

## **Some External Factors of Learning in a Knowledge-based Society**

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### **Introduction**

At first glance one would think that the theme of the 19<sup>th</sup> AAOU Conference, *Building Knowledge-Based Society Through Open and Distance Education*, is simply a clever play of words using the jargon of the technological age. On closer look, however, one realizes that the concepts of knowledge society, open learning, and distance education are not just buzz words but real current phenomena that have brought us right into the center of the continuing revolution in the theory and practice of education worldwide. Indeed, today it is in education where the most recent developments in the technological front are converging, giving rise to the unprecedented creative approaches and innovations to learning the exponentially growing amount of new information and knowledge.

It is not simply a question of everyone wanting to learn an increasing volume of information and new knowledge because this simply is not possible. Rather, it is a question of making choices of what we need to learn and how we ought to learn what we choose to learn. In analyzing this apparently simple situation, I would like to bring to your attention some factors that I believe would influence how we learn in the knowledge-based society.

### **Environment for Learning New Information and Knowledge**

Without having to go through a hair-splitting discussion of the theoretical dichotomy between the information society and knowledge society, I would like to simply point out that in this presentation I shall look at these two concepts as related and directly connected, one being a more sophisticated continuation of the other. Indeed, knowledge is a higher level order in relation to information. Viewed another way, a systematic collection of interrelated pieces of information leads to a certain type of knowledge.

Information is what fuels modern society, giving rise to the information society. What is the information society? Let's just go by the technical definition provided in 1997 by the IBM Community Development Foundation which defined the information society as follows:

*A society characterized by a high level of information intensity in the everyday life of its citizens, in most organizations and workplaces by the use of common or compatible technology for a wide personal, social, educational, and business activities and by the ability to transmit, receive and exchange data rapidly between places irrespective of distance.*

Such definition, really, provides enough elbow room so that depending on how we look at it the information society would have different levels of maturity and sophistication. Almost four decades ago, taking off from the works of the economist Fritz Machulp beginning in 1933 and culminating with his book titled *The Production and Distribution of Knowledge in the United States* published in 1962, Marc Porat reported his landmark analysis of historical events that he said clearly established what could have been referred to as the dawning of the information society. The information society, as we all know, is the precursor of what we call today as the knowledge society.

In a knowledge society, the growth of knowledge is exponential. This was observed in 1963 by Price who said that "if any sufficiently large segment of science is measured in any reasonable way, the normal mode of growth is exponential." He was referring, of course, only to the growth of scientific knowledge, which was doubling every 15 years. If the number of scientific journals would be any indication at all, Martin (1981), the guru of telematics, calculated almost a quarter of a century ago that the number of scientific journals increased by a factor of 10 every 50 years. This put the number of scientific journals in the year 2000 at one million, and in the year 2050 at 10 million. But then again, Martin could not have factored in the publication of electronic journals 25 years ago. Hence, there must be many more journals today if we include the electronically published ones.

Martin also calculated that by year 2040, which is only 35 years from today, there will be 200 million different books published and storing these in a conventional library would require some 8,000 kilometers of bookshelves and about 750,000 drawers of the card catalogue. A dozen years ago, the card catalogue of the International Rice Research Institute in Los Baños in the Philippines, which holds the most complete and comprehensive collection on rice science in the world, had only 576 drawers.

If this is not enough for you, let me put it another way. Twenty-one years ago, an old friend, James Evans, said that if he were interested to read the one month entries into only one agricultural data base, the AGRICOLA (Agricultural Online Access System of the U.S. National Agricultural Library), he would have needed to set aside about 200 years, reading 8 hours everyday, 365 days a year. At that time, reading all entries of the AGRICOLA would have required some 24 centuries of reading. Twenty-one years ago, the growth of such information and knowledge was 14 percent annually. One wonders how much knowledge there is at this hour that we all need to learn because we require such knowledge to be reasonably productive in our respective academic disciplines.

"The knowledge society," observed Peter Drucker (1994), the guru of modern management, "will inevitably become far more competitive than any society we have yet known for the simple

reason that with knowledge being universally accessible there are no excuses for nonperformance. There will be no poor countries. There will only be ignorant countries.”

Drucker’s prescription in 1994 is as interesting to management experts as it is to distance education experts. An educated person, he had said, will be one who has learned to learn and will continue to learn throughout his or her life, especially in and out of the formal education system. This is continuing education. This is life long learning. He said, further:

*. . . in the knowledge society, clearly more and more of knowledge, and especially of advanced knowledge, will be acquired well past the age of formal schooling, and increasingly, perhaps, in and through educational processes which do not center on the traditional school, e.g., systematic continuing education offered at the place of employment.*

In other words, put simply, learning all the knowledge available to us today will not take place in the confines of the classrooms alone. Much of the learning that shall happen in the knowledge society shall happen outside of the formal classrooms, in places where distance learners are. Much of what people will learn will also depend on what they will choose to learn, and how much and how quickly.

### **General Framework for Action**

Now, I wish to present to you an idea for a general framework for learning in the knowledge-based society.

In doing research for this paper, I came across a very systematic national plan of action to promote education and training in the knowledge society. This is Australia’s action plan for the information economy titled *Learning for the Knowledge Society* (ANTA, 2000). The general framework for action that I am proposing here was patterned after the Australian action plan. I shall discuss the general parameters, but you can provide the details that would be appropriate for your own circumstances. Essentially, we focus on five sectoral concerns.

### **People Sector Concerns**

Perhaps there is no disagreement on the need to train people to be productive workers in the knowledge society. We all come from countries that have different levels of skills and expertise to deal with the needs of a knowledge society. Some are more advanced than others, but for the most part we all need to continue efforts at providing quality educational and training support to our citizens on a continuing basis, mindful of the fact that, in general, the amount of new information and knowledge to be learned is increasing exponentially and the number of people to be educated and trained is ever increasing even if only arithmetically. On top of this, we have to provide appropriate learning support for people who are learning new knowledge that is constantly changing at rapid fire speed.

## **Infrastructure Sector Concerns**

This infrastructure concern refers to technology infrastructure in support of the learning services that we must provide. We all know that our learning environment today is largely telematic, which is an environment that is driven by the marriage between telecommunications and informatics. We must have reliable and sustainable infrastructure support system if we are to deliver quality education services to our publics.

## **Content, Applications and Services Sector Concerns**

We who are in the business of open and distance education frequently pride ourselves of being the trailblazers in the design and implementation of innovative approaches to providing educational services on a massive scale. We also know that we need to seek new approaches in the design and delivery of content. This is a key element in the value chain in education. Perhaps we should not forget also that research is a significant component of this sector for this is our way of knowing whether or not we are indeed designing and delivering appropriate content to the appropriate learner.

## **Policy Sector Concerns**

We all understand that we must operate under a comprehensive policy framework for education that supports the goals of the knowledge society we live in. Policies at the national, organizational and even at the curriculum levels must articulate our vision for a future and must provide for investments to ensure changes and equity of access to education that ensures competitiveness. Our educational organizations, therefore, must improve their planning and management strategies so that they can ensure the achievement of agreed upon outcomes.

## **Regulatory Sector Concerns**

While our respective institutions are probably operating on specific regulatory frameworks, should we not be thinking of a range of standard regulatory frameworks so that we can all operate effectively and efficiently and become competitive internationally? For example, we must all abide by the rules and procedures for intellectual property rights, follow certain protocols for sharing technology and resources rather than enforce those that impede efforts to pursue education for all.

## **Some Basic Issues**

### **Technology vs Mindset**

I am tempted to refer to this as the learning divide, but we already have too many divides. So let me just explain this point briefly. We have here two concerns, one technological, the other psycho-intellectual or what I shall refer to as *mindset*. In the field of education, somehow the technical aspects always come before the content aspects. We have all these technologies that

we can use but many of our educational policy and decision makers are not providing enough opportunities for our educators and learners to use them so they can become more effective and efficient facilitators and beneficiaries of the learning experience.

The more serious issue is changing of mindset. While those of us in open and distance education already have migrated to the learner-centered paradigm, many of our colleagues in the conventional system remain steeped in the teacher-centered learning environment. The crucial hurdle is the shift from a teacher-centered to a learner-centered learning environment. This may not always be the fault of the teacher since in many cases it is the learner who refuses to take responsibility for his or her own learning.

Of course, changing mindsets is not as easy as changing pieces of equipment. We have to deal with three serious gaps here.

First, we are wading through a pedagogical gap, the main feature of which is a reluctant acceptance of distance education by many senior educators and education managers and policy makers as a viable alternative system of delivering quality education. We need to be more creative in the application of methods and techniques of distance learning so that we can resolve the issues that non-believers are so concerned about such as the age-old issue of maintenance of standards and providing social interaction opportunities for open and distance learners.

Second, we have to contend with a technological gap. One thing is sure, though: many institutions and experts cannot seem to have enough of the gadgetry offered by the rapid technological advancements. Unfortunately, either the education providers and learners alike cannot afford the technology or they do not have easy access to it. We must use technology to the extent that it is accessible at reasonable cost. In fact, we should revisit old technologies especially if they still are able to provide solutions to our problems.

Finally, we have to deal squarely with the fact that it is difficult to migrate from a teacher-centered learning environment to a learner-centered learning environment. This may be the most crucial hurdle. We may not be able to overcome this anomaly overnight but as we try to solve it we should further quicken our pace in moving from the traditional learning environment within the confines of the physical classroom to learning in the virtual classroom.

### **Access to Technology**

There are two levels of access that I have in mind at the moment: access to technology as hardware and access to technology as software. The former, generally referring to pieces of equipment and facilities, can easily be solved with appropriate allocation of financial resources, but the second is problematic. The software, i.e., computer program, itself may be easily affordable, but the associated issues involved are the problem. These are access to the software in terms of applicability and user friendliness in the context of the intended user's circumstances. For example, where needed, are the software gender sensitive? What does it take to use a particular software so that one can access content? What skills are necessary and how might these skills be obtained? There are a lot more questions needing answers.

## **Expertise Factor**

What we need today are specialists who are experts in hardware, software, and processes. These people, of course, are hard to find. This should be enough reason why there is an urgent need for human resources development effort in this area.

There is an associated issue here, which has something to do with people having specific skills to use for specific technologies. When we introduce new technology we naturally also provide people with the new skills to use the technology. We call this retooling, but some people claim that the term retooling sounds too mechanistic. It is as if technology dehumanizes people. We can call it re-skilling (which is providing people new skills) but this sounds too manipulative. Now, what do we do with people who refuse to or cannot be retooled or re-skilled? The solution is an old technology – RETIRING.

## **Funding Squeeze**

One major concern that I have as an administrator of a distance education institution operating in a poor country is the mad scramble for the use of top-of-the-line software and hardware. Changing your software, for example, does not always mean simply changing the software. It means, for the most part, redesign of content treatment and retooling of users. This is hardly cheap. And the financial resources that I have access to is being continuously depleted.

Funding problems could be resolved with an active partnership with private industry and other non-traditional funding sources such as the NGO sector.

## **Policy Issues**

The policy environment would differ from country to country. Some are more advanced than others in terms of acceptance of open and distance education as an alternative system of delivering quality educational services. Furthermore, some are more experienced than others. There should, therefore, be a system perhaps under the auspices of the AAOU where member institutions are able to share ideas and experiences in order that we are able to provide the learning services in support of a developing knowledge society.

### **Response to the Basic Issues: PAN-Dora's Box**

There is a massive initiative undertaken by IDRC called *PAN-DLT (Asia): Networking Distance Learning Technology Engines for Research*, but its nickname is PANDORA, meaning *Pan Asian Networking for Distance and Open Resources Access*. So, this is our Pandora's Box. This research project, by mere coincidence, has come up with a series of regional studies starting this year that fit snugly to the issues that have been raised. I understand that a separate panel

discussion on this particular initiative is part of this Conference, so I would just like to give you a preview of it as an exemplar of how these issues are now being addressed.

First, on the issue of technology vs. mindset, PANDORA has lined up two research studies titled *The Viability of Mobile SMS Technologies for Non-Formal Distance Learning in Asia*, and *Best Practices in Distance Learning Technology for Capacity Building in Cambodia, Laos PDR and Vietnam*. These two projects should go a long way to help win over to the side of open and distance learning professionals, academics, and policy makers who still feel they still need to be convinced of the advantages of distance education as a strategy in the knowledge society.

Second, on the issue of access to technology, PANDORA has lined up three studies as follows: *Evaluation and Adaptation of Open Source Systems for Distance Education in the Asian Region; Accessibility, Acceptance and Effects of Distance Learning Technologies in South Asia*; and *A Repository of Reusable Learning Objects for Distance Learning in Asia*.

Third, on the issue of the expertise factor, PANDORA has the following studies: *A Platform for Virtual Research and Research Training for Asia; E-Assessment Methods and Models for Student Evaluation in Asia; Instructional Design Training for ICT-Based Distance Learning in Asia*; and, of course, *A Repository of Reusable Learning Objects for Distance Learning in Asia*.

Fourth, on the issue of funding squeeze, we cannot say that PANDORA will give out funds, but certainly the outputs of the different studies in this project will go a long way towards developing future, fundable undertakings in the field of open learning and distance education in the region. What is clearly the intention of the PANDORA series of studies is that all the technologies developed and the new knowledge generated by the project shall be openly available to countries in the Asian region.

Fifth, on the issue of policy, the results of the specific study titled *Best Practices in Distance Learning Technology for Capacity Building in Cambodia, Laos PDR, and Vietnam* will, no doubt, be useful to other countries that are refining their policies on open learning and distance education.

### **Concluding Statement**

Learning in the Knowledge Society is not as simple as it sounds. We must have the mindset, the infrastructures, trained human resources, proactive policy framework and the appropriate procedures in place. To a great extent, we already have these in place given what the open universities have achieved over the years. Still, we have a long way to go. We must have a strong collaborative working relationships among open universities in the region. This should be a challenge to open and distance learning experts. Indeed, I believe that if there are any who are prepared to take on this challenge and responsibility, it is the open and distance learning experts.

Let us look forward to a more creative and exhaustive approach to simplifying individual learning of new information and knowledge that keep on increasing by the drop of the fine sand in the hour glass.

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