside the realm of tradition universities. These institutions are operated entirely online and are based on the philosophy that the campus goes to the student rather than the reverse (Hanna). Greenhill (1998) suggested that virtual organizations differ from traditional organizations in the manner in which communication takes place and in that, traditional organizations try to minimize discrepancies in time and space in order to maintain stability and consensus, whereas such discrepancies are integral to virtual organizations. He posited that organizations try to impose conventional practices in a realm which differs in these respects are failing to utilize the full potential of the virtual environment. Greenhill further suggested that traditional rules, structures and administrative procedures, are less applicable in a virtual environ-

ment, which is more fluid and adaptable. Thus organizations are likely to assume more flexible, non-linear and adaptable structures if they are to operate effectively in cyberspace.

Is the virtual institution the model that all higher education institutions will adopt in the future? The answer to this is unclear but an examination of some of these universities might provide an indication of what to expect in the future. Perhaps most prominent among virtual universities is the British Open University. They claim to have 22% of all part-time higher education students in Britain as well as thousands of students in Europe and around the world. Other successful online institutions include Jones International University, Virtual Online University, California Coast University, and Walden University. Perhaps because of the success of institutions such as these, some envision the demise of the traditional residential universities and see the virtual university as the wave of the future (Eisenberg, 1998). However, this is yet to be seen. For example, not all ventures in online universities have been successful. Most notably, the United States Open University (USOU), which was modeled after the British Open University, ceased operations in June 2002 citing insufficient revenues and inadequate enrollments (Arnone, 2002). Further analysis of the differences between the two institutions however, revealed that these were probably not the only factors responsible for differences in success between them. The British version is accredited, has national name recognition and British students may be eligible for financial aid and funding. The USOU on the other hand lacked accreditation and name recognition. Furthermore, students attending the USOU could not obtain federal aid or tuition reimbursement from their employers (Arnone, 2002). It is thus, apparent that there were structural and procedural factors. Therefore, the problems faced by online programs might go beyond cost. Even though costs cannot be discounted as being an unimportant factor, it is expected that as the cost of technology decreases, so also will the cost of administering online programs (Arsham, nd). This suggests a need for institutions to carefully consider factors other than cost when venturing into the arena of the virtual university.

Extended Traditional Universities

Many virtual institutions are for-profit operations. In response to the virtual university, many traditional (and non-profit) institutions are embarking on hybrid online programs or extended traditional programs which Hanna (1998) defined as extended traditional universities. In this model, traditional universities operate as the parent organization to a 'virtual program' serving a non-traditional, geographically dispersed student body. Though part of an existing institution, these institutions differ from the parent institution in philosophy, mission, governance, and productivity outcomes (Hanna). Here again the success of these programs has been mixed. According to Mangan (2001), a 2000 American Association of Collegiate Schools of Business (AACSB) survey of 320 business schools found that only 2.5 % of MBA students were enrolled in online programs, which fell short of the predicted 10%. However, some institutions are realizing that returns are falling below expected levels. Consequently, many are either scaling down or getting rid of their Internet based programs (Mangan, 2001). As an example, we can examine the case of State University of New York (SUNY). In February this year (2002), after only 18 months in operation, SUNY's School of Management announced its decision to get rid of its web-based MBA program. The problem was that only 35 students had enrolled whereas the university had estimated enrollments of 1,000 students. Why was enrollment so low? In order to have students enroll in a program, they need to be aware of the existence of the program. However, due to cost

constraints, university administrators had decided not to market the course aggressively. They had realized that the program was expensive to administer. For in addition to hardware and software expenditure, the courses were found to be very labor intensive, requiring instructors, graduate assistants, technical personnel, and course designers (Mangan, 2002). One would have assumed that before embarking on the venture, an established institution such as SUNY would have conducted feasibility studies and cost-benefit analyses. The problem here was not necessarily poor planning but partly due to a corporate sponsor not following through with promised funds. This points to another mammoth issue - that of corporate sponsorship of public educational institutions. Examination of this issue however, is beyond the scope of this paper.

It might appear from the preceding examples that online education does not provide an adequate return on investment and might therefore likely cease to exist. On the other hand, data seems to indicate that online programs are on the rise. One could speculate however, that if these ventures prove to be unsuccessful institutions will abandon them. Conventional wisdom however, might suggest that as internet use is on the rise in other spheres of society it will continue to be so in education also.

For Profit Adult Centered Institutions

In response to increasing demand for continuing education, for profit educational institutions and private businesses are reaching out to adult learners (Hanna, 1998; Sperling 1998) as are traditional post-secondary institutions. Distance education is one medium that is being used to achieve this objective. However, as Sperling observed, the rigidities of traditional institutions make them less competitive in this arena. Moreover, the for-profit institutions focus on bottom-line results and achieve this by expanding their course offerings and their locations. They also are more likely to alter their operations in response to changing technologies and demands. The University of Phoenix, which was founded in 1976, is a pioneer in adult centered distance education (UOP; Sperling, 1998). They operate from multiple physical locations across the United States and yet maintain a very strong online degree program. In this sense, they may also be considered to be a hybrid institution. This author posits that a reason why an institution such as UOP is successful in DE is its conception of the distance learner. While traditional distance learning adopted by traditional institutions tend to see the distance learner as one who is physically remote, Ohler (1991) hypothesized that the paradigm of the distance learner as one who is physically separated from the instructor and other students might not be wholly accurate. His conception of distance education is of “dispersed or decentralized learners who are... networked to form new learning communities” (p.25). He posited that individuals engage in distance learning for reasons other than geographical remoteness. He suggested that the distance could be cultural or psychological. By adopting multiple methods of distance education, for-profit institutions appear to be adopting this paradigm (though possibly unaware of it). The implication is that higher education administrators need to identify reasons why individuals select distance education as the medium for interaction and address the attending cultural and systemic issues such as the type of ‘distant’ learner that they are catering to.

Conclusions

The distinction between the various proposed or existing models of distance education is in some cases blurred, and it is uncertain which models will be predominant in the future. However, it is evident that universities and institutions of higher education are being challenged to examine their existing modus operandi and adjust their operations, philosophies, and structures accordingly. This author posits that in the foreseeable future, various models will continue to exist in parallel. What accounts for the difference between successful and unsuccessful online programs? When comparing institutions that are wholly web-based, the British and American Open Universities could provide some answers.

This study has revealed that the application of some models have been more successful in some institutions than in others. Since this is a relatively new arena for most higher education institutions, further studies are needed to examine the issues that lead to successful and unsuccessful programs and models. The key to organizational success according to Sifonis and Goldberg (1996) is long-range planning, holistic thinking, openness to change, and information technology integration (p.41). However, they stop short of specific prescriptions for implementing these requirements.

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Internet Resources

The (British) Open University: <http://www.open.ac.uk/>

The University of Phoenix: <http://www.phoenix.edu/>