Home Renovations:
Rethinking post-secondary education
in an era of technology-enhanced learning

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It has been said (by Alvin Toffler, I think) that there are three stages of implementing technological change: the first involves "playing" with a new technology to discover what its capabilities are; the second consists of converting old activities and processes into new forms using the new technology; and third stage involves developing entirely new activities and processes that are only made possible by the new technology.

I would argue that, in general, postsecondary education is hovering between stages one and two (K-12 education is in the same situation). Many teachers and university/college faculty have utilized new technologies as "add-ons" or "supplements" to the teaching and research which they do. Some however, have developed whole courses based on the Internet and are fully committed to stage two. Here the new technology makes possible greater effectiveness and efficiency but the fundamental units of academic activity – "the course" and "the program" remain the same. In this talk, I will argue that, if universities and colleges are to move beyond this second stage and fully utilize the power of the new e-learning technologies, they must first question the most central structural elements of their academic operations.

In this talk I want to advance two arguments to support this thesis, the first, historical, and the second, economic, sociological and political. Finally I want to propose a way for

us at York and Seneca – and I fully intend these to be coupled together here – to respond to the world in which we now find ourselves.

The Development of the University

The idea of higher education, long before any formal university was established, was first described in classical Greece in which the followers of Socrates gathered round the "feet of the master" to listen, to ask questions and to learn. Without going into the details of this encounter, we can identify a few key characteristics of this version of higher education:

- It is constrained in time and place by the presence of the guru or master.
- It places its focus on learning as an activity rather than as a set of pre-determined outcomes (I think it was Dewey who said that education is not so much arrival at a destination as it is traveling with a different view).

Higher education continued in this form for several thousand years until the middle ages. The early European universities (such as Oxford, Cambridge, the Sorbonne) were based on this model. And still it is common in the Fine Arts (painting, sculpture, dance, music, theatre etc.) to hear of a person that "she studied with professor X or maestro Y" as distinct from receiving a degree from the University of A. But I digress.

With the printing press, the first great constraint on higher education was lifted. Now it was no longer necessary for students to physically travel to where the guru was located to learn from him. The publication of books – in small numbers at first but later, with advances in printing technologies, in large numbers – allowed for the thoughts of the masters and the research findings and theories of the sciences to be communicated to people far from where the original ideas were developed. It also enabled the growth of higher education from the small elite academic community it had been since the middle ages to the relatively large-scale enterprise demanded by society in the 19th century.

Yet the constraint of time has remained. Institutions of higher education, as guardians of elite forms of knowledge and exclusive providers of certification to those who wished to access it, generally require that learners attend for specified lengths of time and often on a

schedule convenient only to the institutions themselves. In North America, in particular, universities (and later, colleges too) have defined the forms by which they recognized academic achievement. Not only must students in a traditional university take courses defined in terms of 3 lecture-hours a week for 12 or 24 weeks, they must often take these on a schedule that ensures that only full-time students or those with time available during the working week are able to take the courses. A bachelor's degree, moreover, represents the aggregation of a number (e.g. 120 at York) of such credits. Incidentally we see the same system applying to high schools where high school credits are defined as 110 hours of instruction. Time remains both the critical constraint on and the ultimate measure of learning.

Education in a Digital Age

The advent of information technology represents the major breakthrough in higher education as it removes both of the traditional constraints, space and time, from the individual's capacity to learn. In so doing, IT presents two major threats to the traditional system. First, by placing control over their learning in students' hands, it enables learners to achieve the goals of a course at their own pace, which might be more or less than the time officially allowed for it. Second, it provides for learners to schedule their learning activities at times most suited to them and their own needs rather than at the convenience of the institution. The development of IT based courses that we have seen over the past several years recognizes and exploits both of these advantages and is, of itself, no longer novel.

But second, and this is my focus today, it calls into question any aspect of the university's regulatory system whose components are defined in terms of time. And these are many:

- Courses and credits, where a course is defined as a number of hours of contact between faculty and students
- Degrees and diplomas, where these are defined as aggregations of credits
- Full- and part-time study, where these are defined as the number of credits taken within a given period of time

- Academic terms and years as constraints on how many 'courses' can be taken within a period of calendar time
- Basic income units (BIUs), the measure by which government funds colleges and universities, where these are defined in terms of "full-time-equivalent" students
- Tuition fees, where these are calculated on the basis of time-defined units
- Faculty work loads, where these depend, conceptually at least, on time spent in traditional class environments
- Models of teaching and learning that provide for all students the same amount of time to study and accept variable results (as in undergraduate education) as distinct from imposing a common standard on all and accepting the variable times that individuals require to reach that standard (as is the case with a PhD program).

The list goes on. All of these constructs were invented for a different age, a different society, and a different economy than those that exist today and all must be re-examined and re-invented in the light of the new social and economic challenges and the new opportunities presented by e-learning. And before proposing any new directions, I want to spend a few minutes reflecting on the nature of some of these challenges and opportunities.

Economic, Social, Technological and Political Trends

Higher education is under stress. This metaphor is taken from Biology and refers to the condition an organism finds itself when its external environment is changing faster than its internal adaptive mechanisms can cope with. The following are just some of the external factors that are impacting universities and colleges in Canada today that cannot be reversed and must be confronted realistically. They are often perceived negatively by educators but, looked at differently, can stimulate exciting thoughts about ways in which postsecondary institutions might reinvent themselves to serve society better in the future.

These factors, in no particular order, include:

- The need for life-long continuous learning on the part of all Canadians whose working lives will comprise several different careers;

- The variety of models for learning available today that are suited to some learners some of the time but none to all learners all of the time;
- The rapid evolution of skills and knowledge required for *any* career path;
- The rate at which new jobs requiring new skill sets are being developed;
- The development of a "knowledge-based" economy that requires all citizens to rely increasingly on the brains rather than their brawn;
- The ever increasing expectations of government and the taxpayers for accountability and responsiveness;
- The limited resources being made available from the public purse for education;
- The advent of alternative postsecondary opportunities (e.g. private universities);

Some of the characteristics of postsecondary education that enables it to adapt to these new realities might include some or all of the following:

- A focus on the development of people's knowledge and skills rather than on the delivery of programs;
- Incorporation of prior learning assessment so that students start from where they are in terms of knowledge and skills, rather than on the basis of formal credentials from other institutions;
- Seamless programming from both York and Seneca, drawing on content expertise from any faculty within either institution as resources to meet students' needs;
- Flexible, even customized, programs that can respond to changing students' or societal needs;
- Varieties of learning models with students using technology as and when they need and utilizing the web and other modes of e-learning as their circumstances (geographical, family, work etc.) permit;
- A focus on the student rather than the program and the individual rather than the class in structuring faculty and other resources;
- The potential for "just-in-time" learning for continuous professional growth and development throughout an individual’s career and better provision for career transitions;

- The idea of a life-time "membership" of, or association with, York/Seneca rather than a three or four-year period of residency (and fee structures that match such an idea);
- A seamless transition from school to work to school and back again throughout a career.

Both York and Seneca are a long way from this kind of operation. What concerns me however is that I fear there is little desire to think through these issues on the part of many of our colleagues. I would like to conclude therefore with a few thoughts about how the TEL Institute, constituted as a joint venture between York and Seneca, could provide some leadership in this direction.

The TEL Institute – A Vision

When the TEL building was planned, York University and Seneca College collaborated in creating a new joint institutional structure: the York/Seneca Technology Enhanced Learning Institute (TELi). To date, the role of TELi has not been widely discussed[1] and so I am sticking my neck out by proposing that it take the lead role in moving both York and Seneca towards a new vision of higher education.

I believe that TELi could have several interrelated functions:

- an *incubator* for new and redesigned programming for learners that utilizes technology-enhanced learning;
- a *catalyst* for change within the broader university and college through the first part of the 21st century;
- a *laboratory* for research (IRLT) and a *think-tank* for deliberation over new ways through which postsecondary education and training can meet the changing needs of society in the 21st century.

I am suggesting that TELi be permitted to function partly within the existing structures of York and Seneca and partly outside of them (the details will need to be carefully worked out) as a large-scale pilot for new forms of postsecondary education.

[1] An earlier version of this paper (May 2000) was prepared as a proposal for TEIi but not widely circulated.

TELI as incubator

The primary function of TELi could be to serve as an incubator for E-learning projects around discrete clusters of knowledge and skills (usually but not necessarily) related to a career path or group of occupations. These could be in such diverse areas of corporate law, biotechnology, science education, etc. In this mode, TELi would provide the technical facilities and know-how to develop technology-enhanced learning materials, to manage the learning experiences of groups of learners, both physically present and/or working n remote locations, and to support groups of faculty in developing new approaches to learning. ABEL is an example of just such a project. At any one time, TELi might be "home" to several such projects, each of which might draw faculty resources from different departments at both York and Seneca. These projects might be working primarily at first degree level, at graduate degree level, or on some combination of these. The intention would be that eventually, such projects would develop sufficient experience and strength that they could become reintegrated into either old or new units at York and/or Seneca, thus making space for new projects.

TELi as catalyst

Through the process of incubating such innovative projects, TELI would also be catalyzing change in other parts of both Seneca and York. It already serves as the "home" for such units as York's Centre for the Support of Teaching or Seneca's Faculty Development program. It would be the unit with the mission to develop understanding of E-Learning throughout the university and college, since most of the faculty involved in projects at TELi would also retain membership in their "home" faculties and departments, much as they do when they join organized research units. TELi could also become a catalyst for change in other educational institutions through contracting its specialist expertise to other postsecondary institution and school boards.

TELi as laboratory and think-tank

There is obviously insufficient research into both the pedagogy of technology and the institutional requirements to enable E-Learning to flourish. IRLT, operating within TELi, can be the laboratory through which faculty can experiment and study the effects of their work on both the learners and the communities in which they operate. TELi can also be the think-tank in which the changes to postsecondary education that need to take place can be conceptualised and debated.

Conclusion

Whether or not my ideas for the future development of TELi gain any attention, the issues that gave rise to them will not be going away. Technology has the power to enhance learning. But it also has the power to make the structures in which learning has traditionally been housed obsolete. If we, as the members of the York and Seneca communities who understand the power of this technology, choose to stand by, then we may become victims of the very technology whose arrival we celebrate in this building. Alternatively, we can be the catalysts in our institutions that will see them become truly higher education leaders of the 21st century.