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AUTHOR	Yoshio, Jiro
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ABSTRACT

An improved educational infrastructure must be developed in East and Southeast Asia Pacific Economic Cooperation (APEC) countries in order to accommodate the surge of economic growth and advanced technology. The increased need for highly educated and skilled technicians can be met through a system of lifelong learning. The need for borderless training is reflected in the technological advances and the production of complex industrial products, which require a highly educated and skilled human resource base. One approach to meeting these needs would be a regional lifelong learning program that incorporates vocationally-oriented learning and self-directed learning. The program should be student-centered and competency-based, with on-the-job vocational training and industry cooperation. Due to new technology, practical, on-line, synchronous distance education is now accessible, motivating self-directed learners through its flexibility and adaptability. The system should also include official support, all sorts of self-directed learning, and accreditation opportunities. It must be open and transparent, with an equal sharing of all information and assets. This could be achieved through an international organization arbiter, which would resolve disputes and consolidate currently isolated programs. Self interest must be set aside in order to achieve the numerous benefits of lifelong learning, which include economical growth and the reduction of social barriers. (YKH)

Thoughts on a Regional Approach for Lifelong Learning

Jiro Yoshio

In: Lifelong Learning: Policies, Practices, and Programs

Thoughts on a Regional Approach for Lifelong Learning

by Jiro Yoshio

Two changes are occurring, almost simultaneously, within many East and Southeast Asian APEC economies. First, economic growth is surging, and along with this there is unprecedented demand for highly educated and well trained technicians along with other skilled labour. This demand should be viewed as an opportunity to improve lifelong learning opportunities for many in the region. The second change is related to the advances made in telecommunications, computing and multimedia technologies, all of which are interrelated and have great potential to affect education in the region. By using the new technologies to meet, on a regional basis, the need for a broad lifelong learning infrastructure, the lives of ordinary citizens throughout the region will become measurably better.

THE CONTEXT

For many East and Southeast Asian APEC economies, changes in the quality of life during the past several decades have been obvious and profound as indicated by identifiable demographic socio-economic standards, educational standards achieved, and levels of industrialization realized. At this same time, the educational infrastructure has changed only slightly; though simple capacity may have expanded and evolved, the basic model and internal workings of the system are little different than was the case thirty years ago. Basic education is delivered in a traditional, expensive and time consuming manner, retraining and upgrading is fragmented, and many developing economies have yet to effectively deal with high rates of illiteracy. In today's context, the importance of lifelong learning is dramatic and increasing. It is imperative, therefore, that greater attention be paid to developing a modern, substantial, exemplary, educational infrastructure, and in particular one that can be shared among APEC members. Lifelong learning needs should be at the core of such a system.

APEC members will, in the 21st century, need to develop educational systems that respond to the personal and professional learning needs of all citizens. In particular, attention must be paid to the evolving demands of technical workers for continual upgrading and re-skilling, at the trades and technologist levels as well as at the science and engineering levels. To broadly increase the learning opportunities for technical professionals within a single APEC member economy is a daunting task; in fact, however, the time has come to assess regional approaches and establish a par-

adigm that extends beyond single economies. Undoubtedly, as technology changes, the nature of 21st century learning systems will be questioned. This paper argues that, given the technical advances in the past decade, proposals for regional cooperation with regard to lifelong learning, and technical education in particular, using the technology of today, along with what is clearly manifest on the technical horizon, are strongly warranted.

Member economies in the East and Southeast Asian region of APEC are experiencing enormous increases in the demand for highly skilled and well educated technicians, along with other skilled labour, and this trend is expected to continue well into the next century. Industries, many of which are multinational enterprises, face the dilemma of a fast growing demand for industrial and consumer products coupled with the exploding high-tech job market, both of which lead to severely increased competition for highly trained labour. At the same time, there is relatively little increase in the size of the pool. To meet current product demand, while at the same time incorporating technical advances in product design and production, firms must acquire additional staff trained at higher and higher levels. The message is clear: the trained human resource pool is inadequate.

The regular school system within many APEC economies can be described for the most part as isolated and fragmented. Re-training, up-skilling, basic literacy, refresher training and so on, are often available on an ad-hoc basis, but for the most part there is little in the way of systems-wide coordination. At the regional level one can find, without too much trouble, examples of cooperative training, and particularly noteworthy examples, most often one of a kind, do in fact exist. However, the notion of seamless education throughout the lifespan, incorporating a full range of technical, professional developmental opportunities, remains, for most of the workforce in the region, unheard of. A regional, lifelong, shared and mutually supported approach to learning is at this stage an almost mythical goal.

What changes have occurred which suggest the time is ripe for broad regional solutions related to education and lifelong learning? Most importantly, the advancements made in communications' technologies have eliminated the distance and time issues that in the past prevented regional solutions from being considered. In part because time and distance are no longer issues, advanced technology industries now are spreading to many economies where, in the past, only low skill employment existed. Drawn by easy access to labour, often at lower wages, and increased access to developing markets, the multinationals are creating borderless economies. This is changing the face of education and training, making it borderless in the sense that an advanced technology firm operating in Thailand and the Philippines, for example, requires technical training and education for technicians and other skilled workers, and, hopefully, lifelong learning solutions, in both economies. A single solution set will almost always be preferred simply because it will be the least complicated and likely the most cost effective.

With recent advances in digital technology, it is now possible to share the resources of individual countries, as well as their experience and expertise, and offer better learning solutions to workers wherever they are and whenever the need is warranted. With cooperation and support from multilateral organizations such as

the Association of Southeast Asian Nations, APEC and others, which have demonstrated specific interest and concern for human resource development, meaningful possibilities exist for developing and providing useful, realistic and broad-based lifelong learning programs to both self-directed people (those who for reasons of self-advancement and personal development interests drive their own learning needs) and industry-oriented people (those whose training needs are driven by the needs of the employer and changing technology). Now the time is ripe to establish an integrated lifelong learning system for multiple economies, especially those which have attracted advanced technology multinational industries.

This paper describes and discusses issues pertinent to the development of viable lifelong learning systems, including the framework for programming, possible technologies to apply, program policies and practices, and finally, significant benefits. Further, the broad lifelong learning paradigm being presented will have implications for all education and training disciplines. By implementing a versatile, multifaceted approach, as suggested in the following pages, industries will create substantial problem-solving expertise, increase potential for human resource and firm mobility, and generally augment stability and opportunities for economic growth within the firm, within specific economies, and regionally.

THE NEED FOR BORDERLESS TRAINING

Throughout the late 1980s and the 1990s, multinational industries moved deftly and quickly into and throughout the Asian sub-region of APEC. As a result, we now see complex industrial products being produced in economies that, in the 1970s and early 1980s, were comprised largely of unskilled labour. As evidence of this, throughout the sub-region, an increasing number of economies produce not only automobiles and computers, but also a host of complex chemical and biological products. Asian manufacturers now assemble product in a number of different economies, but are at the same time being challenged by new and innovative manufacturers and brands that are being produced by home-grown firms in economic environments that were, just a few short years ago, described as being only in the early stages of industrialization. These new firms, not satisfied with single markets, are themselves expanding regionally through a host of joint ventures (Kumagai, 1996).

In order to survive and grow, borderless industrial activities require a well-educated and highly trained human resource base. To at least some degree, segments of the workforce must be mobile, able to train internationally, and willing to work in different cultural contexts. The speed of technological change puts an additional demand on these industries and on the workforce. The current environment for automobile manufacturing in Thailand illustrates the complex relationships between manufacturing, competition, international alliances and the need for a technically skilled workforce (Fairclough, 1996).

Regardless of an economy's level of industrialization, all routinely use and rely on technical platforms that include sophisticated computer applications, satellite communications, and aeronautics. As well, each East and Southeast Asian economy has a basic labour pool that includes highly specialized communications professionals. Complex interfaces connect all segments of the society, and these are the charac-

teristics that bind and support the potential for broader, regional lifelong learning strategies implemented in part through distance education strategies.

Throughout the region, various schools and training institutions offer technical education that includes vocational, industrial, engineering and science education. Many of these schools are independently successful, providing students with access to broad and fundamental knowledge as well as basic skill sets. However, as noted earlier, integration within the region is almost totally absent, and, in fact, integration within a single economy is often lacking. Few of these schools and institutions offer high-level, advanced technology training, and those that do cannot come close to meeting current demand.

In the past, relatively low levels of human resource output associated with these schools and training institutions were a closer match with the minimalistic needs of industry, and in that setting many firms hired workers capable of executing only specific, basic level job skills. In some cases, industries expect to play a role in educating and training their new employees for high-level, advanced technology applications within the industry, and in order to do this certain of the larger firms operate their own training schools. Others, many of which are regional, multinational industries in the sub-region, have taken advantage of bilateral and multilateral Overseas Development Assistance (ODA) schemes to assist with human resource training. Japan in particular has provided ODA funding as a tool for both assisting the multinationals and at the same time developing human resource pools that increase the living standards and employment opportunities for many individuals. The U.S.A, Canada and many European nations have contributed in a similar manner. (It is worth noting, however, that in the ODA context there have been some constraints including content, duration, and number and selection of participants for training courses.)

In the future, however, ODA assistance will not be able to provide the appropriate level of support for several reasons. These include the reduction in ODA funding from a number of economies, the increased requirements for training given the expansion of industry, and the higher levels of training required for advanced technology solutions. Further, in the future there will be increased emphasis on the manpower needs of small- and medium-sized enterprises (SMEs), an area where training needs are modest, narrow and specialized, and where new human resource solutions will be required. In fact, no firms will be practically adept, sufficiently large, or comprehensive enough to adequately train technicians in the diverse skill sets required for technical production in the 21st century. In addition, even if industries, at least temporarily, were able to adequately train new technicians, there is growing concern about the need to retrain older workers. Highly specialized training solutions, reductions in ODA funding, the inability of large organizations to train in every specialty and the need to bring relevant training to the doors of SMEs has created a problem in need of a regional solution.

Now that advanced technology industries are distributed throughout the region, as compared with earlier approaches where similar industries tended to locate side by side, technician education and training must also be broadened. Not only do firms lack the required size and human resource requirements to provide full training solutions, many economies are similarly unable to respond to the variety, depth and changing needs associated with technical education. Technicians must commit to continuous skill updating, and lifelong learning opportunities must be available to all who want them, with as few restrictions as possible concerning nationality or training location. Further, training programs themselves must be updated frequently to keep pace with industrial innovation. The result is an urgent need for borderless education and training programs; international cooperation will be required.

CURRENT LIFELONG LEARNING

For purposes of comparison and contrast, it is useful to briefly examine some of the approaches and issues associated with vocationally-oriented lifelong learning in Japan. From these, implications can be drawn for the sub-region under discussion.

By way of example, consider a Japanese dust control technician in an IC chip manufacturing facility. For a worker of this sort, and many others, there will be training strategies associated with two broad vocational training goals. The first goal is to stay current in the job and prepare for changes that are technology or market driven. The second goal would be to expand and enhance skill sets in order to enhance job opportunities. The first goal is met through what is known as vocationally-oriented or company-oriented learning programs, and the second through self-directed learning programs.

With vocationally-oriented programs, technicians are typically eligible to receive a host of in-service training courses and programs. Using the IC dust control technician example, a technician would be required to have up-to-date knowledge and skills related to a broad range of technical areas including static electricity and air quality circulation measurement and control. The content of most training courses would be directly related to the technician's job. However, other courses, broader in nature, would also be available. Most of these company-oriented programs and courses would be competency-based, with clearly stated, highly specific, and quantifiably measurable objectives. In the Japanese context, no fees would be charged, and the training would be delivered during regular working hours.

Problems associated with this approach include credit transfer, or rather the lack of it. In-house training does not for the most part result in acknowledged, transferable training credits. In part this is not surprising since the firm is not providing the training in order for the technician to gain employment elsewhere, and the firm is therefore reluctant to see great value in awarding recognizable credits. However, even within the company there are drawbacks. If, for instance, the technician does not have a university degree, an ODA based foreign assignment would not be permitted on the basis of in-service training alone because no broadly recognizable credit is given and recognized credentials are *de rigueur* for overseas postings. Because there is no system of equating courses and programs between companies, if a worker moves from one employer to another, comparisons cannot be made. As a result, needless, repetitive training almost certainly takes place, As well, some courses are publicly funded and all workers, regardless of employer, may have access to them; however, the credit and recognition issue remains firmly entrenched. Workers would be strongly advantaged if all training was coordinated,

systematized and evaluated by external accrediting agencies in order for training to be transparent and portable.

Self-directed programs are somewhat different. With self-directed training, broader needs are being addressed, so, for example, the technician may want to improve basic language skills, master computer technology, learn a foreign language, or become proficient in a particular hobby. Many of these options are widely available via radio, on television, through the church, in the community centre, or at a traditional school. Often, technical high schools offer computer literacy courses free of charge. Notable is the fact that in most of these courses there are no prerequisites, so the learner self-selects the course content and level according to personal interest and self-assessment, from primary levels through to the professional tier. Fees for the courses range from nil to very expensive, according to the nature of the course and materials involved. The term or length of courses varies according to the complexity of the discipline. Recently, the development of the Internet has broadened these opportunities. For the most part, however, difficulties with accreditation remain firmly entrenched.

The advantages of the Japanese system include the flexibility associated with the parallel opportunities for vocationally-oriented and self-directed study. As a building block for lifelong learning, this system brings a measure of strength because it provides for and encourages self-direction while at the same time including specific vocational training alongside learning for self-interests both within and outside of the vocational context. Regional strategies for lifelong learning should incorporate these strengths.

PROGRAMMING CHARACTERISTICS

For an effective, broad-based, sub-regional, international approach to technical training, a rational, well developed structure is required. The programming should include capacity for vocational and non-vocational learning, access should be universal, and an open-door policy with no prerequisites followed. Standardized courses and topics within a logical and efficient framework should be based on distance learning principles. Although some degree of flexibility will be required, a high degree of uniformity brings continuity and stability. Learning programs with no established framework or no consistent approach are subject to fragmentation and disunity.

Competency-Based Education

Given the need for integration, consistency, applied focus, transferability, credit recognition, regional access, multiple delivery modes, and different cultural contexts, a competency-based approach for training is demanded. Organized by modules, competency-based education (CBE) learning units are self-contained, learner-driven, instructional packages. Learners pace themselves according to their own needs and abilities. A module covers either a single element of subject matter or a group of content elements forming a discreet unit of subject matter or area of skill development. Each module has a clearly defined objective (see Meyer, 1988).

A CBE approach shifts learning from a teacher-centred focus to one which is student-centred. Once this shift is made, timing, modules, place and goals are driven by the student, not the system. Assessment of all learning is based on the demonstration of objectively verifiable knowledge and skill sets. CBE works well with mature students, precisely those for whom the traditional school process is least appropriate (see Joyner, 1995).

Vocational training should for the most part be accommodated while the learner is on-the-job, similar to the Japanese vocational-oriented programming described earlier, even when delivered from a distance. The firm and the learners profit from this training, and the flexibility in terms of content selection, timing, duration of study, place of study, and study strategies attract and benefit both (see Gahlot, 1995). Large programs are sub-divided into small programs, and in turn these are divided into ever smaller units, down to the level at which specific outcomes testing is suitable.

Topics for the vocational components must be identified and vetted by industry in order to be specifically suited to industrial needs. Introductory areas of study would be broad in nature, covering areas such as information technology and computer applications. These would be followed by more specialized programming such as 3D animation, flexible manufacturing techniques, and multimedia applications.

Industry Cooperation

As suggested earlier, the rate of technological change does not provide enough time for school-based education, particularly with the attendant curriculum development, teacher training, government approvals, political decisions, registration, and other bureaucratic processes, to supply the required human resource base. Further, many companies cannot provide adequate training because they lack the resources, particularly SMEs. Now, when firms with similar manpower requirements are spread across a region instead of being concentrated in one or two areas, these factors merge to support the notion of shared, regional training.

Many firms have specialized training packages, often developed at great expense, for specific skill sets. It is wasteful and non-productive for these to be duplicated again and again by multiple firms as well as by publicly supported schools, often in outmoded formats. However, few firms have shown a willingness to support cooperative training ventures among themselves in the past, so is there a difference in today's environment? The argument presented here is that firms are becoming increasingly diversified and many more are now investing in each other. Their needs have merged, and the financial health of one benefits the others. These factors suggest that the time is ripe for multinational training organizations to work hand in hand with SMEs and for large multinationals to deliver training regionally. Not quite arms-length organizations, these educational entrepreneurs would provide a fast-paced, integrated, modern curricula with regionally transferrable credits to meet the needs of both industry and formal education. They could purchase at least some training materials in generic form from existing organizations, and might well receive initial funding from international organizations as well as through ODA programs.

Technology

Recent improvements in digital technologies have literally changed the face of telecommunications and computing. Only a few years ago, with analog equipment, all facets of communications technology were by comparison quite limited. Now, the issue of data quantity is for most functions resolved, as are speed and quality. High speed, digital satellite communications and fibre optics make it possible to send and receive large volumes of data inexpensively and very, very quickly. Inexpensive computers permit learners to link to data streams, and multimedia applications allow us to format and present information in interesting and meaningful ways. During the course of the next ten years, as we learn to harness and apply the technologies, change will be enormous. However, in the meantime, it is clear that there are three primary areas with great potential to affect education: telecommunications technology, computers and multimedia applications. These three technologies will for the first time permit practical, on-line, synchronous distance education. Borders, distance and time have become secondary.

Less than ten years ago, producing multimedia self-learning courseware was exorbitantly expensive, and only a few of the largest colleges, universities and private training institutions could afford to invest in the development of interactive guides, films and limited computer applications to support the teaching and learning process. The material that was produced tended to be static, inflexible, and rarely updated. Much of it was designed simply to replace teachers. Now, multimedia applications can be created directly by teachers who are willing to invest a relatively modest amount of time learning how to patch material together using a variety of software programs and hardware. In fact, the ease with which this can be done has changed dramatically during the last two to three years. Programming tools have become increasingly user-friendly, and soon little formal training of any type will be required.

The Internet, though it has been in service in various forms, mostly in the west, for more than a decade, is only now being widely adopted in Asia as the *de facto* standard for inexpensive, fast, regional communications. It brings within the reach of any computer literate individual, databases that far exceed what any library can provide, and it does so very often in an entertaining and highly educational manner. The potential for interactivity is an added bonus. For development of course materials, the Internet and World Wide Web are rich sources for finding and extracting materials, much of it at no cost. In many respects, it is quite surprising that outmoded curriculum materials, standard textbooks for example, continue to be valued. This is perhaps a reflection more of administrators and bureaucrats than of true worth and need. Soon, standard books on most subjects will be widely available free of charge since all it takes is one author to simply "post" material to the Web.

Combining learning materials into useful sequences and forms (multimedia teaching and learning resources - MMT/Ls) will, however, continue to bring a strong value added ingredient to the overall system. Whereas, in the past, assembly of information was a major component in the curriculum development process, data is now abundant, easy to reach, and most often free. It is the packaging that creates the

added dimension, and the best packagers will be highly sought after. In turn, and to a larger degree, the skill of developers will be influenced by available software. Basic tools such as HTML and VRML for the Web are being eclipsed by Java and composite authoring programs such as Macromedia's Director. Given the rapid rates of development and change, it is difficult to even imagine the course authoring tools that will be available in the year 2000!

At this stage the issue of technology is for all intents and purposes resolved, though it will be increasingly refined over the years. Putting materials into a distance education design takes place almost spontaneously. The cost of teacher-centred learning is too high for universal replication in much of the APEC region, and learner-centred approaches are proving to be more attractive not to mention far more cost-effective. It may be that we are seeing the last generation that will want to sit in front of a teacher rather than manage their own education. By studying at work or at home, vocationally-directed and self-directed learners will be highly motivated because of the accessibility of the technology and the mobility and interactivity of the programs. All programs will be easily adaptable, flexible and economically viable. Learning and productivity will increase dramatically.

There are some drawbacks frustrating the wide-spread use of computers, though these are no longer as problematic as some might suggest. For example, the expense of computers has dropped dramatically during the past three years, in spite of the fact that manufacturers have managed to ply a market skimming strategy particularly in developed economies. By regularly introducing newer and faster platforms with more features, they have managed to keep prices and margins relatively high. However, it is difficult to imagine how much more computing power is in fact required for basic education. True, faster computers and more sophisticated computers will drive high-level manufacturing and production, but the issue of computing power for basic level technician training and upgrading is resolved. At this stage, a basic computer system costs little more than an expensive overhead projector or film equipment, and reliability is no longer the issue it once was.

Basic, multiple station computer sites can be installed even in remote locations to serve widely disparate needs. Teachers, or better still, facilitators, can be trained to use these basic sites with minimal instruction and even develop software that best suits specific situations. If networks are not available, the use of CD-ROMs can serve as a cost-effective solution.

A key part of the solution set will be to create development and consulting centres where courseware would be created, networks maintained and credentialling facilitated. These centres would not require large numbers of staff, nor would the costs be high. The consequences would, however, be impressive. By combining basic, computer-related technologies with a competency-based modular system and distance delivery, exciting, integrated, consistent, regional lifelong learning programs can be created.

POLICY & PRACTICES

Establishing efficient and effective lifelong learning programming is clearly essential if APEC economies are to foster human resource development and bring the bene-

fits of increased economic development to all members of their respective societies. Lifelong learning to satisfy both individual needs as well as the demands of industry will only be successfully implemented through the collaborative and collective efforts of APEC member economies. Some APEC member economies have begun to develop integrated lifelong learning programs, but as noted earlier these are for the most part fragmented and inconsistent. To make the best use of existing technology, human resources, and information, the development and implementation of specific policies and practices supported by politicians, governments, the private sector, UNESCO, ILO, NGOs and much of the current educational infrastructure, are needed. This framework should not clash with the basic notion of a lifelong learning system that is self-directed.

Official Support

In Japan, for example, the Ministry of Education and Culture is legally responsible for championing "Lifelong Learning Promotion". Within this legal foundation, the Ministry supports a full range of lifelong learning activities at public halls, libraries, museums, and other institutions. The Ministry also supervises specific programs for the education and training of the leaders of lifelong learning projects. Based on other legal prescriptions, "Human Resource Development Promotion" for example, the Ministry of Labor provides financial support for individual lifelong learning activities as well as those developed and implemented by industries.

In its ODA programming, the government of Japan recognizes the importance of lifelong learning, and technical upgrading in particular, within the context of available and developing technology as well as best practice delivery techniques. Distance study, for example, is used for a variety of projects such as the telecommunications technician training widely offered to developing economies within APEC. Japanese industry is also "formally" involved through examples provided earlier in the paper as well as through government supported research and study on lifelong learning.

Government supported, official policies, as well as a formal commitment and direct involvement from industry, provides the basis for a strong lifelong learning ethic in Japan, and the value of having this foundation should not be underestimated. In Japan, this approach has over the years been institutionalized and is now a fully accepted and articulated element of Japanese life. Action, not words, is needed at the individual economy level within APEC if a regional strategy is to work.

Self-Directed Study

There have in the past been tendencies for lifelong learning to be narrowly defined, focusing on specific elements such as continuing vocational training for workers, promotion of immigrant literacy, and retraining of the unemployed and women (Maehara, 1994). In this age, however, lifelong learning policy and practice perspectives must include self-directed learning of all sorts, as described earlier in this paper, and the broader learning context, rather than a simple industrial focus.

Somewhat paradoxically, it can be argued that in many learning contexts it is more beneficial to promote self-directed interdisciplinary study and the creative

examination of connecting technologies, and that this often leads to more new product development and applications than do more lock-step vocationally-oriented courses. Recognition of this potential contradiction should encourage policy makers to concentrate on constructing support systems and sound foundations for broad, comprehensive lifelong learning strategies.

Accreditation

Lifelong learning programming must be developed within the context of a fully articulated, transferable and accountable system. It is too costly and time consuming to train and re-train the same workers simply because the system does not recognize learning from different sources. Up-dating courses in particular lack cohesion and transferability, and these are going to be the basis for much of the lifelong learning activities in the Asia Pacific region.

In a regional context, the difficulties associated with technical training and upgrading accreditation may seem to be so monumental as to be unassailable. However, we simply cannot afford to accept that view. The well-being of the people in the region should provide the impetus required to resolve this issue, regardless of strong and vested self-interests that will need to be set aside. Governments in particular need to understand that the broader purpose must be served, whatever short term expense this may involve. The system must be accountable, fair, objective and broad-based. Learners deserve accreditation and this will in turn have a huge influence on motivation as it relates to vocational upgrading.

Openness and Overseeing

The notion of having an open and transparent systems approach to lifelong learning has many advantages. If resources and data are widely available, and protective measures such as copyright and confidentiality minimized, greater gains will be realized for the region. By sharing learning assets, much of which will occur naturally through the Web, borderless communities of curriculum and course developers will create educational and economic gain for all the players, not just the developed economies or wealthier elements in any one society. If all the participants in lifelong learning programs allow free dissemination of all learning materials, the most disadvantaged members of our societies will profit immeasurably.

An agreed-upon international organization could act as an arbiter for dispute resolution and to create and support a system which would consolidate many of the practices and learning programs which are currently operating in isolation. With a regional perspective, this organization would be a clearing house responsible for collecting and distributing training materials and standards. Furthermore, it could oversee and resolve all issues related to copyright. As a leader in research and development, the organization would survey instructional methodology, establish a consistent evaluation system, manage distance delivery technology, train and arrange for technical support, and refine curricula.

BENEFITS AND CHALLENGE

The benefits associated with a comprehensive, integrated, regional system of lifelong learning development and implementation are considerable; the challenges, daunting as they might be, pale in comparison. For this reason, it is important that self interests be set aside.

It is important to recognize that there are two, broad but related beneficiaries. First, the people of the region will be most affected. The opportunity to learn, regularly and consistently with high quality learning materials at a convenient place and time throughout the lifespan under a CBE distance education structure with full, transferable accreditation, would on a national, let alone a regional scale, be unprecedented. Perhaps most importantly, such a system will have its greatest affect on the most disenfranchised members of the region. The system will, in effect, begin to regionally and on a broad scale re-address the growing gap between the educated and the under-educated, between the rich and the poor.

Industry, and hence the economy as a whole, will be the second beneficiary. An updated workforce, access to a larger highly-trained labour pool, and improved production standards and therefore cost performance will be tangible rewards. For this reason, it makes sense for industry to participate, and even contribute in terms of making current training materials broadly available. For some firms, the opportunity to participate directly or indirectly in the delivery of regional training by being course providers or sponsors will be an added incentive.

Who will be the losers? In effect, the only losers in a visionary program as described in these pages will be those who benefit from monopolies on education or those who operate industrial manufacturing concerns with ill educated labour paid at low wages, who in effect take advantage of restrictive educational opportunities and prevent broader economic well being. The challenge for APEC economies will be to ignore entrenched powers and seize this 21st century opportunity.

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	Organization/Address: School of Media Studies Humber College 205 Humber College Blvd Toronto CANADA M9W 5L7	Telephone: 416 675-6622 x4510	FAX: 416 675 9730
		E-Mail Address: hatton@admin.humber.on.ca	Date: Sept 2/97