INTRODUCTION

Respice, Prospice Higher Education: A Decennial Review

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RESPICE

Glion I

If "[a] week", as the late British Prime Minister Harold Wilson once pointedly remarked, "is a long time in politics", so also, a decade is a long time in higher education. It represents the graduation of two or three generations of students. It reflects the subtle influence of changing scholarly and research priorities and, for all the treasured independence of the academic world, it demonstrates the impact of government policies, social changes, economic conditions and market forces upon universities.

It is now a decade since *The Glion Declaration* (1998) was published. This Declaration, subscribed by a group of senior scholars, foundation executives and educational leaders from Asia, Europe and the United States, stressed the critical role of knowledge in the dawning new millennium, and emphasized the unique role that the world's leading research universities play, not only in the conservation and transmission of existing knowledge, but also in the discovery of new knowledge and in its testing, verification and benevolent application to human needs.

1 I am most grateful to Ms. Rachel Parks, who has provided great help in obtaining the data on which the tables are based and in preparing the manuscript.

The Declaration emphasized the implicit social compact between the universities and their various publics, by which, in exchange for the benefits to society provided by universities — the creation of new knowledge, the development and nurture of informed citizens and leaders in every field, the provision of expert professional skills and the training and certification of professional practitioners — society grants them varying degrees of financial support and recognizes their continuing need for a high degree of institutional autonomy and scholarly freedom. In light of that compact, the Declaration called for universities to recognize their unique responsibilities toward the well-being of their societies by reaffirming their commitment to, and exemplifying in their practice, teaching as a moral obligation and scholarship as a public trust. It urged the creation of new alliances within the university and new partnerships outside it, better to address pressing social needs. It called for harnessing the power of information technology (IT); the creation of imaginative, new career tracks and new approaches so as to extend the universities' contribution to public service; and the development of new patterns of institutional governance, leadership and management within the universities. It also stressed the continuing obligation for accountability. In all this, the Declaration argued that both scholarship and society would be best served by recognition of the university as the custodian of the ancient values on which the growth of knowledge depends and by the university community's reaffirmation of the integrity, excellence, civility, openness and responsibility that have provided the sturdy foundation for their various contributions to society over the last 900 years.

The Glion Declaration formed an appendix to a 1999 volume of papers from the first Glion Colloquium, *Challenges Facing Higher Education at the Millennium* (Hirsch & Weber, 1999). In this volume, the article most frequently quoted by the 17 contributing authors was by Peter Drucker, who concluded that "30 years from now the big university campuses will be relics. Universities won't survive" (Drucker, 1997). No symposium speaker thought that likely, but virtually all expected that existing trends and looming challenges would require universities to undergo major adaptation and that significant changes would inevitably come with this adaptation. The writers predicted these challenges arising from such external trends as:

- Growing globalization and partnerships (Hirsch & Weber, 1999, p. 5).
- Growing need for and use of information technology (*ibid*, p. 5).
- Competition from "new vendors" (*ibid*, p. 60).
- Growing need for life-long learning (*ibid*, p. 136).
- Growing financial pressures and constraints (*ibid*, p. 31), including decreasing state support and increasing internal costs (*ibid*, p. 16).
- Social, economic, political, ideological, religious and cultural pressures (*ibid*, p. 19).

- Changing public views of, and changing government attitudes toward, higher education (*ibid*, p. 22).
- Global challenges, including balkanization of countries and societies, increasing disparities in wealth, continuing growth in world population and migration, environmental degradation and shrinking per capita food production (*ibid*, p. 20).

What changes within the academy did these same Glion authors envision in the new millennium? Again, there was no unanimity, but there was broad expectation of changes involving:

- Increasing costs (*ibid*, p. 12).
- Improved patterns of governance (*ibid*, pp. 13-15).
- Restructuring, including possibly unbundling of functions, growing commercialization, mergers and new providers (*ibid*, pp. 43-47, 59).
- Growing patterns of collaboration (*ibid*, p. 58).
- A reluctant attempt to address "structural inefficiencies" (*ibid*, p. 23).
- Some expected these changes to be revolutionary and transformative, involving a "paradigm shift" (*ibid*, pp. 56, 63), while others saw them as likely to be more gradual and incremental (*ibid*, p. 50, 158, 168).

Glion 2009: A Decade of Change

Our world has undergone profound changes in the 10 years since the Glion Declaration, and most of those changes have made it less secure. In addition to the inevitable toll of natural disasters, the economic collapse has brought great hardship to many in every country, the Aids epidemic has ravaged the populations of many parts of Africa and elsewhere, terrorism has become a global issue, and the war on terror continues to exact a terrible toll in death and suffering. Food shortages have increased in some areas, with famine in the Horn of Africa and growing numbers of undernourished children in several regions. Meanwhile, the sharp spike in energy prices has contributed to increasing concerns over the impact of climate change and growing interest in alternative energy sources.

In 2009, the mood is bleak. Moody's sees the universities, especially private colleges, facing "stiff challenges" from increasing pressure on tuition and financial aid arising from a decline in household income, investment and home equity; loss in endowments; pressure on liquidity; and volatility in variable rate debt markets. (Carlson, 2009)

This view represents the first negative outlook by Moody's for all sectors of higher education since the credit-rating agency started publishing outlooks for higher education in the mid-1990s. In the present situation, the author of the Moody's report concluded, "management and governance [are] extremely critical for how colleges weather this cycle."

How, then, have the universities performed over the last decade? How have they responded to the societal and economic changes that have marked the new millennium?

It is not possible to give global answers, though I hope our discussion will produce details of individual countries and regions. Let me, instead, seek to provide responses from the two regions that I know best and for which reasonably comprehensive data are available: the United States and the OECD.

For these regions, virtually all the changes predicted at the first Glion Colloquium have come to pass, although changes within universities have been limited. I propose to describe changes in six broad areas: finance, institutions, students, faculty, partnerships and governance.

Financial changes

Rising costs in higher education in the U.S. over the last decade are now attracting increased attention, having far exceeded those in housing, transportation and even health care. The cost of tuition, room and board at a four-year public college, even after taking into account financial aid, was equivalent to 55% of the household income of the poorest 10% of American families in 2007, compared with "only" 39% in 2000 (Blumenstyk, 2008). But, in spite of these harsh realities, 18 million students still attend colleges where tuition and fees average less than $2,400 a year, and most colleges are increasing their contribution to financial aid. Private colleges increased financial aid from their own resources by 173% in inflation-adjusted dollars from 1996-2006.

But at public universities, the loss of state funding has increased the overall share of the cost borne by students and their families, from 35% in 1996 to 47% in 2006. "Will Higher Education Be the Next Bubble to Burst?" ask Cronin and Horton (2009). Consumers "are now asking whether it is worth spending $1,000 a week to send their kids to college. There is a growing sense among the public that higher education might be overpriced and under-delivering."

Several recent studies suggest that these rising college costs have done little to improve graduation rates or reduce educational inequities. One such comprehensive study, the *Delta Project on Postsecondary Education Costs, Productivity and Accountability*, published in 2009, concludes that over a five-year period, the major increases in "private" financial support have failed to reduce the growth of tuition, except at private research universities, and that, although tuition is now covering a greater share of the costs of attending college, the proportion spent on classroom instruction is declining. Jane Wellman, executive director of the Delta Project, has commented that in many cases "people are paying more and arguably getting less" (Blumenstyk, 2009).

Over the period 2002-2006, each type of institution covered by the study (public and private research universities, public and private master's degree

universities, private bachelor's degree colleges and public community colleges) increased tuition by an average of at least 12%, while at public master's degree and public research universities the average was about 30%. All categories except private research universities engaged in "cost shifting" from teaching to research, administrative and service functions. At public research universities, 92% of the tuition increases were attributable to cost shifting. One single example will illustrate the issue. The University of Kansas is a flagship state university that greatly increased its expenditure over the past decade (Schweber, 2009), tripling its spending and raising tuition and fees by a factor of five since 1988 in order "to compete with the best private universities". Similar increases are reflected in the overall increase in tuition and fees of 439% over the last 25 years, in contrast to median household income, which increased by 147%.

Such studies provide no conclusion as to whether such cost shifting is improper or inappropriate. What they do provide is information which allows university leaders to raise these questions. And they should. It is time now to reconsider expenditure patterns.

In contrast to U.S. universities, universities in some other countries, especially those of Western Europe, still offer low, or often what amounts to free, tuition, with costs covered by government financing. Attempts to impose even modest tuition charges of some 500 Euros led to organized student protests. In these countries, universities do not generally provide the expansive range of collegiate facilities and services (residential, athletic, counselling, health services and other amenities) that American students enjoy, class sizes are generally larger, and teaching loads are substantially higher. Full professors in German universities, for example, are expected to teach for nine hours a week: the equivalent of two courses per semester. (Labi, 2009)

As one compares these strikingly different models of campus life, it is noteworthy that pressure on U.S. universities to reduce "frills" and devote more attention to "basics" is coming at the same time that many European universities are increasing private funding in order to increase just such "frills" and services. But what continues to stand in stark contrast is the difference in teaching expectations between the two systems. As international partnerships, comparisons and rankings of universities develop added significance, the debate of the role, expectations, responsibilities and "productivity" of the faculty is likely to become a matter of moment.

Responses to the economic downturn in European countries, where universities are heavily dependent on government funding, reflect the outcome of varying governmental policies (Europe's Response to Economic Crisis, 2009). In Austria, for example, the recession is seen as an argument for the government to discard earlier promises of increased investment in higher education. In France, in contrast, there has been increased investment in universities,

while in both Germany and Britain increased public investment in universities has been provided as part of a broad overall economic stimulus program.

The effect of the economic downturn on every university, from the wealthiest to the poorest, has been to turn our attention to rising costs, only to find that the attention of our various publics was already there. As the economic storm clouds gradually recede, we must not allow our attention to wander.

Institutional Changes

Changes in numbers of universities and colleges by category

In the United States, the total number of educational institutions grew from 4,096 to 4,276 over the course of the decade, with much of the increase coming from for-profit institutions; the total numbers of traditional non-profit institutions have changed relatively little over the decade. (Table 1)

Table 1

Educational Institutions	1999	2009
Public 4 year institution	615	640
Public 2 year institution	1092	1053
Private 4 year institution non-profit	1536	1534
Private 4 year institution profit	169	408
Private 2 year institution non-profit	184	113
Private 2 year institution profit	500	528
Total	4096	4276

Source: 1999-2000 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/1999/almanac.htm
2007-2008 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/2007/almanac.htm

For-Profit Universities and Colleges

The rapid rise of the for-profit university is one of the most striking features of the last decade (Ruch, 2001). These businesses — for so they are — regard students as consumers, faculty as "delivery people", and administrators as "bosses", and they have developed a highly successful market strategy. Such enterprises are not new, but their explosive growth in the last decade has greatly expanded their influence. The major higher educational commercial companies — the Apollo Group (University of Phoenix), Archer Education Group, DeVry Institute of Technology, Strayer University — are publicly traded, accredited and are eligible for Title IV federal funding. They, and similar institutions, offer a broad range of baccalaureate, master's and doctoral

degrees. The University of Phoenix has almost 400,000 students and offers typically vocational, part-time programs, taught by part-time faculty (Newman, 2009). Hentschke has estimated (2004) that in addition to these giant companies, each having revenues in excess of $100 million per year, there are approximately 4,000 smaller for-profit institutions. These for-profit institutions serve in a growingly important educational niche, providing instruction attuned to local needs and employment opportunities, at a low cost generally in rented space in shopping malls and office blocks. They are low-overhead, high-volume educational "providers", and their students are disproportionately lower income and minority group members. Their students benefit from an emphasis not only on job training, but also on job placement. In the decade 1990-2000 the number of for-profit institutions grew by 112% (Hentschke, 2004), and it continued to grow in the following decade. The growth of these institutions tends to drive the price of postsecondary education closer to the institutional cost. In 2004 the average cost of a two-semester program was $6,940 at a for-profit institution, $17,026 at a public non-profit, and $23,063 at a private, non-profit institution. There is continuing debate over the future role and prospects for such for-profit institutions, mostly among the more traditional proponents of higher education. They ask whether the consumer-driven demand for services and expectation of "results for their money" may not overwhelm the hardheaded need for consistent standards and objectivity (Flanagan, 2002). For all these "academic" concerns, it seems likely that the for-profit institutions will continue to play a valuable role in meeting society's needs for skilled workers.

Students

The broad patterns of enrolment over the decade within the various categories of institutions (Table 2) show a steady increase in overall numbers, with notable growth in the proportion of women and a significantly greater growth in full-time, compared with part-time, students. Although the rate of enrolment growth in private institutions exceeded that in public, the private institutional share of total enrolment is still only about 25% of the total.

Perhaps the most significant change was the overall increase in enrolment of 18- to 24-year-olds, from 29.6% in 1999 to 39.1% in 2009. (Table 3)

Demographic changes and enrolment patterns

Consider, first, broad demographic trends and changes in student enrolment and graduation, access of various groups, such as women and underrepresented minorities, and trends in graduate study.

In the discussion that follows, I deal chiefly with the United States, but some of the policy implications raised by these trends and changes in the U.S. have implications for other national educational systems.

Table 2

Enrolment by Institutional Category	1999	2009	% Increase
Total	14,881,000	18,567,000	25%
Public	11,602,000	13,895,000	20%
Private	3,279,000	4,672,000	42%
Fulltime	8,449,000	11,757,000	39%
Part time	6,432,000	6,810,000	6%
Men	6,370,000	7,793,000	22%
Women	8,511,000	10,774,000	27%

Source: 1999-2000 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/1999/almanac.htm
2007-2008 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/2007/almanac.htm

Table 3

Enrolment % by institutional type, level of degree, sex, racial & national categories, and proportion of age group	1999	2009 (projected)
Public 4 year institution	40%	40%
Public 2 year institution	37%	36%
Private 4 year institution	21%	23%
Private 2 year institution	2%	1%
Undergraduate	86%	86%
Graduate	12%	12%
Professional	2%	2%
Total	14,367,520	18,475,000
Women	55.8%	53.8%
Minority	26.2%	NA
Foreign	3.2%	NA
Proportion of 18-24 year olds	29.6%	39.1%

Source: 1999-2000 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/1999/almanac.htm
2007-2008 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/2007/almanac.htm

Total numbers for college enrolment for 2009 are not yet available, the latest available data being for 2006. If one compares these 2006 data with those for 1996, the overall number of high school graduates has shown little change (Chronicle Almanac, 2009), growing only by some 32,000 students to a total of 2,692,000 (1999-2000 Almanac, 2000). Table 4 shows that, of this total, an increased proportion of male high school graduates enrolled in college; the percentage college enrolment of black high school graduates decreased slightly, while the percentage of white students increased slightly; and that of Hispanic students increased significantly, as did their overall percentage of the total college population.

Table 4

College Enrolment of Recent High School Completers	1996	2006
Male	60.1%	65.8%
Female	69.7%	66.1%
White	67.4%	68.5%
Black	56.0%	55.5%
Hispanic	50.8%	57.9%
Total:	65.0%	66.0%

Source: Table 267. 2007. U.S. National Center for Education Statistics, *Digest of Education Statistics*, annual.

Projected, as opposed to actual, enrolment and graduation rates for 2009 are, however, available, and I have used them in the tables that follow.

The overview of population trends, college enrolment and graduation rates in U.S. colleges and universities over the decade provides some encouraging trends, but gives a mixed picture of success between various groups.

The traditional U.S. college age cohort (18- to 24-year-olds) has undergone some change in overall composition.

The proportions of Asian, Black and Hispanic members within the 18- to 24-year-old population have all increased, that of American Indian members has remained essentially stable, while the total White proportion has declined (Table 5).

The college enrolment figures reflect these increases, and the relative increase in enrolment of all minority groups over the decade is striking (Table 6). The White non-Hispanic proportion of the enrolment showed a decline, though the overall enrolment numbers increased.

World population continued to increase during the first decade of the new millennium, though the rate of increase continued to decline, with several

Table 5

Population 18-24 Year Olds	1999	2009
American Indian	1%	1%
Asian	4%	5%
Black	14%	15%
White	67%	62%
Hispanic	14%	17%

Source: 1999-2000 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/1999/almanac.htm
2007-2008 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/2007/almanac.htm

Table 6

Enrolment by Racial Ethnic Group	1999	2009	% Increase
American Indian	137,600	176,300	28%
Asian	828,200	1,134,400	37%
Black-non Hispanic	1,505,600	2,214,600	47%
Hispanic	1,166,100	1,882,000	61%
White-non Hispanic	10,263,900	11,495,400	12%
Nonresident Alien	466,300	584,800	25%
Total	14,367,500	17,487,500	22%

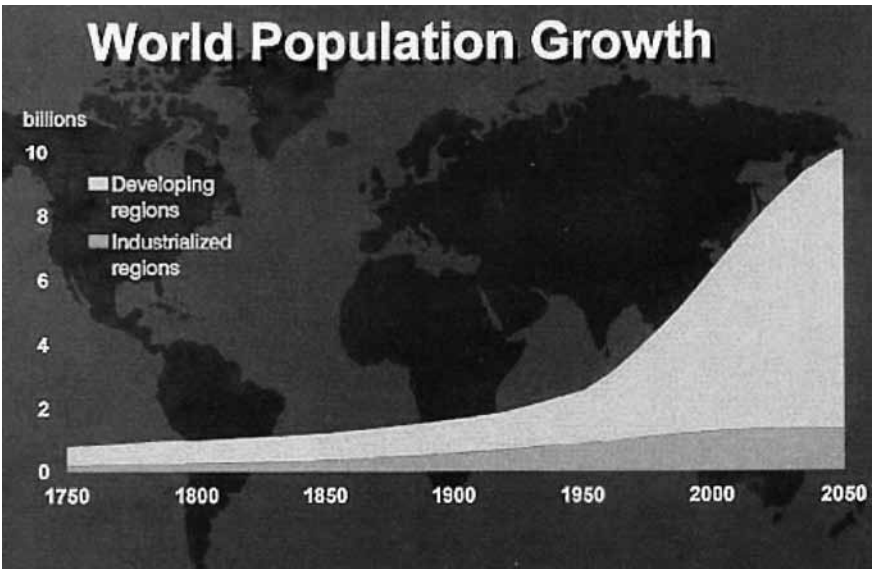
Source: 1999-2000 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/1999/almanac.htm
2007-2008 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/2007/almanac.htm

European nations experiencing negative growth. In contrast, many developing African countries and several wealthy Middle Eastern countries continued to experience substantial growth (Chart 1).

Student Access

One consequence of the present economic downturn is the increased demand for student financial aid. Some universities and colleges have been able to increase their funding for such aid, partly by budget reallocation and partly by targeted fundraising. Cornell, for example, has mounted a fundraising campaign targeted at raising an extra $125 million for undergraduate financial aid, to allow it to increase its existing $130 million annual aid budget.

Chart 1



Source: http://www.canaryzoo.com/Geog1/world%20population%20growth%20map.jpg

Smaller and less well-endowed colleges and universities have been less able to support needy students, and many have had to reduce financial aid (Blankinship, 2009).

Meanwhile, reductions in state funding for public institutions have inflicted their own damage on financial aid, but plans for future federal funding promise to restore the value of federal financial aid.

These changes increase the financial pressures on needy students, and student borrowing has consequently doubled in the last 10 years (Schweber, 2009).

Graduation Rates

Graduation rates provide another measure of participation in higher education. The data show a marked difference in graduation rates between different types of universities and colleges and also among various racial and ethnic groups. (Table 7 and Table 8).

The "very high research activity" research universities (with a 72.8% freshman graduation rate) and the total private non-profit institutions (with a 63.8% rate) had far better graduation rates than all other categories of institution. It is not clear whether this is the result of recruiting more able students, or of more effective teaching, or other factors. But it is a feature whose implications need to be explored.

The changing enrolment pattern of various racial groups at all levels of higher education has led to significant improvement of educational attain-

ment by all groups in almost all degree categories. Hispanic doctoral and professional degrees and Asian associate degrees are the exception, all exhibiting a very slight decline. (Table 8)

The graduation rates by racial/ethnic groups continue to show striking differences. (Table 9), with Asian students out-performing all the rest.

Table 7

6 Year Graduation Rates for Freshmen	2009
All	56.4%
Public	53.3%
Private nonprofit	63.8%
Private profit	48.2%
Res U v high res act	72.8%
Res U high res act	56.3%

Source: 2007-2008 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/2007/almanac.htm

Table 8

Educational Attainment by Racial Group	1999	2009
Associate Degree		
Asian	7.0%	6.8%
Black	6.9%	7.7%
Hispanic	5.0%	6.2%
White (non Hisp)	8.4%	9.1%
Bachelor's Degree		
Asian	22.7%	30.4%
Black	7.5%	12.6%
Hispanic	5.9%	8.8%
White (non Hisp)	13.9%	20.2%
Master's Degree		
Asian	9.4%	13.4%
Black	4.2%	4.3%
Hispanic	2.2%	2.4%
White (non Hisp)	6.5%	7.9%

Table 8 continued

Educational Attainment by Racial Group	1999	2009
Doctoral Degree		
Asian	3.1%	4.1%
Black	0.3%	0.5%
Hispanic	0.5%	0.3%
White (non Hisp)	1.3%	1.4%
Professional Degree		
Asian	2.7%	2.9%
Black	0.6%	0.8%
Hispanic	0.7%	0.6%
White (non Hisp)	1.7%	1.8%
TOTAL in millions:	175.2	194.3

Source: 1999-2000 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/1999/almanac.htm
2007-2008 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/2007/almanac.htm

Table 9

Graduation Rates by Racial/ Ethnic Group	1996	2000
All Total	54.4%	55.9%
American Indian	36.7%	38.3%
Asian	62.6%	65.2%
Black non-Hispanic	38.2%	40.4%
Hispanic	44.8%	46.7%
White non-Hispanic	57.2%	58.8%
Race unknown	52.1%	50.5%
Nonresident Aliens	58.0%	59.3%

Source: 1999-2000 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/1999/almanac.htm
2007-2008 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/2007/almanac.htm

The educational attainment of the U.S. population as a whole has also shown significant improvement over the ten-year period. (Table 10).

Table 10

Educational Attainment of Adult Population (highest level)	1999	2009
Associate's Degree	6.2%	7.4%
Bachelor's Degree	13.1%	17.2%
Graduate or Professional Degree	7.2%	10.0%

Source: 1999-2000 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/1999/almanac.htm
2007-2008 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/2007/almanac.htm

Doctoral students

The number of doctoral degrees conferred in the decade 1999-2009 increased by 6.8% (Table 11). The proportion of women receiving degrees grew steadily. Black and Hispanic recipients showed significant increases, whereas the percentage of Asian recipients declined. The largest percentage increases occurred in the sciences and engineering, with modest declines in education and social sciences. The overall percentage of U.S. citizens receiving doctorates in all fields declined from 64.8% to 59.0%, reflecting, presumably, the increasing numbers of international students.

Table 11

Doctoral Degrees Conferred	1999	2009
Total	42,705	45,596
Men %	58.5%	54.8%
Women %	40.6%	45.0%
Business	3%	3%
Education	15%	13%
Engineering	14%	16%
Humanities	13%	12%
Life Science	19%	21%
Physical Science	15%	16%
Social Science	16%	15%
US Citizens all fields %	64.8%	59.0%
Asian %	10.3%	5.9%

Table 11 continued

Doctoral Degrees Conferred	1999	2009
Black %	4.8%	6.3%
Hispanic %	3.8%	5.2%
White %	77.8%	80.3%

Source: 1999-2000 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/1999/almanac.htm
2007-2008 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/2007/almanac.htm

Social Conditions and Employment Prospects

Within the U.S. population, social conditions showed modest improvement. The poverty rate declined slightly, and the high school dropout rate declined significantly (Table 12).

Tertiary education is defined as "programs designed to provide sufficient qualifications for entry to advanced research programs and professions with high skill requirements". Unlike any other country except Canada among members of the OECD, the United States has a slightly higher percentage of "tertiary educated" individuals in the 25- to 64-year-old working population than the percentage of the same age group working in "skilled jobs" (Chart 1). If provision and growth of tertiary education are to be linked to particular needs for a skilled workforce, further expansion of higher education should then be linked to the growth in skilled jobs. Advocates for higher education will, of course, properly argue that the purposes of higher education are far more comprehensive than "job training".

In all OECD countries outside North America, the proportion of skilled jobs in the economy is markedly higher than the proportion of the working population with tertiary education. In the Netherlands, for example, 30% of the working population has enjoyed tertiary education, but over 50% of the

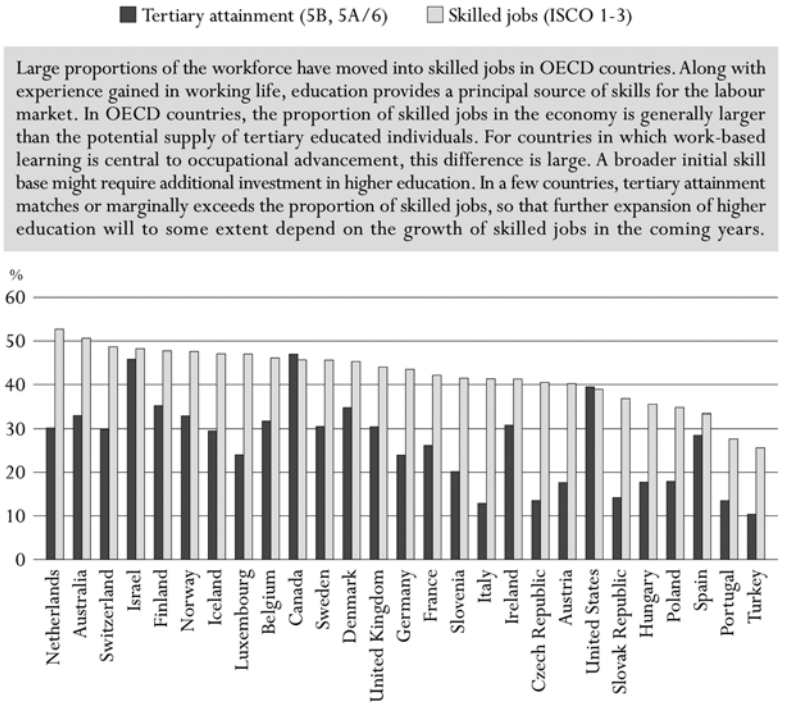
Table 12

Social Conditions	1999	2009
Per Capita Personal Income	$26,412	$36,276
Poverty Rate	13.5%	12.7%
High School Grads	2,840,170	3,186,940
High School Dropout Rate	10%	7%

Source: 1999-2000 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/1999/almanac.htm
2007-2008 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/2007/almanac.htm

Chart 2: Proportion of population in skilled jobs and proportion of population with tertiary education (2006)

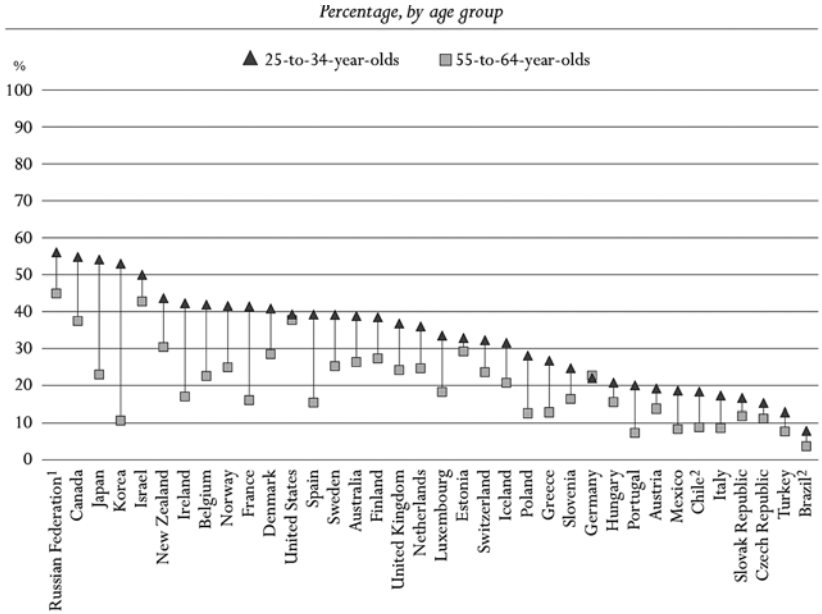
The chart depicts the proportion of the 25-to-64-year-old working population in skilled jobs and the proportion of the 25-to-64-year-old population with tertiary education (2006).



Note: For the United States, ISCO groupings 3 and 9 are not separated and thus distributed among remaining ISCO categories.
Countries are ranked in descending order by the proportion of the population in skilled jobs.
Source: OECD. Table A1.3a and Table A1.6. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).
StatLink http://dx.doi.org/10.1787/401474646362

population occupies skilled jobs. The corresponding figures for Germany are 24% and 45% and for France, 26% and 42%. The increase in skilled jobs in most OECD countries in the last decade has been matched by corresponding increases in the participation in tertiary education. Comparison of younger and older age groups (Chart 2) thus show striking differences in educational attainment in most countries (though not in the U.S. and Germany). In France, Ireland, Japan and Korea, for example, there is a difference of 25 percentage points in rate of participation in tertiary education between the youngest and the oldest groups. The average participation rate in tertiary education in OECD countries is 33% among 25- to 40-year-olds, which suggests that overall participation rates will continue to rise.

Chart 3: Population that has attained at least tertiary education (2006)



1. Year of reference 2002.
2. Year of reference 2004.

Countries are ranked in descending order of the percentage of the 25-to-34-year-olds who have attained tertiary education.

Source: OECD. Table A1.3a. See Annex 3 for notes (*www.oecd.org/edu/eag2008*).

StatLink http://dx.doi.org/10.1787/401474646362

On average in OECD countries, tertiary graduation rates increased by 15 percentage points over the 11 years between 1995 and 2006. In part these changes reflect structural change in the duration of degree programs (OECD, 2008).

These average graduation figures reflect wide differences between OECD member countries, however, ranging from 20% or fewer in Greece and Turkey to more than 45% in Australia, Finland, Iceland, New Zealand and Poland.

Faculty

The composition of the faculty shows the increase of women far exceeding that of men, as well as significant increases in recruitment of Asian and Hispanic members. In 1999, women constituted 35% of the total faculty. In 2009, they are projected to constitute 41%. (Table 13)

The increase of overall faculty numbers of 22.7% from 1999-2009 is only slightly less than the overall increase in the number of full-time students during the same period, 25%, suggesting that "productivity", whatever the precise definition, has not markedly improved or declined.

Table 13

Full-time Faculty Members by Race	1999	2009	Percent Increase
All	550,822	675,624	22.7%
Men	360,150	401,507	11.5%
Women	190,672	274,117	43.8%
Asian All	27,572	48,457	75.7%
Black All	26,835	35,458	32.1%
Hispanic All	12,942	22,818	76%
White All	468,518	527,900	12.7%
Race unknown	1,946	9,703	398.6%
Nonresident Aliens	10,853	28,057	158.5%

Source: 1999-2000 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/1999/almanac.htm
2007-2008 Almanac. *The Chronicle of Higher Education*.
http://chronicle.com/free/almanac/2007/almanac.htm

New Partnerships

In Europe over the last decade the Bologna process has allowed more than 40 countries to harmonize their academic calendars and degree cycles, anticipating the prospect of a European Higher Education Area by 2010. The creation of this area recognizes the positive educational value of international study in creating transferable skills and increased mobility for the graduate work force (Labi, 2009).

In contrast, most U.S. "study abroad" programs last less than a full year and are generally poorly integrated either into their home university's curriculum or into their host university's programs.

Critics of the Bologna process have raised important matters of policy. For example, the process has been criticized for encouraging "undemocratic" decision-making, for being closer in the UK-Irish model than to the traditional continental model, for inviting "privatization" of degrees, and for making the economic purposes of higher education more important than its traditional scholarly purposes.

But what the Bologna process has provided is a degree of standardization and reciprocity that has already created a new foundation for international cooperation and inter-institutional partnership, as yet unthinkable in the United States, where institutional autonomy and "academic freedom" have long been highly prized and fiercely defended. This autonomy generally resists any pressure for

standardization, except to the extent that the right to award degrees is recognized by a process of regional review and accreditation. But even this relatively benign oversight is carried out by self-perpetuating bodies of academics, rather than appointed government officials or civil servants. Self-regulation is generally regarded by U.S. universities as synonymous with institutional autonomy.

In the Middle East there are now several successful examples of inter-institutional partnerships. In Qatar, for example, a newly constructed campus complex houses programs offered by Cornell in medicine, by Georgetown in foreign studies, by Northwestern in communication and journalism, by Texas A&M in chemical, electrical, mechanical and petroleum engineering, by Carnegie Mellon in computing and engineering and by Virginia Commonwealth in design. The independent programs are established and offered by faculty of the sponsoring institutions, which also award their own degrees to successful students. The arrangement is based upon 10-year contracts between the Qatar Foundation and the various institutions.

King Abdullah University of Science and Technology (KAUST), in which I must declare an interest, is the most ambitious of these international partnerships. It is an independently governed, coeducational, graduate level institution which will open its doors to some 360 M.S. and Ph.D. students in September 2009. Some 85 faculty have been appointed, and the university will offer degrees in 11 fields of study. KAUST is governed by an independent board of trustees and supported by a multi-billion dollar endowment, and is open to men and women from around the world. Its research and teaching are supported by partnerships and alliances with other major universities, including such institutions as University of California-Berkeley, Cambridge, Stanford, University of Texas at Austin and Imperial College London. It has research partnerships with a dozen or more international companies. My friend and former Michigan colleague, Fawwaz Ulaby, will describe this remarkable venture, in which he played a notable role (Chapter 11).

New private universities in Kuwait and elsewhere have become affiliated with American institutions: the American University of the Middle East, for example, is affiliated with Purdue (Mills, 2009). The American University in Kuwait has partnered with Dartmouth in a private response to the need for more university places in Kuwait, as the government-supported University of Kuwait reaches capacity. More than 100 new colleges and universities are opening in Saudi Arabia, including some that are private (Krieger, 2007).

Some established universities are also opening branch campuses in other countries within the same region. Two Turkish universities, for example — The Middle Eastern Technical University (ODTU) and Istanbul Technical University (ITU) — recently announced the opening of new campuses in Dubai, U.A.E. (*Hurriyet Daily News*, 2009).

Other inter-institutional partnerships are more precisely targeted. Columbia, for example, is building a network of six to eight research institutions in capitals around the world. These Columbia Global Centers, as they are called, are multidisciplinary in character and are intended to support faculty and student groups in collaborating on international projects. A centre has already opened in Beijing and others are planned for Paris and either Mumbai or Delhi (Labi, 2009). These centres will engage local universities, agencies and other organizations in international partnerships.

Even as such new international programs are being created, financial constraints have led to the closure of others. George Mason University will close its branch campus in the United Arab Emirates this year after financial, construction and recruitment difficulties (Mills, 2008). Its original plans were to establish a 2,000-student branch campus offering courses taught by George Mason faculty members and leading to a George Mason degree. The University of Illinois also has significantly reduced its ambitious "global campus" program (Labi, 2009).

Meanwhile, other international partnerships are taking root, including one in Dubai with Michigan State University and another in Abu Dhabi with New York University and MIT (Krieger, 2008). Abu Dhabi is also supporting an MBA program offered by INSEAD and a graduate program in public health sponsored by Johns Hopkins.

Increasingly, new international partnerships seem likely to rely on virtual networks, such as that developed in 2008 by the U.S. Agency for International Development (Lindow, 2008) in partnership with African universities. The Africa Education Commons, as it is called, is designed to promote cooperation between American and African institutions on projects involving education, economic development, food and health.

At least a dozen new Islamic universities have been opened in Sub-Saharan African countries in the last decade, sponsored and financed, in part, by charitable Muslim initiatives and foundations in other countries.

In India, foreign universities are not permitted to offer independent programs, but at least 130 foreign academic institutions (including 66 American and 59 British) have created partnerships with local, mostly private, unaccredited Indian institutions. Typically, the Indian institutions offer the first two years of instruction and the students then proceed to study on the foreign campus, from which they receive their degrees. These and similar arrangements have proved profitable revenue sources both for foreign partner universities and for investors in the Indian institutions. Western Michigan University, Purdue at Calumet, Marshall, and Union College have all participated in these partnerships, as has North Dakota State, which also has partnership programs in Sri Lanka, Malaysia and Thailand (Neelakantan, 2008).

Peking University has recently established a Joint Institute for Social Sciences with the University of Michigan and has an active partnership in ger-

ontology, social work and policy planning with the University of Southern California (Hvistendahl, 2009).

The U.S. Department of Energy announced in 2007 a new partnership in bioenergy, involving the collaboration of 18 universities, seven national laboratories and several corporate partners in constructing three new research centres on bioenergy, each of which will receive $125 million.

Such international partnerships in both teaching and research seem likely to become more frequent, providing the benefits of pooled knowledge in addressing major regional needs and social concerns.

Governance and Management

Each of the areas of higher education we have reviewed — finances, institutions, students, faculty and partnerships — has undergone significant changes during the course of the last decade. In one major area, however, there has been almost no change: institutional governance and management. This stability is cause for satisfaction because governance by public-spirited lay boards, with the responsibility and authority for the conduct of academic affairs deliberately delegated to the faculties, has served universities well over the centuries. It has brought tangible benefits, not only to the universities and all their members, but also to the societies that support them.

The administrative pattern of internal management and institutional leadership has, however, been less effective. A decade after the expansive optimism of the new millennium and high aspirations of Glion I, the current economic downturn has affected all segments of society. Few universities appear to be dealing decisively and effectively with the grave financial difficulties that have arisen over the past year and continue to confront them.

The current economic crisis will require all universities to accommodate the new financial realities. And this will place a premium on effective governance and courageous leadership. The typical response to reduced income has been to distribute the impact by across-the-board budget reductions. Hiring freezes, salary cuts and construction caps are typically part of this avoidance-approach. It is thought to avoid even more painful choices; it limits faculty complaint, it reduces student uproar, it avoids confrontation and it "does the job". It produces a new balanced budget. It also sidesteps the most serious structural problems, it ignores inherent inequalities, it neglects differing contributions, it overlooks relative importance and meaningful priorities. Far from "doing the job", it may diminish the institution's capacity to pursue its longer-term goals. It represents, in short, an abdication of responsibility.

The alternative course is to use "financial exigencies" to make informed, though often difficult, choices and to do so in a way that promotes the long-term well-being of the institution. In the absence of major new sources of rev-

enue over the next few years, choices will need to be made, and success will belong to those institutions whose boards and leaders are bold enough to make them deliberately and courageously.

PROSPICE

Adversity as Opportunity

I have attempted to give a thumbnail sketch of the development of higher education over the last decade. The changes that have taken place in both the United States and in Europe have been significant: in the former case they reflect much less central planning and coordination than in the latter, though some of the overall results are not dissimilar.

As we face the new decade, it seems increasingly probable that real economic recovery will be slow and that financial constraints may be a longer-term feature of higher education than we would have wished. We live in the anomalous situation where universities both compete for and contribute to the generation of public funding and private support. This is especially true because at the close of the first decade of the new millennium, we face a daunting range of social challenges, ranging from climate change to water management, from recession to deforestation and soil depletion, from poverty to epidemics, from energy to agricultural production. Serious as each is, and daunting as all are collectively, none can begin to be addressed without the skills embodied and practised within the universities, and without the particular blend of creativity and reflection which are the distinctive products of our institutions.

In this situation, it seems to me useful to consider together three broad policy questions:

- In financial terms, are we becoming so expensive in relation to other social needs that we jeopardize our own support?
- In educational terms, how can we become better in what we do?
- In societal terms, how can we be more useful to society in the vast range of services we provide?

These are large, difficult and controversial questions, and there may well be so many differences among our many institutions and systems that no common answers are possible. Yet to fail to address these questions would be to deny the very critical study universities exist to promote. To address them courageously could lead to innovation, and perhaps even to radical change.

Consider first, then, the difficult and controversial question of costs. Former U.S. Education Secretary Margaret Spellings, commenting on the report of the Commission on the Future of Higher Education, has declared:

Our universities are known as the best in the world. And a lot of people will tell you things are going just fine. But when 90% of the fastest-growing jobs require postsecond-

ary education, are we satisfied with "just fine?" Is it "fine" that college tuition has outpaced inflation, family income, even doubling the cost of health care? Is it "fine" that only half of our students graduate on time? Is it "fine" that students often graduate so saddled with debt they can't buy a home or start a family? None of this seems "fine" to me. Not as a policy maker, not as a taxpayer, and certainly not as the mother of a college sophomore (Rhodes, 2006).

Jared Diamond, whose best-selling book *Collapse: How Societies Choose to Fail or Survive*, published at mid-decade, used comparative historical methods to explore the decline and collapse of societies, concluded that the root problem leading to collapse was overpopulation and thus, exhaustion of the carrying capacity of the environment.

Diamond's analysis made it clear that it was important to distinguish biological survival from cultural survival. Societies can have the most admirable cultural values — love of freedom, peace and democratic rights, for example — but still become extinct.

It seems to me we face comparable challenges in our present situation. We can still embrace admirable academic values, defend academic freedom, insist on institutional autonomy, maintain the societal benefits and personal rewards of creative scholarship, liberal education and professional training, but if our appetite for funding overwhelms the carrying capacity of our environment, we, too, may be headed for decline. One has to ask whether we may now be approaching such a point in some of our best universities and colleges. In state after state, food programs for the hungry, health care for the sick, and public services to communities are now being reduced to the point of real hardship. It may be that society will no longer choose to support institutions where the total annual cost of tuition, room and board amounts to as much as $60,000 for an undergraduate student. If one regards the student as being in residence on the campus for 30 weeks of the year, that tuition, room and board would amount to $2,000 per week of residential instruction, or a total cost to the student of some $167 per hour of instruction. It will be argued, of course, that these are crude estimates and that they conceal many hidden factors. No doubt they do, but we must be willing to explain the subtleties and complexities of the fundamental issues they involve. We must also be ready, I think, to explain why we are constantly appealing for donor support in order to allow us to give full financial aid to students when, in some cases, their families are earning as much as $180,000 a year.

It is easy, of course, to reply that academic excellence is expensive. But does excellence accept any bounds to its appetite, or does it require unlimited support to pursue unlimited aims by unlimited methods? I submit that this Glion group is one of the few that has the ability to look at the larger financial picture and to talk in a collegial way about some of the practical funding issues that this theoretical question raises.

Let me explain what I mean. Schweber (2009) has described the University of Wisconsin at Madison as having 30,000 undergraduates, who can choose from among 161 majors and 35 certificate programs. But, in addition to this huge undergraduate program, in 2005 the university employed 9,100 in university research programs, had partnerships with 218 companies and generated $764 million in research-related revenue for the state of Wisconsin. It also consumed half of the state's appropriation for higher education. Now Wisconsin has 12 other public universities and colleges, enrolling some 175,000 students. The success of Madison in generating research revenue, Schweber argues, comes chiefly from the natural sciences, and he asks whether these should be favoured and supported at the expense of other areas. Even to raise such a question will be regarded as heresy, or even blasphemy, within the academic community. But if, as now seems possible, the financial stress within the universities is not simply a short-term phenomenon, we shall have to confront just such painful questions.

Of course, costs cannot be separated from the pattern and scope of instruction. In instructional terms, we have to ask the question "How much is enough?" For example, how many courses are required to provide a satisfactory range of choices for an undergraduate program in a contemporary English Department? Should it be 50, or should it be 100, or should it be 200? How many graduate courses are necessary? How many courses, do you suppose, a large English Department offers each year?

At one Ivy League university it is 140 undergraduate courses and 35 graduate courses. At a large Big Ten university it is 153 undergraduate courses. The numbers I have quoted are not necessarily unreasonable, and we must ask the same questions for every discipline, from psychology to civil engineering. What is needed is to confront the question.

Also, in instructional terms — how many faculty members are necessary to provide a balanced undergraduate and graduate program, not only for undergraduate majors, but also for those students in general education? For example, the chemistry department at one large state university in California has 111 faculty members and graduated 1,000 majors last year. Other science departments graduate fewer baccalaureate students each year than they have faculty members. What is the appropriate faculty-student ratio?

In professional and personal terms, we need to ask comparable questions about cost. Why is it, for example, that teaching loads at the nation's leading universities have declined from an average of two per semester, when some people here were active faculty members, to one per semester now? Has something changed? Has research productivity, for example, become strikingly higher? Has teaching notably improved? Why in Europe do professors teach roughly twice as many weekly credit and contact hours as those at leading universities in the United States? These are painful questions and ones that we

should discuss, if they are to be discussed at all, in a gathering such as this, rather than have others discuss them for us.

In institutional terms, we have to ask: "Must a university take in every aspect of human knowledge and of human interest in order to pursue excellence? For example, is Princeton an inferior university because it chooses not to have a medical school and has decided not to include a law school? Is CalTech a lesser university than, say, UC-Berkeley, because it chooses to be less comprehensive? Is Chicago a lesser institution than, say, the University of Illinois because it is highly selective in the range of programs it offers?"

Some will argue that if particular universities have already embraced a comprehensive mission, it is too late to change. That has particular relevance, of course, in the case of land grant universities, which were created on the assumption of breadth in certain areas. It is not, however, the case in most universities. The question of the growingly expansive offerings of many universities is one that we need to address. Are there any bounds to institutional aspirations to provide the most comprehensive knowledge?

The voices of academic leaders have been strangely muted concerning these major choices. An honourable exception is Mark Yudof, president of the University of California (Hebel, 2009). Yudof asks whether new models of financing and operating the great public research universities should be developed. He argues that it is vital for the U.S. to invest in human capital, because that is the essence of economic and competitive advantage for the United States. He asks whether radical review of our current "delivery model" and our method of conducting research is not now urgently needed. Of our delivery model he concludes "it's awfully expensive because it's so hands-on. It works. It's great quality. But can we deliver a high quality education with a higher student-faculty ratio? Can we shorten up the time to degree?…We need to look at the delivery system, and we need the faculty to look at it because they're the experts." He also argues that if we are to build our research capacity and nurture those who can both create and convey knowledge, we need some measure of research productivity.

A few of our faculty colleagues have argued for just such a "paradigm-shift", its urgency sharpened by the present financial stress, together with widespread hiring freezes and layoffs.

"End the University as We Know It", reads the title of an op-ed article in the *New York Times* (27 April 2009) by Mark Taylor, chairman of the religion department at Columbia. "Graduate education is the Detroit of higher learning," he concluded. "Most graduate programs… produce a product for which there is no market, and develop skills for which there is diminishing demand… all at a rapidly rising cost… The dirty secret of higher education is that without underpaid graduate students to help in laboratories and teaching, universities couldn't conduct research or even instruct their growing undergraduate populations."

Among the radical remedies proposed by Taylor to address this "crisis" were the abolition of permanent departments, the imposition of mandatory retirement and the abolition of tenure. These remedies will commend themselves to few within the academic community, but we need to consider responsible alternatives. And we should honour those who are bold enough to confront our present situation.

Perhaps the greatest service that the Glion gathering could perform is to use our experiences in different educational settings to grapple with some of these larger issues, and so make some meaningful proposals. To do so at this moment would be particularly appropriate. In almost every area of society, recalibration is presently taking place because of our current economic distress. If it is true that "sweet are the uses of adversity", we should use our present adversity creatively, not passively, or carelessly. With bold and thoughtful leadership, universities can emerge stronger from the present economic turmoil and can better serve society.

But education has never owed its success only to money. Excellence may be present even in the most Spartan classroom; imagination may blossom even in the poorest place, though the increasing sophistication of the equipment required to translate discoveries into designs and convert insights into benefits makes that less and less likely in science and technology. But whatever the outcome of the debate over costs, there is a second question that we in the academy must confront: How can we do better with what we have in what we choose to do? How, given the already vast resources that we enjoy, can we be more effective in our chosen role of teaching, research and service to society?

Part of the answer to that question involves the proportion of the population served by our universities and colleges. Listen again to former Education Secretary Margaret Spellings: "… times have changed. Nearly two-thirds of all high-growth, high-wage jobs created in the next decade will require a college degree, a degree only one-third of Americans have. Where we once were leaders, now other nations educate more of their young adults, to more-advanced levels than we do."

I believe we have to address the issue raised by Ms. Spellings. Should the student population continue to rise as a percentage of the college age group? What should society set as its goal? Should it be roughly 50% of the college age group, which it now is in the U.S.? Or should it, perhaps, be 75%, or even 100%? Can everyone benefit from some college experience? Can society benefit from everyone attending college? And what should be the distribution among types of institutions? What do universities themselves have to say on this particular issue? What should we, as a Colloquium, conclude? In the end, who decides? Is it the marketplace? Is it elected officials? Is it the universities?

Performing better with what we already have also involves the richness of the student experience. Some of our universities — those centres of creativity

and agents of discovery — are now becoming so compartmentalized and subdivided that the common discourse on which both learning and discovery depend is constrained and inhibited. How best can we liberate the departmentalized mental energy and segregated creative power of our institutions? What were once bold experimental teaching styles, creative alternative learning modes and common course initiatives have, in far too many institutions, fallen victim to competing interests and become casualties to disciplinary protectionism. How can we rekindle the light of common learning in our increasingly specialized institutions; how can we demonstrate anew the unique benefits of the *community* of learning in addressing the needs of society?

These are matters not only of style, but far more of substance. Perhaps collegiality, like youth, is never what it once was, but the fragmentation of the curriculum and the atomization of research make it increasingly challenging to comprehend, still more to address, the great overarching social issues of our time, from climate change to poverty, that sprawl across the guarded boundaries of our disciplinary territories.

This fragmentation is reflected in the change in student attitudes over the recent decades. Since the 1970s, for example, the percentage of freshman students saying they desire to develop a meaningful philosophy of life has plummeted from 86% to 45%, while those who express enthusiasm for cleaning up the environment has waned by half to 20% (Rhodes, 2006).

There is one other aspect of quality that is related to the costs of our activity and the levels of our tuition. The public understands that higher education is not a production-line activity but instead reflects the individuality that lies at the heart of the best teacher-student relationships. But there seems also to be a nagging public concern about what appears to be a decline in commitment to teaching, an increasing proportion of our students taking more than four years to graduate, and a growing emphasis on the part of institutions on buying the brightest freshman students with merit awards. These concerns have been forcefully articulated in several recent independent reports, and they have reinforced the calls for "standards", "quality controls", published graduation rates, and broader transparency.

These calls for accountability have been echoed by some employers, who have criticized the lack of critical ability in recent graduates. No simple tests can measure the quality of our "output", but we need to take seriously the increasing public concerns for quality and accountability. If we in higher education are unwilling to address quality and performance, others, less qualified — the federal or state governments, for instance — may do it for us. That would not be good, either for our universities, or for our students. We should be prepared to demonstrate our performance by criteria, preferably of our own choosing, which are themselves open to scrutiny.

In the urgent priority we must devote to matters of great financial consequence, who is to speak to these no less-consequential questions of substance, scope and effectiveness? Who better than this group here in Glion? How, I ask, can we become better — much better — in what we already choose to do? How can we harness our now segregated talent into a common discourse that will enliven everything we do and enrich everything we study?

And then the final question: How can we better serve society in the vast range of services we provide? From medical services to food production, from education to industry, from art to government, from energy supplies to environmental systems, universities already provide essential public service, supplying professional practitioners, providing scholarship, research and development, and educating enlightened citizens and discerning leaders in every field. But is there any way we can more effectively tap the universities' great reservoirs of learning and expertise to grapple with some of society's macro-problems: say, failing schools, or the HIV-Aids epidemic, or sustainable agriculture or renewable resources or alternative energy sources? We have federal grants and industrial partnerships for well-defined projects. What we lack is some substantial articulation of our national and international expertise to broader issues of society. Even to ask the question is to contemplate the difficulty, perhaps even the impossibility, of the task.

There is, perhaps, one model that is worth consideration. In 1862, at the height of the American Civil War, or the War Between the States, Abraham Lincoln signed into law the Morrill Act, which granted to each state federal lands, which could be either developed or sold to raise funds for the creation and endowment of land grant universities to equip the nation to respond to the social and agricultural upheavals of the Industrial Revolution. These institutions were to provide a broad education in "agriculture and the mechanic arts… in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." This practical aspect of higher education was seen as supplementing the historic offerings of earlier colleges and universities. The mission of these land grant universities was expanded by the Hatch Act of 1887 to establish agricultural experiment stations and by the Smith-Lever Act of 1914 to create an extension service, by which the results of these "agricultural experiments" and new agricultural skills could be carried to farmers and homemakers in rural areas of every county in the country by "cooperative extension" agents, whose work was supported by both state and federal funds.

The work of these land grant universities transformed the nation, providing the foundation for the agricultural revolution that made the United States the major food supplier to the world and providing new graduates, new knowledge and new impetus to every area of national life. The universities that Lincoln created now account for 25% of all the nation's baccalaureate graduates and

60% of the doctorates. Can we devise some larger "extension system" that will create the same beneficial impact for the age in which we now live?

These questions of cost, performance and public service are fundamental to our universities. Should we not grasp the financial adversity that now confronts all our institutions, indeed all our nations, as an opportunity to address the most profound social problems that confront our world? Can we use our present constraints to think anew, not only of our costs, but also of our performance and our contribution to society?

Some will respond that the problems are too complex, that our resources are too modest, that other tasks are too pressing. But listen again to Lincoln: "The dogmas of the quiet past are inadequate to the stormy present. The occasion is piled high with difficulty, and we must rise to the occasion. As our case is new, so must we think anew."

This symposium is devoted to "thinking anew," to innovation. Can we and our graduates rise to Lincoln's challenge, as did his countrymen 147 years ago? To address that question, to devise a new, workable model, might be the greatest innovation of all.

Universities existed throughout most of the last millennium, as they will, I trust, exist through this. The crucial question is how effectively their work and their graduates can contribute to the momentous challenges that now confront the world's peoples. And that will depend in large measure on the creativity and boldness of those entrusted with the leadership of our institutions. If ever there was a need for innovation, it is here, within our own universities. Only then can they make a proportionate contribution to creating an innovation-driven society.

REFERENCES

1999-2000 Almanac. (2000). *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/free/alamanac/1999/almanac.htm

2007-2008 Almanac. (2008). *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/free/alamanac/2008/almanac.htm

(6 April 2009). How Are State Budget Cuts affecting Spending for Higher Education. *University Parent Media*. Retrieved from http://www.universityparent.com/2009/04/06/how-are-state-budget-cuts-affecting-spending-for-higher-education

Bergman, K. (13 January 2004). Stanford University Program on Energy and Sustainable Development receives grant from BP. *Stanford News Service*. Retrieved from http://news.stanford.edu/pr/2004/bpgrant114.html

Blankinship, D. G. (12 March 2009). More bad news on campus: Scholarships drying up. *Associated Press*. Retrieved from http://abcnews.go.com/US/wireStory?id=7064642

Blumenstyk, G. (3 October 2008). The $375-billion Question: Why Does College Cost So Much? *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/weekly/v55/i06/06a00101.htm

Blumenstyk, G. (23 January 2009). Report on Spending Trends Highlights Inequities in Model for Financing Colleges. *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/weekly/v55/i20/20a01601.htm

Carlson, S. (16 January 2009). Moody's Forecasts Stiff Challenges, Especially for Private Colleges in the Next Year. *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/free/v55/i19/19a01401.htm

Chronicle Almanac. (2009). For original source: *The Digest of Education Statistics, 2007*. Tables and Figures, Table 191: College enrollment and enrollment rates of recent high school completers, by sex: 1960 through 2006.

Cronin, J. & Horton, H. (22 May 2009). "Will Higher Education Be the Next Bubble to Burst?" *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/weekly/v55/i37/37a05601.htm

Diamond, J. (2005). Collapse: How Societies Choose to Fail or Survive, Penguin Group, New York

Drucker, P. F. (1997). Interview: Seeing Things as They Really Are. *Forbes*, 159, pp. 122-28

"Europe's Responses to Economic Crisis". (20 February 2009). *University World News*. Retrieved 2 June 2009 from http://www.universityworldnews.com/article.php?story=20090220085540843

Fischer, K. (12 December 2008). Terrorist Strikes Are Unlikely to Keep U.S. Colleges Away from India. *Chronicle of Higher Education*. Retrieved from http://chornicle.com/weekly/v55/i16/16a02102.htm

Flanagan, E. (16 June 2002). Higher Ed, Inc.: The Rise of the For-Profit University. *Journal of Higher Education*. Retrieved from http://findarticles.com/p/articles/mi_hb172/is_4_73/ai_n28927541/

Hebel, S. (1 May 2009). We Can't Go On Like This. *The Chronicle of Higher Education*, Retrieved from http://chronicle.com/weekly/v55/i34/34a00401.htm

Hentschke, G. (Spring 2004). U.S. For-Profit Postsecondary Institutions — Departure of Extension? *International Higher Education*. Retrived from http://www.bc.edu/bc_org/avp/soe/cihe/newsletter/News35/text009.htm

Hirsch, W. & Weber, L. E. (Eds). (1999). *Challenges Facing Higher Education at the Millennium*, The Oryx Press, Phoenix, AZ.

Hurriyet Daily News. (13 June 2009). Economists Discuss Vertical Trade Model. Retrieved from http://arama.hurriyet.com.tr/arsivnews.aspx?id=11855407

Hvistendahl, M. (13 February 2009). Renewed Attention to Social Sciences in China Leads to New Partnership With American Universities. *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/weekly/v55/i23/23a03501.htm

Krieger, Z. (14 September 2007). Saudi Arabia Puts Its Billions Behind Western-Style Higher Education. *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/weekly/v54/i03/03a00101.htm

Krieger, Z. (28 March 2008). An Academic Building Boom Transforms the Persian Gulf. *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/weekly/v54/i29/29a02601.htm

Labi, A. (6 February 2009). What's Tasty, Yellow, and Proves Nothing? *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/weekly/v55/i22/22a00602.htm

Labi, A. (27 February 2009). Germany Provides Higher Education Without the Frills. *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/weekly/v55/i25/25a01801.htm

Labi, A. (3 April 2009). Darwin's Economic Theory. *The Chronicle of Higher Education*. Vol 55, 30. p. A20.

Likins, P. N. (1998). Corporate partnerships: what's in it for the university? *Columbia News Service*. Retrieved from http://www.columbia.edu/cu/21stC/issue-3.1/likins.html

Lindow, M. (31 October 2008). New Virtual Network Links African and U.S. Universities. *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/weekly/v55/i10/10a03801.htm

Masterson, K. (6 February 2009). Research and Inventions Earn Big Bucks for American Universities. *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/weekly/v55/i22/22a01601.htm

Mills, A. (25 July 2008). U.S. Universities Negotiate Tricky Terrain in the Middle East. *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/weekly/v54/i46/46a00104.htm

Mills, A. (22 May 2009). New Private Universities in Kuwait Pin Their Hopes on U.S. Partners". *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/weekly/v55/i37/37a02401.htm

Neelakantan, S. (8 February 2008). In India, Limits on Foreign Universities Lead to Creative Partnerships. *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/weekly/v54/i22/22a00104.htm

Newman, M. (14 May 2009). For-profit growth predicted if U.S. giant buys UK's BPP. *Times Higher Education*, Retrieved from http://www.timeshighereducation.co.uk/story.asp?storycode=406516

OECD. (2008). *Education at a Glance*. Retrieved from http://www.oecd.org/edu/eag2008

Petrie, M. (6 July 2007). Universities to Share in New Energy Centers. *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/weekly/v53/i44/44a02004.htm

Rhodes, F. H. T. (24 November 2006). After 40 Years of Growth and Change, Higher Education Faces New Challenges. *The Chronicle of Higher Education*. p. A18.

Ruch, R. S. (2001). Higher Ed, Inc: The Rise of the For-Profit University. Johns Hopkins Press, Baltimore

Schweber, H. H. (13 February 2009). In Rough Seas, Flagships Could Use a Course Correction. *The Chronicle of Higher Education*, Retrieved from http://chronicle.com/weekly/v55i23/23a04301.htm

Taylor, M. (26 April 2009). End of the University as We Know It. *The New York Times*. Retrieved from http://www.nytimes.com/2009/04/27/opinion/27taylor.html

The Glion Declaration. (1998). *The University at the Millennium*, The Glion Colloquium, Geneva.