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## Ferment and Change: Higher Education in 2015

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**W**hat will higher education look like 10 years from now if it is highly responsive to the demands of society? What external forces will reshape colleges and universities by 2015, if allowed to do so? What forms might the changes assume?

Realistically speaking, higher education may not be very responsive to the larger society over the next decade. It has too many constituencies to satisfy, too many traditions, too many constraints weighing on it to lend it the flexibility — or the political will — to adapt rapidly to the outside world. Nevertheless, the questions should be considered because they raise the sorts of issues, opportunities, and challenges that college leaders must confront now and in the future.

Five trends, if they encounter little friction or resistance, will radically transform higher education in the coming years. Those five trends, converging with one another, are certainly not the only forces pressuring colleges. But unlike some of the others — such as the impact of technology on teaching and research — they are not yet receiving ample attention. And, taken together, they pose an enormous challenge that, if neglected, will mean serious trouble for higher education and the United States. Conversely, the more effectively colleges respond to such trends, the better off they and our nation will be.

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### Trend 1:

#### *Changing life cycles as our nation's population ages.*

The demographic facts are familiar, but quite dramatic: While life expectancy in the United States in 1900 was a mere 47 years, people in the 21st century are expected to live to be almost 90 — a whopping extra 40 years of life. Hardly any facet of our existence will be unaffected by that sweeping change.

To understand its impact on higher education, we must look at what living longer portends for different stages of the life cycle. The phrase "our aging population" conjures up images of vast numbers of old people, without highlighting the effect of greater longevity on people of other ages.

We know, for example, that when life expectancy was short, children moved to adult responsibilities without prolonged adolescence. In the 1950s it was expected that marriage, child raising, and jobs and careers would take place quickly after age 21, and that retirement and old age would occur by age 65. Today, with so many more years of life to juggle, we are prolonging the younger life stages and adding new ones at the older end.

Of particular relevance to colleges is the stage between the ages of 18 and 30. The old pattern of attending college from 18 to 22 and then going directly to a job, career, marriage, child rearing, and "settling down" is evaporating before our eyes. Students are stretching out their higher education. Three-quarters of today's college students are nontraditional in some way — they delay enrollment after high school, attend college part time, or are considered financially independent. Many are already working, and more than a quarter are parents.

We are rapidly moving away from the rigid sequencing and separation of schooling and jobs toward a new pattern in which higher education spreads out over about a 12-year period and is more closely integrated with work. This is not just prolonged adolescence. It is in many ways a new phase of life, in which young people experiment with relationships and career choices to find the best fit with their practical needs and with their self-expressive goals. They are not ready to settle down until their 30s, to the bewilderment of many parents.

It is difficult for young people to make sound career-life choices without testing them in the "real world" of practical experience. Our culture provides ample opportunities to test choices — what to buy, where to live, and even sexual-mating choices. But the long-established practice of sequencing education first and work later forces young people to make fateful life choices before they are equipped to do so, or worse, to postpone making them until it is too late. Employers and colleges are not designed to

accommodate the longer life stage between adolescence and settling down, especially in light of the ever-changing character of today's knowledge economy.

Preparation for work is now divided between "education," the task assigned to schools and colleges, and "training," the task assigned to the workplace or to professional trainers. Yet that distinction is often artificial and inefficient. A great deal of training goes on in education, but it is poorly done because it is divorced from the workplace, and a great deal of education goes into training that is also poorly done because it is divorced from colleges. If higher education were totally responsive to the demands of the larger society, in 10 years we would see many more efforts to integrate higher education, training, and work.

A second life stage that higher education should also deal with, and one that can potentially help solve some of its fiscal and faculty problems, is that of people from ages 55 to 75. That stage was previously split between work and retirement. Yet today many Americans are stopping work earlier in life and changing the definition of retirement. Retirement — and especially early retirement — no longer means total withdrawal from work but rather an opportunity to find forms of fulfillment that one's job did not provide. Older adults are looking for personal fulfillment and the chance to "give something back." They look beyond their jobs while still in reasonably good health, with mortgages paid off and empty nests in view. As they seek to build bridges to new life opportunities, many turn to higher education. For some older Americans, it is nostalgia for their college years that attracts them. For others, it is the chance to overcome a perceived deficit in their education. People who concentrated on one field — say, engineering or premed — want to make up for what they missed. College development offices are well aware of that unsatisfied appetite and point to a variety of "extension" programs, designed in part to win the financial support of their larger communities. But by and large, the two parties — the retirees or early retirees and the higher-education institutions — have not yet connected in ways that meet the needs of either side. For example, the typical undergraduate curriculum is a poor fit for older Americans, and the graduate curriculum is an even poorer one. So are the organization and timing of courses, the credit system, and virtually every aspect of higher education that is now geared to young people at the start of their work lives rather than those nearing the end.

To expand its outreach, higher education will want to strengthen existing programs for the growing numbers of adults who wish to add new areas of competence. Colleges have a strong economic incentive to be more creative over

the next decade in matching the needs of older adults with more-suitable materials and more-convenient timetables. If they don't seize the opportunity, they risk losing a significant new source of revenues.

Moreover, the opportunities for higher education are not merely financial; they engage its deepest values. Many faculty members are ambivalent about the practical job-related purposes they serve. They recognize that most young people come to their institutions to develop the skills and credentials that will permit them to make a good living. But many professors hate the idea because it diminishes their calling. Their self-image rejects any "vocational" connotation. Scholars in the humanities and social sciences are particularly discomforted. Because the practical relevance of their fields is sometimes in question, their own role and future in higher education have become problematic.

Potentially, the existence of millions of well-heeled and eager older Americans who hunger for the illumination that they believe higher education holds for them is like manna from heaven — if faculty members learn how to respond to those desires properly. One can envision that, by 2015, historians, sociologists, philosophers, and literature professors could be gaining immense personal gratification, as well as remuneration, by dividing their time between teaching young people and engaging in dialogue with older students who bring their own rich life experience to bear.

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## Trend 2:

*America's growing vulnerability in science and technology.* To an extraordinary degree, our nation's fate depends on maintaining our world leadership in science and technology. Our superpower status is tied to it. Productivity gains that our economy needs to improve our standard of living and competitiveness depend on it. The appeal of our colleges to the rest of the world flows largely from it.

Yet, for a variety of reasons, young people in the Western industrialized nations, especially in the United States, are not flocking to study science and technology like their counterparts in other countries. In Japan, 66 percent of undergraduates receive their degrees in science and engineering, and in China, 59 percent receive such degrees. That compares with only 32 percent in the United States. Higher education must work to overcome obstacles that now discourage students from pursuing science and technology careers.

Many of those obstacles are cultural and include outdated curricula, a lack of qualified teachers, the difficulty of the subject matter, and, in particular, negative stereotypes instead of a genuine familiarity with the work of science and scientists. In an Australian study, young people were asked to draw pictures of scientists and to describe them. The pictures uniformly depict scientists as men with eccentric hair wearing white coats. The students characterize scientists as cranks and geeks, picturing them as locked into their laboratories and never having any fun. An American study found that schoolchildren stereotyped scientists as socially inept, eccentric, and mad.

Higher education by itself cannot, of course, overcome such cultural stereotypes. Government policy, popular culture, and news-media coverage of science all need to work toward that purpose. Yet colleges are strategically positioned to influence student career choices at the very moment that students make those choices and are most open to new possibilities.

Current higher-education practices, however, may actually be counterproductive in attracting students to science and technology. Many college courses are designed to winnow people out, not to draw them in. Science prides itself on being a meritocracy that attracts the best and only the best, where "best" is often defined in terms of mathematical ability. It may be true that mathematical ability shows up early and can be readily measured, but higher math is a smaller component of success in science and technology than is generally assumed. In addition, colleges often make undergraduate courses too tough for students whose high-school experience leaves them poorly prepared for rigorous work in science and technology. There are also financial constraints, as it costs colleges more to educate science and technology students than those in other fields.

That screening-out process is the opposite of what the nation needs. A vast and growing literature on what can and should be done recommends such efforts as improving the quality of math and science teaching in the K-12 years, revising the science curriculum to put more emphasis on general concepts and less on detailed factual information, easing the transition from high-school to college courses in science and technology, and setting standards for scientific knowledge at every academic level.

In addition, higher education can make science and technology far more appealing to students. The history of science is a story of curiosity, challenge, discovery, entrepreneurship, recognition, fame, fortune, and collegiality. At their peak, the institutes and laboratories that coalesced

around charismatic figures like Niels Bohr, Enrico Fermi, Ernest Lawrence, and Robert Oppenheimer lent drama, ferment, creativity and self-expression to the pursuit of science. A physicist follower of Oppenheimer, David Bohm, wrote a book illuminating the importance of dialogue in scientific discovery. The picture that Bohm paints is the opposite of the stereotype of the scientist as loner, isolated in his fun-challenged laboratory. It is a picture of the kind of stimulation and social interaction that appeals to youth.

Colleges must become far more proficient at framing the appeal of science and technology to their students if our nation is to remain a world leader in 2015. Although many institutions have become adept at presenting themselves in an advantageous light, the science faculty is rarely involved. But it is the science faculty that must prepare the lectures and special programs, books, articles, and courses that can demonstrate how exciting careers in science and technology can be.

Some countries have developed what they call science "narratives" to capture the excitement and compelling character of scientific endeavor. We have an abundance of such narratives — for example, Richard P. Feynman's account of his investigation of the Challenger space-shuttle explosion and his scientific sleuthing that helped reveal its cause. We need more such narratives at every stage of education in the United States.

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## Trend 3:

*The need to understand other cultures and languages.* The half-century following the end of World War II lulled our nation into complacency about our ability to deal with other countries and cultures. Recent events, however, have driven home how important it is that we learn to see the world from the perspective of others, not just from a distinctively American vantage point. China and India are becoming economic powerhouses to whom we are financially indebted. In no small measure our difficulty in battling the insurgency in Iraq is because we don't speak the language. We make one cultural mistake after another. Even Western Europe has turned from reliable friend and supporter to mistrustful ally.

Most important, we find ourselves in the early stage of an ideological struggle with radical Islam. Even though they are a small minority of the 1.3 billion Muslims in the world, Islamic fundamentalists have gained popularity among Muslims by making us a scapegoat — and we do not understand Islamic culture well enough to prevent it. We don't even know whether we are engaged in a clash of

civilizations, a religious war, a military battle, or a political/economic/diplomatic struggle.

With each passing year it grows more obvious that colleges must prepare Americans to deal more competently with people from other parts of the globe. It's not that educated Americans must become cultural experts. That is neither practical nor desirable: Experts cannot meet the threat. Instead, our whole culture must become less ethnocentric, less patronizing, less ignorant of others, less Manichaean in judging other cultures, and more at home with the rest of the world.

Higher education can do a lot to meet that important challenge. Change will probably start at the undergraduate level. During the cold war, the disciplines cooperated with each other in the interest of understanding the varied aspects of particular regions, nations, and clusters of nations. Programs of area studies gained a certain momentum. Knowledge, teaching, and research about a region like Latin America was integrated, not compartmentalized. Economists learned about the culture, diplomats learned about building institutions and political movements, and students acquired new language skills.

But when the cold war ended, the specialized disciplines regained the upper hand, and area studies lost out. Ironically, today, at the moment when area studies are most badly needed, the internal pull within higher education toward specialization and separatism exercises the most influence. Some argue that globalization reduces the importance of regional and local differences and that the English language has gained unchallengeable ascendancy. But there is no evidence that globalization is having such effects. The world remains fractionalized, even polarized. Ethnic, racial, national, and religious divisions may be growing even more important, not less.

If colleges are responsive, we will see many more area-study courses by 2015. New programs will spring up that study all facets of other cultures, especially Islam, in ways that enhance our understanding of how those cultures see the world. Language courses will be re-examined for their practicality in communicating colloquial spoken language.

Responsiveness at the graduate level would mean expansions of Ph.D. programs and schools of international studies. Revised curricula would examine our political, cultural, diplomatic, and economic ability to respond effectively to the interests of other nations as they themselves define those interests.

Without the kind of broad-based understanding that only higher education can provide, this nation will suffer crippling setbacks in the culture wars with Islam and other parts of the world. Cultural isolation and ignorance will inevitably undermine our efforts at world leadership. Colleges cannot by themselves achieve the all-important shift in American attitudes that the new global situation demands — doing so is a task for the whole culture. But higher education's role is indispensable.

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## Trend 4:

*Increasing challenges to higher education's commitment to social mobility.* Our nation's core values of equality and freedom pull us in opposite directions. The more equal we become, the less freedom people have to break out of the pack. The freer people are to pursue their own path, the less equality there is. Every viable political culture struggles to find a way to reconcile and balance those two core social values.

In our culture we accept large inequalities as long as genuine equality of opportunity prevails. That is why access to higher education is a passionate concern of our political life — it is the principal mechanism for making America's unwritten social compact work. A number of recent developments, however, threaten to undermine that strategy. One is the startling increase in the cost of higher education and the inability of financial aid to keep pace — which damages low-income students' access to college.

Another obstacle is the continuing failure of our K-12 system to prepare students from low-income and minority backgrounds for the rigors of higher education. The obstacles that poverty and race pose have persisted for a long time. But in the emerging world economy they assume a new urgency. To an extent that would have been incomprehensible to earlier generations of American workers, the current practice of outsourcing jobs extends our domestic labor market to China, India, Mexico, Taiwan, and South Korea. Freer trade, modern communication technology, and the entrepreneurial vitality of those nations make it ever more difficult for unskilled American workers to earn middle-class incomes.

Thus while our society offers fewer and fewer well-paid unskilled jobs, it also places obstacles in the path of those seeking the skills to succeed in higher-level careers. That strikes at the heart of core American values. We cannot drift mindlessly toward creating an oppressed, insecure,

anxiety-ridden, wage-stagnant American work force.

When practical solutions are proposed, all eyes turn toward colleges — both two-year and four-year. The key issues are affordability and developing new competencies, and they are closely linked.

Colleges are unlikely to find ways to reduce their costs substantially. In the new global economy, the imperative that they maintain and improve the quality of their education, so that they can provide American workers with important new skills, will not come cheaply. Moreover, the stakes are so great that the focus will be on achieving results rather than reducing costs.

So where will the money come from to pay the tuitions of students from disadvantaged backgrounds? Most parents, especially in the lowest sectors of the income scale, can't afford to pay more for higher education. Living from paycheck to paycheck, they have insufficient means to make the needed investments. Nor can local communities give much help; the demands on them are already too burdensome. And state support per student is moving down, down, down and unlikely to reverse direction. The federal government may be the ultimate resource, but higher education does best when it can draw upon multiple sources of support.

Yet two other possibilities are promising: the students themselves and their employers. As more and more students find part-time and full-time work, they may be able to use their own earnings or call on their employers for financial support to help them develop the skills they need for their jobs. Employers are sympathetic to higher education, especially for their own employees. By 2015 new contractual arrangements may emerge that encourage employers to pay for employees to gain new competencies through higher education. Such arrangements might, for example, also require employees to agree to reimburse their employers for financial assistance if they do not stay at the job for a reasonable period of time.

As such an integration of work and higher education unfolds, we are also likely to see better integration of high schools and colleges. Hilary Pennington, co-founder of Jobs for the Future, notes that the transition between them has grown "shockingly inefficient" and that "it is time to reinvent the relationship" between high school and higher education. Better integration will help deal with a wide range of problems such as remediation, poor student motivation, and the steeply rising costs of higher education. In all likelihood, individual state governments will take the

lead in experiments designed to reinvent the relationship, with support from the federal government in the form of seed money and flexibility in applying regulations.

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## Trend 5:

### *Public support for other ways of knowing.*

However frustrating for science-minded Americans the popularity of the intelligent-design concept may be, it signals a trend that colleges must heed. The issue is not really the scientific status of evolution — whether natural selection is a theory or proven fact. That form of framing reflects a widespread semantic misunderstanding between scientists and the public relating to the word "theory." For average Americans, "theory" means "unproven." When they hear scientists refer to evolution as a theory, they falsely assume that it means that scientists themselves acknowledge that little hard evidence exists for its validity.

The issue is far broader than semantics, evolution, or even scientific knowledge. It concerns the nature of truth — how we arrive at it, and how we recognize it. In higher education, the organization of knowledge and pursuit of truth has grown increasingly specialized and systematic. The advantages are self-evident in the explosion of knowledge and the spectacular success of the scientific enterprise.

And yet doubt creeps in. The logic of the Enlightenment that informed the founding of our nation assumed that as science gained ground, other ways of knowing and finding truth — particularly religious belief — would lose ground. But in our American culture, that has not happened. While higher education has grown more scientific in its quest for knowledge, the American people at large have grown more religious, more fretful about moral "truths," and more polarized in their struggle to find political and existential truth.

The public believes that science does not have, and cannot have, all the answers, and that other ways of knowing are also legitimate and important. Scientists acknowledge that they do not have all the answers and that the success of science is due, at least in part, to its selectivity. Science concerns itself with aspects of reality that can be measured and are knowable though its methods. Prudently, it refrains — or at least, should refrain — from judging the truth of religious or spiritual beliefs. It has little to say about what makes life meaningful.

In other words, science gains its power from its self-imposed limitations. Scientific progress deals with subjects that lend themselves to quantification, experimentation, and verification. That leaves out vast domains of knowledge and truth. Colleges have long recognized that there are ways of knowing other than science; humanities departments institutionalize that conviction. In recent years, however, the success of specialized knowledge has come partly at the expense of the humanities, and nonscientific ways of knowing have lost status and credibility.

The philosopher Hannah Arendt has argued that some categories of truth will not yield to scientific inquiry but must be pursued through dialogue. In dialogue issues are thrashed out from a variety of points of view that need not be deeply grounded in factual knowledge. But such methods of pursuing knowledge have little standing or legitimacy in higher education. And yet, for many of the emotion-laden moral, political, and religious controversies that pervade our cultural lives, a disciplined form of dialogic discourse is better suited to truth seeking than are the specialized methods of gathering knowledge that now dominate higher education.

At the heart of this fifth trend is the public's growing suspicion that the nation has lost its way and must now rediscover the path of truth. For all its power and cogency, there is little that science and conventional academic knowledge can do to light this path.

We are living through a particularly difficult chapter of the ancient town-gown struggle. In higher education, the liberal arts, philosophy, and the humanities — the nonscientific ways of truth seeking — have been put on the defensive. While still valued as high culture, they have lost ground as ways of knowing and finding truth. But in our popular culture, it is science that is suspect, and its "probabilities" are less respected than among the cognoscenti.

Americans hunger for religious ways of truth seeking, especially with regard to moral values. By seeming to oppose or even ridicule that yearning, higher education pits itself against mainstream America. Unless it takes a less cocksure and more open-minded approach to the issue of multiple ways of knowing, higher education could easily become more embattled, more isolated, and more politicized.

As the home base of specialized knowledge, higher education may have to do a great deal more in coming decades to recognize, respect, codify, and clarify the strengths and limitations of nonscientific ways of knowing vis-à-vis sci-

entific knowledge. At the very least, colleges may want to think about designing curricula at differing levels of sophistication to guide students through the thickets of various truth-seeking paths — provided that faculty members can be found who are sufficiently disinterested and knowledgeable to design such courses. Doing so will increase the larger society's respect for academic knowledge. And, in light of the nation's hunger for nonscientific ways of truth seeking, it would not be surprising to see by 2015 the humanities revitalized, with an infusion of new energy and self-confidence.

Pressured by powerful trends such as those that I've discussed, higher education has entered a new era of ferment and change. But it is an era that also offers enhanced importance and opportunity for colleges and universities.

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