INFORMATION TECHNOLOGY IN FUTURE EDUCATION: OPEN AND DISTANCE LEARNING

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ABSTRACT

Globalization challenges the developing countries to catch up and to set up a institutionalize a system of educational planning that will produce skilled manpower and knowledge workers required for today and future. The introduction of information technology and communication are enhancing the delivery of education, changing the roles of students and teachers, and producing a shift in society from industrialization towards an information-based society. These changes had profound effects upon a broad spectrum of knowledge leading to suggestions of a new form of cultural. Some Universities in the world have developed open universities, employing audio and video tapes, television, satellites, teleconferencing, and telephone tutors. The future of countries often lies within their ability to compete in a global market where industrial based economies are giving way to knowledge based industries, realizing the importance of knowledge, skills and the intellectual capacity to meet the challenges of accelerated change and uncertainty. By means of information technology, education can thus be made available to the students where are located in different places at any time. As a result, education in this way can be unlimited. The exams and grades are gradually becoming available through electronic means and notebooks are starting to give way to laptops. Also, students can be examined through computer managed learning systems and do tutorial exercises on a computer rather than in a classroom. Subsequently, information technology is foreseeing a change in the education environment towards a reliance on electronic sources to deliver material

Keywords: Information technology, Distance Open learning

1. INTRODUCTION

The first revelation of the Quran inspired the Prophet of Islam (peace be upon him) to acquire knowledge and this emphasizes the importance of learning in human life. The third world countries must realize the demands of the 21st century and give due importance to education. The Muslim world must lay the ground work of constructive, dynamic and meaningful revolution among the minds of our youth through education. Hence, expansion in educational links/contacts between Muslim countries be so planned that these countries could benefit from each other experiences and expertise. IIUM is one these important links and cooperation in our Islamic World according to its vision and mission (Integration, Islamization, Internalization and Comprehensive Excellence).

In this manner, information technologies are beginning to pervade all aspects of education as key learning and administrative tools. Computers and computer linkages have exploded onto the education scene. Internet, e-mail, and teleconferencing are rapidly being set up for administrators, teachers, and students in many field of study. Educational walls are becoming more permeable, with students having access to teachers and information resources beyond the school and community through the power of networks and new technologies.

Distance education has been profoundly influenced by technological change. Some Universities in the world have developed open universities, employing audio and video tapes, television, satellites, teleconferencing, and telephone tutors. Others have offered diploma and certificate distance programs as well as communications degrees. Unfortunately, many challenges will remain such as funding, this continue to be a central concern, as implementation costs compounded by the rapid obsolescence of education technologies. Designing strategies that provide students with equal access to information technologies continue to be a complex task.

The power of the information highway for learning is still fully yet untapped, with a major challenge being to ensure that there is a sufficient quantity of content available to reflect the cultural and linguistic duality of our society. As a third world countries, the needs for other languages are important issue. For most educators, information technologies are both exhilarating in their possibilities and daunting in the uncertainty created by the speed of change. Through the use of these technologies, our education systems will remain

relevant, preparing our children for the new world in which they now live.

Before addressing the possible use of advanced information technology that facilitates the operation of the open and distance education, the general state of the art of technology in this type of learning and its opportunities and bottlenecks will be discussed. Advanced information technology plays role in three fields of open and distance learning: **P**Cs are very effective media instrument for traditional distance education; **C**omputer-based telecommunication increases the access to and improve the effectiveness of open and distance learning, it decreases costs and opens ways for new approaches; **M**ultimedia teaching materials and methods offer qualitative new opportunities in open and distance learning.

Each one of these fields will be traced starting with the role of computers in traditional distance education. Besides printing materials, audio and video tapes, and floppy discs, Personal computers play an increasingly important role in educational systems as they are extremely effective transferring course materials to students. The potential of the computer makes it an increasingly significant instrument of the learning process. PCs can facilitate the acquisition of knowledge by offering access to databases, simulation and demodulation of processes, as well as interactivity and connectivity of work by making self-assessment possible.

Since the use of computers has become part of human activities, and more and more course materials address different aspects of informatics and computer science, PCs play an increasingly significant part in the learning process as home kits can facilitates the individual practical work of students.

The second field is telecommunication in open and distance learning where the rapid progresses in the use of advanced telecommunication, particularly computer-based telecommunication, where opens completely new perspectives for open and distance learning. Its first obvious application is the combination of traditional education with the opportunities offered by on-line, two-way TV telecommunication: opening the classroom by ensuring interactivity. The equipment needed and the operation costs of these systems are quite expensive, so they are, and in the near future, will be used individually rather than for group education. In this way, this education method does not utilize a number of the basic values of open and distance learning, like freedom in place, pace and time of learning. The costs can be significantly reduced by providing interactivity through ISDN.

Computer videoconferencing is particularly becoming an increasingly important part of advanced open and distance learning systems. There are already systems available, using ISDN, enabling computer videoconferencing for individuals at a relatively modest price. Some of these systems offer extremely useful tools in educational conferencing, like voice transfer, a common library, transfer of simulations, opportunity for collective editing, drawing (also in 3D), plotting etc. Further more methodological development is needed to exploit the great potential of computer videoconferencing and to find its right role in open and distance learning system e.g. in tutoring and in lecturing in other areas of training. Computer conferencing as well as E-mail are standard and relatively cheap methods of communication which additional opportunities offer for networks that can be efficiently used in student-tutor as well as student-student interactions, which are extremely significant constituents of open and distance learning systems. The Internet and WWW provide easy access to databases, distance education course materials, simulations and self-assessment tests, contributing in this way to the extension of access to and successful application of traditional distance education systems.

Beyond using the Internet to extend and complement traditional distance education, it offers the opportunity of real globalization of distance education, if efficient and relevant methods constituting open and distance learning systems are found and introduced for education (including tutoring) through the Internet.

Although the bandwidth and speed available on the Internet is in general not enough to transfer e.g. video films, new developments make it possible to transfer simulations, voice and even multimedia materials using, instead of video records, animations (that need much smaller bandwidth) for education purposes through the Internet. The networks, especially the fast (in most cases local) networks with large bandwidth, have great potential in meeting the educational needs emerging in the economy.

An important feature of the network-wide access to electronically stored course materials is that continuous development, renewal and correction is evidently possible and so the most up-to-date course delivery can be ensured.

Electronic access through networks also allows a kind of hierarchical access to course materials, making possible e.g. to separate those blocks of courseware for which the access is eventually subject of payment.

The third field is the use of multimedia firmware in open and distance learning. In fact the development of information technology makes the increasingly wider application of multimedia in education possible. In contrast to several applications of advanced information technology, where the basic ideas and priorities of open and distance learning have to be given up mainly because of the high costs of the systems and their use, multimedia education builds on these basic principles - such as individual learning, interactivity, and freedom

of learning in terms of time, place and pace. Although excellent multimedia learning materials are available, there is still no standard method for building up multimedia-based open and distance learning systems. That is why intensive work is needed to find efficient education methods, including relevant tutorials and practical training, these utilizing the potential of multimedia-based open and distance learning systems. These was found that some company in Malaysia working in this field during my visit in the Intership Training program in Kulliyyah of Engineering.

Anyway, the wide interactive application of compatible multimedia education material systems via networks, providing sufficiently fast access, the utilization of the potential of hypertexts, enabling the interconnections between a continuously widening pool of course materials, and finding adequate tutoring and practical training systems where relevant, open very promising new perspectives in the field of human resource development.

2. GLOBILIZATION AND DUCATION

Globalization impacts on many facets of life, including education. Rapid developments in technology and communication are foreseeing changes within school systems across the world as ideas, values and knowledge, vital to education, cross nation states and boundaries.

The rise of a global society, driven by technology and communication developments are shaping children, the future citizens of the world into global citizens, intelligent people with a broad range of skills and knowledge to apply to competitive, information based society. The future of countries often lies within their ability to compete in a global market where industrial based economies are giving way to knowledge based industries, realizing the importance of knowledge, skills and the intellectual capacity to meet the challenges of accelerated change and uncertainty. Education is becoming a lifelong learning and training process, developing transferable skills and knowledge that can be applied to competitive markets where knowledge and information is being traded as a commodity.

Globalization is also creating a fast paced, competitive environment through technology and communication which education systems must keep up with. Children cannot be effective in tomorrow's world if they are trained in yesterdays skills is a statement that is particularly true for citizens of western, developed societies which are rapidly embracing the advancing technological and communication development into education systems. Countries are now realizing the economic potential and value of technology in education. As a nation, need to compete in the global market place in the decade to come, proficient users of information technology must be take place. As such, it is vital that education systems embrace and implement technology into their schools to produce citizens capable of living in the twenty first century where technology is encroaching more and more into everyday life.

3. FUTURE OF ELECTRONIC LEARNING

Universities will begin to exist as soon as there are enough high quality courses available. Today the quality of most e-learning courses is very low since they are for the most part trying to imitate existing university courses. There are some real problems with real universities and their courses however. Some of these are:

Most universities care more about research than teaching so professors are not selected because of their ability to teach. Some are interested in teaching about their research. They don't really care that their research might be irrelevant to the lives of most of the students who take their courses. Universities set requirements for students based on a fact-oriented, rather than an ability-oriented. Also**,** Students concentrate on credentials rather than learning. They think the courses they take will help them get a job. They soon find out they were mistaken. Most students decide what to study on the basis of what fits in their schedules and what looks easy. It is the rare student who plans out a course of study that is challenging and potentially useful in later life. Employers, understanding all this, settle for hiring students who have gotten good grades and then set out to teach them what they will need in the workplace. Even those undergraduates who go on to graduate school are presumed to have learned so little that the graduate schools often have to start all over again with the basics. Grades and tests exist primarily because no one can tell if anyone is awake in large lecture halls. Any measure of actual student performance in real world tasks would be too complex for the professors to undertake. Students go to college to have a good time, and usually, even at the best schools, a good time is what they spend a large percentage of their time having.

College is a time of great joy and excitement for the young. It is often the best time of their lives. But it is not necessarily the highlight of their personal education. Very few people learn what they need to know in life in school. Students are often frustrated by various professors, requirements, lack of availability, depth and breadth of offerings.

The virtual university will replace an inherently passive venue (the classroom) with an inherently interactive medium (the computer). Courses that emphasize doing are a lot easier to design and run on a computer than they are to design and run in a classroom. Suddenly doing will dominate education and education can emphasize learning about the real world. It will be possible to learn job skills, life skills, as well as

academic skills. One-on-one education will replace mass education. Students will be able to shop all over the world for the best courses. They will be able to learn when they are ready to learn, rather than trying to learn after an all night before a football game. They will learn what they need to learn, rather than what some faculty members thought every student should know because they happen to teach it. They will learn from the best teachers, not from the guy who just happened to be assigned to teach a class in a subject he doesn't even like. And they will learn by doing rather than by listening. E-learning will radically reconfigure education as we know it.

3. CONCLUSIONS

The introduction of technology into the classroom is changing the nature of delivering education to students from primary through to tertiary levels. Print literacy, although still widely used is gradually giving way to a new form of electronic literacy more programs and education materials are becoming available in electronic form, and more teachers are preparing materials in electronic form, also more students are generating papers, assignments and projects in electronic form. Blackboards are now being replaced by video projection screens, books with storage device servers and CD ROMs as well as the emergence of on-line digital libraries. Even exams and grades are gradually becoming available through electronic means and notebooks are starting to give way to laptops. Also, students can be examined through computer managed learning systems and do tutorial exercises on a computer rather than in a classroom. Such developments in education portray that there has been a shift from industrialization to information based societies. Subsequently, technology is foreseeing a change in the education environment towards a reliance on electronic sources to deliver material. With such changes and the emergence of video conferencing and the internet, the barriers of distance are being broken down at a rapid rate, a key aspect of globalization. Children and adults can now learn in a variety of ways and no longer have to be physically present at an education institution in order to learn, a definite advantage of flexible delivery systems.

It allows for exploration of new areas of learning and thinking. Students take a great responsibility for assessing themselves, the pace of learning changes and become more individualized. All of this may alter the way schools and learning is organized. Teachers will still be needed, but their role will change, shifting from knowledge transmitters to supervisors, leaders, knowledge resources, program designers, and facilitators of learning. As teacher role evolves that there will be important implications for the definition of a teacher, teacher education, professional development and working conditions. By means of information technology, education can thus be made available to the students where are located in different places at any time. As a result education, in this way can be unlimited.

Finally, information technology is not just changing the learning environment; it is also contributing to improve management and administrative systems and practices in Schools, Tertiaries and Universities.

4. REFERENCES

[1] B. Lee, Educating children for a global information society: A framework for action, *Australian Council of State School Organization*, Australia, 1998.

[2] J. S. Levine, Technology and Change in Education: Culture is the Key, *SITE2004* Atlanta, Georgia, USA, March 1-6, 2004.

[3] T. Lyons, *Globalization and Education', Survival Guide to a Global World,* Lecture 12, August, 2000.

[4] The Sebel Townhouse, (1994), 'Technology In Higher Education Conference', 7&8.

[5] D. Thornburg, Education in the Communication Age, *David D. Thornbury and Starsong Publications*, USA, 1994.

[6] Y. Nicola, Teaching and learning with information and communication technologies (ICT) for numeracy in the early childhood and primary years of schooling', DETYA Research Fellow, 2000.