

ICTs IN EDUCATION AND TRAINING: THE BASIC ISSUES

Seminar presentation by Prof. Dr. Felix Librero, Chancellor, University of the Philippines Open University, at the International Rice Research Institute's Seminar on April 15, 2004.

In today's world, we are faced with the challenge of providing quality educational services in a society influenced by gadgetry and rapidly changing information and communication technologies (ICT). This is evidenced by the terms we commonly hear such as e-Learning, e-Commerce, e-Government, e-Something, e-Anything, knowledge-based society, knowledge-based economy, information society, paperless society, information economy, attention economy, and a host of other techno-terms.

These ICT concerns used to be simply issues in the discussion of scenarios for education and communication. Today, we are no longer simply drawing scenarios for education; the future educational services are no longer simply on the drawing board. The future environment of education is here; it has arrived ahead of schedule. Therefore, we have to rethink where we are heading, and make quick fine adjustments.

From my vantage point as an education manager, I see ten crucial issues associated with the ICTs that all affect the way teachers teach and learners learn, and the way communicators communicate and communicatees interpret meanings and respond to messages. I have had the opportunity to expound on these a few times earlier on in the scientific meeting of the Philippine National

Academy of Science and Technology, the annual conference of the Philippine Association of Electronic Communications Engineers, the National Congress of the Commission on Higher Education, and in the international conference on life long learning in Kuala Lumpur.

However, as in most seminars and conferences, papers are read and hard copies distributed to participants only to be conveniently forgotten after. I would, therefore, like to focus on these issues once more because they are the ones that education and communication planners and decision makers are still grappling with at the moment. Who knows the scientists of IRRI might be more responsive than my previous audiences have so far demonstrated.

First Issue: The New Learning Paradigm

Sometime in 1995, the International Council on Distance Education (ICDE) conducted an “anecdotal, worldwide survey to determine the nature, reality and pace” of the shift in the learning paradigm. The survey noted the following clear signs and shifts:

1. Shift from objective to constructed knowledge.
2. Shift from an industrial-based to a knowledge-based society.
3. Shift in education missions of universities from that of providing instruction to providing learning.
4. Shift from “current college and university models to as yet undetermined structures.”

Over the turn of the century, the fourth observation of ICDE became very clear. The “undetermined structure” referred to at the time of the survey has come to be known today as the “virtual structure.” Hence, we have virtual learning, virtual classroom,

virtual university, virtual something. Virtually anything has been labeled virtual.

Similar observations were made by experts from the information and communication technology sector at about the same time that the ICDE survey was undertaken.

According to Amy Garmer and Charles Firestone of the Aspen Institute, due to new information and communication technologies “the paradigm for learning is shifting away from the traditional notion that ‘knowledge’ is transferred from teacher to student within the confines of the classroom.”

Today, learners must take control of their education. And the teachers must now let go of their authority over the classrooms and function as facilitators of learning. Quite naturally, for many, this is the difficult transition. This is the scary part. Still, we must do it.

Second Issue: The Need to Retool Ourselves

We must upgrade our skills. This is usually called retooling, but many think this sounds too mechanistic. It is as if it dehumanizes people. You can use another term, re-skilling, perhaps. But this sounds too manipulative.

Well, the important point really is, what do you do with those who cannot be retooled or refuse to be retooled? Luckily for education and communication managers, there is an old technology that is perfect for this problem. It is frequently called RETIRING.

In a more serious note, we must realize that the cognitive and motor skills that we need today are quite different from those we needed just a few decades ago. Today, we have to learn to

understand and use new technologies that enable us to use other technologies that are also changing quickly.

Third Issue: Developing Skills for Independent Learning

The new learning paradigm highlights an important issue. There is a need for learners to upgrade their skills, particularly skills to learn on their own. This requires the ability to seek, understand, and use information, which, in turn, requires the ability to use technology.

Today, for instance, one must be computer literate to gain access to information and new knowledge. The use of computers in education is by no means a new idea. There is quite a number of success stories about computers in education, but there are classic failures as well. Perhaps one indicator of the magnitude of use of computers in the educational enterprise is the proliferation of computer-based programs such as computer-assisted instruction (CAI), computer-based learning (CBL), computer-based training (CBT), computer-assisted learning (CAL), computer-managed learning (CML), and so forth.

Jonathan Darby, an expert in the use of computers in education, has teasingly referred to this proliferation of three-lettered acronyms as an indication that “something has gone badly wrong” in the use of computers in teaching. Still, it must be pointed out that there is rich literature in support of the positive influence of computer technology in enhancing learning. Computer technology has, in fact, facilitated independent learning skills among the youth of today.

Fourth Issue: Nuances of Open Learning and Distance Education

Open learning is a philosophy of access to educational services, while distance education is a system of delivering educational services. They are not the same. Open learning applies to both conventional and distance modes of educational delivery.

These two terms refer to conditions that are clearly influencing the manner in which education and training are being delivered today not only in the Philippines but worldwide. For example, through the Internet, transborder delivery of courseware has become commonplace worldwide. This has enabled even unknown educational institutions elsewhere to link up with any Philippine institution in order to offer degree programs to Filipinos at a very high cost level. Content of these programs is something we do not know. We are not certain as yet, but all indications point to the fact that foreign-based educational institutions offering their courseware to Filipinos in the Philippines are more interested in the economics of it than in educating Filipinos. Of course, there is a certain level of gullibility among Filipino students as well.

Fifth Issue: Convergence of Technologies

According to Janet Buttler, an ICT specialist, an important trend in information technology is the convergence of technologies. This trend, she says, will continue to provide opportunities for improved mediated delivery of educational services.

The convergence of technologies is also changing the manner in which learning materials have to be designed. In general, more senses are becoming involved in the learning process and sensory-

based activities are now more interrelated and interactive than they used to. This phenomenon has improved greatly the quality of learning among the youth.

Two information and communication technologies that have proved their fantastic potentials in the innovative design and delivery of instruction, for example, are the Internet and teleconferencing.

The Internet has ushered in a new dawn in the design and delivery of instruction in ways never before experienced by both teacher and learner. Interaction between teacher and learner, which is perhaps the most critical feature of the classroom face-to-face instruction that many educators are unwilling to forego has become virtual reality through the Internet. Countless courses, even complete degree programs, are now offered online and these are all designed to be interactive. The more we use the Internet in the delivery of courses, the more we realize that we have not completely understood its power and potentials for both formal and nonformal education.

Sixth Issue: Moving the Expertise, Not the Expert

The developments in the electronic communications sector over the last three decades are just beginning to usher in dramatic changes in the education sector. For example, it is only recently that the magic of teleteaching and teleconferencing have provided learners opportunities to interact with experts without having to expend too much time and resources to get those experts to the classrooms.

Electronic communications has made it possible to expose learners to known experts across distances. This has somehow created a kind of contagion between the expert and learners. One

influences the other without either one consciously knowing it. Such is the power of the new information and communication technologies. It is now the responsibility of instructional designers to take advantage of this contagion in introducing instructional strategies that facilitate learning of an increasing amount of information and new knowledge over a much shorter period of time.

Seventh Issue: Technological Dependence

Perhaps the most scary phrase in modern times is: *the computer is down!* This is clear evidence that, indeed, we are prisoners of our technologies. When we become too dependent on technological hardware, we risk our very own natural creativity. But then again, creativity facilitated by technological advancement is creativity still, and this is what we need to harness in order that we can make technology work for us.

There is another point of concern in this situation. Dependence on hardware can and does mean dependence on countries that produce these machines. We are unable to produce machines the way the endowed countries do. We can only wait to get our hands on these hardware that they have developed. We become users, not producers.

The other side of the technological debate deals more with software rather than hardware. It is in the hardware department that we cannot compete, for obvious reasons. But in the software department, Filipinos are in a very good position to make their presence felt worldwide. It is perhaps high time that we develop software technologies, other than viruses, that can be beneficial to the world. There are a number of computer programs developed by Filipinos that have become very crucial programs in the

computer world. We must strengthen further our capabilities in this sector.

Eighth Issue: Death of Distance

Given the developments in telecommunications and computerization, communicating to anywhere in the world is now done in real time. Distance is no longer an important variable. With your cellular phone that has roaming capability, you can communicate with anyone from anywhere, anytime. The world has truly become a small village.

This is the death of distance, facilitated by transport revolutions. According to communication expert Goran Sjoberg, there are three transport revolutions, namely: transport of goods, transport of people, and transport of information. The third revolution has raised a number of questions, two of which have something to do with education and training. One, how do we deal with the global deluge of information? Two, how will our universities adjust their academic programs and courses to prepare their students for the new world out there that is practically drowning in information?

That we have overcome the barrier of distance through the magic of modern telecommunications is a feat that has influenced the way we share information. This shall continue to have untold effects on the way we deliver educational services.

Ninth Issue: Virtuality

Communication expert Giuseppe Mantovani defined the term virtual as “something not truly real but only potentially so.”

Virtual reality, Professor Mantovani says, is an “environment of experience and of communication.”

Today we hear of terms like virtual classroom, virtual university, virtual something. This condition of virtuality is a result of the use of ICTs to facilitate access to information and knowledge that are scattered in various sources.

Virtuality is a condition that has made possible the access to educational services from various education providers. The jargon, I believe, is distributed learning or blended learning. This works well when the educational institutions themselves enter into consortium arrangements and agree on access procedures.

Tenth Issue: Dance of Change

In his book titled *The Dance of Change*, Peter Senge highlighted the challenges in sustaining the momentum of learning organizations, as follows: challenges of initiating, challenges of sustaining transformation, and challenges of redesigning and rethinking the governance that is required by the new transformations.

In brief, Senge says that we introduce innovations or transformations into a learning organization, sustain those innovations or transformations, and rethink the governance that will suit the innovations that have been put in place.

Traditionally, educational institutions have not always been quick to adopt innovations. This characteristic, though, may not be completely disadvantageous. Having been slow the education sector has benefited much from the technological advancements in other sectors. For example, the overhead projector was an inheritance from the military establishment. More recently, the

education sector has greatly benefited from the perfected Internet, also a master piece of the military establishment.

What has happened, however, is that the education sector has simply been recipient rather than generator of technological advances.

Summary

In summary, let me mention again that the manner in which we deliver our educational services and the way our students learn are influenced by the following crucial issues associated with the use of ICTs:

1. The new learning paradigm now forces students to take control of how they learn, and the teachers to let go of their control over the learning process in the classrooms and begin to function as designers and facilitators of learning. In a sense, they may be called learning engineers.
2. Individuals, even immediately after graduation, find the need to be retooled to be more productive in the current work environment. Equally important, of course, is that teachers must retool themselves, too, if they want to be effective learning engineers.
3. Teachers must help their students develop independent learning skills as it is not possible for them to constantly supervise how students learn within the confines of the classrooms.
4. Educators must understand the strengths and weaknesses of open learning and distance education, and develop the capabilities to undertake distance learning activities for this

is the direction toward which educational institutions worldwide are moving.

5. Educators must harness the convergence of the advantages of ICTs in order that they may be able to develop and deliver educational materials more creatively, effectively, and efficiently.
6. In the past, we have been preoccupied with transporting experts physically so they can share their expertise with students in various places. This has been expensive and cumbersome. Now, we have the technologies and skills to move their expertise without transporting them physically. This improves effectiveness and efficiency of the learning process.
7. For quite sometime yet, and until such time that we are able to develop our own educational delivery technologies, we shall continue to be dependent on others for the technologies that we use. This is not necessarily bad, but we must learn to determine and introduce refinements that might be needed so that such technologies become more workable in our context.
8. Given the new information and communication technologies, theoretically we are no longer concerned with distance. In other words, distance is dead, or at least should be dead. Still, in the Philippines, where we have to contend with the archipelagic nature of the country, it will take some time yet before we actually are able to absolutely drop physical distance as a variable in our delivery of educational services.
9. We look forward to the day when institutions with similar goals are effectively interconnected electronically and

working together thereby establishing virtual universities. We have the technologies to do this now, but it will take a little longer to resolve serious concerns like IPR issues, and the like.

10. Finally, our universities shall continue to innovate. To sustain these innovations, and to redefine the governance appropriate in the implementation of these innovations. Sometimes change is a difficult process, but change we must.

References

- Buttler, Janet. 1997. *Information Technology: converging Strategies and Trends for the 21st Century*. Charleston, South Carolina: Computer Technology Research Corp.
- Darby, Jonathen. 1985. Education in the year 2000: will we recognize it? In Percival, Land and Edgar Nevill (eds.), *Computer Assisted and Open Access Education*. London: Kogan Page. Pp. 2-6-
- Garmer, Amy K. and Charles M. Firestone. 1996. *Creating a Learning society: Initiative from Education and Technology*. Washington, D.C.: The Aspen Institute.

International Council on distance Education. 1996. *The Educational Paradigm Shift*. Report of the Task Force of the ICDE Standing Committee of Presidents. Lillehammer, Norway, June 10, 1996.

Mantovani, Giuseppe. 1996. *New Communication Environments From Everyday to Virtual*. London: Taylor & Francis, Ltd.

Senge, Peter. 1999. *The Dance of Change*. New York: Doubleday.

Sjoberg, Goran. 1999. Less mass communication, more Intranet, more person-to-person, in a three-shift world – What will be the communication profession be like tomorrow? *Information Societies: Crises in the Making?* UNESCO Orbicon International Secretariat, April 1999. pp. 341-346.