

TeleLearning:

TeleLearning refers to the use of information and telecommunications technologies to create on-line learning opportunities and environments. Although these technologies are widely heralded as the wave of the future, their full potential for extending educational and career opportunities has not yet been fully explored. In this article we consider their emerging role in the provision of lifelong learning opportunities for Canadians.

Structural Changes in the Educational Environment

Three features of the changing educational environment influence the ways in which we currently provide and access education.

GLOBAL ECONOMIES AND NEW EDUCATIONAL STRUCTURES

As the economies of developed countries become increasingly interdependent, so individual schools, as well as school systems, are able to link with one another electronically to share resources and create new learning opportunities. Global economic changes of the last decade have shown that national economic systems cannot survive by sealing themselves off from one another; nor, we predict, can provincial school systems. Many schools today, particularly those in rural areas of countries like Canada, are interfacing with one another electronically so that teaching and learning can be shared among sites. This profoundly affects the nature of the education that can be provided for young people and their families in communities located beyond major centres of population. In this process, the digital intranet is emerging as a new educational structure within which virtual classes can be constructed and deconstructed electronically, offering considerable potential for students to join a variety of virtual classes throughout their lives to meet their educational and career needs. However, at this time, the implications of these new educational structures for lifelong learning remain largely unexplored.

THE ELECTRONIC BASIS OF LIFELONG LEARNING

Many universities and colleges are presently considering how telecommunications technologies can provide extended, life-

long opportunities for learners. The question that many educational institutions face today is not *whether* to adapt campus buildings for the introduction of new telecommunications technologies in classes, but *how* these technologies can be used effectively for improving teaching and learning. As Reyes, Wagstaff and Fusarelli note:

“There is a general consensus that the appropriate assignment of new technologies within effectively organized schools could make a big difference in academic performance if teachers are given the appropriate staff development training to use these technologies.”¹

LEARNING TECHNOLOGIES AND LIFELONG EMPLOYMENT OPPORTUNITIES.

The gap between those who are technologically literate and those who are not is likely to widen, leading to increasing differences in employment opportunities and, ultimately, diverging standards of living. For students to be effective in the changing employment scene, lifelong learning becomes not just important, but essential. Therefore, the pressure is on schools and post-secondary institutions to ensure that young people leave with at least some skills in the use of information technology.

From Distance Education to Telelearning

Distance education has been a key tool in providing opportunities for lifelong learning for several decades. Based on older, less interactive technologies, it is gradually being displaced by telelearning. The result is a radical change in the relationship between learner, teacher, and information.

Traditional distance education is either point-to-point (distance educator to distance learner) or, more commonly, point to multi-point (distance educator to multiple learners). One of its features is centralization, whereby power is largely vested in the provider institution. A second feature has been its extensive use of print materials. In the provision of traditional distance education, teachers select curriculum which is then bound into print packages, often accompanied by appropriate

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by Wayne Oakley and Ken Stevens

may benefit from a combination of face to face teaching and on-line learning. For senior students who are independent learners, on-line instruction may provide an increasingly attractive way to receive a part of their formal education. The growing accessibility and flexibility of telelearning options provides new opportunities for lifelong learners as well.

As the applications of telelearning increase, educational planners need to carefully consider its implications for students. For example, under what circumstances will students of varying ability levels be able to avail themselves of education through telelearning? And is it realistic to consider education delivery via telelearning for younger students in elementary schools?

TeleLearning and Lifelong Learning

LIFELONG LEARNING RELATIONSHIPS

As more computers find their way into classrooms each year, accompanied by the expansion of the internet, teachers are challenged to consider appropriate uses of information technologies and new ways of organizing education for students. Often overlooked — perhaps because it is so obvious — is the potential of information and communication technologies to enhance collaboration. When both teachers and learners have access to e-mail and the internet, and when they have formed electronic teaching and learning relationships in virtual classes, information sharing and knowledge building follow. Teachers may remain in electronic contact with some students for many years as those students move from primary and elementary schools to high schools, to post-secondary education, and on to jobs. Lifelong learning becomes much easier when students have access to a variety of tutors who know them as they move through these stages in life.

TECHNOLOGICAL CONSIDERATIONS FOR LIFELONG LEARNING

Developing an early familiarity and comfort with the changing and converging telecommunications technologies helps set the stage for a life of continued learning. If students learn to address educational challenges and consider the dimensions of their vocational futures on line while still at school, they will have taken a first step in becoming lifelong learners. New technologies can help students — and lifelong learners — keep up to date in many aspects of their lives:

- By connecting to and book-marking appropriate web-sites, learners can easily stay informed in a growing number of areas

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audio and video materials, and sometimes enhanced by radio and television broadcasts.

As information and communication technologies develop, converge, and are applied to the mass delivery of education and training, distance education is giving way to telelearning — with features quite different from those of traditional distance education. Based on the delivery of education through the internet, telelearning enables learners to access information simultaneously from a wide range of sources. As both a growing source of information and a delivery system, the internet allows teachers and learners to link with one another in multiple ways — in virtual classes, at particular times, and for specific purposes. The ease with which virtual classes can now be constructed and deconstructed has vast implications for the provision of customized lifelong learning.

Telelearning will be fundamental to the development of an information society in which access to learning opportunities is independent of time and place. It will give teachers the opportunity to teach some students at dispersed sites on-line while choosing to teach others face to face. It will also increase student choice; for some, face to face teaching is likely to remain the most appropriate educational style, while others

that affect their educational, vocational, and private lives.

- Learners can adapt technologies to facilitate interaction, collaboration (via e-mail and net-meeting, for example), and learning support networks.
- Learners can engage in professional development, as appropriate to their needs, throughout life.
- The isolation traditionally experienced by distance learners can be considerably reduced by sharing problems and solutions with an appropriate peer group through telecommunications technologies.

NEW EDUCATIONAL STRUCTURES IN SUPPORT OF LIFELONG LEARNING

Teleteaching from one school to another means that, to an increasing extent, schools are able to academically and administratively interface with one another. This means that teachers and learners can share their expertise, regardless of where they are located, ensuring that students are provided with increased opportunities for learning. The formation of digital intranets, through which designated schools come together electronically for at least part of the school day to share teaching and learning, is a new way of organizing education for rural students.

In Newfoundland and Labrador, nine rural schools in one school district have formed a digital intranet to collectively provide Advanced Placement Mathematics, Physics, Chemistry and Biology. Each of these subjects is provided by a teacher located in one school. The digital intranet enables students in any other school within the intranet to join a class in one of these subjects.² Providing students in rural Newfoundland and Labrador with access to post-secondary education (Advanced Placement courses) while still at school gives them a significant first step in gaining post-secondary credit. It is also a step towards learning beyond their local communities. In Russia, another country with a large dispersed population, similar developments are taking place in the provision of science education.³

PEDAGOGICAL IMPLICATIONS

The combination of these three factors — changes in relationships, technology and organizational structures — gives rise to a number of pedagogical questions related to lifelong learning.

EN BREF

Pendant plusieurs décennies, l'éducation à distance a joué un rôle majeur dans la prestation de programmes d'éducation permanente, mais peu à peu elle cède la place au télé-apprentissage qui utilise de nouvelles technologies pour offrir des possibilités et des milieux d'apprentissage en ligne. Le télé-apprentissage est essentiel à l'avènement d'une société axée sur l'information et où le moment et l'endroit importent peu pour l'accès à l'éducation. Afin de soutenir ce développement, le corps enseignant doit transformer de façon radicale le rapport entre l'élève, l'enseignant et l'information. En effet, l'école qui offrait naguère des services d'éducation sur place et pendant une période bien définie de la vie de l'élève dispense de plus en plus des services d'éducation permanente.

For example:

- Is it possible to match particular teaching and learning styles when more than one teacher is involved in a virtual class?
- What are the implications for teachers when students become lifelong learners and maintain professional contact after graduation?
- How can students be prepared for lifelong learning before they leave school?

CONCLUSION

The advent of telelearning offers increased flexibility in the organization of times and places for teaching and learning. We predict it will ultimately lead to education that is tailored to individual learners rather than to classes. This is an essential first step in the development of lifelong learning through telelearning. To support this development, the teaching profession will have to consider the technological, organizational and pedagogical changes that are taking place in the delivery of education if schools are to move from being primarily providers of on-site education for defined periods of students' lives to become providers of lifelong learning.

- 1 P. Reyes, L. H. Wagstaff, and L.D. Fusarelli, "Delta Forces: The Changing Fabric of American Society and Education" in J. Murphy and K. Seashore Louis (eds) *Handbook of Research on Educational Administration* (San Francisco: Jossey-Bass, 1999).
- 2 K. Stevens, "Two Canadian Approaches to Teaching Biology, Chemistry, Mathematics and Physics to Senior High School Students in Virtual Classes," presented to the Australasian Science Education Research Association 30th Annual Conference (Rotorua, New Zealand, 1999 [available: <http://www.tellearn.mun.ca/pubs/index.html>]); K. Stevens, "A New Model for Teaching in Rural Communities – The Electronic Organisation of Classes As Intranets," *Prism – Journal of The Newfoundland and Labrador Teachers' Association* 16 (winter 1999) 23 – 26 [available: <http://www.tellearn.mun.ca/pubs/index.html>].
- 3 A. Sandalov, N. Sukhareva, M. Barry, T. Piper, and K. Stevens, "The Development of Open Models for Teaching Physics to Schools in Dispersed Locations in Russia and Canada," presented to the European Distance Education Network Lomonosov Conference, Russian Ministry of Education and the International Council for Distance Education, Moscow State University, Moscow, Russia, 1999 [available: <http://www.tellearn.mun.ca/pubs/index.html>].

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