

Education in Knowledge Societies



*Eleventh General Conference of the
International Association of Universities
Durban, South Africa*

August 2000

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Introduction

I feel privileged to be associated with your Jubilee Conference and to share with you a few thoughts on the delivery of education in the context of a knowledge society. Your Secretary-General was kind enough to provide me with a briefing paper and also politely suggest that I limit my presentation to about 25 minutes. If you sense a nervousness about my demeanour, you will understand that the daunting challenge of sharing thoughts with an audience such as yourselves on the subject of knowledge - all within 25 minutes - is not exactly the kind of morning one would wish to greet after flying for about ~26 hours.

Variants of Purpose

In whichever way one would wish to-define a knowledge society -and there are variants to that as described by gurus like- Peter Drucker and Daniel Bell - the fact is, the organisations which you manage are at the centre of such societies. This is not new. Many modern universities were created for utilitarian purposes. The formal mission of the land grant colleges of the USA was to improve the performance of agriculture and the mechanical arts. For much of the 20th century, the sciences along with technology studies have dominated our universities. To invest in science was to invest in economic growth. The university under these circumstances has become more than a creator of knowledge and a transmitter of culture, as Cardinal Newman envisaged. It has also become an engine for economic production through its research and development work and, as we move more and more into knowledge economies, it is also an incubator of ideas.

University and enterprises

As interdependency between knowledge and economic activity increases, there is an inevitable impact on the speed at which the knowledge and skill in the workforce becomes obsolete. Ten years ago, it was not uncommon to hear of an engineer becoming obsolete within a decade. Today, it is more likely to be about five years or less. To benefit from investments on research and development, it therefore also becomes necessary to make parallel investments in human development. This has meant looking at universities for another purpose as well. This was for them to be mechanisms through which a nation could augment its "human capital" to better compete in the global economy. Furthermore, in the new economy, enterprises based on information technology are becoming smaller, basing their sustainability on the high levels of skills from all employees. These enterprises benefit from the high degree of flexibility relative to the big corporations, enabling them to respond more quickly to changing market possibilities. In short, the newer organisations are "flatter" and less hierarchical in their structure.

Under such circumstances, to be able to sustain that competitive advantage necessitates learning and training that is lifelong and continuous. All of these factors lead me to make my first observation in the context of the role of universities in knowledge societies. This observation relates to the nature of learners in a knowledge society:

The Nature of Learners

The nature of learners is changing: Some 82 million young people, mainly between the ages of 18 and 25, populate our campuses today. Except for a small proportion, most are full-time students. Their life styles allow them to adjust to the demands of the institutions they study in and the call of faculty as to when and where learning is to occur. The lucky ones amongst them are able to express a limited choice in the courses that they can enrol during the three- or four-year period they spend on campuses. The not so lucky, mostly found in the developing world, may not even have that choice; their studies and the time-frame are strictly prescribed for them. They are expected to subject themselves to a set of assessment sessions whether or not they are ready for them, and if they do not meet some un-stated requirements they are considered failures. This tradition is long-standing; say about a few centuries old. The 82 million or so young people who subject themselves to this process was a small proportion of the age cohort, which globally may number as many as 560 million.'

In the new knowledge society, at least in economically well-developed nations, learning can no longer be the monopoly of the 18-25 age group nor can it be limited to full-time study. An increasing number of students can be expected to be part-time, employed, above 25 and making a late entry into higher education. In addition to these, many who are today's non-participants in education will need to be brought into the fold if we are at all serious about offering all people equal opportunity. Such a diversity of learners will require courses to be organised so that they are flexible, can be studied off-campus and credits received to be portable. These students arrive at study with skills (to learn by themselves), knowledge (of themselves and what they want) and experience (to enrich curriculum and the learning environment). In other words, they are as much contributors to the learning as they are receivers of knowledge. In this (knowledge) society, everyone will participate in education or training (formal or

informal) throughout life. It would be a society characterised by high standards but with low failures. Such a society will offer a seamless canvass for individuals to start their learning anywhere on the canvass and exit at any point. To switch metaphors, they will be on a ladder of continuing attainment.

Three Questions

I have been associated with higher education in one role or another over the last 30 years. During this period, almost without respite, three questions continue to recur: how many?, what and how shall they learn? and what is the best solution or the most cost-effective way educational goals can be achieved? These questions require principled answers but rarely receive them. The status quo is usually too powerful to permit a radical analysis. But past practices too often are not necessarily the best guide for the future. Take for example the exclusion of women from the ancient universities until the latter part of the 10century or the resistance to teach subjects like engineering, business and management or the very slow and difficult response to the possibilities of distance education until only about two years ago (despite the runaway successes like the Open Universities in the United Kingdom, India or Hong Kong), and the stubborn defence of a student-staff ratio on no better grounds than custom. All these have done little to help develop a system of higher education appropriate to the needs of a knowledge society, which recognises that anyone who wishes to study at a tertiary level must be able to do so.

Questionable Current Practices

If the future task of higher education is to provide for a vast majority of the population, offering them a coherent combination of basic and continuing learning, then a lot of current practices must be questioned. This would include the two- or three-term year and a four year long undergraduate programme. We should also question the nature of the curriculum subjecting content, process, duration, assessment and outcome of courses to a serious review; quality and excellence will need to be redefined in terms of value and fitness for purpose. Thoughts on these considerations bring me to my second observation, which is: Who will be the principal actors of delivery in a knowledge society?

Main Sources of 'Delivery'

The delivery actors of basic and continuous education and training throughout life for anybody in the community obviously cannot be limited to only centre-based learning. The number of people to be reached and the enormously high cost of delivering such an education through our traditions of colleges, training institutions and universities in a formal environment will not suit persons unwilling or unable to engage in full-time study. It is in this context that distance education finds a natural niche in the educational environment. In the study your secretariat has recently published, Sarah Guri-Rosenblit (1999)² very elegantly described what distance education is and how it plays not just a marginal but almost a central role in delivering education and training, especially in a culture of mass education. This role gains further importance in the context of knowledge societies for a variety of reasons. Four stand out as critical amongst these.

Four Critical Issues

They are:

An unmet demand:

During the past 50 years, global higher education has expanded phenomenally. While much has been accomplished, much remains to be done. Even with respect to the 18 to 25 year age group, while well-developed nations can credibly claim to reach between 30% and 50%, in the developing nations of the world, only about 3-5% are able to have the access they seek. For example, India's provision for higher education rose from a meagre 200,000 at the time of Independence to an astronomical 5,000,000 college and university places by 1998. However, India is still only able to provide this opportunity to about 500 per 100,000 inhabitants - in short about 0.5%; compared to say Canada, which is able to offer post-secondary education to about 5,000 per 100,000 inhabitants, or about 5%.

Other developing countries are in a much more dire state. To be a globally competitive economy, the renewal of people's knowledge, especially those in the workforce, is vital. If we also factor in the need to build an informed and knowledgeable citizenry for the functioning of healthy democracies, then India's demand for increased educational opportunities, like that of all other developing countries, is truly staggering. No conventional system of educational delivery can meet this volume. Using technology may provide some relief

Changing patterns of learning:

Full-time study within the time-tabled constraints of classrooms is only accessible to a few; for many who wish to study, learning will necessarily have to be at a time and place of their choice. Globally, some 7,200 individual institutional provisions available to, and used by, about 20 million learners are a measure of the growth and demand for flexible, non-full-time studies.

Just-in-time training:

The rapid changes taking place in the workplace will require training to be delivered quickly. Such training must be high speed, low cost and capable of reaching small and large groups. Traditional ways of delivering training are time consuming, labour intensive, socially disruptive and costly. Distance education offers a solution.

Information explosion: Those who study these developments say that the total amount of information that becomes available doubles every four to five years. Stating it another way, the total of all human knowledge that was available to an undergraduate in 1997 will be less than 1% of what will be available to a student in the year 2050. Teachers have to become experts in helping learners navigate this sea of information rather than pretending to be effective transformers of that information into knowledge for their students. Students must be trained to bring about that transformation. Those who survive this information explosion will be those able to deal with it effectively, and even more importantly, turn it into

knowledge.

Five Types of Providers.

In a study commissioned by The Commonwealth of Learning,³ investigators from across the world were asked to identify the main actors active in virtual education responding to new demands. Their findings were not particularly surprising. I will mention them here for the sake of reinforcing information you already may have, and will share with you later, some concerns about this mixture of players. Either drawn by the size of the market or by pressures from governments, at least five (5) sources of providers of distance education are emerging. They are:

The historically open universities:

Examples such as the Open Universities of the UK,, Israeli. South Africa, Tanzania, Zimbabwe, Venezuela, Hong Kona, India. Sri Lanka, Pakistan, have over the past 30 years been engaged in taking education to the learner outside of campus walls using a variety of technologies from print to multi-media and more recently the World Wide Web. Among these are the 10 mega universities described by Daniel.⁴ These universities are expected to grow in size and extend their market catchments. New virtual universities: Encouraged mostly by either central governments (the E-University of the UK) or provincial legislatures (such as the Western Governor's Virtual University of the Pacific West), these are new publicly-funded institutions which have yet to prove their viability either as academic institutions and/or business enterprises. These are new beasts on the block.

Conventional universities:

Increasingly utilising the backbone of a well-developed technological infrastructure, large numbers of campus-based institutions that never before engaged in distance education are now entering the field. In one survey of only North American institutions, some 16,000 courses were discovered to be available online. Many of these courses disappear within a semester and many new ones appear overnight. All courses so offered are dependent on the ICTs at both ends of the teaching/learning equation. Many of these institutions also use the technology to add quality to, and hopefully reduce the cost of, their classroom teaching.

Corporate sector and corporate universities:

Many large corporations have developed training programmes for their staff, relying on the ICTs to carry them to all of their facilities world-wide. Some among them are also attempting to market their courses to other users. A variation of this arrangement is the partnership between a corporation and publicly- funded institutions. Private universities such as Jones and Phoenix in the USA, British Aerospace in the UK and Malaysia's Multimedia University are beginning to use the technologies to deliver education for profit.

Individuals:

are beginning to use the technology to create learning opportunities for anyone interested. From day trading to e-business and from learning to "know your legal rights" to repairing your car", courses are beginning to mushroom all over the Internet world. Individuals, for no other reason other than altruism, create many of these courses while others are created solely for profit.

Other Trends

Frances Cairncross in her book, *The Death of Distance* (1998)⁵, postulated a set of trends in the new communications environment, which will influence the way we live, work, play and learn. Among the first of these was that the size of an organisation did not matter. Small or specialised organisations or indeed individuals can create and transmit knowledge products to many users (at the users call) because of the power of the technology. Other trends, she anticipates, also bear directly on our discussion. These include:

The death of distance: The cost of communication will not be determined by distance even in the most regulated environments. Reaching out to students through the electronic highway will be determined more by the willingness of the educational providers to utilise the newer technologies than by the fear of inaccessibility because of communication costs.

Cost of appliances will continue to drop even as the computing capacities of such appliances increase. The cost of the networked computers of the future should decrease to the level of present-day televisions.

Location does not matter: Providers of educational services can be located anywhere on earth and can reach the users of educational services wherever they may be, as long as the basic communication infrastructure exists. Even today, students in India already have access to, say, courses from North America without having to be in North America. Similarly, courses from India can and should travel across the globe.

Content customisation: Sophisticated pedagogy can make it easier for individuals to customise their learning needs. Learning can either become a multi-channel or a mono-channel experience. The final authority on customisation will be the expected learning outcomes of the subject and the learning preference of the student.

People as the ultimate scarce resource: The really difficult challenge for institutions will be to recruit people with the necessary skills to perform the tasks required, as well as to train and retrain those already in service to work in the new environment.

Emergence of globally used language: The emergence of English as the dominant second language of science, technology, business and international relations, as well as education and training, will mean the availability of globally useable knowledge products. The choice of educational and training courses will increase.

Communities of culture can be developed. The opportunity to make content available to larger audiences in languages other than English, will become feasible. Declining costs and ease of use of the communication tools will mean the availability of a vehicle to disseminate other cultures and traditions.

Rethinking Revolution

The changing nature of students, educational context and the environment all favour broadening the forms of educational delivery. The few examples that I quoted and those that we have studied where technology-mediated learning was done well and effectively, indicate

that simple ad hoc measures of joining the technology bandwagon to deliver learning may benefit neither the organisation nor the learners. This particular revolution needs a rethinking of the way in which we operate the business of education. It is not so much "reform" as "transformation" of systems that is required if the potentials of the technologies are to be realised. These changes will challenge institutions that provide the educational service, they will test users capability to use such services and they will necessitate questioning government policies and regulations.

Institutional Considerations and Challenges

This brings me to my third observation of this presentation. It has to do with institutional considerations and challenges. Let me list five (5) of them for your consideration:

The first challenge is the re-orientation of our teachers and the pedagogy they apply to their vocation. The fraternity still has to come to terms with a new type of learner and a learning environment that encourages the student to be independent. Whether a radio or television programme, print or web-based instruction, there is the recognition that individuals are capable of self-learning if provided with cleverly and sensitively designed instruction, even if they are poorly equipped to utilise the technology imaginatively and non-mechanically at a personal level.

The second challenge is to change the nature and structure of our 'teaching' organisations. Their traditions of teaching and their views on learning have resulted in organisational structures almost completely centred on faculty: from the design of the curriculum to its transformation into learning experience; from decisions relating to assessment of prior learning to elements of exit standards; from administrative arrangements to academic governance; and from delivery systems to learning schedules.

The third challenge is to remove the 'time' driven element from today's schools, colleges and universities. These are ruled by time, prescribing when, in his/her life, a student can or is ready to learn and the length of time required for learning. As a task force report to the International Council for Distance Education 6 recorded:

'The instructional paradigm, therefore, holds learning prisoner to time constraints applied by an arbitrary force or by the preferred work schedule of a faculty member. In the desired (new) learning paradigm,

learning becomes the primary driving force and, since learning can occur at anytime and at any place 24 hours every day, the constraints of time are removed.'

The technologies allow those who provide education to break the rule of time.

The fourth challenge is to overcome the perceptions and the fear of faculty to the changing nature of their roles and values as well as the rewards in the new learning environment. There is a real, though unfounded, fear on the part of faculty about losing total control of the teaching and learning environment. This fear manifests itself in many forms. Some teachers express anger at the perceived loss of academic freedom and others express disdain at the

'commoditisation' of knowledge; there are those who express dismay at the loss of employment and yet others worry about loss of quality. Learner centrality in the educational environment does pose enormous challenges to the teacher. It requires pedagogical skills, especially in a technology mediated environment for which many of today's teachers are

either inadequately or totally unprepared. Serious steps must be taken to reduce the anxiety of teachers and alleviate their sense of alienation from a development so crucial to academic well being.

The last in my list of challenges has to be access to the technologies (telephone, television, radio, Internet) by learners. Even though we are in the 21st century, some 500 million people may not have made their first telephone call, let alone use the Internet. Most of the non-users are found in Sub-Saharan Africa, South Asia and Latin America. In her book, "The Death of Distance", Frances Cairncross⁷ quoted an International Telecommunications Union report, which stated that in some African nations (Sierra Leone, Uganda, Zimbabwe), the number of people has been growing faster than the number of telephone lines. While in the short-term this seems to be an impediment, the longer-term view, by all accounts, appears to be promising.

Academic Skepticism

However, what is not promising is the high level of scepticism that is being encountered among academic circles around the world. There is a certain fear that the use of technology and the promotion of networked learning will lower the value of educational experience, erode quality irreparably, diminish jobs and job opportunities, eliminate academic freedom and inquiry and demean scholarship. This scepticism, coupled with fear, has led in some cases to campus unrest and in others from outright hostility to experimentation, innovation and application. Change has never been achieved without discomfort. Those vested with

the leadership of our academic communities must attempt to reduce the level of acrimony, encourage open debates and discussions and provide as many training and retraining opportunities as possible to bring about this major cultural change. As Kenichi Ohmae observed on another occasion⁸:

"It is hard to let old beliefs go. They are familiar. We are comfortable with them and have spent years building systems and developing habits that depend on them. Like a man who has worn eyeglasses so

long that he forgets he has them on, we forget that the world looks to us the way it does because we have become used to seeing it that way through a particular set of lenses. Today, however we need new lenses. And we need to throw the old ones away'.

References

United Nations World Demographic Estimates and Projections (1980-2025).

Guri-Rosenblit, Sarah (1999). Distance and Campus Universities: Tensions and Interactions. A Comparative Study of Five Countries. Issues in Education. IAU Pergamon/Elsevier Science Ltd., UK.

Farrell, G. (1999). (Ed) The Development of Virtual Education: A Global Perspective. The Commonwealth of Learning, Vancouver, Canada.

Daniel, J.S. (1998). Mega Universities and Knowledge Media: Technology Strategies for Higher Education, London, Kogan Page.

Cairncross, Frances.(1997). The death of distance. how the communications revolution will change our lives. Boston, MA. Harvard Business School Press.

Hall, James W (1996) The Educational Paradigm Shift: implications for ICDE and the distance learning community, Report of the Taskforce of The International Council for Distance Education Standing Committee of Presidents, Open Praxis vol.2, 1996.

Cairncross, (1997) op cit.,

Ohmae, Kenichi quoted in J. Carrol, Surviving the information age, Prentice Hall, Canada.