

Changing the Academy

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Abstract: This paper reviews trends that impact global demand for university education, describes several forces for organizational change operating at present upon and within the academy, and proposes changes to funding policies that could provide more effective models of publicly-funded university education. In the process, the distinctive hallmarks of universities do not need to be relinquished.

Introduction

Moe (2002) reported that there are almost 15 million students enrolled in about 4,100 US colleges and universities at present. The need for university-educated workers in America has increased significantly over the last 10 years, from 45% of the total adult population in 1991 to about 65% at present. This demand for university graduates remains largely unmet, as indicated by the salary gap between high school and college graduates. In 1971, US college graduates on average earned 47% more than high school graduates. By 2001, this had increased to 112%. Partly in response to these market signals, the percentage of US college students over the age of 25 increased from 28% in 1970 to 43% in 2000. Still, less than 25% of US adults aged 25 and older have at least an undergraduate degree. In Canada, the situation is similar. The number of Canadians with university degrees grew by 39% between 1991 and 2001, more than 2.5 times faster than the growth of the country's adult population. Yet over the same period, student fees jumped 126% as costs outstripped government funding and demand for university education remained strong. In real dollars, US and Canadian university tuition has roughly doubled every ten years over the last several decades, and this appears to be a continuing trend.

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

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The increased demand for university education is even more pronounced in the rest of the world. Dhanarajan (2001) estimated that at present there are 3 billion adolescents and adults who are under-literate, illiterate, or in need of retraining. Moe (2002) indicated that the US and Canada are only two of 10 countries that presently provide a college education to 1/3 or more of their college-age populations. Globally, there are about 84 million students attending 20,000 colleges and universities, but 160 million students are estimated to require access to higher education by 2025. This demand will be particularly strong in the Far East, where the skilled white collar segment of most Asian countries' working populations is growing in excess of 2% per year. Demographics indicate that absolute numbers of students, the number of students as a percentage of total population, and average age of students will increase over the next 25 years. Population growth, increased economic activity, and growing demand for white-collar workers will create an unequalled demand for higher education.

Besides these demographic shifts, Peters, cited in Keegan (1994), described three characteristics of postindustrialism that will also increase the demand for higher education. First, a proportionally greater amount of labour will be employed in the service sector. Since many of these positions will require highly qualified individuals, lifelong learning and relearning will become increasingly important. Second, new technology will arise. This will change the nature of work and learning, and physical location for both activities will matter less. Third, the decision-making structure of the economy and society as a whole will change and become more participative and democratic. A more educated populace is a necessary precondition of an effective democracy.

These trends clearly indicate the need for significantly expanded access to university education in the future. However, publicly-funded universities are generally ill-equipped to handle these anticipated changes in almost all industrialized countries. Classroom space is limited and infrastructure is aging. Newer forms of technology are often being introduced only selectively into existing organizational structures. In spite of mounting pressures from government and growing competition from the for-profit sector, the manner in which publicly-funded universities conduct the education process has not yet been fundamentally altered.

External Influences on the Academy

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

Dolence and Norris (1995) noted that fiscal restraint by governments has merely focused universities on reallocation of financial resources to high priority programs, rather than changing the underlying organization and practice of higher education. Values, processes, and structures of pre-modernity still predominate. In most cases, university education, including online education, continues to revolve around fixed start and end dates, cohort-based learning, a craft-like approach to learning, and consequent limited economies of scale. Quality is still often measured by inputs like student/faculty ratios and credit units taught per faculty per term rather than by learning outcomes. Universities are still very much vertically integrated organizations with faculty and students clustered on campuses. Classes are scheduled to permit a more efficient pursuit of other faculty activities like research and university service. Competitive advantage is often achieved by effectively marshalling faculty resources in one geographical location and by restricting competition through the accreditation process.

Gilbert (2001) noted that forays into higher education by for-profit entities exploring novel uses of electronic technology to teach and learn are in their infancy. Continued technological developments, coupled with the massive unmet demand for university education and traditional universities' general unwillingness to explore new means of organizing, may encourage the formation of more corporate universities.

As both Uchitelle (2003) and Clayton (2003) observed, steadily increasing tuition fees also put more pressure on governments to end the quasi-monopoly of publicly-funded universities to certify higher learning outcomes. Nunan (2005) stated that the Australian university system soon may be restructured as an open and relatively unregulated market where private and public institutions with faculty not actively engaged in research would be allowed to provide university degrees.

These type of developments would be unfortunate, Gilbert (2001) suggested. For-profit organizations tend to be intellectually and culturally impoverished, not because they are commercially oriented, but because their objectives are narrowly focused. The academy's historical use of reasoned, disciplined enquiry as the essential tool in the pursuit of truth often results in unpopular critiques of dominant paradigms and values. This, coupled with the traditional and widely-accepted role of the university as a repository of the best that is known and thought in the world, suggest that incursions by commercial entities into the higher education sector should be curtailed.

There are other reasons to support the current quasi-monopoly granted to public universities by their respective governments over the credentialing of university learning experiences and continued funding of the academy by taxpayers dollars, even if entry barriers to private competitors remain high. Wellen (2004a) suggested that public funding is needed to not only enhance human capital, but also to facilitate more diffuse social benefits like fostering a learning culture and encouraging critical enquiry, tolerance, and greater participation in democratic structures. There are indirect economic benefits to all citizens through increased earnings and therefore spending and taxation levels.

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Even so, perceptions of the place and purpose of higher education within society appear to be changing in industrialized countries. This will likely have significant influence on the organization and administration of universities in the future, particularly public funding practices and mechanisms. Some of these perceptions are discussed further below.

University Education as a Private Good

Wellen (2004b) suggested that consumerism and higher costs have gradually focused students more directly on the utility of higher education. This ethic has created a demand for choice by students, and increased their expectations of universities. Concurrently, a “reflexive” society has developed, whereby more abundant and diverse sources of information and an ethic that emphasizes the need for active, rather than passive, access to publicly provided resources is the most appropriate means of fully developing individual potential, including risk management skills.

Reflexiveness has created more fluid conditions of membership in social groups, including organizations. Rules of participation are less formal and codified, and the value of intellectual capital tends to be enhanced through membership in informal networks. As a result, uncertainty with respect to future financial and career outcomes increases for participants. In the context of higher education, the massification of higher education, growth of the knowledge society, and the influence of a reflexive society gradually raise the cost, risk, and reward of higher educational achievement even though university students’ educational experiences and the credentialing process may still be significantly directed by academics. These influences increasingly transform university education into a private good.

Laidler (2001) also supported this concept of higher education as a primarily private good, suggesting that a pre-eminent role is assigned to the academy by society at large only because graduates have more useful skills to contribute than otherwise and because the academy sometimes propagates ideas that have social benefit, including the potential to contribute to economic output. This knowledge is usually freely available to all, with no means to charge those who capitalize on it. If an economy relies on market incentives alone to bring about investment in such activities, these will be underprovided, to the detriment of society. Levine (1993) and Levine and Sun (2002) also noted that students who have been raised in a more critical and consumer-oriented society view university education as a commodity and desire to have a larger say in important aspects of their educational experience. Growing numbers desire an education focused on academic learning, increased access, and lower costs, and view some aspects of the campus experience like extracurricular activity, residence life, varsity sport, and even attending lectures as extraneous, expensive, and non-value adding.

Though externalities like broader social benefits suggest that governments should subsidize higher education, Dolence and Norris (1995) opined that individual learners would increasingly drive transformative change in higher education if they

were given greater latitude in economic decisions related to their education, and if institutions provided them with informed choices and guided their individualized learning processes.

Hülsmann (2004) noted that there is a growing body of evidence that placing economic control in the hands of the consumer – in this case university students – benefits all of society. These findings from human capital research indicate that people largely invest in education because incremental costs of an additional year of education are outweighed by benefits in terms of increased earnings and various intangibles, even if a large part of this overall cost is paid from the public purse.

All these arguments suggest that because there is both private and public benefit to higher education, students should be subsidized somewhat by public funds. But if this is so, the question remains of the most appropriate means to dispense these public subsidies to serve the needs of students, society in general and by implication, the long-term needs of the academy. This issue will be discussed further below. First, though, two general perceptions about the means of facilitating change within the academy need to be examined.

The Dichotomy of Perceptions Toward Change within the Academy

Van Dusen (2000) proposed the idea of *incremental reformism* to explain why faculty and administrators within most publicly-funded universities are reluctant to significantly change the typical organizational form of the academy. The key components of a traditional academic education have been fixed for centuries, he noted - time and location of classes, type of instruction, and the roles and responsibilities of faculty. Over time, stakeholders have come to believe that these variables are necessary features of an authentic university education. Institutional customs and cultural beliefs have been buttressed by laws and public policies that reinforce the status quo. Regulations and funding formulas are all based on factors that have historical antecedents, however obscure.

Incremental reformism is essentially evolutionary. The classroom remains the basis of teaching activity. In this view, personal faculty involvement with students is necessary to engender deeper thinking about broad social, economic, cultural, and political environments. This contact creates in students the abilities to conceptualize, analyze, and critique. It provides skills and develops judgment necessary to investigate complex problems. This view retains faculty members as a focal point of knowledge acquisition and construction. Core academic values are preserved, and instructor-learner contact is emphasized even in an online learning environment where students are still required to start and end on certain dates and proceed in relative lockstep fashion. In this forum, proponents view new digital technologies as additional tools to augment existing teaching practices. Incremental reformers among administrators of most universities – particularly campus-based ones or dual-mode universities – also desire to maintain past educational, mainly

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cohort-based, practices because of large investments in capital infrastructure. Organizationally, there are formal limitations imposed by collective agreements and the larger traditions of the academy that date back several centuries.

In large part, though, fundamental change has been opposed by incremental reformers because of the fear that otherwise, utilitarian agendas that promote education on the basis of economic advantage would diminish the value of theory development and research. Tenured, full-time faculty members, it is argued, are necessary to maintain input into the administration of the institution and hence academic freedom. There is intrinsic value of a broadly based, liberal education, and a sense that personal economic benefits should not be the focus of advanced education.

Juxtaposed with incremental reformism is what Van Dusen termed *millennial restructuralism*. A necessary component of this view is the removal of traditional constraints of learning – time and place. It posits that a radical restructuring of the academy is necessary to respond more rapidly to changing social, demographic, and economic pressures. Concomitantly, new learning technologies adopted by appropriately reorganized institutions should be used to create significantly new approaches to the process and management of higher education, and not merely augment the classroom-based, faculty-centred model of most university education.

Proponents of millennial restructuralism believe that it is necessary to sweep away entrenched barriers to change within the academy, or even start over. The underlying, informing worldview, suggested Van Dusen, is a belief in the increasing importance of knowledge in the production of value. The knowledge-based economy fundamentally alters the needs of those educated within the university system. As a result, teaching and learning needs to be re-defined. Graduates need to be able to find, process, and distribute information efficiently. Appropriately designed learning experiences that emphasize analysis, problem solving, and other higher-order cognitive skills, as well as communication skills, combined with the pedagogical advantages of technology reduce the need for direct faculty involvement in students' education processes.

Van Dusen suggested that this radical restructuring process may eradicate the hallmarks of a traditional liberal university education. However, it is unclear whether this will be the case. Non-traditional universities like the Open University of the United Kingdom and Athabasca University in Canada continue to expand enrolments and online offerings in a wide variety of disciplines. As well, they maintain autonomous, faculty-centred governance structures, are significantly supported by public funds, and require ongoing, consistent research output from faculty. The essential question appears to be whether the practice of university education can be essentially transformed by severing the traditional faculty-student relationship without prejudicing the latter's educational experience. In this regard, a brief recap of the evolution of university distance education may be instructive.

The Evolution of Distance-based Learning

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

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

However, Taylor's third generation - the Telelearning Model - altered this delivery model by introducing audio- and videoconferencing, and broadcast technology. This produced more direct human contact between teacher and learner and among learners into the distance education process, and somewhat weakened criticisms of the extant distance education process. Perceptions of distance education's efficacy were also improved with the introduction of what Taylor termed the Flexible Learning Model – distance education's fourth generation. This model featured online delivery of interactive multimedia, access to World Wide Web resources, and perhaps most importantly, computer-mediated communication (CMC). This latter feature enabled educators to introduce a hitherto missing element into the distance education process – digitally-mediated, asynchronous interaction among learners and between teacher and learner. CMC allowed learners and instructor to be separated in both time and distance, and yet still maintain interaction forms that in essence reflected those that occur (at least ideally) in traditional university classrooms. The advent this fourth generation signaled to many the coming-of-age of distance education as a legitimate form of higher learning. As Garrison (1997) suggested, asynchronous communication enables more constructivist forms of learning and allows learners to communicate in writing. This encourages more reflection, and disciplined and rigorous thinking. This, he argued, helps learners to make connections among ideas and to construct internal, coherent knowledge structures.

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

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academic advice, for example.

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

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

Taylor argues that this debate is almost settled. His fifth generation learning model may create for the first time in the virtual learning environment two key attributes that accounted for the initial successes of distance education - flexibility for students and value creation for the institution, primarily in the form of reduced costs compared to traditional, campus-based universities. In its new form, though, ". . . distance education is not only less expensive, it also provides students with better quality tuition and more effective pedagogical and administrative support services" (p. 10).

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

Critics of industrialized distance education term it "Fordist" and antithetical to desirable teaching and learning processes. For instance, Stevens (1996) considered that in its current organizational forms, industrialized distance education tends to

produce differences among people, and to exclude or marginalize. Distance education, even in its various evolutionary forms, has been disparaged as a valid educational form. Its message of modernity – concepts of mastery, progress, and development of reasoning faculties – continues to be espoused. These lead to connotations of moral superiority. Postmodern and deconstructionist critiques of these dominant paradigms, it is argued, support the need for more “open” aspects of education, including informed discourse, and humane, emancipatory learning experiences that focus on learning and the learner, difference, diversity, and education for transformation and democratic participation.

With respect to workers within these institutions, Stevens argued that separation of instructional and other academic functions from production processes inherent in Fordism does not result in greater academic freedom for faculty, but disempowerment. At heart, any industrial tendencies result in the exploitation of workers, as they still are forced to adapt and respond to competitive pressures. They incur stress as a result, instead of experiencing labour primarily as a form of self-realization and development. Further, the bureaucratic underpinnings of industrialized distance education result in the objectification of students.

Fordist principles, Stevens continued, are informed by various, often unexamined, socioeconomic paradigms – technology-based “knowledge interests” and politically motivated bureaucracy, for instance – that are antithetical to a more humane view of distance education. The consequent uniformity and globalization of a dominant voice imbues the distance education institution and controlling groups with unacceptable levels of power. Fordism and its evolutionary variants emphasize in differing degrees the mass production and commoditisation of knowledge, and support mass behaviorism. Even “post-Fordist” industrial paradigms that create a more entrepreneurial culture and make bureaucratic processes more flexible have not adequately and fundamentally addressed the deficiencies of Fordism, Stevens argued, nor moved it sufficiently far from its industrial and bureaucratic underpinnings. Further, even though post-Fordism may rightly downplay fundamental Enlightenment concepts like rationalism and empiricism, and attempt to be more just and democratic, it continues to be informed by implicit support for industrial production and market-based consumerism. It still emphasizes neo-capitalist concepts like quality of consumer life even while shifting focus away from mass production toward mass customization. Like their Fordist predecessors, and though they may be more agile, post-Fordist distance education organizations still seek out new, niche markets to sell their products, including exporting these to developing nations. This leads to undesirable side effects like dependency and obliteration of local cultures, traditions and practices. Further, these practices support globalization, which in turn can be viewed as deleterious to nation-states’ control over events within their political jurisdictions.

Finally, Stevens noted concerns of some writers with the replacement of academic responsibility by market-driven demand for education in post-Fordist organizational forms of distance education. As a result, market-oriented education is specifically rejected. Using principles of education rather than industrial sociology

to inform the distance education process can result in higher, more desirable forms proposed by supporters of open learning, Stevens argued.

The problem with criticisms that Stevens and others level against industrialized distance education institutions is that most of them may be applied equally as well to any form of university organization. The massification of both distance and campus-based higher education can result in the objectification of students. Messages of modernity still abound in traditional universities and the eventual triumph of post-modern thinking is by no means assured. Education for transformation and democratic participation are principles embraced and resultant practices incorporated into the teaching and learning process by some faculty within industrialized distance education institutions as well as only sometimes within conventional campuses. Niche marketing of university degrees, particularly in foreign jurisdictions, is practiced by a number of campus-based universities with physical presences in these offshore locales. Faculty at traditional universities moving into online education often welcome division of labour through the use of instructional designers, graphic artists, and editors who contribute expertise to the online course production processes. It is the increased possibilities of instructional media and communications within the electronic environment that requires additional expertise, and this need not strip academics of traditional teaching duties, even in an industrialized setting. Further, faculty often desire the assignation to others of their more mundane academic duties, like marking, in both classroom and distance-based university education. The industrialized distance education setting, much like its more common electronic classroom counterpart evolving at most campus-based universities, can also bring more freedom of time and place to faculty and students alike.

With respect to the purportedly market driven characteristics of industrialized distance education, all universities are responsive in some form to student demand for educational programming, or the lack of it. This, it could be argued, is a function of practicing good stewardship over limited resources, not a response to market-based consumerism. Finally, tendencies to be influenced by technology-based knowledge interests and politically motivated bureaucracies are certainly not unique to industrialized distance-based universities.

Still, some of the criticisms of industrialized distance education institutions are valid. No one form of educational organization is perfect. However, it is the more diverse forms of pedagogy and improvements to student responsiveness and flexibility inherent in new forms of distance education that are often overlooked. Its continued flexibility and adaptability are not usually appreciated nor adequately contrasted with traditional campus-based universities. This often prevents a balanced assessment. For instance, an appropriately structured industrialized distance education process may allow students flexibility in terms of start dates and duration of their courses instead of rigid adherence to semester timetables. As Anderson, Annand and Wark (2005) noted, facilitating meaningful and pedagogically useful online communication in an unpaced environment is technically challenging because it is difficult to anticipate which students will be at the same point in a course at the

same time. However, it appears that a significant portion of the student population largely self-selects this form of education because of the flexibility in learning pace and duration it offers. Students' desire for interpersonal communication appears to be lessened to the extent that self-pacing is negatively affected. In addition, pedagogical limitations of this model will gradually be relaxed as new distance education systems are developed to foster interpersonal communication, yet maintain student flexibility.

Most importantly, the production and delivery models of industrialized distance education institutions are demonstrably more cost effective and scalable than the cottage-industry, individual faculty-centred models which predominate in campus-based and even so-called "dual mode" universities that offer both classroom and classroom-like online learning experiences. These assume a traditional delivery model where cohorts of students proceed at the same pace through their courses under the tutelage of an individual faculty member who significantly designs and develops the course content.

This demonstrable, continued cost effectiveness of distance education needs to be considered more fully, to counterbalance the criticisms of industrialized forms of university education. To this end, a comparison of two Canadian universities is conducted below.

A Comparison of Athabasca University and the University of Lethbridge

Athabasca University and the University of Lethbridge are two public universities located in Alberta, Canada. The University of Lethbridge is a traditional, campus based university located in southern Alberta and established in the 1960s. It has satellite campuses in Calgary and Edmonton, Alberta. Athabasca University, on the other hand, has no campus. Since its formation in 1970 as Alberta's fourth publicly-funded university, its mission has been to reduce barriers that traditionally restrict access to university-level education for adults in Alberta, but increasingly throughout Canada and the rest of the world. To accomplish this, the institution has adopted open access policies in its undergraduate courses – offering courses almost exclusively by distance or online education, admitting any adult regardless of prior education, arranging comprehensive transfer credit arrangements with other educational institutions, and pioneering work in prior, non-formal learning assessment for university credit.

The two universities offer somewhat similar undergraduate programs in humanities, social sciences, science, and business. There are some differences. The University of Lethbridge offers undergraduate programs in fine arts and education, while Athabasca University has a nursing program. Athabasca University also offers graduate programs in business, distance education, health studies, and integrated studies. The University of Lethbridge has a somewhat smaller graduate program in terms of student numbers, consisting of studies in education, arts, and science.

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Per-course undergraduate tuition at each institution is virtually the same. For the year ended March 31, 2005, the University of Lethbridge had about 7,000 undergraduate full-time learning equivalents, or FLEs. (One FLE is defined as 10 undergraduate course enrolments.) FLEs amounted to about 6,700 for the year ended March 31, 2004 and 6,400 for the year ended March 31, 2003. This represents a compounded growth rate of about 3.5%. In comparison, Athabasca University served about 6,300 undergraduate FLEs (2004: 5,700; 2003: 4,400). Its FLE count has grown at a compounded rate of 20% for the last three years.

For the fiscal year ended March 31, 2005, Athabasca University's total revenue was about \$80 million (2004: \$70M; 2003: 62M), or 65% of that of the University of Lethbridge (2004:62%; 2003: 59%). In 2005, Athabasca University received approximately \$18 million, or about 34% of its total revenue, from provincial government operating grants. The University of Lethbridge received about 54% of its total revenue from government grants during the same period. In 2005, the University of Lethbridge received \$1.99 of operating grants for every \$1 of tuition from undergraduate students. This ratio has declined about 2.5% per year over the last three years. Athabasca University's ratio has declined about 20% per year during the same three-year period, from \$.99 per \$1 in 2003 to about \$.70 in 2005. The Athabasca University ratio has declined an average of 13% year over year since 1996, when the ratio was \$2.37 per \$1.

University of Lethbridge net capital assets at March 31, 2005 amounted to \$140 M, virtually unchanged since 2003. Athabasca University net capital assets totalled \$20 M at the end of fiscal 2005, also virtually unchanged from the prior two years. Facility-related expenses as a percentage of total expenses equalled about 14% for the University of Lethbridge for the 2003, 2004, and 2005 fiscal years. Equivalent figures for Athabasca University have decreased from 8% in 2003 to 6% in 2005.

The figures indicate that Athabasca University's cost structures are significantly lower than the campus-based University of Lethbridge. Fewer government funds are needed to subsidize growth because the University's industrialized approach means that investment in physical infrastructure is relatively low and can accommodate a fairly large rise in enrollment levels without experiencing capacity constraints. Athabasca University can continue to grow based essentially on incremental tuition revenue; per-student operating and capital grants from the Government of Alberta are significantly lower for Athabasca University compared to the University of Lethbridge and these continue to decrease significantly each year.

However, the flip side of this analysis is that the education of campus-based students is subsidized by government operating grants to a greater extent than that of distance education-based students. The relatively large and increasing public subsidy of campus-based education makes this mode of learning less expensive for students than otherwise, even ignoring the larger capital grants needed by campus-based universities. This phenomenon distorts the relative demand for distance based versus classroom-based education, at least in Alberta, though the analysis should

also be applicable to any political jurisdiction where levels of government funding, including capital grants, are not based strictly on enrolment levels.

Despite the demonstrated efficiency of non-traditional form of university education (and implicit support for the efficacy of online education by its increasing use at traditional universities), present government funding practices provide little incentive for students to choose Athabasca University over the University of Lethbridge or the two larger, campus-based Alberta universities, the University of Calgary and the University of Alberta.

Practically speaking, though, how can these funding inequities be resolved? As suggested by Van Dusen (2000), defenders of the status quo within publicly-funded universities, whether campus-based or existing dedicated distance education institutions, will act to slow both the rate of change and the availability of alternative forms of university education. However, the public university sector could be radically altered by innovation processes external to it, which are becoming better understood. Even though innovation theory has been largely applied within the context of capitalistic economic theory, there are implications for higher education. These are discussed below in the context of publicly-funded, research based universities.

Innovation Theory and the Public University Sector

Christensen and Raynor (2003) stated that there are two distinct categories of innovation. *Sustaining* innovations are those where product improvements can be made that will appeal to upscale customers who are willing to pay a premium for these products. The product thus creates higher profits for the firm. *Disruptive* innovations occur when a simpler, more convenient, or cheaper product that may appeal to a new or previously unattractive customer base is introduced. This type of innovation also gradually pulls customers away from the mainstream “value network” - the set of economic activities within a firm that produces profit - starting with those customers who are most easily satisfied. Upstart firms that introduce disruptive innovations are more likely to displace established firms as the operations of the latter have higher overheads and their resource allocation processes are dedicated to the support of sustaining innovations. Thus, their attempts to remain in these lower-end markets are often inhibited

The disruptive business model succeeds because the higher volumes of customers that are created by innovative, less costly approaches allow reasonable profits to be earned at discount prices by new firms. As well, disruptive innovators have a powerful incentive to continually improve their product so they can move into upscale product lines where profits are higher. As a result, they continue to take over successive markets populated by established firms. Established firms often give up a particular market segment rather than compete with disruptive technology because it is easier to concentrate on still higher-end products with proportionately larger profit potential.

Christensen and Raynor proposed three litmus tests to determine whether an idea has disruptive potential. First, does the product or service appeal to a large group of people who historically have not had the money, equipment, or skill to use the product or service, or who have to travel to inconvenient locations? Second, is there a group of people at the low end of the market who would purchase the disruptive technology if it cost less, and even though performance might be lower, though still acceptable? Third, does the innovation disrupt all firms in the industry? As Archer, Garrison and Anderson (1999) observed, distance-based universities would almost certainly qualify as disruptive innovators, given their lower cost structure and flexibility that appeals to learners who can not attend traditional universities because of work, family, or other commitments.

This advantage is not negated even with the introduction of Web-based learning in virtually all universities. In the electronic age, campus-based universities and even dedicated distance education institutions that do not take advantage of the cheaper and newer forms of organization and operations now made possible by rapid improvements in communications and other electronic technologies or what Taylor (2001) termed “fifth generation” distance education – risk being supplanted by a few online university education providers that can get the model right.

Thus, despite predictable resistance from some quarters of the academic community, a confluence of factors will put increasing pressure on university systems worldwide to evolve. It appears that demand for university education will outstrip supply into the foreseeable future in virtually all political jurisdictions. Various post-industrial pressures are also being brought to bear on the higher education system: a shift to learner- centered institutions from faculty-centred ones; the ability of learners to access multiple levels of education rather than proceeding in lock-step fashion from one level to another; learning that can take place any time and at any place; more interactive and collaborative learning; accommodation of an increasingly diverse university population, and a growing perception that higher education should be considered a primarily private good. Finally, there is a growing perception that development of more affordable, widely-accessible education systems is desirable because civilized societies should provide their citizens with the education they need throughout their lives. All these factors create both an opportunity and requirement for the academy to change.

Any transition from an elite to a mass system of higher education creates a need to increase access without affecting quality. However, the present systemic, relatively greater public subsidy of traditional campus-based university education significantly inhibits this transition process, as discussed above. Several means to remove this distortion are discussed in the following section.

Removing Systemic Economic Distortions from Public University Education

Fundamentally, students need to be apprised of the full cost of their chosen educational programs at various universities to make more rational educational and economic decisions. The most straight-forward method of enabling this would be to fund universities based on a per-student or FLE formula for both operating and capital grants. Under this model, campus-based, classroom-focused universities would need to charge a tuition premium to pay for relatively greater staffing levels and physical infrastructure that this model requires if an equivalent alternative program is available from a virtual university. In the absence of any conclusive evidence that a campus-based learning experience provides a better education for students or that society inordinately benefits from this organizational form of higher education, learners who desire a campus-based learning experience should have to pay more for the privilege.

Another method to remove the economic distortions inherent in present forms of funding for university education would be for the state to fund students directly. This could be accomplished by several means, including reimbursement of a fixed dollar amount of tuition paid each year in the form of refundable tax credits when students file their personal income tax returns. However, a key feature of this proposal would be to base student reimbursement on the lowest tuition fees for a particular program of studies charged by universities in the relevant political jurisdiction. In effect, additional fees that provide physical campus facilities, amenities, and services for an equivalent learning program would need to be charged but not reimbursed to students who choose a campus-based education.

Under all of these models, the actual percentage of government subsidy for an individual's undergraduate education should be greater than previously, as less expensive online forms of university education would likely be chosen by students. Therefore, overall savings from lower operating costs and capital expenditures would be realized. Also, increased numbers of students would be able to enter the university system for a given level of overall government funding, because average net per student tuition costs would be reduced.

These changes would broaden access to higher education in other ways. The traditional campus-based education model effectively closes off higher education opportunities to the poor and many rural learners who cannot afford to relocate. Campus-based learning also prejudices those with significant other responsibilities like families and full-time jobs, by generally requiring them to learn at the same place and at the same time. These drawbacks can be substantially overcome by fairly subsidizing alternate forms of university education.

If education is increasingly considered a private good, students are provided with greater control over their educational experience as they exercise economic choice. Administrators and faculty will be forced to examine the means by which value is created and retained by publicly-funded universities and these organizations would have powerful incentives to embrace new, more efficient, organizational forms.

There are some caveats. As Wellen (2004b) noted, advantages historically conferred on those in higher socioeconomic strata need to be counteracted in any system of incentives for higher education. Regulations would still be necessary to ensure broad access to all areas of university education, as well as bursaries and loan programs to assist economically disadvantaged students. Key non-financial performance indicators would also need to be gathered and published to inform student choice.

One essentially qualitative consideration remains, though: whether distance education in its more recent incarnations described by Taylor (2001), and despite its demonstrated cost efficiency, is as effective as typical classroom-based, faculty-centred university education. Though important, is not the purpose of this paper to delve deeply into this debate. Suffice it to say that the plethora of “no significant difference” results in comparative media studies combined with the demonstrated cost efficiencies of distance education and its continuing technological enhancements that enable and improve educational practices flowing from a variety of educational theories, including constructivism, put the burden of proof on defenders of paced and non-scalable models of university education.

Conclusion

It is quite possible to envision universities where teaching processes are structured in significantly different yet still-effective ways, and where academic freedom and research are still highly valued. These attributes can be maintained by retaining autonomous, faculty-centred governance structures of publicly-funded, not-for-profit universities; by strengthening the role of regional and national accreditation bodies; and by encouraging continued state funding of higher education. In effect, these measures retain barriers to entry from private competitors in the interest of supporting the demonstrable public good of publicly-funded, research-supporting universities.

Despite increasing pressure on the academy to change, resistance by those who hold relative economic and political power – primarily university administrators and faculty – is exacerbated by the relatively large subsidy provided to traditional universities. Several means to overcome this obstacle have been proposed herein.

In order for publicly-funded universities to maintain their premier position as provider of higher education, to continue to provide healthy and continuing research environments for faculty and students, and to retain their virtual monopoly on certification, the question is not whether these institutions can change, but whether they will. The new pedagogical and technological strategies needed to move university education into the 21st century are relatively clear. What is needed is the appropriate mechanisms to propel the academy forward.

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