Entering the Fifth Generation of Distance Education: a Case Study of Athabasca University

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Biography

David Annand, EdD, MBA, CA, was employed as a public accountant for eight years before starting his academic career in 1987. He has been a professor of accounting with Athabasca University for thirteen years, responsible for several undergraduate financial accounting courses offered by the School of Business. In 2002, he assumed the position of Director of the School. He continues to teach in the Athabasca University MBA program. His research interests include the educational applications of computer-based instruction and computer mediated communications to distance learning, and the effects of online learning on the organization of distance-based universities. His website may be accessed at http://www.athabascau.ca/html/staff/academic/ccas/davida.htm. He is married with five children aged from 7 to 18 years. He and his family live in a village about 100 kilometres north of Edmonton, the capital of the province of Alberta. They enjoy the rural lifestyle of northern Alberta.
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Abstract

This paper reviews some trends impacting global demand for university education, describes several forces for organizational change operating at present within the academy, and reviews the evolution of distance education in the 20th century. A case study of the School of Business at Athabasca University illustrates how a combination of technological innovation and alternate organizational structures characteristic of many distance-based universities can inform more effective models of university education worldwide and reconceptualize our understanding of the academy. In the process, the distinctive hallmarks of universities need not be relinquished.
Introduction

Creative thinking may be simply the realization that there is no particular virtue in doing things the way they have always been done.

R. W. Emerson

Moe (2002) reported that at present there are about 15 million students enrolled in about 4,100 US colleges and universities. The need for university-educated workers in America has increased significantly over the last 10 years, from 45% of the total adult population in 1991 to about 65% at present. This demand for university graduates remains largely unmet, as indicated by the salary gap between male high school and college graduates. In 1971, US college graduates on average earned 47% more than high school graduates. By 2001, this had increased to 112%. Partly in response to these market signals, the percentage of US college students over the age of 25 increased from 28% in 1970 to 43% in 2000. Still, less than 25% of US adults ages 25 and older have at least a Bachelor’s degree.

In Canada, the situation is similar. The US and Canada are only two of 10 countries that presently provide a college education to 1/3 or more of their college-age populations. The number of Canadians with university degrees grew by 39% between 1991 and 2001, more than 2.5 times faster than the growth of the country’s adult population. Yet over the same period, student fees jumped 126% as costs outstripped government funding and demand for university education remained strong. In real dollars, US and Canadian university tuition has roughly doubled every ten years over the last several decades, and this appears to be a continuing trend.

The likelihood of increased demand for university education is even more pronounced in the rest of the world. Globally, there are about 84 million students attending 20,000 colleges and universities, but 160 million students are estimated to require access to higher education by 2025. This demand will be particularly strong in the Far East, where the skilled white collar segment of most Asian countries’ working populations is growing in excess of 2% per year.

Demographics indicate that absolute numbers of students, the number of students as a percentage of total population, and average age of students will increase over the next 25 years.
Population growth, increased economic activity, and growing demand for white-collar workers will create an unequalled demand for higher education.

Ramifications for the Academy

These trends clearly indicate the need for significantly expanded access to university education in the future. Duderstadt (1999) noted that growth in worldwide demand for higher education, growth in educational competition, and the inability of current organizational structures to serve the needs of many students means that higher education will likely evolve from a loose federation of universities and colleges serving locally-based students to a knowledge industry, in which constituent organizations will span the globe. Governments will not control the higher education industry, but it will respond to the forces of the marketplace.

Yet at present, the organizational structure of traditional, campus-based, publicly funded universities is ill-equipped to handle these forecast changes. After years of reducing nonacademic staff, increasing student-faculty ratios, deferring physical plant maintenance, and eliminating sports teams, Winter (2003) noted that many public US universities have now begun reducing faculty.

US and Canadian universities are also faced with plateaued or in some cases decreased government funding. Symonds (2003) noted that undergraduate enrolment in the US is up 8% since 1999, yet there are widespread instances of reductions in government spending. In response, tuition fees have risen steadily. This does not appear to be a long-term solution, however. Some US and Canadian students are now moving to Europe where more classes are available, or to third world countries where the credit is transferable to home institutions and tuition is cheaper.

As both Uchitelle (2003) and Clayton (2003) observed, increased fees also put more pressure on governments to end the quasi-monopoly of publicly-funded universities to certify higher learning outcomes. Gilbert (2001) noted that forays into higher education by for-profit entities exploring novel uses of electronic technology to teach and learn are in their infancy. Continued technological developments, coupled with the massive unmet demand for university
education and traditional universities’ general unwillingness to explore new pedagogies organized in novel ways, will only encourage the formation of more corporate universities. This would be unfortunate, Gilbert suggested. These organizations tend to be intellectually and culturally impoverished, not because they are commercially oriented, but because their objectives are narrowly focused.

This tendency may ultimately preserve publicly-funded Canadian and US universities in some form. The academy’s historical use of reasoned, disciplined enquiry as the essential tool in the pursuit of truth often results in unpopular critiques of dominant paradigms and values. This, coupled with the traditional and widely-accepted university role as a repository of the best that is known and thought in the world, may somewhat curtail the impact of commercial entities on higher education.

However, at present the twin spectres of increased corporatism and reduced public funding for higher education mean that administrators and faculty will be forced to examine the means by which value is created and retained by publicly-funded institutions. The general organizational structure of universities has not yet been significantly affected by rapid technological change. In most cases, university education continues to revolve around fixed start and end dates, cohort-based learning, a craft-like approach to learning, and consequent limited economies of scale.

It appears that a significantly different organizational forms are needed to accommodate these joint pressures of growing demand, rising tuition, and limited public funding within the US and Canadian university system. A review of the evolution of online and distance education in higher education might indicate how traditional universities’ organizational structures will change in the future in response to these environmental pressures.

The Evolution of Distance-based Learning

According to several writers, distance education has evolved through several distinct phases. Taylor (2001), for instance, characterized the first generation of distance education as the Correspondence Model. This employed carefully-structured printed material as the chief
instructional medium. The second generation, or Multimedia Model, introduced material like audio and video tapes, computer-based learning, and interactive video disks into the learning process in addition to printed material.

Peters (1983) argued that these first and second generations of distance education introduced forms of industrialized processes to education. They incorporated division of labour, managerialism, and mechanization, for instance, as well as capital intensive technology and an assembly-line mindset to education. Instructional tasks like curriculum design, content preparation, student support, formative assessment, and examination were divided up so that these could be undertaken by different people. With this reliance on the printed instructional package, distance education necessarily became less subjective and craft-like than traditional, classroom based university education.

However, Taylor’s third generation, the Telelearning Model, altered this delivery model by introducing audio- and videoconferencing, and broadcast technology. This introduced more direct human contact into the distance education process between teacher and learner and among learners, and somewhat weakened criticisms of the extant distance education process.

Perceptions of distance education’s efficacy were also improved with the introduction of what Taylor termed the Flexible Learning Model – distance education’s fourth generation. This model featured online delivery of interactive multimedia, access to World Wide Web resources, and perhaps most importantly, computer-mediated communication (CMC). This latter feature enabled educators to introduce a hitherto missing element into the distance education process – digitally-mediated, asynchronous interaction among learners and between teacher and learner. CMC allowed learners and instructor to be separated in both time and distance, and yet still maintain interaction forms that in essence reflected those that occur (at least ideally) in traditional university classrooms.

The advent this fourth generation signaled to many the coming-of-age of distance education as a legitimate form of higher learning. As Garrison (1997) noted, asynchronous communication enabled more constructivist forms of learning and allowed learners to communicate in writing. This encouraged more reflection, and disciplined and rigorous thinking.
This, he argued, helped learners to make connections among ideas and to construct internal, coherent knowledge structures.

The fourth-generation model has also made it possible, at least in theory, for universities to evolve into virtual organizations – the defining characteristic of fifth generation distance education models according to Taylor (2001). Taylor’s Intelligent Flexible Learning Model incorporates fourth generation features, but adds systems that streamline course production and student services. These permit multiple types of media outputs from a single source document, and provide student access through online portals to automated business processes and academic advice, for example.

Taylor argued that compared to the traditional classroom experience, distance education now has the ability to provide superior service to students in all aspects of their university learning experiences, yet significantly decrease the associated costs. By enhancing the ability of systems to be adapted easily to a variety of virtual settings, economies of scale can be realized. Individually-tailored services can be provided to an increasing number of learners with the same economic resources. This is chiefly accomplished by reducing the need for direct, human interaction in the teaching and learning process. As an exemplar, Taylor described the University of South Queensland’s e-University project. Even though CMC is a prominent pedagogical feature of the system, these interactions create value for the institution when they are essentially repurposed. Selected interactions are stored in a searchable relational database, accessed by keyword searches, vetted by tutors, and used as a means to respond efficiently to future, similar student queries.

Development of this new generation of distance education rekindles an old debate: To what degree can the historical, or as Daniel (1999) opined, the “cottage-industry” model of traditional university education, be supplanted by new, more responsive incarnations of Peters’ industrial forms of distance education that extend the benefits of direct (face-to-face) human social and cognitive interaction - generally perceived as hallmarks of higher education - into the virtual environment? This is the quintessential question facing the academy, given growing demand for university education worldwide, and society’s increasing demand, directly and
through government agency, for increased value for privately and publicly-expended educational funds.

Many proponents of online education argue that this debate is now settled. Taylor’s fifth generation learning model may create for the first time in the virtual learning environment two key attributes that accounted for the initial successes of distance education – flexibility for students and value creation for the institution, primarily in the form of reduced costs compared to traditional, campus-based universities. This time though, Taylor asserts, “. . .fifth generation distance education is not only less expensive, it also provides students with better quality tuition and more effective pedagogical and administrative support services” (p. 10).

And yet, despite the very real possibility of fundamental improvements in the cost-effectiveness of university education and in the face of mounting pressures from government and the for-profit sector, most publicly-funded universities still appear unwilling or unable to change the way that they operate in any fundamental way. As Symonds (2003) noted, rapid technological change, the rate and extent of which will likely increase in the coming decade, has created economic and social upheaval in virtually all sectors of the economy except education.

Similarly, Duderstadt (1999) argued that growing demand for higher education cannot be met within a controlled paradigm like the present university system, and that overall, university cost structures are incapable of responding to growth. These problems, combined with a worldwide entrepreneurial culture, the growing correlation between education and quality of life; and the increasingly strategic role of knowledge in determining the prosperity and security of nations, threaten the virtual monopoly of not-for-profit universities over the certification of higher learning.

With the foregoing as context, the next section of this paper discusses the evolution of online learning in the School of Business at Athabasca University. The purpose of this case study is to illustrate how the confluence of technology and economics has effected organizational change in this educational unit and in increasing measure, throughout the University. These changes may be indicative of a major, underlying shift in the way in which university education will be conducted throughout the world in the future, and provide additional evidence of the
feasibility of the fifth generation model of distance education to provide university learning that is superior both pedagogically and economically.

Overview of Athabasca University

Athabasca University is located in Alberta, Canada. Since its formation in 1975 as Alberta’s fourth publicly-funded university, its mission has been to reduce barriers that traditionally restrict access to university-level education for adults in Alberta, in Canada, and throughout the world. To accomplish this, the institution has adopted open access policies in its undergraduate courses – for instance, offering courses almost exclusively by distance or online education, admitting any adult regardless of prior education, arranging comprehensive transfer credit arrangements with other educational institutions, and pioneering work in prior, non-formal learning assessment for university credit. The University offers undergraduate programs in humanities, social sciences, science, business, and nursing. It offers graduate programs in business, distance education, health studies, and integrated studies.1

Like traditional classroom-based campuses, graduate courses offered by the University generally have fixed start and end dates. This allows a greater degree of student-to-student interaction through computer-mediated communication, for instance, but reduces the amount of time and place flexibility available to learners. Undergraduate courses provide a greater amount of freedom. Students can start “individualized study” courses at any time during the year at a location of their choosing. They can complete a course at any time within a six month contract period. These features allow Athabasca University undergraduate students, most of whom have work, family, and other obligations, to complete university courses at their own pace.

During the year ended March 31, 2003, over 26,000 students registered in about 45,000 undergraduate and graduate courses. These figures have almost doubled over the past seven years. Undergraduate course registrations have grown at a compounded rate of about 13% per year during this period. Graduate course registrations have increased even more dramatically from about 7% of total course registrations to over 13% during the same period. However, graduate programs use net resources of the University. Thought they are significantly funded by

1 See http://www.athabascau.ca/ for more information about Athabasca University.
tuition fees, graduate programs are currently subsidized by about $500,000 per year from excess revenues generated by undergraduate course registrations.

For the year ended March 31, 2003, the University received approximately Cdn $21 million in government funding. However, this funding is only loosely tied to enrolment growth. It is also based on other key performance indicators like number of graduates. As a result, the University receives a smaller percentage of its total revenue from government each year and becomes more reliant on tuition fees as it grows. Operating grants received from the government have shrunk from over 78% of total grants and tuitions fees to about 40% in just seven years. The growth in net revenue generated by undergraduate course registrations is an essential means for the University to fund future expansion, even though undergraduate tuition fees across all Alberta universities are limited by government policy to a maximum 30% of total operating expenses.

Despite in effect the steep decline in per-registration funding by the provincial government, Athabasca University undergraduate tuition is still the lowest in the province – about Cdn $541 per three-credit course for Alberta residents, and Cdn $790 for foreign students. This includes an average of Cdn $150 for all necessary textbooks and instructional materials. Unlike most other North American universities’ tuition policies, all instructional materials are included as part of Athabasca University’s course registration fees.

Undergraduate course registration fees also cover the direct costs of full- and part-time faculty. Undergraduate enrolment growth and the concomitant increase in net revenue from tuition fees have enabled the University to finance its growth. This in turn is enabled by the economies of scale that are inherent in the University’s model of distance education.

Predictably, these processes still exhibit many of the industrialized production characteristics described by Peters (1983). The institution continues to mass-produce standardized, carefully-structured instructional media, and to differentiate course development, production, and instructional labour processes in order for instructors’ knowledge and skills to be transmitted in a cost-effective manner to a large number of students. Duties that would normally be performed by one classroom instructor are instead distributed among several members or units within the organization, and technology supplants many of the instructional techniques of
face-to-face instruction. This process incurs relatively high fixed costs compared to campus-based university education, but low per-enrollment variable costs in the form of academic support to students. As a result, increases in enrollments create significant additional net revenues that fund growth of related, necessary infrastructure.

The relative efficiencies of this university education model are apparent when the university is compared with the largest campus-based university in the province, the University of Alberta. Athabasca University’s operating budget is about Cdn $60 million, or 10% that of the University of Alberta. The University of Alberta has about 25,000 undergraduate full-time learning equivalents (FLEs\(^2\)). This amount is now essentially capped. In comparison, Athabasca University served about 3,000 undergraduate FLEs in the 2002/03 fiscal year. These are increasing each year. The University of Alberta receives about 70% of its revenue from government grants. This percentage remains relatively stable each year. As noted above, Athabasca University’s operating grants received from government as a percentage of total revenue is about 40% at present and declining. Salaries and benefits comprise about 50% of operating expenses at the University of Alberta, versus about 80% at Athabasca University. This discrepancy primarily results from the need to operate the proportionately larger physical plant at the campus-based University of Alberta.

Despite these cost efficiencies, there are significant challenges to the way in which the University delivers its courses and programs. Athabasca University’s evolution from primarily print-based instructional material to online, interactive courses has been very gradual, and remains in its infancy in many disciplines. While there are several initiatives underway in various academic centres, these have tended not to be fully funded from central University revenues, or done on a haphazard basis. One of the most advanced centres in terms of online course development is the School of Business. The evolution of online course development and delivery within the School is described below.

\(^2\) One full-time learning equivalent is equal to 10 course registrations.
The School of Business at Athabasca University

The School of Business offers two undergraduate business degrees. Undergraduate course registrations account for about 13,000 annual registrations, or over 1/3 of the University’s total. At present, there are about 25 full-time faculty members in the School, over 70 part-time markers and academic experts, and about 20 full-time professional and support staff.

Under the normal tutorial delivery model at the University, part-time tutors are responsible for all aspects of interactions with a small, pre-determined number of students. Students are able to directly interact with an academic by telephone during a three-hour period each week. E-mail is increasingly used as well. In 1994, the first of several technological innovations was introduced by the School when it replaced the traditional tutor model with a “Call Centre” model.

As Huber, Michalczuk, & Connolly (2003) described, the Call Centre is designed to increase student access to administrative and academic support. Instead of the traditional one-on-one tutor-student relationship limited to a three-hour period each week, students can now call or e-mail “undergraduate student advisors” who are available approximately 60 hours per week. These advisors are familiar with the general administrative operations and policies of the School and University.

The Call Centre handles all initial academic, administrative or technical inquiries from all School of Business students. Academic queries are posted to a database that course-specific “academic experts” access on a regular basis. These experts then contact students. However, about 80% of all student calls are administrative or technical in nature, meaning that the undergraduate student advisors are able to answer these directly. “Frequently-asked question” databases are also available to students and facilitators to answer some academic queries. Appendix 1 illustrates the Call Centre concept.

The technology to support the database and communication features of the Call Centre is provided by Lotus Notes/Domino software. This groupware gives the School the ability to develop flexible, shared, and secure databases. Student questions are recorded, whether submitted by telephone, e-mail, or online form. Responses are also stored within the system and are generally
based on information from the knowledge library. The full history of any student or other user contact can be retrieved from the related database.

As well as improving various aspects of student service, the introduction of the Call Centre reduced the School of Business annual delivery costs by about $100,000 per year. These savings primarily resulted because prior to this, tutors received the same amount of pay regardless of how busy they were during their designated three-hour contact period. In fact, utilization rates of offsite tutors turned out to be relatively low. This inefficiency was eliminated by introducing the Call Centre. Activity levels are now able to be monitored and undergraduate student advisor staffing levels are adjusted accordingly. Academic experts are paid according to total amount of actual student contact time per month, not on availability.

The related financial savings enabled the School to build on the Lotus Notes/Domino technology used by the Call Centre to develop an integrated Web-based learning environment. This process started in 1998. Several Call Centre features like the frequently asked question database, email, and computer-mediated communication capabilities were directly incorporated from the Call Centre model into the online course delivery model.

In concert with the strategic direction adopted by the University in 2002, the School of Business began to provide only online-based learning material in new or revised courses, excluding textbooks purchased from outside publishers. The online learning environment includes links to external websites, computer-based instruction modules, streamed video clips, and electronic textbooks in a growing number of cases.

A student portal has been introduced. This provides a personalized page where students can sign in, view the courses they are enrolled in, review their marks, link to resources used within their courses, contact the Call Centre, register for exams, view information updates, and chat with other online students. There are standard navigation features for each course that provide a consistent look and feel for students.

Commencing in 2001, the School of Business developed an electronic exam writing and administration system. Students can access and write the exams from anywhere in the world.

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3 See http://www.athabascau.ca/sup/sup_19_06.doc
using a standard Web browser. As well as automating or simplifying the process of handling
exams from generating tests to recording final marks in the University’s student record database,
the system also provides a secure, invigilated exam writing environment. The invigilation network
includes a large number of locations in Canada and now spans the world.

Technological innovations have affected not only the way students’ learning experiences,
but also the way that learning material is developed. Over the same approximately six-year period
that the Call Centre and the online learning systems were introduced, the course production
system has been gradually revamped. All course writing, editing, graphic design and other related
production functions are performed online. A multimedia instructional designer and several web
developers have been hired to incorporate more appropriate online learning features into the
courses as they are developed. As part of this new instructional design, the amount of text is
being reduced and replaced by animations and graphics, for instance. Reusable learning objects
and online library resources are being incorporated to enhance interactivity.

Currently, School of Business courses are authored in Microsoft Word, as course authors
and editors are familiar with the software, it is simple to use, and files can be easily transferred
and exchanged. Once a course is authored and edited, the materials are formatted for the Web
with a customized Lotus Notes template. As well, the template presents University information
(e.g., policies and procedures) that is standard from course to course. The important feature of
the template is that it saves time when this information must be updated. Changes are made
once and applied to all active online courses. Most course content material within the online
course is static, and should not change while the course is active. Dynamic areas are designed
into the template for academic professors and instructors to post updates, comment on current
events, and provide supplementary readings. Some courses also use a digital “reading room” to
link to ancillary resources like external Web sites, or online articles housed in the Athabasca
University library.

Electronic assignment submission is becoming increasingly popular with students.
However, increased use and size limitations of free web mail accounts meant that in the past
some students did not receive messages with marked assignments attached. Delivery failure
notices were also neither sent nor received, so students were left without feedback on their assignments. To overcome this, a marking site has been designed directly into each course that allows students to easily submit electronic assignments and have these routed to applicable markers. After marking, these assignments are returned to the marking site. A notification is sent to each student, allowing the marked assignment to be retrieved and reviewed. This eliminates the need to send marked assignments as e-mail attachments, with its attendant problems. The assignment database has significantly improved this aspect of online course management because all student assignments for a particular course are housed in one place. In addition, it has reduced costs by eliminating the need for administrative staff to manually route assignments.

In sum, the introduction of the Call Centre and changes to the online learning course production and delivery systems described above have automated or streamlined various teaching, development, and administrative processes within the School of Business and related support units like Registry Services. A key to successful implementation and continued use of each innovation has been that per unit labour costs have been reduced, and economic benefits in terms of money or time saved have exceeded costs. At the same time, student service standards have been maintained or improved.

However, there are acknowledged benefits to paced, online learning – in particular increased group discussion and knowledge-building exercises. Because of the use of "individualized study" courses in undergraduate courses, collaboration among students is difficult. By definition they do not belong to a cohort and their courses are designed to be self-paced. The facilitation, monitoring, and evaluation of interactions among these independent learners are the last, major pedagogical hurdles to overcome at present. To maintain the flexibility and cost effectiveness of individualized learning, and yet provide a means for students to share information and participate in peer-to-peer reflection and interchange, the School of Business is developing the ASKS (ASynchronous Knowledge Sharing) information system. This is fully described by Ngwenya, Annand, Wang, and Southgate (2003).

ASKS permits adaptive guidance, instructor immediacy, and collaborative learning in an unpaced learning environment. It also addresses some of the problems associated with group
participation in any online environment. First, the system enables the instructor to build a repository of model responses that can be easily incorporated into tailored feedback for students. Second, the system allows the instructor to evaluate each contribution efficiently. Meaningful, tailored feedback can be constructed for each student from an existing database. Individual student contributions can be quickly evaluated. The instructor does not need to recall either the frequency or quality of prior contributions from a particular student. This reduces the subjective element common to the evaluation of online discussions.

From the student’s point of view, the private workspaces built into ASKS allow individual students to create a permanent record of their ideas on a topic. ASKS also removes the advantage for students who make early submissions to online discussions. Generally, participation by students in online discussions is a mutually exclusive exercise. Once a point is mentioned by one student, others are prevented from making the same one. ASKS solves this problem by enabling the instructor to evaluate each students’ submissions in a private workspace. However, group knowledge building is facilitated because students are given access to other cohort members’ submissions following the instructor’s evaluation. Students can view the cohort’s common pool of submissions, critique these, build on this knowledge to create new ideas, and submit these for evaluation and further knowledge sharing.

When this last feature is fully implemented, fifth generation online learning systems like the one developed within the School of Business will allow students to realize the many pedagogical advantages of independent study, like flexibility, yet still participate in collaborative and knowledge building group learning processes that are hallmarks of campus-based university education experience.

Conclusion

This paper has described the outlook for global university education in the 21st century and the five-stage evolution of distance education during the 20th century in response to various technological developments and environmental imperatives. Duderstadt (1999) noted that in the 21st century, a number of new themes will likely characterize higher education. These include a
shift to learner-centered institutions from faculty-centred ones; development of more affordable, widely-accessible education systems; a desire for learners to learn throughout their life; the ability of learners to access multiple levels of education rather than proceeding in lock step fashion from one level to another; learning that can take place any time and at any place; more interactive and collaborative learning; increasing diversity of the university population; and perhaps most importantly ubiquity: a perception that civilized societies should provide their citizens with the education they need throughout their lives. Because of these imperatives and its ability to provide increasingly high quality learning experiences efficiently, fifth generation distance-based university education may be able to supplant traditional classroom-based university education as the premier form of higher learning even within the next decade. As this process unfolds, significant pressure to change will be exerted on university systems worldwide—organizations that up to this point have generally resisted fundamental change.

Jennings (1995) noted that with the widespread adoption of technology-based distance learning, the organization and management of learning - rather than technological and pedagogical issues – are the principal challenges that need be addressed for effective learning to occur. Mature distance education, he stated, consists of reorganizing educational resources into a total delivery system, not adding new technology to old ways of organizing teaching and learning. Bates (1999) stated that strategic planning questions about the use of online learning environment in education have to work in a context of constant and accelerating change that demands flexibility in the organizational design of the applicable institution design. As such, the use of technology needs to be embedded within a wider strategy for teaching, learning and service.

In order for the publicly-funded universities to retain their premier position as provider of education to the large majority of students as well as their virtual monopoly on certification, the question is not whether the academy can change, but whether it will. The Athabasca University School of Business online learning environment has been proposed as one possible model for a necessary, new type of university structure. In terms of both organization and method of delivery, this type of education is significantly different from that of the traditional academy, and arguably
superior in virtually all aspects. The fifth generation form of distance learning that this represents appears able to meet the future higher education needs of citizens worldwide.
References


Appendix 1

Schematic of the Athabasca University School of Business Call Centre

Courseware Databases

GWI c. Support

Students

Assigns/Exams

Professors

Academic Experts

Production

Support Services

Markers