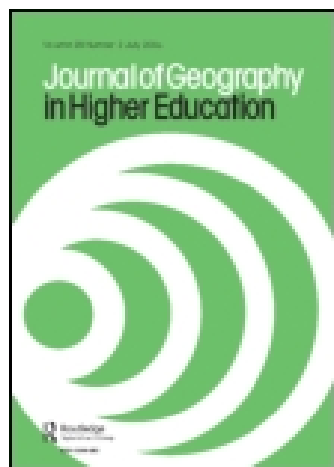


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Geography and the Changing Landscape of Higher Education

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JGHE ANNUAL LECTURE

Geography and the Changing Landscape of Higher Education

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ABSTRACT *Colleges and universities in the USA and many other countries find themselves in a deepening financial challenge that is significantly influencing operating decisions as well as student access to higher education. These trends are attributed to the weakened finances of governments, competition from non-discretionary public spending, the nature of education as a service industry and the fraying of the social contract between higher education and the public. This paper argues that Geography as a discipline can both survive in and benefit from this changing educational landscape. There are several themes that will strongly influence higher education in the years ahead, including competition, technology, globalization and sustainability. The nature of such forces over space and time continues to be ripe for geographic inquiry, but they will require the field to be more analytical, more connected to other disciplines and more international in its teaching and research.*

KEY WORDS: Globalization, sustainability, public spending, internationalization

Introduction

Higher education is now engulfed in a wave of change that will indelibly alter the ways in which we engage our profession, and the ways in which the marketplace and the public will dictate outcomes as they have never done before. The challenges facing higher education are global in scope. My objective in this paper is to focus on several of the megatrends and challenges we face in higher education, and hopefully demonstrate that there are many facets of these challenges to which geographers could contribute significant knowledge. Although this article is primarily concerned with higher education in the USA, the similarity of issues that confront institutions in other developed countries is striking (Crossick, 2010).

Geographers have spent relatively little time studying higher education as an economic sector, rather focusing on the teaching of geography (which is important in its own right!), despite exhortations to study the sector that go back several decades (McCune, 1968). Geographers have tended to concern themselves with higher education as a socioeconomic variable indicative of well-being. They have also studied the local economic and social impacts of university campuses (Cortes, 2002; Florida, 2002, 2003; Gumprecht, 2003; Carroll & Smith, 2006), spatial variations in student access (Turner, 2003) and the geographic origins of faculty (Foote *et al.* 2008; Theobald, 2008). With the

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exception of the recent work of Olds (2007, 2008, 2010) on the emergence of global higher education hubs and global regionalisms and higher education, geographers have been remarkably silent.

Evolution of a Differentiated, but Competitive, US Higher Education Sector

With its foundation laid during the medieval period in Europe, the contemporary American university has a rich and fascinating mixture of centuries-old practices combined with accommodations to a modern world. The first nearly 250 years of colonization and independence of the USA were characterized almost entirely by higher education provided in private colleges and universities, most with a church affiliation. Education focused on a classical curriculum of arts and letters, strong on philosophy, rhetoric, religion and the arts.

The passage of the Morrill Act in 1862 resulted in a profound change in American higher education (Williams, 1991). Federal lands were granted to the states, with the lands to be used or sold to create a flow of funds for the support of a land-grant college whose purpose would be "...to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life" (Morrill Act of 1862). The land-grant act created a unique model for public (state) funding of higher education that included a more comprehensive array of degree programs than characterized traditional education of the era. The focus on engineering and agriculture also encouraged the pursuit of research in these newly emerging scientific fields. From these early beginnings sprang the large, comprehensive state universities that tend to dominate the contemporary landscape of public higher education today.

The expansion of higher education institutions was also aided by the growth of 'normal schools' that emerged in large numbers by the mid- to late-19th century as places to train teachers following established teaching practices. Many of these normal schools, funded by the states (and in some cases with local financial contributions), later would be upgraded to colleges and universities, some famous [e.g. University of California, Los Angeles (UCLA)], while others have served primarily local and regional students with a wide range of degree programs delivered in a non-research-intensive environment.

By the end of the 19th century, another new player emerged—the junior college—which was meant to provide a 2-year post-secondary vocational or professional education as well as the academic foundation to prepare students for further study at a baccalaureate institution. By the 1950s, and particularly the 1960s (with the population explosion of the post-war Baby Boom), many junior colleges adopted the modern terminology of 'community colleges'. State and local governments have provided funding to open a plethora of community colleges to address the rapid growth of college-bound high school graduates, part-time and working students, adult students and casual class-takers that choose this lower cost option. Community colleges in 17 states now offer baccalaureate degrees (Gonzalez, 2011).

More recent has been the rapid growth of for-profit institutions. This segment of the sector was dominated in its earlier years by small business or career colleges, generally focused on 2-year or technical education. More recently, however, proprietary colleges and universities have grown rapidly both in number of institutions and enrollments, currently serving over 1.5 million students. Several have become large publicly traded corporations or held by private venture capital investors, offering both undergraduate and

graduate degrees. Some authors have argued that the growth of federal student financial aid has fueled the rapid expansion of the for-profit sector (US Senate Health, Education, Labor and Pensions Committee, 2010).

Taken together, these major categories of colleges and universities have produced a rich tapestry of institutions with differing missions, funding bases, sacred or secular orientation, and balance among teaching, research and public service. There are today about 4,400 colleges and universities in the nation, about 60 percent of which offer baccalaureate and/or graduate degrees and 40 percent that are 2-year institutions. Over 60 percent of all colleges and universities are private institutions, but public colleges and universities enroll nearly three-quarters of all students (US Census Bureau, 2011, Table 274). It is thus a sector of great complexity with institutions that increasingly compete for public funding and private philanthropy, fueled by institutional visions of moving upward into the domains and missions of more prestigious competitors (Rhodes, 2001).

Higher Education as a Public or Private Investment: The Growing Debate

The tradition of public funding for higher education, as noted, is relatively old. State and local governments have long provided base operating funds for colleges and universities, as well as capital appropriations for maintenance and expansion, the objective being to permit institutions to provide a lower cost education. A form of ‘social contract’ emerged in which higher education came to be viewed as a social (and economic) good that justified public investment.

The long-standing social contract between higher education and the public began to break down with the increasing gap of potential earnings between those who did or did not enroll in higher education. By 2008, the mean annual earnings of US college graduates with a baccalaureate degree were almost double those of high school graduates (US Census Bureau, 2011, Table 228). Similarly, the unemployment rate in 2009 among those with bachelor’s degrees was 5.2 percent in comparison to 9.7 percent for high school graduates (Bureau of Labor Statistics, 2010).

The growing divergence in earnings over the past several decades has tended to reduce support for public funding of higher education, the rationale being that students and their parents should be expected to absorb more of the costs of higher education. In other words, higher education—in this view—has become more of a private investment than a social good. The fact that the average college graduate now completes a baccalaureate degree with more than \$24,000 in debt is not necessarily viewed as a bad situation, but rather as interest on an investment choice students have made (The Project on Student Debt, 2010).

As the price of a college degree has increased along with debt, there is mounting interest among students in finding higher-paying jobs following graduation. Even as universities promote the generic and lifelong benefits of higher education, students are watching their costs and debts increase. Aware of persistently high unemployment rates, students are increasingly worried that majors without a clear professional track will disadvantage them in the job market. Today, only one-third of all bachelor’s degrees awarded annually in the USA are in the liberal arts, and less than one-third of these are in the humanities (Crane, 2011). The most common major, with 22 percent of all baccalaureate degrees awarded last year, is business; the health professions also represent a large and rapidly growing cadre of majors (US Census Bureau, 2011, Table 298).

The Unfolding Financial and Accountability Crises in Higher Education

With the end of the federal economic stimulus package, even larger budget gaps now exist for public higher education. States are dealing with stagnant tax revenues while competing priorities such as medical assistance, corrections and pensions take an ever larger share of total expenditures. University endowments also declined greatly in the 2008 global financial meltdown. At the same time, universities are dealing with increased costs for health care, energy and insurances; competition for top faculty and students; growing expenses for technology; and massive deferred maintenance.

There has been a growing national outcry concerning the increase in the costs of delivering traditional higher education. The higher-than-average cost increases have been attributed to many factors, but primarily focused on institutions themselves, including more resources devoted to administration, the 'gold-plating' of facilities and services, and rapidly rising salaries for university personnel. However, Archibald & Feldman (2010) argue that higher education cost increases are a classic case of 'Baumol's disease' in which college costs increase in a similar manner to other professional services. Costs rise faster than the rest of the economy because (1) productivity cannot rise as fast in service industries as in the rest of the economy; (2) relatively higher income gains among more highly educated workers who, in turn, demand more higher education and (3) technology is a double-edged sword that creates greater efficiencies, and also creates demands for even more technology.

In the past, higher education has responded to declining revenues by increasing tuition, but this approach is no longer sustainable. Less conventional options are becoming the new norm, such as cutting or merging programs, shifting to part-time faculty, capping enrollments, halting construction projects, withholding salary increases, increasing employees' share of health care costs and postponing investments. Nonetheless, there is growing public concern that US colleges and universities are becoming increasingly unaffordable, and that a growing share of students from lower income families will no longer have access to higher education. As college costs have continued to rise and unemployment has risen dramatically, students have taken on increasing debt; the amount of total student loans in the USA now exceeds total credit card debt.

Accountability is also a current theme in state and federal government. Various provisions in the reauthorized Higher Education Act (Higher Education Opportunity Act of 2008) require increased accountability and reporting on such aspects as tuition prices and the mitigation of increases, relationships to student lending institutions, cost calculators and the like. Universities are increasingly required to measure student learning outcomes, retention and graduation rates, faculty performance, student satisfaction and alumni employment. Many states have introduced some form of performance-based budgeting in which a portion of public universities' funding is at risk and directly based on measurable student outcomes.

Higher education has a long history of strategic planning, program evaluation, and assessment of student and employer satisfaction. Much of this evaluation has traditionally been accomplished in the context of the accreditation process, which is currently struggling to maintain its independence from federal authority. Continual assessment is meant to demonstrate if new approaches to education are achieving desired outcomes. Thus, institutions are increasingly developing learning outcome goals for each of their academic programs. Publishing these goals and strategies, it is argued, helps students,

policymakers and the public understand what the specific learning objectives are and how they will be measured.

The Changing Research Milieu and the Growing Bifurcation of Faculty

By FY 2009, total R&D expenditures among US universities reached \$55 billion, a doubling from a decade previously, with the top 20 universities accounting for one-third of the total, and the federal government providing nearly 60 percent of total research funding, primarily for basic research. In recent years, funding by the US Department of Health and Human Services (and primarily the National Institutes of Health) has accounted for more than half of federal research dollars, with the National Science Foundation and the Department of Defense the next largest players (Britt, 2010). Future priorities, however, appear to be shifting toward more energy-related research, while more of total research funding is directed toward large, multi-investigator and multi-university research consortia. Many more universities will see the potential for greater extramural research funding as a new source of revenue and greater prestige, whether or not these objectives will ever be achieved (Carey, 2011).

There will be immense future opportunities for research surrounding major global problems—the effects of climate change, safeguarding water and other natural resources, expanding food supplies, responding to pandemics and combating terrorism. Each of these topics involves complex scientific, economic and cultural issues, and the public will continue to look to the world's universities to provide answers to society's most vexing problems.

Not surprisingly, the growth in sponsored research programs, heavily concentrated in a relatively small segment of the nation's 4,400 colleges and universities, has had significant effects on the nature of faculty appointments and faculty workload in American universities. Among the hundred or so universities that account for most of the total US university research expenditures, an increasing share of faculty appointments is off the tenure track. Those faculty appointed on the tenure track are expected to develop successful research programs that complement their teaching, while full- or part-time contingent faculty have more extensive and growing teaching responsibilities (Monk *et al.* 2009). The shift is certainly related to cost reduction measures taken by universities given that contingent faculty teach far more students at a much lower cost; however, the economic realities of the need for tenure track faculty in the competitive environment for extramural research funding tend to brake the shift toward more contingent faculty, or at least slow the trend. Whatever the particular balance that exists among institutions, the nature of faculty work and faculty rewards is changing significantly in an increasingly bifurcated labor market.

Expanding Information Technology and Its Effects on Higher Education

A visitor to most colleges and universities in 2011 would notice some obvious differences from the same campus of 10 or 20 years before. Beneath the surface appearances, however, even more has changed in terms of the technology that supports higher education. Fiber and wireless networks permeate campus spaces permitting the near ubiquity of iPhones, iPads and other mobile devices. Information technology has changed the way we teach, the way we conduct research and the way we transfer knowledge to our

students and other constituencies. Higher education is responding, in part, because of the demands of a new generation of students that has grown up in an online world.

Christensen *et al.* (2011) have described information technology as the ‘disruptive innovation’ that can deliver quality and affordability to post-secondary education. There have been predictions that technology would enable class sizes to increase and costs per student to drop while achieving greater learning. But savings have proven elusive. Technology for both in-class and online learning and digital library materials has required continual hardware and software upgrades with corresponding costs for faculty re-training.

Research is showing us, however, that done appropriately, the application of information technologies can both improve learning outcomes *and* decrease the costs of delivering that education. A Pew Charitable Trusts funded study of the use of advanced information technology in math, science and language courses has clearly demonstrated a higher level of student learning and retention while reducing costs by 33 percent on average across a range of institutions from community colleges to comprehensive universities (Twigg, 2003). Universities that are not able to make investments in information technology—often running to tens of millions of dollars per year—will find it increasingly difficult to survive in the emerging competition that characterizes higher education.

One response to the higher education funding crisis has been increased appeals, especially from legislators and business leaders, for higher education to drastically increase online education. The hope is that more students will receive college degrees faster and at less cost. Nearly a third of all students at nonprofit and for-profit colleges and universities in the USA took one or more online courses in 2010 (Green & Wagner, 2011).

Internationalization Comes of Age

Most colleges and universities in the USA now understand that their graduates must be able to compete internationally. Many institutions in the USA and overseas have made a considerable effort to revise curricula to incorporate more exposure to international matters, including required study abroad in some majors.

The economic impacts of international students are also huge. The 690,000 international students studying in American colleges and universities last year created more than \$18 billion in direct economic impact to the US economy (Institute of International Education, 2011; NAFSA, 2011). International students now comprise 3.5 percent of total higher education enrollments in the USA (Institute of International Education, 2011). By way of contrast, more than 260,000 American students studied abroad in 2008–2009, a number that has been experiencing double digit increases.

US colleges and universities, indeed most across the world, find themselves in an increasingly intense competition for prospective students. China and India, for example, are investing heavily in education and research. Some American universities are expanding their international presence by building overseas campuses and becoming what some regard as ‘mega-universities’ (Crow, 2011). Because many US (and overseas) universities are increasingly reliant on international students and the tuition revenues they provide, the relative success of their respective internationalization strategies will shape the competitive landscape within higher education for years to come.

What These Changes Portent for Geography and Geographers

The megatrends I have described will fundamentally alter nearly every aspect of higher education in the coming years, including the nature of faculty work. The focus on accountability, particularly in public higher education, will focus more on learning outcomes in much the same way it has in basic education. Perhaps this is a logical outcome of a more consumer-oriented student clientele who (along with their parents) view their private investment in higher education in more narrowly economic and piecemeal terms than as a composite whole at the end of a lengthy learning process. Academic geographers, like their counterparts in other fields, will need to look long and hard at the curriculum they offer to ensure that it represents a coherent whole; that it is well-integrated with demonstrable learning outcomes and builds knowledge and key competencies; that it is streamlined with limited overlap of material and can be completed in 4 years with some opportunities to explore other related disciplines. Because of the field's inherently eclectic content, the establishment of formal learning outcomes in geography has not been as forthcoming as it must be in the future.

Streamlining and rationalizing of geography curricula should be directed toward increasing the efficiency and effectiveness of learning. Programs that can be delivered at average or below-average cost per student and at a high level of quality will emerge even stronger in the financial analysis increasingly undergirding most college and university operational decisions. Geography programs will need to make room in the curriculum for new, innovative approaches to geography education.

In this emerging milieu of the funding crisis, academic programs will be called upon regularly to justify their existence both in terms of the value they create for the students who study geography and other fields, and the value for the broader university in terms of the centrality of these offerings to the overall goals of student knowledge, or what is commonly called 'general education'. Geography has the potential to achieve a special place (no pun intended) in the competition for future students because it should be attractive as both a professional degree and a central element of a well-educated graduate in the liberal arts. While the liberal tradition in geography education has been long and strong, the approach to educating professional geographers has been less well developed. Too many geographers would find it difficult to articulate clearly the essential knowledge and skill attributes of a well-educated professional geographer in a way that would resonate with non-academics. To ignore the value proposition of what a discipline like geography provides in the emerging environment for higher education is a recipe for downsizing, irrelevancy and even elimination.

There are many educators, including myself, who place a high value on the arts, humanities and social sciences; however, there is currently an almost universal trend of more governmental support flowing to the so-called STEM disciplines: science, technology, engineering and mathematics. This relatively greater importance is no doubt tied to perceptions that science and technology provide the engines of economic prosperity, and that nations with large components of STEM-educated members of their labor forces will fare better economically in the future. Reports in the USA, such as *Rising Above the Gathering Storm* (National Academy of Sciences, 2007) and its sequel (2010), have further served to provide a strong rationale for federal (and state) funding of research and education in the STEM disciplines.

Geographers need to be mindful of the evolving STEM imperative, and position their programs to be responsive to these articulated national workforce needs. Geographic information sciences (GIS) and physical and environmental geography have helped to position geography much more strongly within the academy; have extended the multidisciplinary reach of geographers into fruitful collaborations with colleagues in other, often science- and technology-related disciplines; and opened up new horizons of opportunities for the professional practice of geography.

Geographers should also be particularly attuned to the need to internationalize its curricula and programs. Despite the generally acknowledged imperative that students of all disciplines must be able to interact and compete in a global economy and a rapidly changing geopolitical environment, academic programs, particularly in the USA, have failed to embrace fully what this means to our students—both domestic and international. Geographers, among the panoply of disciplines, should be able to provide a more fully integrated international dimension to their academic programs and curriculum, not only for their own students but also contribute to the internationalization of education in business, engineering and other fields.

The environment for state and national research priorities and expectations is also being reshaped in ways that could provide potential benefits for a geography discipline well attuned to these changes. As research competes for funding with other national priorities within a background of increasingly scarce resources, there will undoubtedly be a growing orientation to research in support of national needs. This orientation will favor ‘big science’ focused on centers, institutes or ‘hubs’, that are amalgamations of researchers from different disciplines and institutions who can contribute knowledge to multi-dimensional research problems, whether it is global warming, clean energy, neuroscience, the spread of AIDS or environmental restoration. These big science approaches are requiring a rejuvenation of systems thinking, the process of understanding why and how an element persists and is related to other elements of the whole, including the multivariate feedback mechanisms wherein elements separated in time and space can influence larger system effects.

Emerging Imperatives for Geographic Inquiry in Higher Education

James Morrison (2002), editor of the former periodical *Technology Source*, once noted that “... the forces of demography, globalization, economic restructuring, and information technology are affecting the organization and functioning of higher education...; [and] the results will be at least as dramatic as the changes already experienced by our early colleges through the end of the 20th century”. Now a decade later, I would add one additional and extremely important force to the mix: environmental sustainability.

Although the population of the USA is growing slowly, there are substantial geographic variations in the growth rates and composition of the population that have important implications for higher education (Swail, 2002). A few states—mainly in the Sunbelt—account for the bulk of recent and projected future growth. Within these more rapidly growing regions of the country, the increase is comprised of a higher proportion of non-white, minority populations that are, on average, relatively young—a huge potential market for higher education.

Colleges and universities in the USA have traditionally provided an unprecedented degree of access to education for the population at all income levels, but there are

demographic sea changes that threaten to overwhelm this past 'social contract'. The income gap between the richest and poorest segments of society continues to grow, and the opportunities for higher education are beyond the reach of more and more of the disadvantaged youth of the nation. Thus, mobility and choice in higher education are being effectively curtailed for all but the more affluent individuals and families.

Public institutions from community colleges to less-expensive state institutions are left struggling to handle more and more students, including those of the less academically qualified and financially needy population. The result is an ever-widening gap between demonstrated student financial need and availability, even when the higher proportion of loans is taken into account. The balance also continues to shift from need-based to merit-based financial aid, both among publicly sponsored programs and institutionally based scholarship funding (Heller, 2006). For all but the most elite private and public universities in the nation, higher education remains a remarkably localized phenomenon when one examines the permanent residence of students in relation to the institutions they attend.

The results of these demographic changes, played out in both geographic and social space, will challenge the very fabric of individual and group relations in the nation for years to come. They remain topics ripe for much more sophisticated analysis by geographers.

The globalization of higher education has surely been made possible by advances in information technology and is part and parcel of the larger forces of economic restructuring taking place across the world. Information, capital, management, technology, and core markets function and flow on a planetary scale in real time (Castells, 1996; Carnoy, 2005), seemingly irrespective of national boundaries. Highly transferable or portable, knowledge derived from information flows can reach deeply into nearly any geographical pocket of the world where basic cyber-infrastructure exists, making possible coordinated production sourcing, global distribution and marketing of products and services, and the strategic management of multi-sectored, multi-national business operations. The outcome has been an increasing scale of players and competition in markets for nearly all products and services everywhere, and an increasing challenge to trade and regulatory policies that either open or restrict the people and businesses within their boundaries to participate in the global marketplace.

Globalization and its attendant forces of economic restructuring have placed a premium on higher education inasmuch as knowledge is the coin of the realm in the furtherance of economic development goals. The contributions of the so-called Knowledge Economy to economic restructuring are difficult to estimate, but nearly impossible to overstate, along with higher education's contributions to the process. How higher education and the stock of human capital have influenced national and regional development differentials in a global economy remains a critically important, but still under-studied, question in economic geography.

But perhaps the greatest impacts of the Knowledge Economy have arisen from the scientific and technological breakthroughs that higher education has produced. The Internet, nanoscale manufacturing, gene therapy, Space Age materials and much, much more have emerged from higher education institutions around the world. Research has shown that universities are a vitally important source of new inventions that have significant economic spillovers. Economic research has also consistently demonstrated that technological change accounts for the bulk of productivity growth and related economic advancement. The results of these forces are developed economies that are

year-by-year less directly involved in the production of tangible things like consumer goods and more involved in the production of ideas and services.

As is true for the rest of the economy, we should not expect that the forces of globalization would leave higher education immune from its effects, for what we provide is really a service that is subject to an increasingly competitive environment, not just within our particular nation-spaces, but across national boundaries as well. Many of our universities compete for faculty within a global marketplace of talent, and the competition for students is no less intense. Research information grids now link faculty from multiple institutions across many countries.

The newest global competition for higher education is the online distance education industry. The same kind of international competition we have experienced in traditional markets for international students, the same sort of emergence of large university and corporate players, will undoubtedly come to dominate this burgeoning online distance education market over time.

Although many organizations have struggled in their efforts to expand into overseas markets, the economic power of organizations like the University of Phoenix—which now earns about \$4 billion in annual revenues with 405,000 students—has proven that such online ventures can be highly profitable (Apollo Group, 2011). To date, for-profit and not-for-profit online educational service providers have barely scratched the surface of the potential global market, and the demand for higher education services is growing rapidly. Barriers to entry are still relatively low, and there will be many organizations that enter the market, and also many that fail. Brand identity is clearly important. Most of us as educators do not realize that a significant part of what we provide is a commodity, a commodity that can be delivered more cheaply and, in some cases, at even higher quality than is possible in our face-to-face classroom environments. Perhaps more importantly, the for-profit online providers target the high end of the market first—most notably professional degrees and certifications where employers frequently pay at least a part of the costs for their employees' education and training. This leaves traditional organizations to fight over the lower value segments of the market. It also creates a need for a new regulatory framework for recognition and quality assurance that must increasingly operate in multi-national space (Van Damme, 2001).

Global competition clearly has the capacity to change the face of the higher education sector itself and the relative standing of the national and regional economies it intersects (Wildavsky, 2010). As knowledge and the graduates who either possess or can readily access that knowledge become more ubiquitous, traditional notions of competitive advantage are reshaped.

Accompanying this ubiquity is a greater homogenization of economic processes including the 'languages' of information technology, transactions and currency harmonization, similarity of product characteristics, branding, and a shortened life cycle for many products and services, thereby promoting a greater liberalization of trade in educational services.

A strongly countervailing concern, however, is that globalization and the liberalization of higher education across the world will serve to devalue, if not destroy, societal differences that provide such a considerable richness to the traditions and cultures of people and places from across the world. Kwiek (2001) has explored the role of higher education in contemporary society and culture and the possible longer-term decomposition of nation-states and the demise of the modern German-inspired university,

which is the basis of most universities in the developed world today. Carnoy (2005) and others have noted that globalization can also produce reactions that can take many forms, some of which are deeply rooted in nationalism or ethnic/religious traditions, and confront assumptions and principles of Western ideologies.

Some scholars such as management guru Peter Drucker have already suggested that the globalization of higher education and more ubiquitous knowledge and technology may be the beginning of the end for traditional universities and university campuses as we know them (Lenzner & Johnson, 1997). After all, faculty can be ‘sourced’ from a wide range of institutional settings and places, their knowledge ‘packaged’ for global distribution and delivered at a scale that drives prices down for the entire sector. Microsoft’s Bill Gates has made public predictions that higher education will be less ‘placed-based’ in 5 years, and that the best lectures in the world will be available open source on the web. He argues that higher education should give credit for earned knowledge, whatever the source (Siegler, 2010).

All of these aspects of higher education in a continuously restructuring global marketplace for higher education are ripe for greater inquiry by geographers. Information acquisition, processing, packaging and dissemination are fundamentally critical to this restructuring and our future success in creating a better, more economically just global society that closes the gap between the ‘haves’ and the ‘have-nots’.

Finally, sustainability may well turn out to be the defining issue of the 21st century. With growth in the world’s population, we need to feed, clothe, house and educate billions more people across the globe and to do this in a sustainable manner. As the United Nations (World Commission on Environment & Development, 1987, p. 43) pointed out nearly a quarter century ago, environmental sustainability is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. While individuals may disagree about the precise definition of sustainability and the extent to which it encompasses issues of economic justice and human rights, among others, there is little argument that sustainability has a strong environmental basis. As Second Nature (2011) has stated,

Achieving sustainability is about finding a better way for humans to live within our support system—the biosphere. Natural systems provide the essentials for our survival—clean air and water, healthy soil, a stable climate—through a massively complex and interconnected web that has evolved over billions of years, making a habitable environment for humans.

Although it may be tempting to approach sustainability through a broadly encompassing definition and delve well beyond the issues of environmental sustainability, the comparative advantage for geographers is to focus on environmental change processes, while seeking to understand better the complex interplay of the environment as impacted by human activity. Climate change is an excellent example. Geographers are contributing significantly to a better understanding of the earth’s changing climate over geologic timescales and examining the impacts of changing climate on agriculture and other economic activities, desertification and warming of the permafrost. These are examples of Geography at its best: understanding processes over time and space along with the impact of changes, their mitigation and the implications for the future in all of its dimensions. As a discipline, Geography must continue to search for causal relationships in environmental

sustainability without jumping too quickly to overstate the significance of findings or prematurely translate them to policy positions or prescriptions. To do otherwise will indelibly alter the power of our research to affect discourse and trust in the public arena where policy is formulated and debated.

If sustainability is a defining theme of this century, it is certainly one that should be a cornerstone element in the curriculum and research of higher education in general and geography programs in particular. Geography has much to offer and much upon which to build. The discipline has focused for a century and more on nature and society, climatology and climate change, and other physical processes in the biosphere. GIS also have a considerable role to play in furthering the research and teaching agenda for environmental sustainability, including a unique ability to deal with complexity, analyze changes over space and time, and provide visualization to better explain relationships to the scientist and non-scientist alike.

Our campuses and local surroundings are excellent places to establish environmental sustainability concepts. This creates challenges and opportunities for higher education, but ones we should embrace as geographers. Today's students are more in tune with sustainability than previous generations of students and are making associated demands of faculty and administrators. The Association for the Advancement of Sustainability in Higher Education offers information for universities in the areas of buildings, climate, dining services, energy, grounds, purchasing, transportation, waste and water (quality and conservation). Sustainability is now a central consideration in a wide range of university business decisions, and provides an excellent laboratory in which to involve students as part of their education and experiential learning.

Research in sustainability issues is increasing and is another opportunity for higher education and geographers to create new knowledge and contribute to solutions to major environmental problems. But again, future funding support for such efforts is likely to be multi-investigator, multi-disciplinary, multi-university and seeking to solve bigger environmental problems affecting larger geographic areas or industry-wide practices. Both depth of geographic knowledge and intersection with other disciplines will be key requirements for success in this arena.

Conclusions

Higher education, particularly in the USA but in many other countries as well, is at a watershed moment in history when many strong currents of public sector financial pressures, intra-sectoral and international competition, and disruptive information technologies are influencing a growing number of education providers and consumers in the global arena. These megatrends are reshaping the ways in which faculty engage in their work of teaching and learning, research and outreach relationships to local, national or international students and other constituencies. Duderstadt *et al.* (2008, p. 273) have summed up the situation well:

[The] traditional institutions responsible for advanced education and research—colleges, universities, research institutes—are being challenged by the powerful forces characterizing the global economy: hypercompetitive markets, demographic change, increasing ethnic and cultural diversity, and disruptive technologies such as information, biological and nanotechnologies. Markets characterized by the

instantaneous flows of knowledge, capital and work, and unleashed by lowering trade barriers are creating global enterprises based upon business paradigms such as out-sourcing and off-shoring, a shift from public to private equity investment, and declining identification with or loyalty to national or regional interests.

Ward (2008), one of the few geographers contributing to this literature, argues that comprehensive research universities currently based in North America, Western Europe and Australia are the nodal points in the global higher education network.

There may not be room for all of the 4,400 US institutions of higher education to survive over the next few decades, particularly regional colleges and universities that cannot draw or reach students from growing national and international markets, or invest sufficiently in technology to improve learning and, very importantly, reduce costs. This will be especially true in regions of the country with a declining cohort of college-aged students, an educational participation rate than has peaked, an oversupply of higher education built infrastructure that needs to be maintained, and a pattern of relative decline in public financial support. It will be fascinating to watch the results of these demographic and market forces play out across the geographic space of regions, the nation and indeed the world.

Geography as a discipline can not only survive, but thrive in the years to come. Members of the profession and our discipline must realize that the financial crisis faced by much of higher education is real, it is structural, and it will be long lasting in the USA and many other nations. Higher education will undoubtedly be held to a higher level of public accountability, and consumers of educational services will be even more discerning as they make choices about their private investments in what we deliver. Like many service industries, higher education must devise ways to increase its productivity, in this case, an improvement in learning outcomes and a reduction in the rate of cost increase. Research funding will most likely be targeted primarily toward areas of national need with a growing scientific or STEM bias. And, as noted previously, colleges and universities that do not internationalize their curricula, their student body and faculty, and better prepare their graduates for working and living in a global community will be left behind over the longer run.

Geography must first and foremost pay close attention to its curriculum. Carefully, articulated expectations of what literate and well-educated geographers should know are the foundation for a curriculum that provides an excellent balance of breadth and depth, a minimum of overlap, a strong dose of international exposure and thinking; that does not shy away from scientific approaches; and that confronts the defining theme of sustainability should be well positioned to face the growing competition among colleges and universities at home and abroad. Geography programs will need to be flexible and adaptive if they are to succeed in their educational missions in the decades ahead.

Finally, I want to challenge geographers to delve into the arena of research on the higher education sector, including policy research. The change forces of demography, globalization, economic restructuring and technology all have critical, and often overlapping, implications for public policy. Public financing of higher education; performance-based funding models; the effects of segregation on access to and success in postsecondary education; the impacts of the shift from need-based to merit-based student aid; selective immigration; state or national certification of for-profit education providers;

and provision for and regulation of the telecommunications sector are just a few of the change agents that will continue to affect our profession.

Public policy issues in higher education cut to the very heart of the social fabric of nations. They are issues that badly need the perspectives, models and analysis of geographers. Many, if not most, have dimensions that are played out in geographic space, and to date, very few geographers have emerged as leading scholarly figures engaging and informing public discourse in this field. My hope is that current and future generations of geographers will explore issues in higher education—in regional, national and global settings—and will make the kinds of contributions I believe we can provide to these emerging debates.

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