

THE VIRTUAL UNIVERSITY

Models &
Messages

Lessons from
Case Studies

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Athabasca University, Canada

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An evolution of an existing institution



United Nations
Educational, Scientific and
Cultural Organization



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List of abbreviations

AU	Athabasca University
CIM	Centre for Innovation Management
CVU-UVC	Canadian Virtual University-Université Virtuelle Canadienne
ISP	Internet Service Provider
MBA	Master of Business Administration
MDE	Master of Distance Education
SUP	Strategic University Plan
UDEM	Universidad de Monterrey

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1. Athabasca University and its context

Established in 1970 as the Province of Alberta's fourth public university, Athabasca University (AU) is a single-mode institution that in 2002/03 provided online and distance-delivered undergraduate and graduate university-level courses and programmes to some 30,000 students.

Athabasca University has evolved from a primarily print- and telephone-based distance education model to an increasingly online learning environment. Partially as a result of this transformation, enrolment has more than doubled since 1995/96, and it is anticipated that AU will serve well in excess of 50,000 credit-seeking learners by 2010. This has been, and will be, achieved in spite of a significant drop in public funding of the post-secondary sector; per-student operating grants now represent (without taking into account inflationary adjustments) less than half of what they did in 1994/95.

Online learning got under way in 1994 with the opening of the University's first graduate programmes, an online Master of Distance Education and an electronically delivered Master of Business Administration, both of which were also the first online university programmes of their kind in North America. In contrast, the undergraduate curriculum (some 350 courses at that time) was essentially print-based with telephone support, though some pioneering academics were exploring online enhancements to their courses.

The early and mid-1990s also represented a very difficult period for AU, with government questioning the value the University added to the provincial post-secondary system. In the face of very difficult financial times, serious consideration was being given either to its closure or amalgamation with another (traditional) university. In an effort to revitalize the University and to demonstrate its significance, AU adopted in January 1996 a Strategic University Plan that emphasized, *inter alia*, two complementary strategies: on the one hand, becoming a leader in the application of digital communication systems to individualized distance education; and on the other hand, a renewed commitment to serving students.

During the period since 1995, AU has evolved into an online university. Even though its social mandate and concern with removing barriers to learning require it to continue to serve many undergraduate students via older distance education models, many of today's 550-plus courses that the University offers are online, and all courses incorporate electronic communication options.

In the context of these tremendous changes, and the concomitant doubling of both its enrolment and full-time staff since 1995, AU has embraced a new strategic planning process that sets goals, objectives and strategies through to 2006. Central to this discussion was the renewal of the principles and values that have guided AU since its infancy. The University's Mission Statement now reads:

Athabasca University, Canada's Open University, is dedicated to the removal of barriers that restrict access to, and success in, university-level studies and to increasing equality of educational opportunity for adult learners worldwide.

We are committed to excellence in teaching, research and scholarship, and to being of service to the general public. (Athabasca University, 2002)

This reaffirmation of the coupling of AU's educational and social mandates is most significant, coming as it does at the very time when the environment in which the University operates is characterized by reduced public funding, global competition, increased opportunities (as a result of e-learning applications) to focus on more advantaged learners with the ability to pay more for their ongoing education, and the emergence of a strong for-profit sector.

1.1 International context

Whereas AU historically has engaged in one-off international projects, generally providing assistance to developing countries (e.g. Thailand, Sri Lanka) through the auspices of the Canadian International Development Agency, the last few years have witnessed increased international activity that has focused on the independent and/or joint delivery of courses and programmes abroad. Since 1999, some 1,000 to 2,000 international students have enrolled at AU per year, and while a significant number of these registrations originate in the USA (more than 500), the other international students reside in about 70 different countries.

The online environment, the increasing facility that non-native English speakers have with English, and the phenomenon of borderless education that characterizes today's global educational environment have led AU to develop a strategic international plan that advocates a coherent, multi-faceted approach for the institution's role in the global higher education context.

First, and of paramount importance, is the recent decision to consider the USA as part of the University's primary market and to seek regional (and hence national) US accreditation. For AU, servicing the post-secondary American learner through online education originating in Canada is only marginally more difficult than providing quality courses, programmes and support services to Canadian students. Unlike the failed USA Open University initiative of the British Open University (which was obliged to reinvent itself, its products, and its infrastructure in order to penetrate a different market), AU can expand into the American market by building on its existing academic, support and administrative systems. The University thereby acts not only on its commitment to remove barriers that impede access to higher education, but it does so in a manner that will also result in a significant improvement in the University's financial position through economies of scale.

The second, complementary thrust of the University's international strategy seeks to position AU as a world-class open university through its international reputation for online learning models and research, and its institutional affiliations and globally dispersed student body. The newly enacted Strategic University Plan (SUP) is committed to: (i) increasing registrations (through its website) by internationally located students who possess appropriate English-language skills, and who deem the primarily North American curriculum to be appropriate for their needs; (ii) entering into limited and selective partnerships not only for delivering courses and programmes, but also for increasing collaborative research in open and distance learning; and (iii) engaging in select international development and training projects, thereby developing its international reputation and fulfilling part of its social mission as a publicly funded open university (which is in sharp contrast, in this regard, to its for-profit, global competitors).

Achieving these objectives does not represent a goal in and of itself. International expansion, and the interrelationship of borderless education, research and reputation, are primarily about

providing quality learning opportunities for AU's domestic market, and failure to brand the University in this way in the face of increased competition (both at home and from abroad) would in fact place AU's longer-term future as Canada's Open University at risk.

1.2 National context

In recognition of AU's increasingly out-of-province student population, the Province of Alberta revised the University's mandate in 1999 with a view to reflecting its national and international reach, and asserted that:

Athabasca University is a board-governed open university committed, through distance education, to increasing accessibility in Alberta, throughout Canada, and internationally to university-level study, and to meeting the educational needs of the workplace ... (Athabasca University, 1999).

Since higher education is a provincial responsibility in Canada, AU finds itself in the somewhat difficult position of serving mostly adult learners whose provincial and federal governments do not contribute to the cost of the services that AU provides. While the Province of Alberta has accepted this, the fact that more than 60 per cent of the students enrolled at AU reside out of province requires continuous justification. Key to appeasing the provincial government are the following factors: (i) no Alberta student is ever denied registration in a course because of non-Albertan status; (ii) out-of-province students contribute significantly to the institution's various economies of scale, and since their tuition fees more than offset all variable costs encountered in serving them, they are net contributors to the University's fiscal position; and (iii) the provincial economic impact of generating fees out of province and spending the revenue on goods and services within the province is considerable.

Notwithstanding its unique national role in online learning, AU struggles to gain appropriate national recognition as a key policy adviser. The popularity of online education, both with all levels of government and within the private sector, and its promise as a partial solution to the skills and learning needs of Canada's workforce are engendering significant debate on the creation of national policies and funding opportunities for the development, delivery and research of e-learning. With large product development and research dollars at stake, Canada's traditional university system is finally showing considerable interest in distance and online learning. Given their strong ties to government, traditional disciplinary research-intensive universities are well positioned to contribute to these policy and financial discussions, albeit their experience is only in indirectly related, traditional, academic work. Perhaps the best example of this was the creation in 2000 by the federal government of an Advisory Committee for Online Learning, which included in excess of twelve university and college presidents. Not one of the presidents, however, came from any of the several important single distance-mode educational institutions in the country.¹

A second, equally important initiative by the federal government was the establishment of the National Broadband Task Force in early 2001 to 'advise the Government of Canada on how best to make high-speed broadband Internet services available to businesses and residents in all Canadian communities by the year 2004' (Government of Canada, 2000). The task force

¹ This committee published the report 'The e-learning e-evolution in colleges and universities: a pan-Canadian challenge', February 2001 (<http://www.cmec.ca/postsec/evolution.en.pdf>), though its impact on policy, practice and research has been very minor.

recommended later that year, *inter alia*, that connectivity should be a priority for federal, provincial, and territorial governments.² However, the inability of the federal government thus far to invest in the infrastructure that is necessary to meet its earlier commitment has resulted in a decentralized (and less consistent) approach, with the provincial governments assuming a greater responsibility for their geographic area. In this regard, the Province of Alberta leads the way through its SuperNet project, which should make Alberta the most wired jurisdiction in the world.

In addition to connecting every library, school, hospital and provincial government office to a high-speed, broadband network, SuperNet will make broadband services available to commercial service providers, who will provide competitive services to businesses and residences in rural and urban areas.³

Notwithstanding provincial differences and delays in implementation, Canada is building on its strong foundation of Internet-connected homes and businesses (it is the second most wired country per capita) and developing a broadband infrastructure that positions it as a world leader in the information communication technology infrastructure required to support online learning.

A third recent initiative by the national government to elevate the importance of online learning is embodied in the 2002 discussion paper 'Knowledge matters: skills and learning for Canadians'. In the section on post-secondary education and lifelong learning, this publication promotes e-learning applications as a key strategy for addressing current and future accessibility issues, and holds up Athabasca University as exemplary insofar as the comparable quality of face-to-face and online learning is concerned.⁴

² The complete report is available at http://www.broadband.gc.ca/Broadband-document/english/table_content.htm.

³ <http://www3.gov.ab.ca/innsi/supernet/news.html>

⁴ <http://www.innovationstrategy.gc.ca>

2. Creation, organization and current programmes

2.1 Creation

Initially conceived in 1970 as a non-traditional yet campus-based undergraduate institution that was to focus on arts, science and education, AU experienced a very troubled infancy when a change of government in 1971 questioned the need for a fourth provincial university (Hughes, 1980). Primarily through the efforts of the founding President, Dr T. C. Byrne, the new government agreed in November 1972 to fund a pilot project that sought to explore and test the use of learning systems and technology (i.e. distance education) in the provision of university-level education in arts and sciences to adults. The primary selling point for government seems to have been the economics of the model and its potential for wider application in the Alberta education system (Byrne, 1989). In 1975, satisfied with an evaluation of the pilot project, the Alberta government indicated its intention to approve the permanency of AU, but did not act on this until 1978.

Political uncertainty affected the development of AU throughout this period and continued in the early 1980s when the government announced that the University would be relocated from temporary facilities in Edmonton (a city of some 500,000 at that time) to a new campus in Athabasca (a town of 2,000), 130 kilometres north of Edmonton. This political decision led to the immediate resignation of both the University President and the Chair of the Governing Council. Nevertheless, by 1984 AU had opened its facilities in Athabasca and was operating from its 12,000 square-metre building, serving some 8,700 students in 1984/85, 75 per cent of whom resided in Alberta.

With its permanent mandate and subsequent move to Athabasca, AU was expected to build on the pilot project, to develop its undergraduate distance-delivered curriculum, and to further facilitate access to university studies for adult Albertans. During the pilot project, the importance of a curriculum that would allow students to transfer credits obtained from AU to other provincial institutions had become paramount, and this had (and to this day still has) a significant impact on the courses and credit structure of AU programmes. Since the late 1970s, the courses offered by AU differ from those of sister Canadian institutions by virtue of the delivery mode, not their content or modularization into three-credit course equivalencies. During the last twenty years, students from other Canadian universities who take courses at AU as visiting students and then transfer earned credits to their home institution have represented a significant market, and today constitute the largest segment of the AU student body.

This being the case, collaboration with the post-secondary sector, particularly in Alberta, has always been an important ingredient of success for the University. At the undergraduate level, AU is seldom the complete answer to a learner's educational needs, but it often represents a key component. More recently (post-1995), college collaboration has become even more critical, as the University has sought to increase its course registration and graduation rates by offering degree completion options in partnership with select (two-year) community colleges and by articulating two-year college diplomas with AU degrees.

AU has recently developed the necessary physical facilities to accommodate some 150 additional staff members on site in Athabasca in order to support the planned doubling of its student numbers by 2010.

2.2 Organizational structure

The University is organized into four divisions: (i) the Office of the President (including Public Affairs, Institutional Studies, Human Resources and the University Secretariat); (ii) the Office of the Vice-President Academic (including fourteen academic centres, the Centre for Learning Accreditation, the Research Centre, the Department of Educational Media Development, and the Department for Outreach and College Collaboration;⁵ (iii) the Office of the Vice-President Student Services (including the Registry, Library, Course Materials Production, Computing Services, Counselling, and two Regional Offices); and (iv) the Office of the Vice-President Finance and Facilities (with responsibility over Financial Services, Budget, and Facilities).

A key component of a 1995 reorganization was the decision to eliminate the faculty structure. Previously, there had been three rather autonomous faculties (Arts, Sciences, and Administration) and two graduate centres (housing the Master of Business Administration and the Master of Distance Education programmes). While the two graduate centres worked very effectively, there were concerns that the undergraduate faculty structure was not conducive to innovation and change. By eliminating these faculties, and creating academic units that were both significantly smaller and established on the basis of collegiality (i.e. mutual respect and willingness to work together) rather than disciplinary affiliation(s), teams of like-minded academics were able to assume increased independence and responsibility for experimenting with the development and delivery of their courses and programmes. The decision to continue to fund course delivery internally on a per-registration basis, and to allow academic centres that achieved cost savings through innovation (while maintaining the required level of quality) to reinvest these savings in accordance with their own priorities, also represented a key element of the innovation strategy.

This revised organizational structure may have had a shortcoming; the fact that the non-academic course development staff such as course materials editors, visual designers and educational technologists were centralized meant that academic centres were restricted in their ability to match resources with their own priorities. A counter argument, however, suggests that a centralized, arm's-length course development unit may be better positioned to enforce quality control and standards, a matter of increasing concern in the online environment where course development roles blur easily. As staff complements increase, and the decision to reassign course development staff to individual centres may be made, it will be important to find a way to maintain the synergy and peer learning that flow from having regrouped these professionals in the Department of Educational Media Development. An eventual solution, one that is already implemented where feasible, involves locating these positions in the centralized unit but seconding or assigning them to specific centres for relatively long periods of time (at least one year).

The importance of the Student Services Division, and the fact that it is headed by a Vice-President, further differentiates AU's organizational structure from that of traditional institutions. Also, the result of the 1995 reorganization, the prominence assigned to this

⁵ The Vice-President Academic is assisted by an Associate Vice-President Academic and an Associate Vice-President Research.

division is indicative of the greater importance of customer service in the online environment. AU's recent success and transition into a leading online educational institution has paralleled the increased organizational importance assigned to this division.

Unlike the undergraduate centres, their graduate counterparts are much more self-contained administratively, with the Centre for Innovative Management (CIM), which houses the Master of Business Administration (MBA), being the most independent. Following government approval in 1993 to offer this complete cost-recovery programme, it was determined that two formidable and related challenges would have to be met in order for this programme to be a success. First, given the highly competitive nature of the North American Executive MBA market and that AU was an unknown entity therein, the necessity to innovate with a radically new product, an online degree. Second, the realization that the businesslike culture that CIM would have to develop and the speed with which it would have to open its programme to students (two years) was practically unattainable within the University's regular operations. Consequently, the University decided that the new programme would have the best chance of success if it were given quasi independence from the University's regular infrastructure, which was a human, technological, and systems network meant to facilitate the promotion, development, delivery, and support for all undergraduate programmes, delivered at that time almost exclusively through print and telephone support. CIM thus created its own academic and administrative platforms and systems in support of what has become Canada's largest Executive MBA programme (1,100 students per year), with annual graduating classes now in excess of 200 and an annual operating budget of about CA\$10 million.⁶

Developing as it did in a new site or self-controlled environment, CIM served as an incubator for online innovation and successfully paved the way for other programmes and courses to move online, particularly those offered by the undergraduate School of Business.

Though approved by government in 1991 (eighteen months before the MBA), the online Master of Distance Education (MDE) was not under the same time pressure as the MBA (or the same pressure to pay all its own bills) and opened in May of 1995, a few months before the MBA. Its ongoing financial dependence on the University has meant that it could not argue for, nor did it want, the same level of independence as the MBA. While it is self-contained academically insofar as course development, delivery and most student-support services are concerned, the MDE relies heavily on the University's administrative and technological infrastructures. Unlike the MBA, which has always used a self-supported, adapted LotusNotes platform, the MDE has experimented with different platforms, all of which have been supported by the central University. The MDE's stronger interrelationship with the general academic faculty and with the centralized non-academic departments has meant that certain aspects of its online academic model have been adopted by more centres (particularly those with online graduate programmes) than is the case for the MBA.

2.3 Current programmes

Courses

As of 2002/03, AU's curriculum comprised some 570 courses (an increase of 64 per cent over 1995), 119 of which were considered online, 62 as distance-delivered with significant online features, and the balance providing, at a minimum, online tutoring and file transfer options.

⁶ All amounts quoted in the case are in Canadian dollars.

Liberal arts and science courses accounted for more than two-thirds of the curriculum (69 per cent), professional courses for 17 per cent, and applied courses for 13 per cent.

Programmes

Together, these courses combine to provide thirteen undergraduate (excluding majors) and nine graduate degree programmes. At the undergraduate level, AU offers: a full range of Bachelor of Arts majors (for both three- and four-year degrees); a cohesive set of business degrees (Bachelor of Administrative Studies, Bachelor of Commerce, Bachelor of Management); a Bachelor of Science (with majors in human science and computing and information systems); a Bachelor of Professional Arts (with majors in communication studies, criminal justice, human services, and governance, law and management); a Bachelor of Nursing; and a Bachelor of General Studies. The graduate programmes include: the Master of Business Administration; the Master of Distance Education; the Master of Health Studies; the Master of Science (information systems); the Master of Arts (integrated studies); and the Master of Counselling, developed and delivered in partnership with two other Albertan universities. All graduate programmes are online, as are the Bachelor of Science (computer and information systems) and the Bachelor of Commerce (e-commerce). Online and online-supplemented courses are particularly important components of undergraduate programmes in administration, management, commerce and psychology, but they are also features of all other programmes.

Whereas practically all graduate students (8 per cent of the total student population in 2000/01) were committed to completing their programme with AU, such was not the case at the undergraduate level, where, notwithstanding the availability of full programmes, only 26 per cent of undergraduate students (2001/02) entered AU with the intention of obtaining an AU credential. Fully one-third (34 per cent) of AU's student body is composed of visiting students who take only a few courses at AU and transfer them to their own home institution from which they will graduate. This is mostly due to the strong course-transfer culture so prevalent in Canada, and the inability of traditional universities to respond to the flexible learning needs of their students. A further breakdown of the student body shows students taking courses for diagnostic purposes, to determine if they are suited for post-secondary or online study (14 per cent); for credit banking and application to a programme some time in the future (11.4 per cent); to obtain a professional designation (5.5 per cent); for needs related directly to their job (4.4 per cent); or for personal interest (4.4 per cent).

This composition of the undergraduate student body, together with the fact that fully 45 per cent of course registrations are generated by first-time students, results in an average course completion rate of 65 per cent, as opposed to a graduate completion rate of 95 per cent.

Notwithstanding the preponderance of non-AU credential students, recent graduation rates have witnessed a dramatic increase, with 387 undergraduate degrees having been awarded in 2002 (an increase of 85 per cent over 1996). The introduction of graduate programmes, from which 308 students graduated in 2002, has resulted in a combined increase of 175 per cent in the University's graduation rate over a five-year period.

Learner demographics

At the undergraduate level, 65 per cent of AU learners were female in 2001/02, a statistic that has barely changed in the University's history (notwithstanding the move into e-learning). This number drops to 49 per cent at the graduate level, where the MBA accounted for 1,102 of the 1,884 students, 70 per cent of whom were male.

Table 1 Athabasca University staffing table

	1996	2003
Academics (regular)	65	106
Academics (part-time)	31	161
Tutors (part-time)	174	258
Professionals	53	145
Management/Executive	12	17
Support/Temporary	132	262
Casuals	34	79
Total	501	1,028

Source: Athabasca University annual reports, 1996 and 2003.

As would be expected, there is also a significant difference in the average age of undergraduate and graduate students at AU. Though dropping quite dramatically in recent years, the average age of undergraduate students in 2000–2001 was 29, with 40 per cent being under 25 (as opposed to 27 per cent five years earlier). In contrast, the average age of graduate students was 40, with only 5 per cent being under 25.

The ability of students to access computers and to interface online with the University is critical to AU's development as an online university. In this regard, 87 per cent of undergraduate students not in computer studies programmes reported in 2001 that they had Internet access from home, whereas the online nature of all graduate programmes resulted in 100 per cent of the students having easy Internet access.

Staffing

By 2003, the total staff complement at AU had grown dramatically (see Table 1). The University reinvested most of the additional income generated by the doubling of its tuition revenue (due both to volume and non-volume related increases) in the human infrastructure required to maintain the quality of AU's academic and non-academic services.

AU's staff profile differs greatly from that of traditional universities. While there is a significant and crucial cadre of regular academics, the majority of the academic support services are provided by part-time academics who outnumber their full-time colleagues by a ratio greater than 3 to 1. AU's regular academics, who normally hold a Ph.D. and also conduct research, are responsible for curriculum planning, the academic quality of the course content, learning activities, and learner support and course assessment. The unbundling of the teaching components and their assignment to part-time academics, who normally hold at least a master's degree and do not do research or to telephone and virtual call-centre staff, whose responsibilities are administrative and not academic, allow for both economies of scale and a less expensive workforce.

The large percentage of professional and support staff represents another major difference. The members of each of these groups outnumber the full-time academic staff, and their importance reflects the crucial role played by professionals in course development, academic and non-academic computing, and student-support services, and by the large cadre of support

positions that operate and manage numerous student support and administrative processes or systems.

3. Administrative issues

As AU is a single-mode distance and online university, it has a particular management and administration model that has resulted from two significantly different aspects of its organizational culture:

- on the one hand, a teaching and learning model that places the responsibility for teaching on a team of professionals rather than on one professor;
- on the other hand, recognition that particularly in an online environment, where no institution has a protected market, serious providers must create not only an excellent learning environment, but also an institutional climate that recognizes the importance of excellence in non-academic support services.

The composite parts of AU's educational model have been unbundled in a manner that is more in keeping with an industrial model than with the cottage-industry approach generally used by traditional academia. It is therefore essential that the administrative structure and institutional policies of the University facilitate the management of processes and their interrelation.

3.1 Administration

There are differences between the undergraduate and the graduate models of administration. The academic graduate centres are more self-contained and less dependent on centralized resources (both academic and non-academic), and the University manages its processes primarily through a functions-based model. Cross-functional management is facilitated through regular meetings of the Executive Group (the president and three vice-presidents), and multi-divisional representation at the monthly Council of Chairs (chaired by the Vice-President Academic), and the Student Services Group (chaired by the Vice-President Student Services) administrative meetings. Day-to-day administration at all levels is conducted essentially online.

The virtual learning environment has necessitated the revision and development of a range of policies that deal with all aspects of the University's work, but particularly with issues concerning online learning itself and the quality of the total learning experience. The move to online learning has led to policies that have to take into account three related (but sometimes incongruent) poles: cost, standardization, and quality. While balancing institutional standards and individual freedom in decision making for staff and students, new policies were formulated that address, *inter alia*: the optional versus the compulsory nature of the institutional online transition; the level of commitment to continue serving non-online students; the adoption and institutional support of different online platforms and learning management systems; institutionally supported software; server locations and security; housing of master versions of online courses; centralized versus decentralized record keeping; disaster recovery planning; corporate, as opposed to individual, branding of online materials; and online material to be made available to non-students.

New policies were also required to deal with related quality assurance factors. Staff roles blur more easily in the online environment, whether this concerns course development (course authors, graphic and media designers, and editors) or the relationship between course

development, delivery, and revision due to the ability to constantly update course content. With a view to safeguarding the course team approach to curriculum development and to maintaining the same level of quality in online as in printed materials, policies dealing with Phases Three and Four (see Section 4.1) of the course-development process underwent significant redrafting. Similarly, just as the University had to develop a new policy around copyright obligations for course developers in the electronic environment, academic policies dealing with intellectual honesty and plagiarism had to be redrafted.

The move to an online environment has also had a dramatic impact on policies dealing with the service standards that students and staff can depend on. The e-learning environment has escalated expectations with regard to just-in-time service, be it academic or administrative. Consequently, AU has adopted a set of standards outlining the acceptable time delay during which the University should respond insofar as general enquiries, administrative services, electronic communications assistance, library, course materials, and academic support services are concerned. These standards are published through a public posting on the AU website,⁷ and in a printed brochure, together with instructions on whom to contact in the event that these standards are not being met. Since the University differentiates its service standards according to whether students are residents of North America or of other regions (primarily in that it communicates with the latter only via e-mail), a different web page has been created for non-North American residents.⁸

In order for the service standards to be met, the University has adopted a set of human resources policies. These deal, for example, with the use of e-mail and voice mail across the organization, addressing matters such as response time and the use of automatic alerts for absences in excess of twenty-four hours. The policies also deal with the balance between personalized and just-in-time service, the latter often being assured through aliases and call centres, but at the expense of a more personalized service that only individualized contact can assure.

Within the e-learning context, the financial domain represents the third principal area requiring policy review. Originally, for example, a policy had to be passed dealing with who would pay for student access to the University, an issue that was hotly debated given AU's mission statement. In spite of considerable pressure to either get into the ISP (Internet Service Provider) business, or to offset costs that students would incur by signing on with a commercial provider, the University opted for passing on all connection costs to students (in exactly the same way as they may require their own cable television subscription in order to view certain course-related programmes). This decision may well appear to be self-evident today, but was not so in 1995.

AU's decentralized full-time academic workforce necessitated policies on who would pay for the hardware and communications costs incurred by 80 per cent of the academics who choose to work out of their own homes.⁹ Further, all staff were affected by a policy on the continuous upgrading of hardware and software and the regularity with which these would be replaced.

Similar policies were required to support the University's relationship with its part-time tutorial workforce, whose members have an average seniority of more than ten years with AU. While the University accepts its responsibility for covering operating costs such as

⁷ <http://www.athabascau.ca/misc/expect/index.htm>

⁸ <http://www.athabascau.ca/pdf/International.pdf>

⁹ Communications costs are borne by AU and academics are provided with one set of hardware that they are free to locate where they choose.

connectivity, helpdesk support, and software associated with general online operations or course-specific requirements, the question of hardware and its upgrading has proven to be more problematic. By the early 1990s, AU had provided many of its tutors with computers and had assumed the responsibility for their maintenance and upgrading, but as these became more ubiquitous and essential for tutorial support in all courses, policies were changed to encourage the shift of this responsibility from the institution to the tutors themselves, with a concomitant monthly payment by the University to support maintenance and upgrading. Today, new tutors are expected to own their own computer, though the University continues to provide a modest per-tutor allocation monthly to support maintenance and upgrading.

3.2 Costs and financing

The operating budget for the academic year 2002/03 is some \$57.5 million, about double the amount five years ago. Whereas the government grant amounted to 72 per cent of AU's \$24.3 million budget in 1994/95, today it represents only 35 per cent of operating expenses. AU has gone from receiving the largest provincial government grant per full-time equivalent student (1994/95), to the lowest (about 50 per cent of the university average). This situation has resulted from AU's decision to significantly expand its student numbers relying financially only on additional tuition and other fee revenue (now representing over 60 per cent of 2002/03 revenue). This strategy is not available to campus-based universities that operate under a very different business model and whose ability to expand is closely tied to their physical infrastructure. Moreover, when one factors in research activity (generally about 30 per cent of an Alberta university's budget) and takes into account that AU is primarily a teaching university and commits far fewer resources to research than do other universities of comparable size, AU is treated equitably by government insofar as operating expenditures are concerned.

What differentiates AU's funding base from that of traditional sister institutions is the significantly reduced capital and operating budgets associated with physical infrastructure acquisition, renovation, and maintenance. Facilities and maintenance services currently consume about 4 per cent of AU's annual operating budget. The recent investment of \$5 million in the acquisition and renovation of new physical facilities will provide the space required to accommodate central staff expansion to allow the University's current enrolment to double as planned.

Recurrent operating expenses are significantly related to staff costs (62 per cent), with 55 per cent of the total annual budget being allocated to functions associated with the development of the curriculum, its delivery and research. Student Services functions (counselling, advising, registry, library) account for a further 30 per cent of expenditures, with computing services expending about 10 per cent of the annual university budget. AU expends some 5 per cent of its budget on marketing and public affairs functions, with almost half of that being dedicated to marketing for the cost-recovery MBA programme.

Basic undergraduate tuition-fee levels in 2002/03 (\$355 per course, or \$3,550 per year) are slightly below the provincial level and are competitive in Canada even with the 15 per cent out-of-province tuition surcharge. Students residing outside of Canada pay \$615 per course, a competitive fee in the USA, but less attractive in Asia. All required course materials are provided for an additional fee of \$131 per course. The fact that these are delivered internationally by courier, at expensive rates, has recently led the University to increase the out-of-Canada tuition fee. While the amount of printed materials in the course package is

decreasing, it is not anticipated that this fee will decline in future years, as it may be used to cover different information access fees that the transition to an online environment entails (e.g. library, commercial publishers).

With the exception of the much more expensive MBA fee of \$30,000, graduate tuition fees are set at around \$10,000 per programme, with marginally more expensive rates for international students. Whereas these fees are somewhat higher than for on-campus programmes, they are highly competitive with foreign institutions (primarily in the USA) that offer distance-delivered and online graduate programmes in Canada.

3.3 Technological infrastructure

The University's traditional dependence on a sound technological infrastructure to support the development and delivery of its distance programmes has resulted in the need for only minimal changes or enhancements to support online learning. Nevertheless, the University's investment in support of this infrastructure has increased significantly, and over the last four years has represented an annual commitment of about \$2 million per year. Moreover, as technology has advanced and its applications have become more central to AU's success, several issues are resurfacing with increasing importance.

In the past the university adopted a decentralized approach to e-learning and allowed the proliferation of course management systems (LotusNotes; WebCT; and Bazaar, an institutionally developed platform), communication tools (the aforementioned, plus WWWBoard and NetMeeting), and multiple decentralized infrastructures in support of them. Today AU needs to conserve its scarce resources (financial and human) and prevent this diversity of infrastructures from adversely affecting quality. The decentralized approach to platform selection and support undoubtedly facilitated institutional adoption of e-learning. However, the greater similarity of today's platforms and the fact that e-learning is currently part of the AU mainstream mean that future standardization around one institutionally supported platform is now being seriously considered.

Similarly, the decentralized approach in AU's overall strategic management of information technology, where each of the three senior administrative officers has responsibility for different sectors but there is no one with overall institutional responsibility for information technology, is currently under review. This situation was less problematic when AU's online activities were relatively marginal, but this is no longer the case, and the advantage of having a chief information officer with proactive responsibility for the development of AU's integrated information technology strategy now seems obvious.

AU's location has also given rise to two other technology-related problems, which are currently being addressed. One concerns the overall shortage of qualified computing professionals and has proven particularly problematic when recruiting for a location in a small rural setting. The University has therefore recently relocated a dozen key information technology positions to the provincial capital, Edmonton. The other problem concerns the absence of a broadband infrastructure in the Athabasca community, which has resulted in the University paying much more for its bandwidth than would otherwise be the case. This situation should be resolved with the installation of the SuperNet infrastructure in the town of Athabasca in 2004.

3.4 Intellectual property ownership and copyright

Since the development of courseware has always been a core responsibility of AU academics and professional staff, the University has maintained ownership of intellectual property associated with distance and online courses. Where external subject-matter experts are used, the University requires them to sign over the intellectual property as part of the contract for services. In instances where courses are sold or leased to third parties, a revenue-sharing formula is applied to net profit, with the University and the faculty association being the beneficiaries. Earlier in its history, AU tried to apportion the employees' share to individuals, but the team-based approach to course development made this impractical.

The University has its own copyright office and is rigorous in its application of copyright laws. All materials are cleared for world rights and use by AU students. This can prove problematic when other institutions want to buy AU products, since the University's CANCOPY and other reproduction licences do not extend to other users. According to the University's lease and sale of courseware policy, however, AU is unlikely to share its materials with other institutions unless they are in a geographic area where AU is not interested or unable to compete.

Lessons learned

- The administration model for a virtual university should take into account that the organization of work is very different from the essentially professor-centric campus-based model.
- Though beneficial in several ways (e.g. reduced cost and easier recruitment), the use of a dispersed, often part-time labour force in virtual universities raises important administrative issues for how work should be organized, assessed, and evaluated.
- Online students demand quality not just in academic content, but also in support services. Online providers have to ensure that their administrative structures, policies, and sub-cultures reflect a customer-service focus.
- There are built-in tensions between and among (i) the student's desire for just-in-time (24/7), (ii) yet personalized (ideally same-person) service, (iii) the institution's unbundling of the teaching and support functions, and (iv) its use of part-time or teleworking labour. Where an organization positions itself in relation to these four poles must be reflected in its administrative structures, systems, and policies.
- Financial savings in quality virtual universities result primarily from significant reductions in brick-and-mortar investments. Operating expenses, though different in nature from those incurred for face-to-face instruction, are no less expensive.
- Technology infrastructure requires constant renewal, and public institutions have to find a way for government to reflect this in funding formulae.
- Institutions need to address the relative merits of supporting one or several institutional course management systems. While it is advantageous for learners to experience different electronic learning platforms, and for faculty not to be tied down to a particular platform, there are significant costs associated with maintaining and supporting each course management system, costs that have to be justified on the basis of the value that the diversity adds.
- Where possible, virtual universities should ensure that the copyright ownership rests with the institution rather than the individual academic or course team. This is facilitated when e-teaching is considered as a core function of the staff and not as an add-on. In cases where external authors are used, the contract for services should be explicit in stating that the copyright will rest with the institution.

4. Academic issues

Unlike most North American universities, AU's governance model is unicameral in nature, and the University Governing Council has ultimate responsibility for both fiduciary and academic matters. There is no academic senate with legislated authority over academic decision making; however, the Governing Council has established an Academic Council with delegated authority for all academic areas that would normally fall under the academic senate in a bicameral governance model. Though it operates *de facto* in a bicameral manner, the Academic Council's role and responsibilities can be rescinded at any time by the Governing Council.

Academics represent a clear majority of the Academic Council membership, but the administratively heavy and cross-functional nature of the distance and online academic enterprise is also reflected in the Academic Council's membership. The Council is informed by the work of a range of standing subcommittees, including: Council of Centre Chairs/Directors; Student Services Group; Undergraduate Studies Board; Graduate Studies Board; Academic Research Committee; Ethics Review Board; Educational Review Committee; Library Standing Committee; Student Academic Appeals Committee; and Academic Award Committee.

Operationalized under the rolling three-year Educational Plan, programme and course-development decisions are framed within a seven-phase planning process:

- Phase One: General programme planning
- Phase Two: Detailed individual programme planning
- Phase Three: Individual course planning proposal for development and delivery
- Phase Four: Course preparation
- Phase Five: Delivery and tutoring
- Phase Six: Evaluation of teaching effectiveness
- Phase Seven: Course revision.

4.1 Programme development

Undergraduate

AU provides a full range of undergraduate programmes in liberal arts and sciences, business and administration, nursing, and applied arts. Though traditional in their course make-up, AU programmes are designed with considerable flexibility. The University's residency requirements allow students to transfer a significant number of credits earned at other accredited institutions (75 per cent for four-year degrees; 66.6 per cent for three-year degrees; and 100 per cent for the three-year Bachelor of General Studies). Provision is also made for the accreditation of prior learning, though the maximum number of credits admissible in such cases varies by programme. Last, course prerequisites are justified not on the basis of past practice in universities, but according to the relevance of the specific educational outcomes associated with these courses.

The three basic AU undergraduate programmes (Bachelor of General Studies; Bachelor of Arts; Bachelor of Administrative Studies) were planned and developed in close compliance with the seven-phase development process. However, these programmes gave rise to

numerous majors as a result of the gradual development of new courses that had been rationalized primarily in the context of general degrees without majors. As the number of courses in any one discipline reached a meaningful number, the argument was made that a new programme could be offered if just a few additional courses were developed. The same line of reasoning was later used to introduce the Bachelor of Science and, to a lesser extent, the Bachelor of Nursing, which had started out by developing a few courses for visiting students. The Bachelor of Commerce (and later its e-business major) and the Bachelor of Professional Arts (with its four majors), however, were approved on the basis of programme, rather than course, demand.

The 2002 SUP committed to a rationalization of the curriculum, so that new courses and programmes could be offered in the place of courses and programmes that have been eliminated because they attracted very few students or that were dated in their content and/or relevance. As the University has already expanded its programme and course offerings extensively without additional revenue from government, AU is no longer in a position today to increase the number of its programmes and courses without concomitant increases in base funding.

As the University's reach expands, it is expected that new markets will create greater demand for most of AU's existing courses and programmes, not just for the more popular online disciplines, such as business, health, and information technology.

Limited undergraduate programme expansion is being planned and prepared for certain areas (criminal justice, political science, and accounting) based primarily on a repackaging of the existing curriculum. Other disciplines will be developed.

When proposing new courses, faculty follow a detailed Phase Three process, which initially involves the circulation of a preliminary course proposal (primarily to Centre Chairs and Educational Media Development staff) with a view to providing opportunities for cross-listing, modularization, joint use of curricula and avoidance of duplication. Following the appropriate Centre Chair's approval, Phase Three is completed, providing a detailed description of the proposed academic content (unit by unit), assessment scheme, course-delivery model, and budgetary requirements associated with course development and delivery. In addition to the lead academic who is sponsoring the course proposal, Educational Media Development staff are consulted in the preparation of the Phase Three document. If approved by the Vice-President Academic, the course is fully developed in accordance with Phase Three specifications. Subject-matter experts and academic contributors are assisted by an instructional media specialist, a visual designer and an editor, thereby forming a cohesive course development team.

Individual courses are assessed regularly (Phase Six) for their currency and teaching effectiveness, primarily through course-evaluation forms completed by students and by annual reports submitted by course tutors. Rolling revisions are regularly coordinated by the academic with responsibility for the course's delivery, and major revisions (Phase Seven) are undertaken as required, based on the relevance and currency of the course's content, primary learning materials, assessment, and technological platform.

Individual undergraduate courses are delivered within a regulatory framework that maximizes the learner's flexibility. While there are no entry requirements, there is an institutional responsibility to ensure that prospective learners have a real chance to succeed. To this end the university provides significant counselling services and opportunities (e.g. self-tests) for

students to determine their readiness for both university and distance or online learning; a set of introductory courses to facilitate the transition to university-level studies (e.g. English for academic purposes; Developing writing skills; Basic critical thinking; Developmental mathematics) is also provided. Notwithstanding the University's open admission policy, very few learners enrol at AU for this reason, fewer than 15 per cent of the students admitted have no prior post-secondary experience (a percentage that has remained constant since the University's inception).

Students start their courses on the first day of any month and proceed at their own pace, submitting assignments and taking examinations when they are ready to do so. The basic tuition fee covers services for an initial six-month period (for a three-credit course), though students can purchase up to three extensions of two months each. Repeatedly, undergraduate students rate flexibility as the primary reason for enrolling with AU.

Individualized distance and online education represents the mainstay of the undergraduate operation (and accounts for in excess of 80 per cent of the course registrations), though some courses are also offered in cohort- or group-based mode because there is an identifiable group of learners who prefer this option. In this case, the latter represents a mixed mode of delivery, where distance and online materials are complemented with group tutorials, either face to face, media enhanced (audio- or video-conferenced), or online.

Graduate

In sharp contrast to its undergraduate studies, AU's graduate programmes attract almost exclusively programme students. This is not only because the tradition in graduate studies discourages transfer credit, but also because AU is one of a very few universities that offer reasonably priced, flexible online graduate degrees designed for, and delivered primarily to, working professionals. Unlike AU's undergraduate degrees, the graduate programmes are cohort and semester based, requiring as they do considerable peer interaction and, in some cases, teamwork. Consequently, they are less flexible in their delivery. The MBA and the Master of Counselling require minimal on-site attendance, whereas the other AU graduate programmes can be completed entirely at a distance. While admission to graduate programmes is not open, they all provide an entrance route for students who, while they may not have an appropriate undergraduate degree, have demonstrated through the application process a strong likelihood for success.

Believing that it was an unjustified diversion of scarce funds, the University launched hesitatingly and for the most part unwillingly its first graduate degree programmes. There is now general acceptance that this bold move has turned out to be a key contributing factor to AU's recent success. Consequently, the 2002 SUP directs the University to continue to develop appropriate, self-funded professional online master degrees, to have its first online doctoral programme approved, and to increase its graduate student body so that it will represent 20 per cent of the projected 50,000 student base by 2010. The University's future, and its branding as a leading worldwide provider of online university programmes, is today recognized as being intricately linked to the expansion of AU's graduate programming and to the concomitant strengthening of its mission-critical research agenda.

Accreditation and quality assessment

Canada does not ascribe to a peer-driven system of national or regional accreditation. Universities are accredited by the province that funds them and where, generally, they operate. They are regrouped in a national association (Association of Universities and

Colleges Canada), which sets and applies criteria for membership, but is not an accreditation agency. Similarly, individual provincial governments in some cases (such as Alberta) require their institutions to adhere to a rigorous reporting of common key performance indicators, but this too differs significantly from formal peer accreditation.

The absence of formal peer accreditation in Canada has become a barrier to greatly expanding the University's out-of-country geographic reach, as the proliferation of degree mills and recently established educational establishments (particularly, but not exclusively, in the USA) has led consumers to pay particular attention to a provider's accreditation standing.

For this reason, AU applied for, and was awarded, candidacy status in June 2002 for US accreditation by the Commission on Higher Education of the Middle States Association of Colleges and Schools, indicating that AU has achieved recognition and provided evidence of sound planning. Final accreditation follows after a brief candidacy period. If AU's bid is successful, it will be the first university that is not incorporated in the US but is regionally accredited with a view to serving the US market. It is expected that this will promote significant expansion in North America, and compensate for the present lack of formal accreditation that is limiting AU's penetration of worldwide distance and online markets.

The absence of formal peer-driven accreditation has resulted in AU putting demanding internal quality control measures into place. The implementation of the seven-phase instructional systems development model outlined in the introduction to this section provides the framework for quality control and measurement. In addition, the Educational Review Committee of the Academic Council commissions regular reviews of programmes by external teams of respected academics, and charges the Institutional Studies department with conducting regular studies that assess both the academic and non-academic components of the AU education system. New delivery models and platforms are formally reviewed prior to full-scale implementation, and annual reports are provided on a complete range of related issues (e.g. course completion rates; course and examination currency; student satisfaction with course content and academic support; graduate satisfaction; graduate employment; student satisfaction with library services, computer help-desk assistance, and course materials receipt).

4.2 Teaching

Firmly rooted in the open distance learning tradition, AU's model was centred around multi-media (primarily print-based), individualized, self-paced learning materials, developed by a team of professionals (academic subject-matter experts, instructional and graphic designers, and a course materials editor) and supported with toll-free telephone access to course tutors. Assignments were exchanged by mail, examinations were conducted in regional examination centres, and student interaction was almost exclusively with the course tutor, whose role encompassed: remediation around course content and study skills; supplementing and contextualizing course materials; motivating and encouraging learners; and providing formative and summative assessment (in accordance with the course design).

The advent of the electronic age, and the immediate success of the new online graduate programmes in the mid 1990s, led AU to review its teaching model and to systematically consider the integration of online features that would enhance both the quality and attractiveness of its undergraduate curriculum. The 1996–1999 SUP formally set the context for AU's move into the electronic environment by calling for:

- the transition from predominantly print-based curricula to curricula presented in electronic format, print format or both, depending on the appropriateness of the medium;
- the dramatic expansion of computer-mediated communication systems to facilitate:
 - the electronic distribution of course materials produced in-house,
 - e-mail correspondence between students and staff (including mailing of assignments),
 - computer conferencing among students and between students and academic staff,
 - the provision of library, registry and other student-support services,
 - access to electronic databases, and
 - electronic formative and summative evaluation;
- the exploitation of distributed learning systems (e.g. the World Wide Web); and
- the provision of assistance to students learning to use systems (Athabasca University, 1996).

During the past six years, web-based technology has been integrated into individual courses and disciplines in various ways, though three broad categories have been established. Level One, or minimal integration, provides optional online resources that supplement a print-based, non-digitized course package. These courses provide regularly updated web-based information (course syllabus, student manual, interesting links to supplementary information), e-mail interaction with the course tutor, and the ability to forward assignments via attachments. Level Two, or moderate integration, integrates web-based activities and communication technologies as required parts of the essentially print-based, non-digitized course materials. Bulletin boards that enable asynchronous or (in fewer cases) synchronous discussions are common, as are online formative assessment activities. Students in these courses will generally take advantage of the opportunity to interact with their tutors and submit assignments through e-mail. Level Three, or full integration, requires all course components and activities to be online, with the possible exception of core textbooks.

Notwithstanding the success of the strategy adopted in 1996, and the fact that almost half of AU courses are currently at Level Two or Three, the University has recognized that there are persuasive reasons for implementing new measures to position the institution for the next several years. First and foremost, the current student body's adoption of computers (87 per cent of non-computing students have Internet access from home) is a clear indication that AU students are prepared to maximize the educational opportunities and advantages associated with online technologies. Second, there is every reason to believe that the AU student of tomorrow will expect even more of this institution's full-scale adoption of the online learning environment. Third, e-learning is just as likely to remove significant barriers to success in distance learning (such as the delays resulting from the use of regular mail, or the absence of peer interaction), as it is to further disenfranchise disadvantaged sectors of society through a significant digital divide. Last, today's workforce increasingly requires its members not only to be computer literate, but also to engage in lifelong learning in the workplace, learning that will increasingly incorporate online activities. Providing adult students with a formal education that does not prepare them for this reality is to provide them with a formal education that is inadequate.

The 1996 SUP's commitment to also provide undergraduate courses in primarily print form (lest traditionally disadvantaged students be further disadvantaged) means that AU has had to develop and maintain costly parallel infrastructures and systems, and that significant components of the curriculum continue to operate only minimally online, at Level One. Moreover, since e-learning had for the most part represented an option to the standardized print and telephone support model, the technological and systems infrastructure in support of online learning had not evolved consistently or uniformly across the organization. A

noteworthy example of this level of complexity, both for learners and for the University, is that the AU computing help-desk currently has to support multiple electronic course authoring and management platforms.

For these reasons, the 2002–2006 SUP refines the University’s online strategy and sets two overall goals (and associated objectives):

- the appropriate integration of proven online learning and assessment activities into all courses, thereby increasing the learner’s flexibility in engaging in related activities; and
- the successful integration of appropriate technologies into course development, delivery, student support, and administrative systems, thereby enhancing the quality of courses and programmes (Athabasca University, 2002).

At the time of writing, all AU courses will be offered electronically at least to Level Two specifications, with access to all courses and services being provided through the student’s U-Portal. Migration to a common course management system will be well under way, primarily affecting new courses and programmes as they go fully online. While the University’s infrastructure and systems will be digitally based, course materials for many courses will still be available in printed format, though they will not have been designed primarily for that purpose. North American students, while encouraged to favour modes of electronic communication, will still have access to complementary toll-free telephone support.

Research

Whereas AU also supports its regular academic staff as they engage in disciplinary research, the success of the University’s educational model is intricately linked to the development of a strong mission critical research agenda that informs the open, distance and online learning pedagogy with which courses and programmes are developed and delivered.

The recently established Institute for Research in Open and Distance Learning at AU spearheads and coordinates the research agenda and the internal dissemination of related findings. In addition to its dedicated staff, the Centre draws on the resources of the university-wide Research Centre, two Canada Research Chairs in Distance Education, the Centre for Distance Education (the department that houses the Master of Distance Education), the professionals in the Institutional Studies department, and individual academics who may also be engaged in pedagogy-based research. Externally, the Institute manages the online International Review on Research in Open and Distance Learning with a readership of more than 30,000 subscribers.¹⁰

4.3 Learning support services

Online services

Student support services have always represented a critical link in the success of AU learners. Initially (as was the case with course materials and tutoring), services such as advising, counselling, library, registration and finance were provided through printed documentation and toll-free telephone access. Today, not only are all these services available electronically, but e-access has already displaced print and telephone as the primary mode of delivery (though toll-free telephone and print are still available for those who prefer these media, or do not have ready Internet access). A key service soon to be launched, and currently in beta

¹⁰ See <http://www.irrodl.org/>.

testing) involves the implementation of a portal approach (MYAU) through which students will be able to personalize their computer access through a single portal to all their individual files and records (online courses, course conferences and chat rooms, grade book, institutional records, etc., as well as other AU web pages that they want to connect to regularly.

The dissemination of all information hitherto available only in the university calendar or catalogue is today assured primarily through the institutional website. The electronic version of the calendar, moreover, takes precedence over the printed version not only in its production, but also from a legal perspective. The North America toll-free information call centre, established in 1996 in order to streamline all requests for information from prospective or current students, now handles electronically almost 50 per cent of the 10,000 enquiries it receives monthly, and has launched an IntelliResponse programme designed to automatically handle most enquiries of a general nature.

Student advising and counselling services have refocused their basic approach to assisting students in determining whether they are ready to undertake distance and online university-level studies and, if so, how to proceed. Potential students can follow an online process from the AU website and:

- determine their state of readiness (Am I Ready for Athabasca University? Am I Ready for Studies in the English Language? Annotated Review of English as a Second Language sites);
- hone their study skills (Study Skills Programme; Study Smart; Studying in the Kid Zone; Mastering Exam Anxiety);
- obtain advice on career options (Mapping Your Future; Annotated Review of Career Sites);
- seek out financial assistance and services for students with disabilities;
- plan their programme (online Programme Planner and Transfer Credit Database).

Finally, the web-based registration system now allows students to conduct all regular transactions online (admission, programme enrolment, course registration, examination request, financial payment, etc.) and 60 per cent of the transactions do in fact occur in this way.

The library exemplifies the shift in student services brought about by the online environment. Once a repository of holdings that students accessed by contacting a library staff member via a toll-free telephone line, today's library has evolved to the point where it is now primarily a gateway to information. Library staff who interact with students are no longer principally occupied with conducting searches on the students' behalf and determining the availability of identified resources. Rather, they are responsible for assisting students to perform these functions on their own, electronically, thereby adding a very important educational outcome to the students' experience, and one that distance learners could not master prior to the e-learning environment.

Student evaluations of their online experience

Since 1999, the Province of Alberta has commissioned two comparative studies¹¹ of the satisfaction of university and university college graduates, primarily in order to inform institutional allocations from a Performance Envelope Fund. The 2001 'satisfaction' survey was based on responses from 7,535 students in the four Alberta universities (Lethbridge,

¹¹ See <http://www.athabascau.ca/reports/survey2001.htm>.

Calgary, Athabasca, and Alberta) and four university colleges (Agustana, Concordia, King's and Canadian). A total of 332 Athabasca University students participated. Though the data do not differentiate between traditional distance education and online learning, 40 per cent of the 2001 AU sample had completed their AU degree entirely online, and a further 25 per cent had taken online courses at least at Level Two (as described in Section 4.2).

Two questions were asked concerning the quality of the learning materials, and the respondents rated AU significantly higher than its sister residential institutions, both with regard to the range of courses offered (AU 82 per cent; Alberta universities student average 60 per cent) and their availability (AU 81 per cent; Alberta universities student average 58 per cent). Clearly, AU's policy of year-round enrolment is well appreciated, in contrast to traditional institutions where many courses advertised in the calendar are unavailable in a given semester.

Answers to questions posed about the overall educational experience also revealed high levels of satisfaction by AU learners, as 92 per cent of AU graduates demonstrated satisfaction (as compared to a 79 per cent provincial average). Even regarding such a traditional value as the quality of teaching (not necessarily an obvious criterion for the online environment), more AU graduates were pleased (79 per cent) than the average from sister institutions (74 per cent).

Last, the government survey sought to determine how graduates rated the acquisition and development of a skill set normally associated with higher education. In keeping with previous evaluations, AU graduates rated their ability to think creatively, to conduct research, to learn independently, and to write effectively more highly than did graduates from other Alberta universities and university colleges, though the latter believed that they had developed superior skills in the areas of effective speaking, interpersonal skills, and intercultural sensitivity.

Two formal rankings of AU's online MBA programme reinforce the Government of Alberta's surveys. First, the Association to Advance Collegiate Schools of Business benchmark studies that rank ninety part-time MBA schools in North America based on exit surveys of their graduates: AU's MBA was rated first in 1998 and 1999, and second in 2000 and 2001. In a study taken at this time, AU came out first in eleven categories, including opportunities to pursue work-related projects, teamwork, computer skills, access to computer resources, course availability, fulfilment of expectations, willingness to recommend the programme to a friend. Another survey, conducted by the magazine *Canadian Business*¹² for the first time in the autumn of 2001, ranked AU's programme third in the country, and first with regard to course materials, aims achieved, and usefulness and benefit.

In what is also a revealing study, a joint research team from AU and the Ivey School of Business (University of Western Ontario) compared their students' assessment of how communication developed in an online learning environment (AU's MBA sample size of 111) and in a face-to-face cohort (Western's MBA sample size of 101) (Haggerty et al., 2001). Not surprisingly, the synchronous face-to-face setting reaped better results for social interaction, and was used more often, but not more effectively, for clarifying course procedures and requirements. In sharp contrast, the asynchronous online environment was used more frequently, and judged to be more effective, for making explanations about case facts, figures, analyses for cognitive interventions, and for encouraging fellow students to reflect critically

¹² See <http://www.canadianbusiness.com>.

on an issue and trying to persuade them to change their positions. Clearly, the opportunity in an asynchronous interaction to take one's time, to analyse different positions, and to formulate persuasive arguments is considered a key advantage.

Lessons learned

- Transforming an academic institution is about endorsing early converters, building on their successes, and knowing how far and how quickly to pull and push the rest of the organization without its reaching its breaking point.
- Late adopters require extensive training and support.
- Creating and maintaining an online organization requires leadership that reflects, through its daily actions, the online culture.
- Because there is the opportunity for the course teacher to work more independently online (s/he can be an academic expert, editor, instructional developer, graphic artist, web designer and producer), there is a need to control quality by implementing a systems development plan (linking programme and course proposals with delivery, evaluation and review) and establishing policies that ensure an appropriate role for course development professionals.
- The online environment is unforgiving insofar as outdated course content is concerned. The course revision and maintenance of online courses place a greater demand on academics than was the case in traditional distance learning.
- Online learners have high expectations of the quality of services, of both academic and non-academic support. Failure to meet these expectations in a global online educational marketplace means loss of business.
- While online learning permits asynchronous interaction with faculty and peers that was not possible in traditional distance learning, the economic viability and scalability of the online model requires investing in systems and applications that also enable effective, automated interaction, be it primarily academic (e.g. self-testing) or non-academic (e.g. library enquiries).
- Academic policies and regulations need to take into account that learners in general, and online learners in particular, want flexibility in their studies.
- The online environment attracts students to all disciplines, not only the highly competitive business, information technology, and healthcare areas.

5. Cooperation

As AU moves to enhance its national and international position, the establishment of strategic alliances has become increasingly important. On the provincial scene, AU is a key member of Alberta North,¹³ a consortium of six colleges and one university that collaborate on providing online curricula and a network of community access points in the region. Particularly in rural areas, community access points have proven to be a required aspect of the service and communications infrastructure in support of online learning. While this alliance does not greatly contribute to AU's student numbers, it is important given the University's mission to serve disadvantaged learners and its provincial funding basis.

On the national level, AU is involved in two key alliances: one with the Télé-université du Québec (Téluq), and the other with the Canadian Virtual University-Université Virtuelle Canadienne (CVU-UVC).¹⁴ The AU-Téluq agreement¹⁵ combines the offerings and regulations of both institutions so that students can consult the combined online catalogues when planning their study programmes, knowing that courses will be accepted automatically as equivalents and as meeting residency requirements. Moreover, each university has appointed a student adviser who is familiar with the offerings and regulations at the sister institution, and tuition-fee differentials are also ignored. This collaboration, and the fact that it enables AU students to take courses in both of Canada's official languages, represents a key component in AU's institutional positioning as Canada's Open University.

With a view to expanding the AU/Téluq framework and establishing a national consortium of universities engaged in delivering distance and online programmes, AU launched the CVU-UVC in January 2000 and licensed the consortium to use the associated trademark – Canadian Virtual University – that AU had registered and had started implementing as part of its own branding. The shift in AU's strategic thinking on its institutional use of the CVU trademark resulted from the recognition that a consortium of Canadian providers of distance and online education was inevitable and that AU ought to be the mainstay of such an organization. Today, the CVU-UVC (whose secretariat is housed by AU) regroups 13 public universities that collectively provide 175 programmes and over 2,000 courses, all of which can be completed anywhere in Canada and many of which are available worldwide. By virtue of its size, and the fact that membership has implications for specific programmes and not necessarily entire institutions, the CVU-UVC cooperation is not as all-inclusive and transparent for students as the AU/Téluq partnership. Nevertheless, students are able to search the database and select programmes or courses from any of the member universities, and they know that these will be acceptable to their home institution, which will award the credential and that processing fees regularly paid for visiting students will be waived.

Important to the CVU-UVC initiative is the desire to rationalize course and programme offerings such that individual institutions can develop and deliver complementary rather than competitive curricula, and thereby use their financial resources to maximize quality and currency. The initial need to encourage membership, however, led the consortium to waive its planned requirement that all courses and programmes of its members be complementary. Now that CVU-UVC boasts cross-Canada membership, this condition is being enforced for new

¹³ See <http://www.abnorth.ab.ca/>.

¹⁴ See <http://www.teluq.quebec.ca> and <http://www.cvu-uvc.ca>.

¹⁵ See <http://www.athabascau.ca/html/collab/teluq.htm>.

members, and for the addition of courses and programmes by existing members. Moreover, it is expected that as members revise their programmes and courses, and as the partnership gains momentum, a rationalization of the existing curricula will follow.

A major offshoot of the CVU-UVC partnership has been the role that several of its members (including AU) have been able to play in the federally funded Campus Canada project. This initiative, which started up in July 2002, provides a website from which federal government employees can access online university and college programmes and added services, such as central registration, credit banking and prior learning-assessment credits (particularly workplace training credits). The requirement that all programmes that are to be part of the project accept third-party prior learning assessments by the Canadian Learning Bank, an assessment service offered by The Open Learning Agency, which allows individuals to receive recognition and credit for studies they have completed elsewhere, has meant that most CVU-UVC partners are unable to participate.

Internationally, AU considers strategic cooperation as a key component of branding, and seeks in this way to enhance its global reputation as a leader in distance and online university-level education. Again, partnerships can be bi- or multilateral in nature and target different parts of the world. The AU-Universidad de Monterrey (UDEM)¹⁶ partnership best exemplifies a bilateral partnership, and enables Mexican UDEM students in their last year of undergraduate study to take select online AU courses as part of their UDEM programme. As a traditional campus-based institution, UDEM has recognized that its graduates need to be exposed to online learning. Since this is not a current emphasis of UDEM, students are encouraged through advising and a transparent process to take an AU online class (i.e. registration for AU courses is part of the UDEM registration process and fees are paid to UDEM). Not only do UDEM students gain online experience, but this arrangement also contributes to attaining two other UDEM educational objectives: increased competency in English (reinforced by UDEM's close proximity to the US border and by the North American Free Trade Agreement); and the opportunity to study in an international context.

In contrast, the Global University Alliance¹⁷ is a for-profit company that regroups eight universities – one Canadian (AU), two American, two British, two Australian, one New Zealand – and a commercial partner (NextEd). The Alliance seeks to position itself as a key provider of international online university degree programmes, primarily in Asia. In contrast to the CVU-UVC, courses and programmes are primarily graduate level and are delivered on a common platform and through a single course management system. This is provided and maintained by NextEd, whose network of servers in China also provide a reliable technological delivery infrastructure. Developing scalable online products at a cost-sensitive delivery point has proven to be this consortium's greatest challenge, though it is projecting a significant penetration of the global online education market in 2002 and 2003.

Lessons learned

- Effective bilateral partnerships are easier to create and implement than multi-partnered ones because the more partners there are, the more difficult it is to establish a common agenda.
- Meaningful partnerships require that institutions espouse a similar organizational culture.
- Partnerships involving several institutions and a for-profit partner are difficult to maximize given the slowness with which most universities reach decisions and the

¹⁶ See <http://www.udem.edu.mx/>.

¹⁷ See <http://www.gua.com>.

relative (in comparison to the for-profit sector) lack of control that university officers have in honouring commitments.

- Multi-member partnerships are an effective way of gaining brand recognition at home and abroad.

6. Future development and institutional change

AU will have to face several key challenges during the next few years. First and foremost, it must speedily complete its curriculum conversion to the online environment, for without the full array of technologically enhanced products and learning systems, AU's course and programme offerings will soon become irrelevant. Part of this challenge involves planning for continuous change in the online environment, as new technologies and applications evolve with important implications both for the quality of the online learning experience and for the way in which its component parts are managed. For example, the imminent advent of a door-to-door broadband infrastructure will provide opportunities, and raise learner expectations, concerning the presentation of content and the nature of learning activities incorporated into online courses. Directly associated with this will be the escalating cost of providing broadband-enabled content (e.g. simulation, animation, streaming video) and high quality, interactive content. Commercial publishers are positioning themselves for this eventuality and are putting significant resources into the development of highly effective, state-of-the-art learning resources that students will be able to access online to accompany and complement textbooks. Just as most distance learning systems found it impossible to compete with commercial textbooks, and chose to build their courses around them, so too will public online providers find themselves purchasing online resources and incorporating them into their online courses. This, coupled with the emergence of usable learning object repositories, has major implications for the role of faculty members or subject-matter experts in curriculum development, where creativity will revolve around unbundling and reassembly rather than original course content and development.

A second key challenge for AU involves the development of an individualized online course model that is as scalable as the traditional print and telephone-supported one. The challenge is pedagogical in nature, as it involves designing a model that will incorporate the advantages provided by asynchronous communication with peers and the development of communities of learners, without increasing variable delivery costs, and without losing the economy of scale provided by continuous enrolment and individualized (as opposed to cohort-based) study.

Third, as a single-mode provider of distance and online learning that operates in an increasingly global educational environment, AU must continue to grow to further develop its institutional brand both nationally and internationally. Without growth in numbers and in recognition, even AU's domestic market is at risk as other internationally branded providers prepare to compete in Canada. Doubling the current enrolment by the year 2010 must be achieved without compromising quality, and in a climate of reduced public spending on education. At the same time, the capacity must be found to introduce new programmes and to accelerate the speed and frequency with which existing courses are revised and updated.

Last, these key challenges have to be addressed at the very time that the institution is making the transition to a less centralized, more networked organizational model. The geographic location in a town of 2,000 and the difficulties associated with recruiting and retaining the requisite labour force have made this change necessary. AU is committed to implementing a modified organizational model that is characterized by networked work sites and adjusted staffing arrangements. While it is anticipated that the Athabasca facility will remain the hub of the institution's activities, interconnected nodes or branch sites will assume increased importance. The University is moving to implement a function-based approach to staff

location in order to offset both the limitations of its Athabasca location and the strategic advantage that the tele-work option can lend to the recruitment and retention of top-calibre staff.¹⁸

¹⁸ For a full discussion of AU's future staffing model, consult the Strategic University Plan.

7. The most important lessons learned

The fact that online learning is borderless by nature, and is significantly more affected by globalization than any other educational model, represents perhaps the most important consideration in developing institutional, national and international strategies intended to make virtual universities flourish.

At the institutional level, this means acknowledging the highly competitive context within which virtual universities operate, and recognizing that their borderless nature has advantages and disadvantages. On the one hand, a virtual university can in principle recruit students worldwide; on the other, it has no protected local geographical region from which to draw the majority of its students. Consequently, quality, flexibility and cost – the three variables most likely to affect recruitment and retention of students – take on increased importance in the virtual environment. Hence, institutional management, policy setting and strategic planning must be exploited such that an institution's positioning with regard to these factors is maximized.

Quality

Instructional Systems Design, external peer review, and accreditation provide the framework for developing and maintaining rigorous academic quality. The implementation of an Instructional Systems Design model in a virtual university environment sets the framework for developing and maintaining courses and programmes that are of high quality. Courses should be developed by teams of academics and professionals, thereby ensuring that sound pedagogical practices inform not only the effective online presentation of content, learning activities, and assessment, but also the pedagogically rooted interaction that is to occur with instructors and fellow students. Moreover, the same attention should be given to the editing and copyright clearance of online materials as in the printed environment. Given that the online medium makes it possible for individuals to amateurishly assume the professional roles of other course team members, policies and procedures have to be in place to safeguard against this eventuality.

Quality in an online environment, however, is not just about academic content. Equally important to the success of online learners, and hence to their recruitment and retention, are the nature and quality of academic and student support services. In seeking to establish, monitor and report on practices and standards for these services, virtual universities are well advised to shift their frame of reference away from traditional academia and towards private industry (including for-profit providers of online education and training), as this sector presents better and more relevant benchmarks and practices that can be tailored to meet a virtual university's needs. As a provider of online education, it is essential to recognize that one is part of the service industry, and that the development of a very strong service culture is hence a *sine qua non* of success. Policies and procedures that emphasize this are essential, as is recognizing the importance of the service culture as a value-driven leadership model, which demands that all senior executives and managers continually exemplify the targeted values.

Flexibility

Students have consistently identified flexibility as their primary reason for enrolling with AU. Virtual universities need to ensure that their core functions are rooted in processes, policies and regulations that maximize the students' opportunities to engage in flexible learning.

Eliminating the geographical barrier constitutes one aspect of flexibility. The academic and non-academic regulations that have traditionally helped define our universities must also support flexibility.

At national policy development and planning levels, governments should capitalize on the fact that e-learning is the thin edge of a wedge that will not only break down geographical barriers to accessing education, but will also help confront the unreasonably closed nature of most universities. Unjustifiable policies and practices regarding such key issues as residency, course prerequisites, transfer credit, portability of credit, credit banking, learning banks, and recognition of workplace learning will increasingly have to be defended as a result of the shift to a much more student-centred model that e-learning promotes. Given that virtual universities and virtual consortia are catalysts for change, governments need to take them into account when developing strategies for enhancing education systems and promoting online learning (for example, when funding the development of online curricula and related research).

Cost

Competitive pricing for online educational services is affected by the financial scalability of the educational model and the size of the marketplace.

Economies of scale in the virtual university depend on the relationship between fixed costs (e.g. of developing and maintaining online content, learning activities, assessment, or administrative infrastructure systems) and variable costs (generally associated with the labour for academic support and non-academic services). Given the investment in fixed costs, online learning can be said to have a scalable model when the revenue (e.g. tuition fee, government grant) generated by serving an additional learner exceeds the costs associated with processing and serving each new learner.

For online learning to maintain the economies of scale that are found in the more traditional forms of distance education, the balance between fixed and variable costs needs to be maintained. This is achievable as long as the new online variable costs associated with monitoring and stimulating the enriched form of peer-to-peer and peer-to-instructor communications that e-learning enables are offset by a reduction in other variable costs. AU has accomplished this by significantly reducing communication costs associated with student interaction (now primarily through e-mail); by eliminating many clerical administrative functions through web-enabled interactions performed directly by students (e.g. library searches and course registration); by introducing web-based advising and counselling services; and by automating in some instances functions previously carried out by course tutors (e.g. formative and summative assessment). There is little doubt that these economies of scale can be realized much more easily when the organization's infrastructure, policies and practices are dedicated exclusively to online education.

For online education to be truly scalable in Canada – given its population – policy-makers need to maximize the ability of provincially established universities to effectively deliver online courses throughout the country. This entails eliminating provincial barriers, such as the requirement in several provinces for approval from a provincial quality assessment board, and establishing a pan-Canadian infrastructure in support of online learning that would effectively network core regional requirements, such as broadband development, virtual libraries, and learning object repositories. For their part, universities should maximize the economies of scale, which can result from the creation of virtual consortia, that allow participating members

to rationalize their online offerings and to develop niche expertise that can serve not just their own organization but all consortia members.

Last, virtual universities operating in a language spoken by a significant population outside their country have the opportunity to expand their market beyond national boundaries. Meaningful access to international markets, however, increasingly requires recognized accreditation, and the absence of a Canadian accreditation system will seriously impede most of its universities from operating overseas. Canadian universities need to recognize this shortcoming and assign a high priority to mounting a national accreditation system for universities and colleges. Elsewhere in the world, the convergence of campus-based, distributed and e-learning offerings is providing virtual universities with the opportunity to gain accreditation from established regional or national accreditation bodies. This option is vastly superior to the alternative of creating special arrangements for accrediting online programmes, as the mainstreaming of accreditation for online education can only enhance its reputation and reach.

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