CONTINUING EDUCATION AND DISTANCE EDUCATION: A MARRIAGE OF CONVENIENCE

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Abstract
Historically communications technology has provided opportunities for continuing education for men and women in employment. We have entered a new phase in this evolution with changes in communications technology driving the direction of change in how educational resources will be organized in future. The key is the emergence — based on network technology — of networks of institutions that complement traditional providers. Identifiable differences in the cultures of the new and the older organizational forms can be discerned. These cultural differences help explain the relative failure of older organizations to capitalize on the new technology and indicate the reasons for the potential success of the virtual organization. Success going forward will depend on changes in national policy.

Introduction
Thank you for the opportunity of sharing in your discussions at this 2011 conference on Information Communications Technologies in Education and for the honor of delivering this opening talk.

I especially appreciate the chance to meet with a group of educators whose special interest is in the potential of information communication technologies, since this has been my own interest throughout all my working life. It began when I first became involved in teaching adult students through radio, television and printed text in East Africa in the 1960s (I wonder how many of you remember when information for education was communicated in printed study guides!). Then in the 1970s working with the great American ICT pioneer, Charles Wedemeyer, I was present at some of the earliest experiments in interactive teleconferencing, in particular the very first tests of satellite-delivered communications in education. At the Pennsylvania State University, our American Center for Study of Distance Education pioneered some of the earliest applications of BITNET, the first computer-based network used for education and training. Used together with telephone conferencing we delivered the first post-graduate courses in distance education and delivering continuing education courses to education professionals not only in the USA but in Europe and Latin America too.

However, as recently as twenty years ago we could not have imagined the extent to which by 2011 information communication technologies would be taken up by mainstream educators at every level of education. We could hardly have hoped that it would become adopted to the extent that, today, to find a learning environment in which these technologies do not hold a central place is almost impossible.
Of course in distance education, Information Communication Technologies have always held a central place. Whereas in the classroom, the teacher has been free to choose to use these technologies — or decide not to — in distance education there has never been any such option. By definition, distance education is that form of teaching and learning in which communication between teachers and learners is dependent on information communication technologies.

As is well known, it was the invention of an information communication technology in the late 19th century that gave birth to this approach to teaching and learning that we call distance education. The technology of that day was the setting up in every country of nation-wide postal services, enabling teachers to send lessons and interact by correspondence with students wherever they lived or worked.

This is not the time to elaborate on the historical evolution of distance education as the various ICTs emerged and matured, but one aspect of that history is important to stress. What has made distance education such a powerful influence in all our countries over many decades, what indeed, consequently, we can say has made ICT of inestimable value in terms of social and economic development, and in terms of the enrichment of millions of lives worldwide, is that distance education has provided the opportunity of learning for all those who would not otherwise have the opportunity of formal, structured instruction.

Across the life span, that means of course, most people. It is so ironic, it seems to me, that until very recently, whenever education was discussed it was invariably assumed to be the learning of children in schools and students in colleges. . . this in spite of the reality that the greatest volume of learning is not that at all. It is learning by adults who did not go to school or college, learning by workers who want to improve their skills, learning by professionals such as nurses, doctors, engineers and, yes, educators themselves, who want to maintain and increase their knowledge and skills; it is lifelong, continuing education. This is education that cannot be adequately supplied in classrooms and on campuses, and which is an educational end for which the distance education method is ideally suited. . . a socially enriching and personally empowering alliance of means and ends — a marriage of convenience between mission and method.

This growing acceptance by policy makers of the critical importance of distance education as the optimum method for providing lifelong continuing education is one of the most significant trends affecting educational institutions in all our countries. It goes along with the same trend in university and college education, where the growth of distance learning through ICT has exploded in recent years and indeed in the education of children in schools also.

To illustrate, I recently looked into the question in the country where I work, the USA, with the following results.
The Changing Learning Environment: Expansion of ICT at all Levels, including Higher, Continuing and Professional Education

Distance Learning in Colleges and Universities
According to a survey reporting the latest available data (2009), in the USA over 4 million college students were taking at least one distance-learning course online (http://www.sloanc.org/publications/survey/pdf/learningondemand.pdf).

In another survey, 81 percent of all degree-granting institutions (i.e., 1179 institutions) offered distance education courses. Of these, 78 percent offered courses online; 37 percent used other technologies. Just over half (56%) of the institutions define online as including some face-to-face instruction (i.e., “hybrid”) — what is important is to note that almost half are entirely online, and thus open formal learning opportunities to many adult students who were previously not able to benefit from a college education or who are adding to previous education as a means of professional development. This has led to an increase in enrollment, reported by 76 percent of the institutions, leading in turn to increasing numbers of courses being offered.

Most institutions (78%) developed their own credit courses, but a significant number (24%) acquired courses from vendors and 9% collaborated with other agencies in course production (Parsad & Lewis, 2008).

Corporate Training
According to the American Society for Training and Development the total spent by US organizations on employee learning and development in 2008 was a staggering $134 billion (http://www.astd.org/content/research/stateOfIndustry.htm).

One especially interesting statistic that underscores the importance of not equating the use of ICT with only what goes on in conventional schooling is the statement that two-thirds of the total expenditure, $88.59 billion, was spent on programs developed inside the organizations, by their own training units. For potential providers, an equally significant statistic is that the remainder — $45.48 billion — was spent on services and materials provided by suppliers outside the organization. It has to be said that these figures include face-to-face training as well as distance education. However, according to another survey, 90 percent of business leaders expect online training in their organizations to increase, and 72 percent expect the social media to play a more significant role in this training (http://thenewlearner.com/2010/03/01/the-results-of-the-new-learner-2010-industry-trends-survey/).

Continuing Professional Education
By contrast with the corporate provision of continuing education, self-managed, individual continuing education is essential for professionals like accountants, health professionals, social workers, and lawyers who have to keep abreast of changing knowledge and maintain and develop their professional skills. The distance education option is especially attractive to such professionals for who time away from the office to
attend classes or residential training represents loss of income. An interesting comparison with most other sectors of education is that several professions approve their members managing their own learning programs using resources such as live Webcasts, courses online, in books, videos, and audio versions. The number and variety of such materials and courses is vast. For medical doctors, for example, programs are delivered by some 2,500 providers as well as the American Medical Association itself. The number of persons seeking continuing education in the nursing field is even larger than that of doctors and the number of courses and providers is also enormous. As with physicians, this is stimulated in part by the requirements of authorities that health care workers keep up to date through continuing learning. To take one example, Nurse.com is a for-profit provider of continuing nursing education with an inventory of more than 550 independent self-study courses online and in print, including audio podcasts. As with most other providers, most training courses are very short, typically lasting about an hour. Course completion is electronically reported to “CE Broker” where the student’s transcript is kept on file (http://www.nurse.com/). Employers can then access records for the purpose of evaluating the professional’s compliance with mandatory continuing education requirements.

The Changing Learning Environment: Privatization

As well as the expansion of continuing and professional education and the expansion of private providers in those fields, a notable development in recent years has been the expansion of the for-profit providers into higher and even K–12 (children’s) schooling. Among the best known among these newcomers in the USA, and in some other countries, are the University of Phoenix, Capella University, and Walden University.

The University of Phoenix is part of a global corporation, the Apollo Group. It delivers courses in some 200 campuses and learning centers but also through distance education in its University of Phoenix Online, with nearly 100,000 online students in more than 90 countries. Its primary focus is on continuing education for working adults. Degrees are offered online in business, management, technology, education, and nursing; professional continuing education courses are offered for teachers; professional development courses for companies, and specialized courses for military personnel (http://www.universityofphoenixonline.com/).

Capella University offers more than 1,250 online courses and 42 undergraduate and graduate degree programs in 137 specialized areas of study to some 37,000 students in 50 states and 52 countries (http://www.capella.edu/).

Walden University offers courses leading to degrees in public health, education, business administration, including PhD degrees. In 2001 Walden was purchased by a major educational company, Sylvan Learning Systems, now known as Laureate Education, Inc. The impressive size and scale of these “for-profits” can be illustrated by the claim on
Laureate Education Inc.’s Web site, to be “an international network of more than 50 accredited online and campus-based universities in 21 countries, serving more than 550,000 students” (http://www.waldenu.edu).

When we study the phenomenon of these “for-profit” universities, several features that point to issues yet to be resolved by their competitors in the public sector should be of particular interest. One is that they enroll large numbers of students in distance learning, and so are able to take advantage of economies of scale to obtain reduced costs in such areas as providing student services, technical support, and production of course materials. Another is that these institutions appear more ready than publicly funded universities to apply a systems approach to the design and delivery of their programs, motivated presumably by a search for efficiency in order to maximize profits. What this means is a greater degree of specialization of labor compared to what goes on in those distance education programs that emulate the traditional classroom — which includes the vast majority of university programs. Another, very significant consequence of this is the far greater proportion of part-time faculty employed by the “for-profits” compared to public universities where full-time, tenured appointments are only slowly giving way to more flexible hiring and employment conditions.

**Changing Learning Environments: Changing Pedagogy**

So what are the implications of the use of new ICT technology for teachers and trainers? It is clear to everyone that our understanding of knowledge itself has shifted over the past two decades as the balance of information that is transmitted on one-way technologies like radio and television has shifted towards those that deliver interactivity. Clearly our ideas about learning and thus of teaching have shifted also, from a pedagogy that emphasized dissemination of information to a pedagogy that is based on interactivity — interactivity between instructors and students, but more significantly between students and students. To help focus on the implications of this shift, current theorists contrast the older and a newer type of learning environment. The first is the traditional environment, the environment in which learning is characterized by its predictability. The teacher is able to predict what will be learned and to organize teaching to ensure defined outcomes. The domain of predictable events is one in which the knowledge source is prescribed and distributed through schools and universities, books, recorded and broadcast media.

By contrast, the newer learning environment is one that is characterized by unpredictability and adaptability. In the *adaptive environment*, learning is more likely to be self-organised and pursued collaboratively, knowledge being created and distributed largely by the learners themselves, and thus demanding different management skills on the part of teachers. To manage learning that is characterized by emerging, self-discovered knowledge, we see the evolution of a teaching style that might be called (after Snowden & Boone, 2007) “safe/fail experiments” as opposed to “fail-safe management.”
Fail-safe management aims at ensuring compliance safely with predictable outcomes, but safe/fail methods aim at encouraging risk-taking, experimentation and innovation.

This approach includes:

- Providing boundaries for safe experimentation that only constrain what is not allowed to happen, rather than specifying what does have to happen.

- An emphasis on resilience, i.e., allowing mistakes but rapidly responding and recovering, rather than on robustness, which does not allow mistakes or learning from mistakes.

- Evaluating learning retrospectively, rather than trying to force compliance and predictability.

The practical implication of this shift in focus from predictability to adaptability is the requirement for more nimble and flexible behavior on the part of the teacher. Retrieving and managing students’ inputs requires the instructor’s skill to link ideas as they emerge, summarizing and weaving disparate student comments. Teachers make meta-comments that summarize the state of the discussion, identifying its unifying themes and points of disagreement (Feenberg, 1993). Protecting the safe environment means giving greater attention to the affective dimensions, especially humanizing and personalizing the setting. It means encouraging students to articulate their beliefs and ideas, fostering student reflection and self-awareness, and pushing student explorations and application of skills (Bonk & Reynolds, 1997).

It MUST be emphasized that both types of learning, predictive and adaptive, are of value. In my view this should not be an either/or choice although there are enthusiasts who would make it so. In reality it is usually desirable to combine both approaches. Thus in our teaching we are likely to want to have a high-quality textbook and high-quality video productions (i.e., predictive content) to accompany the collaborative knowledge production in projects and discussions by our students in chat rooms, blogs, Wikis, etc. We should also consider it our obligation and responsibility as teachers to know clearly enough what our students learning needs are, as well as knowing the subject matter well enough to be able to guide the achievement of even adaptive outcomes — and to intervene when needed to ensure the achievement of known goals.

In saying this changing pedagogy is the idea of “recent theorists” I am of course not entirely accurate. The idea of adaptive teaching is one that has been long established in the theory and practice of adult education as well as distance education. In adult education it is highly consistent with the ideas that have been discussed under the heading of andragogy popularized by Knowles (1978) that argues that:

- adults learn best when they actively participate in the learning,
- adults value control of their learning,
• adults value incorporation of their life experiences in the learning,
• optimum learning requires reflection and meta-cognition and these are developed in adulthood, and
• learning is usually enhanced by shared inquiry and shared inquiry is an adult skill.

The greater weight given to the role played by learners in their relationship to instructors in distance education was so significant that before the field became known as distance education it was called “independent study.” The idea that students should exercise control of their learning environment was regarded by pioneers of distance education, led by Charles Wedemeyer, as a defining characteristic of the field. The other characteristic was their separation in space and time from the instructor, an idea taken up in the 1970s by myself when I wrote about learner autonomy as one of the three defining dimensions of distance education.

**Caution: What the Students Say**

In spite of what is said by enthusiasts working in virtual environments, usually in non-educational relationships with adolescents and young adults, our experience and research in the Web 1.0 environment over several years, supported by recent experience with Web 2.0 technology, tells us that we have to be cautious as we think how to go forward in order to take advantage of the promise these technologies have for adult learning. We know that while social interaction is appreciated by adult students, what is more important to them is course content. Young people might enjoy being in an educational environment partly for its social aspects, but the majority of adults do not sign on to educational programs for social interaction itself. When they participate in interaction with other students and in group activities they are looking to this only as a way of mastering course content. Furthermore, while most adult students are comfortable in interacting with other learners, their interaction with an instructor is more important. They want personal contact, want personal explanations about course content, and expect evaluation from the instructor. They appreciate personal encouragement from the instructor. Even where group discussions are involved they generally prefer it when instructors control them. What this boils down to is that new ICTs should be seen as powerfully enhancing the relationship between learner and other learners, but not replacing the relationship between learners and an instructor.

Virtuality also requires structure; course structure might be said to have even greater importance in an environment in which there are infinite online and other resources. Students tell us the value they attach to the structure of content and study activities, probably best organized in modules and units; in other words they still need a syllabus. Both instructors and students need learning objectives to guide both teaching and learning as well as assignments to monitor progress and test completion; it also is an enabling mechanism for instructor-student and student-student dialogue — good dialogue doesn’t just happen.
The Challenge to the University in its Deployment of Resources

The effect of new ICTs in bringing about this changing learning environment as well as stimulating competition from the private sector are among several contemporary challenges for higher education that require serious rethinking about how our institutions are to be organized in future. This rethinking includes first and foremost addressing questions about the distribution of resources, both financial and human. This is a key issue, and one which university administrators and those responsible for public policy on higher education have been almost universally afraid to tackle — the exception to this criticism being those countries that have established publicly funded single-mode, so-called “open universities.” Even there though, the policy has been to add the more efficient ICT-based institution onto the existing national system rather than to modernize the system itself.

How resources are allocated for education, whether one looks at the national picture or within a particular institution, has, until recently, been a decision guided by the unquestioned assumption that the place where learning occurred was in a classroom on a college campus and that knowledge was disseminated primarily by the teacher’s spoken word.

Now that this assumption about the linkage of learning to location is broken, it follows that policy makers and educational managers are obliged to reconsider the way they have traditionally allocated funds and appointed teachers and whether there are not more efficient and effective ways of using these resources.

This has not yet happened. The response so far by teachers and their employers in public universities has been highly conservative. Not only are courses delivered on the Internet very similar in content to what is taught by the same teachers in their conventional classrooms, which is perhaps defensible, but more importantly the teaching methods are also based on what goes on in the classroom. In fact, in many universities this is a deliberate policy. The same instructor who teaches in the classroom also teaches the course on the Internet, and the same person provides most of the content, the design of instruction, and the interaction with the learner as well as such related matters as evaluation and student support. This approach does not require significant changes in resource allocations or the role of the teacher, and it is popular with professors and administrators for those reasons. It resembles the response to the first cinematography in which producers placed a camera in front of the stage to film actors as they performed in ways they had always performed! Teaching at a distance is to the classroom as the movie is to the stage play; there are basic similarities, but also very different technologies, different crafts, different economics, and different administrative procedures, all of which require different forms of resource allocation.

Once the nettle is grasped, shifting the emphasis from supporting the environment of teachers (i.e., classrooms) and moving to support the environment of where the learners are (i.e., online) the savings in capital expenditure and the savings in the costs of labor are
potentially enormous and allow potentially for more effective learning as well as more satisfying teaching.

In particular, in employment of teachers and staff, emphasis has to be on greater flexibility. In the emerging ICT-based educational system, the allocation of these human resources has to shift away from policies that assume the necessity of maintaining permanent tenured positions and vertical divisions in departments and faculties. Capitalizing on the potential of ICT requires supporting design and delivery teams that cut across such traditional divisions. Such teams should be set up for specific projects and disbanded as needs change and members deployed in new configurations in new projects. Funds that are now allocated for line items in a budget fixed for specified periods, usually 12 months, have to be allocated to take into account the heavy front-end investment in designing ICT-based learning, and that allows for amortization of costs over the lifetimes of programs — usually more than 12 months.

Changes like these pose a challenge to the traditional university especially to its top management but also to those who have to work under changing conditions. They have been much easier to introduce at the establishment of new universities that are based on the expectation that ICT will provide the main forms of communication. This has given the advantage to the national open universities and the “for profit” institutions previously mentioned.

In a search of similar advantages, the last decade of the 20\textsuperscript{th} century saw the emergence of a new form of organization, one that looked to engage ICT networks to connect educational resources more effectively and deliver programs more efficiently. This is in my opinion the most promising innovation resulting from the acceptance of ICTs, although it is not easy to understand and even harder to implement. What is involved in this new form of organization is a redistributing of the design, delivery, and teaching processes through a sharing of the responsibilities involved, to take advantage of some of the economies of scale enjoyed by the single mode institutions. There are two different models of such ICT networking: a simple one consisting of alliances between institutions, and another more complex one based on the management concept of vertical disaggregation (Harrison, 1994).

In the first approach, the strategic alliance, participants in a network contribute technological and managerial expertise and capital and share the costs of developing new programs and spread the financial risks of entering new markets. Though common in manufacturing industry, in education so far, strategic alliances have not made much headway in collaborative design and delivery of the products, i.e., courses and programs. Rather they have been directed primarily towards cooperative marketing of their existing courses.

The following are some examples of strategic alliances in the USA:

- The Connecticut Distance Learning Consortium is a network that includes
the state’s Departments of Education and Higher Education, all 12 community colleges in the state, and 16 other colleges and universities.

- HETS (The Hispanic Educational Technology Services) is a network of about 20 colleges and universities, half in Puerto Rico, with a predominantly Spanish speaking student body.

- ADEC (the American Distance Education Consortium) is a network of 65 state universities, originally, and still significantly, focused on agricultural education.

- In Illinois, 72 colleges and universities are members of the Illinois Virtual Campus. The online directory offers a searchable database with links to each college and university. Student Support Centers are located in all 40 community college districts. During the summer 2009 term there were 183,160 enrollments in 8,085 distance education courses, a 14% increase from the previous year.

A few similar American networks have incorporated foreign partners in hope of accessing a global market. One example is the International MBA Business School for Global Executives, calling itself OneMBA. Five universities in four continents including The University of North Carolina at Chapel Hill worked together to create a Masters in Business Administration, telling prospective students visiting their website that they would learn from the faculty and students from all five programs.

Some other examples of strategic alliances worldwide are:

- University of South Pacific, jointly owned by 12 small Pacific Ocean countries, offering over 350 credit courses through a network of 14 campuses.

- Canadian Virtual University — an association of Canadian universities offering over 300 degrees, diplomas and certificates and 2,000 courses.

- NorthWest Technical University, St. Petersburg, Russia, with 11 affiliated campuses connected to the Saint-Petersburg main campus and its faculty.

- The African Virtual University (AVU) began as a World Bank project, based in Washington, DC in 1997. It transferred its headquarters to Nairobi, Kenya in 2002 and is now working in about 30 countries with about 50 institutions in the network. AVU programs include its flagship, teacher education program, with 10 African countries providing courses in math and science.

- The Commonwealth of Learning (COL), based in Vancouver, Canada, has promoted a number of strategic alliances, in particular the Virtual University for Small States of the Commonwealth. This is a network of tertiary institutions in 32
countries. Courses that have been developed include: “Introducing Distance Education”, “Disaster Management”, and “Training Educators to Design and develop ODL Materials.”

In an article in *The American Journal of Distance Education*, some of the problems of strategic alliances were described, based on lessons learned in several COL projects (Kanwar, Kodhandaraman, & Umar, 2010). Based on their analysis, the authors identified a common cause of failure in such alliances. They concluded that the extent of collaboration needed to succeed eventually comes into conflict with the traditional governance structures of most educational institutions, and add: “It is not enough for success to simply link traditional institutions. A more revolutionary form of organizational structure is called for.”

One such “more revolutionary form of organizational structure” is the other form of ICT-based network, resembling what Harrison calls the vertical disaggregation form of network. Vertical disaggregation is the process developed in manufacturing industry by which large firms outsource the production of the components of their product to smaller suppliers. What vertical disaggregation will mean in education is institutions sharing in the design and product development of course materials, devolving learner support services to local points of contact and specialized services. In particular it means drawing in instructor resources from wherever they may be located rather than depending solely on the faculty of a single university.

The most sophisticated application of this idea is in what we have called a “commissioning model.” This model provides for a managing agency that coordinates the design and delivery of programs without setting up a permanent institution, so that instead of locating all the specialist human resources and technologies in one institution, the same individuals and services are employed from across the widest range of locations, welded into a virtual network through ICTs. They are linked together by communications technologies, regardless of where they are located, in a network to provide the kind of services previously delivered by dedicated, single-mode, open-university type institutions.

The general principle is that institutions, states, or nations can draw on their best resources — the content experts, instructional designers, the full range of communications technologies, and all the resources needed to provide a learner support system — wherever they are located and configure whatever mixture is needed for a particular program or project on a flexible, open, “mix and match” basis. Only the small management unit is permanent, consisting of specialists in design, technology, and learner support, whose responsibility is to commission the mixture of personnel and other resources needed for each particular project.

This permanent, experienced management team is one of two essential requirements for a successful commissioning system; the other is a significant funding resource. The power of funding is the only way the management team can obtain the quality resources needed
on a pro tem basis; guarantee quality; and monitor, train, and in every way maximize the human and other resources available. Very large amounts of money can be saved from not having the fixed costs of a traditional institution. What this approach leads to is a very versatile, responsive system, producing high quality without commitment to ongoing institutional costs, and without the tendency to conservatism that blocks continued innovation within established educational agencies. It has the dual effect of stimulating partnerships while employing the comparative advantage of each institution in a country or region. As suggested by Venkatraman and Henderson (1998) and summarized by Woudstra and Adria, such “virtual organizing can result in a living organization that is inter-organizational in scope and that contains customer (student) communities, resource coalitions, and professional communities of practice. Sustained innovation and growth are made possible by virtual organizing” (Woudstra & Adria, 2003, p. 539).

An early example of this approach was the PROFORMACAO project of the Brazilian Ministry of Education (http://www.mec.gov.br/seed/proform/Apresentacao.shtm). This was a national project that used ICTs in a distance education program to provide training for unqualified elementary school teachers, most of whom are in rural schools in the most underdeveloped parts of this huge country. PROFORMACAO course materials were designed by teams of the country’s best subject specialists, each in his or her own institution, linked to instructional designers and contracted companies specializing in production of high-quality video and textual materials. Implementing the instruction and providing learner support depended on a network of tutors in each municipality, supported at regional level by instructors in teacher education colleges who were supported in turn by a manager-coordinator and technical assistants at the state level. The tutors were the direct point of contact between the trainee and the system. Training the tutors was designed by the central management and implemented by the teacher training colleges. At the national level, the management unit was responsible for managing the design process, production, and distribution of instructional materials, coordinating the implementation process, providing training and technical support to the states, and monitoring and evaluating processes and results.

In the first year of this project 27,000 trainees went through the system. Performance data showed that 85.6 percent of trainees were successful. The total cost of the program was US$30 million and the estimated cost per trainee was about $1,100 for the 2-year course. Thus, although it invested large sums to produce materials and instruction of a high quality, it was also a very cost-effective program. The specialists who designed the courses subsequently returned to their institutions and the specialists who supported the trainees at municipal and state levels never left their home institutions. At the national level the small team of coordinators remained to facilitate the monitoring, training, evaluation, and logistical procedures, until political changes resulted in the running down of the project.

More recently a similar initiative has been discussed in Norway, a much smaller country (with 5 million inhabitants) than Brazil, which has a well-developed university system with high-quality state-funded institutions throughout the country. The current challenge
is the need for more development in continuing education and lifelong learning. The difference in educational level between the towns and rural areas is enormous, and it is considered that this difference will become more problematic in future as rural industries, especially fishing, oil/gas and power production, and agriculture are transformed into knowledge industries. Plans for the future call for a network based on the existing Studiesenteret.no network. This is a network of study centres linking 80 municipalities and seven university colleges in 43 nodes (study centres and campuses). Studiesenteret.no is the hub of the network and plans for the future call for it to act in the management role in commissioning future programs.

**Conclusion: Looking into the Future**

In these emerging models of educational organization there is another factor at work, converging with the digital technology that makes them possible. This is the reinvention of the basic concept of education, moving away from the idea of education as a standard process originating from any single authority in any one geographic location or limited to what can be provided by any single institution or any single agency. A student’s faculty in future will no longer be limited to those who assemble in any one place (or even, as in the Commissioning model, are organized as a virtual institution). Students can learn wherever they are located from instructional resources wherever they are located. No student would need to take instruction from exactly the same teacher as any other; students could have access to teachers from any state or country at any time and in any combination; they could have access to information resources from any state or country at any time and in any combination. Students also could have universal access to advice and guidance. The explosion of knowledge, increasing specialization, and of course new digital technology are all accelerating this trend toward deconstruction of the educational processes, an “unbundling” of the functions traditionally performed by educational institutions and an opening of resources to access on demand.

In addition to a key role for advisory and learner support services in such a “demand-driven” system, another vital component that has barely arrived on the policy agenda is the need for a more powerful credit banking and transfer system. In the recent past, educational institutions have been able to assert a near monopoly over the supply of teaching to each student because of their control of generally accepted certification. Once this monopoly of control of the certificate is broken, students will have almost complete freedom to draw instructional programs into a personal portfolio with access via the Web to whatever institutions best meet their needs, wherever located. The move towards construction of curricula based on learning objectives and the movement to make learning materials available as “open resources” is a reinforcement of the trend to learner-controlled program management.

In most countries there has been reluctance to confront the resource implications in changing technology and pedagogy. But in the long run they will have to be addressed. It
is now almost universally recognized that the cost of conventional training and education is too high and the opportunity cost of neglecting to develop lifelong continuing education using ICTs is too high for policy makers to go on for ever ignoring the opportunities.

Countries and institutions that in the future will benefit from innovations in ICT, and survive the challenges of competition in a global market, will be those whose organizations are able to support the most distance-appropriate ways of presenting information and enabling continuing learners to interact with facilitators as they process that information into personal knowledge. They will be able to achieve this only marginally through adding new technology to an extended classroom type of instruction. The institutions that will benefit in significant ways, with results that are more than marginal additions to current outputs, will be those that either change how they organize and manage their human resources, or that are set up from scratch to manage these resources according to a distance education systems approach.

It will take political vision and political leadership to bring about the redistribution of resources and reorganization of long-entrenched departments within institutions and of institutions within national systems. Before it will be possible to deal with the serious macroeconomic implications of the knowledge gap between social classes and between regions and nations, it will be necessary to deal with the inefficiency and inequity of distribution of education and training resources at a macro-level. This means fundamental change in how we organize the delivery of education and training, moving from parochial supply to global, from labor intensive to technology intensive, from monopolistic and protected to competitive, from small scale capitalization to large investments, and from entirely supplier dominated to one marked by rich consumer choice and rich consumer support.

I invite your questions and comments; also to continue discussions by visiting our Museum of Distance Education and Technology in Second Life, and follow the American research in The American Journal of Distance Education.

References


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