Enhancing Higher Education through E-Learning

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Transcript

In a report to the Canadian Council of Ministers of Education on e-learning, authors reflected, "In the fifth century, B.C., Plato predicted that the invention of writing would weaken the oral tradition that sustained poets such as Homer". Yet poetry is still alive and well 2500 years later. Similarly, 500 years ago many believed that the invention of printing, by making intellectual creations easily available, would dry up the springs of intellectual creations, by ending a long standing tradition of oral debate and expressions. As we look back over the last 500 years from the vantage point of our knowledge-based society, a decline in intellectual vitality is more than a little difficult to discern, though certainly there may have been changes in some aspects of intellectual life. In fact, the existence of today's knowledge-based society is in part a testimony to the enormous intellectual energy of the last 500 years. No one could seriously argue today that the intellectual enterprise or teaching has suffered because of the intervention of writing or printing. "The new knowledge tools represent similarly revolutionary technologies, and we ignore them at our peril. Their potential is also clear. Online learning will be central to fostering the lifelong learning culture that will be essential to sustaining a civil and prosperous society in 21st century Canada."[i]

On the one hand, it would not be inappropriate to state that the last 20 years have seen some remarkable innovations in the delivery of learning. On the other hand, many would also argue that as remarkable as these innovations are, they are no more than a beginning. Developments in the next 20 years will make, as one former Secretary of Education of the USA, John W. Gardner, remarked, ". . . education as it is practiced in most schools today (look) so primitive." While this may be overstating optimism Professor Gardner's views are not totally unrealisable.[ii] The technologies that are available today and emerging in the near future have the potential to transform the business of education. However, what may be impeding that potential is the culture and tradition of our academe. Nine centuries of organised education has strong views and deep roots on what is best and what is not. Notwithstanding the reticence and the strong pull of

tradition and history, we need to consider in light of the demand, quality, relevance of curriculum, appropriateness of content, strategies to utilise the potential of the new technologies to support a nation's aspirations to train its workforce to be a modern, well educated and highly competitive one in the global environment.

The demand for creating high quality learning environments especially in science and technology in all of this nation's colleges and universities have been on the increase for at least the last 30 years or so. The call has become even more urgent in recent years. Many factors contribute to this changing educational culture. Important among them are the forces of economics, social and technological. These forces are worldwide in their scope and, in terms of their power, seem to have a profound impact on business practices, manufacturing processes, financial services, government policies and, more recently, in our teaching practices and learning behaviours. It would not be an exaggeration to say that as we embark on a new century, we are also moving irrevocably in the direction of changing the way we think about information, knowledge and learning.

In addition to the environmental change, there is also a change in the nature of those requiring education and training. Communities are no longer contented (nor should they be) to limit access to education and training to the fortunate few who are able, literate, live in urban communities, have access to communications, infrastructure and classrooms, the knowledge of when, how and what to learn and the resources to pay for them. Further, individuals and governments are beginning to recognise that planning for "competitive advantage" will require a labour force that has literacy and numeracy skills beyond three to six years of primary schooling (which is the current situation in most industrialised and newly industrialising countries, and even grimmer in all other developing nations). Globally, some two billion people who are in today's workforce will continue to be there well into the first quarter of the next century. Their knowledge and skills will need continuous renewal. To this, we need to add a further one billion young children and adults who will require initial education and training. The level of supply (or lack) of education and training for this huge demand for initial, continuous and lifelong education using present patterns of delivery are, in the words of the much respected former Vice Chancellor of the United Kingdom Open University (UKOU), Sir John Daniel, "at a crisis point".[iii] The challenge of providing education and training to a huge and diverse population with a variety of learning goals and styles, at an acceptable cost, will require new forms of educational delivery, globally. Notwithstanding the scepticism of many in the academic community, recent reports from agencies, such as UNESCO, the Organization for Economic Cooperation and Development and the World Bank, seem to say as much. In some ways, the emergence of the new technologies may have something to do with the push to drastically change the nature of the learning environment.

World over, the arrival of the newer technologies certainly seems to have stimulated a resurgence of interest in diversifying methods of knowledge delivery. Almost on a daily basis, yet another Web-based course becomes available from one university or another. Smart Schools are springing up all over the richer world and Virtual Learning, Online Learning and other newer forms of educational delivery are becoming part of the educational jargon of the new century. Even before the arrival of the newer technologies, institutions such as the Correspondence School of New Zealand, the National Institute of Open Schooling of India, the Open Universities of Sri Lanka and Hong Kong, the UKOU and Indira

Gandhi National Open University have all been providing good quality, mass, flexible and lower cost education for remote learners from basic to university-level education using the older analogue technologies of print, audio, video as well as the broadcast vehicles of radio and television. The experience and success of these institutions around the world are a testimony of the effectiveness of technology in taking learning to individuals and large communities simultaneously. They have transformed the delivery of education and in the process have also transformed the business of education. The experience of these institutions demonstrate a way forward for conventional institutions wishing to deliver high quality learning, but are handicapped from doing so by either a dearth of academic talent or much needed physical and digital infrastructure.

In her book, The Death of Distance, author Frances Cairncross[iv] argued that one of the major challenges for nations and institutions attempting to cope with and exploit the opportunities presented by the digital age is scarcity of people, "the ultimate scarce resource" from whom great value could be extracted. It seems to me that here in India that certainly is the case when it comes to engineering and technology education. The level of expertise and scholarship in these disciplines, on par with global benchmarks, is in short supply versus the need to educate large numbers of young people. Using the technology to capture, package and distribute the wealth of experience of the few for the benefit of the many is an imperative.

At the heart of all learning, using ICTs, are materials specially designed to exploit the full potential of the available technological assets. These materials will normally include content in the form of texts, special "books of readings", specially developed study or learner guides, assignments and assessments pads and instructor or tutor guides. These resources along with appropriate learner support systems complete the educational or training environment. There are two ways by which institutions acquire these learning and teaching resources. The first is to design and develop them either institutionally or in partnership with like-minded collaborators. The second is to purchase, lease or acquire through other arrangements, materials already developed, and adapt them for the institution's needs.

Some would say that content is not king in an ICT-mediated teaching environment and others would argue that the power in any instructional approach using ICTs lies in the art and science of instruction. Very few will, however, be courageous enough to state that technology is the most important component of multimedia-based learning. It is not. Developing interactive multimedia learning material is an exceedingly interesting challenge. It can be constructed from a combination of media, sometimes quite modest in cost and sophistication such as a combination of CAI (computer-aided instruction), print and, at other times, very expensive and elaborate using a combination of DVD, CD-ROM, hypermedia and virtual reality. Discussing this issue, Miller[v] compared the process of production to ". . . an orchestra in which each musician not only plays a different instrument, but also speaks a different language. Such is the case with interactive video, where the assembled team includes instructional designers who speak of authoring, pedagogies and remediation; graphic artists who talk of drop shadows, GUI's and animated sprites; video producers who think in terms of wipes, fades, pictures, plots, scenes and storylines; and computer specialists who deal in bits and bytes, images and data, icons, picons, micons and programming languages all their own. Add to this, a systems person who wants to integrate DVDs and CD-ROMs and Windows via SCSI or R232 ports, and then telecommunicate the whole mess to a host." Despite the complexities involved in the design and creation of multimedia materials, it is important to plan before

executing the development and production of learning materials, integrating print, audio and video into a seamless and fluid learning experience.

Unlike face-to-face teaching, the design and development of interactive multimedia materials involve knowledge, skill and expertise of a number of individuals. Therefore, assembling a team to undertake the task is almost a prerequisite if a high-quality product is the ultimate objective. The size of the team and the skills of the individuals making up the team will depend on the sophistication of the knowledge product to be developed. It is possible, though not advisable, as is often the case in many small operations, for one person (normally the content expert) to create the learning materials singly. At a minimum the course team should have the contribution of a content expert and an instructional designer. Complex course team composition may also involve audio and video producers, editors, ICT specialists, publishers and project managers. Teams can be drawn from a single institution or in collaborative arrangements from partnering institutions. The team approach will require a totally different work culture from what is normally associated with academe. According to G.L. Hanley,[vi] the new work arrangement will require: ". . . changes in how the faculty views their teaching. The view of the teaching and learning process as consisting of the instructor, the instructor's assignments, and the students must give way to that of one where teaching and learning is the product of an integrated group of individuals, many of whom are never seen by the students."

There are at least four discrete phases in the design and development of interactive multimedia materials. They are:

- Concept development phase: This phase involves defining the curriculum of the proposed course, identifying the media mix, assembling the team of expertise needed to put the course together and confirming the institutional commitments to the development of the course. These commitments will include making available the technological, financial and administrative resources of the institution for the development of the course.

- Demonstration and validation phase: This phase includes the development of the course blueprint as well as all related activities during the delivery phase of the course. In the blueprint, a clear and concise map of the course will be detailed. The map will also outline each and every unit of the course (its aims, objectives and outcomes), study time required, and other learning resources besides the core course materials needed. The blueprint will also contain information such as text books and other readings needed to transmit content, non-textual items, links to Web sites for reference and enrichment, e-mail facilities and connections to instructors and peers, asynchronous chat rooms, real-time chat rooms, threaded bulletin boards and assessment protocols relating to the delivery mode.

- Design and development phase: This phase is the creation phase where the content is created in a sensible, sensitive, comprehensive and interactive fashion. This phase requires close attention to language, accuracy, correctness and academic integrity of the content. Over the last two decades many excellent guidebooks have been written on the subject and are well worth looking into.[vii] [viii] [ix] [x]

- Production and delivery phase: This final phase focuses on the production of the materials and the packaging of the course into a cohesive whole. The nature of production and packaging will depend very much on the mode of delivery (online, virtual, flexible or mixed). Courses that are delivered either in a mixed or flexible mode may require students to have the learning materials in a format that allows them to study off-line but with appropriate facilities for either interpersonal and/or online interactions with instructors and peers. These may be CD-ROMs and DVDs. On the other hand, courses that are delivered completely online through well-designed Web access require clear roadmaps and instructions for learners to navigate through the course totally online. During the course of this dialogue, you will hear David Porter[xi] describing such a system using basic frameworks and standards.

Ladies and Gentlemen, in the next three days we hope to learn from you and at the same time also share with you Commonwealth experience in putting together partnerships that will help in the creation of knowledge products by the few who have the talent for the benefit of the many whose learning could be enriched by using these products. I look forward to our discussions and wish this dialogue every success.

Thank you.

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