CSHE@50
A Reflection and Prospectus on Globalization and Higher Education

**Results of a Symposium Organized by the
Center for Studies in Higher Education
University of California - Berkeley**

Sponsored by the Carnegie Corporation of New York

**Organized in Association with
The Berkeley Roundtable on the International Economy and
The Institute for International Studies, UC Berkeley**

**Edited By
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John Aubrey Douglass**

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CSHE | Center for Studies in Higher Education

A copy of this report is available at: http://cshe.berkeley.edu

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Foreword

In the spring of 1957, the Center for Studies in Higher Education (CSHE) at the University of California, Berkeley was formally established as an organized research unit, enabled by an initial grant from the Carnegie Corporation and making it the first academic enterprise in the United States focused on higher education policy issues. Since then, the Center has been an important source for encouraging an international comparative perspective, and this thereby provided a timely scholarly theme for reflecting and projecting the role of higher education in society within a globalizing world.

To help celebrate our 50th anniversary, the Center held a one-day conference as an academic and celebratory event and with the intent to facilitate a stimulating discussion on the influences of globalization—past, present, and future—on higher education systems and institutions. A distinguished group of scholars gathered on the Berkeley campus, some 160 participants in total, offering their views on the significant changes confronting higher education and the influence of international models, the global market for students and highly skills labor, high bandwidth networking around the world and the increasing value society places on universities to stimulate both economic growth and socioeconomic mobility.

Our purpose was to provide a forum for a stimulating discussion on these issues. But another purpose was to strengthen further CSHE's historical role as a forum for international interaction and comparative research and to welcome old and new colleagues in our effort to grow an academic community interested in the role of higher education in society throughout the world.

While there are many cultural, economic, political, and institutional differences in the world that are reflected in national higher education systems and their institutions, scholars of globalization also are observing and discussing a process of convergence of organizational approaches to higher education and a growing sense of shared values as societies elevate the role of universities as key components of nation building, and national and academic leaders look for ideas globally applicable in their own circumstances.

In organizing this conference and developing an accompanying website on the history of CSHE, including a listing of over 1,600 past Center visiting scholars and research affiliates, we want to thank the Carnegie Corporation of New York, and specifically Daniel Fallon and Barbara Gombach, for their support and input. The conference was also co-organized with the Institute of International Studies and the Berkeley Roundtable on the International Economy (BRIE). John Zysman at BRIE was an important contributor to helping us formulate the program and participants.

The CSHE@50 conference also was held in conjunction with a smaller gathering of international scholars and policymakers who presented papers on and discussed higher education reforms in a number of regions of the world as well as the lessons the US might learn from their efforts and progress. Results of that symposium are available through the Center's website and a related publication of its proceedings. The Spencer Foundation generously provided funding for that event.

This report is a summation of the symposium proceedings with each presenter given an opportunity to modify and update their comments.

CSHE@50 Co-Organizers:

    C. Judson King – CSHE Director
    John Aubrey Douglass – Senior Research Fellow, CSHE

1.   A Short History of CSHE

The Center for Studies in Higher Education was established in 1957 with a grant provided by the Carnegie Corporation of New York. Over the past 50 years, its name and focus have been revised from time to time (starting as the Center for the Study of Higher Education, and for a period as the Center for Research and Development in Higher Education), but its general mission has remained broadly devoted to multi-disciplinary research, national and international comparative studies, acting as a University of California-wide resource for faculty research, and providing a neutral forum for discussion among university leaders and government officials. At the heart of the enterprise has always been the goal of supporting a productive community of scholars and policymakers.

The first of a small wave of academic research units devoted to the study of institutions and systems of higher education in the United States, the origins of CSHE started with a discussion in 1956 between John Gardner at the Carnegie Corporation, University of California President Robert Gordon Sproul, Berkeley Chancellor Clark Kerr, and T.R. McConnell, a well know expert on higher education and later the Center's first director. While states and nations increasingly devoted large social, political, and economic capital for the building of relatively new mass higher education systems, there was little policy or scholarly analysis on their development and future. Gardner proceeded to fund the proposal at Berkeley in late 1956 and then offered similar grants to start new research centers at other major American universities. But it was not until early 1957 that the UC Board of Regents and the universities Academic Senate officially approved the establishment of CSHE; hence our designation of 1957 as our official inaugural year.

CSHE Directors	
1956-1966	T.R McConnell - Education
1966-1972	Leland L. Medsker - Education
1972-1976	Lyman A. Glenny - Education
1976-1977	Dale Tillery - Education
1977-1987	Martin Trow - Sociology
1987-1989	Neil Smelser - Sociology
1989-1996	Sheldon Rothblatt - History
1996-1999	Arnold Leiman - Psychology
2000-2002	I. Michael Heyman - Law
2002-2004	Karl Pister - Civil Engineering
2004-present	C. Judson King - Chemical Engineering

Since then, the Center at Berkeley has had nearly 1,400 affiliated researchers that have produced a wide range of publications that have influenced policymakers and the development of higher education as a scholarly field. CSHE research activity has necessarily reflected the course of policy issues and scholarship of past eras, and the energies and interests of past directors and research staff. In the first decade and more, T R. McConnell pursued international comparative work focused largely on the UK and, along with Lyman Glenny, Paul Heist, Burton Clark, and Dale Tillery, devoted much of the Center's resources to studies analyzing the type and purpose of institutions and systems in the US, often with robust grants from the federal government.

Later, Leland Medsker led the Center and, along with scholars such as Martin Trow and Pat Cross, shifted the Center's interests increasingly toward the study of the organization of the academy, and pioneering work on student culture and aspirations in both the university and the community colleges—in part influenced by the turbulence caused by the civil rights and anti-war movements. Center affiliated scholars, such as Trow, Glenny, and Frank Bowen, also contributed to the Carnegie Commission and later Council on Higher Education under the direction of Clark Kerr.

When Martin Trow became director in 1977, he returned much of the Center activities to a focus on international comparative research, providing a home for a large cadre of visiting scholars and policymakers from throughout the world. Neil Smelser and then Sheldon Rothblatt proceeded to shape the Center's research activities, retaining the strong international comparative bent with a growing interest in the history of higher education. Clark Kerr, for example, retained his long affiliation with CSHE en-route to writing his memoirs.

More recently, and beginning with Arnold Leiman as director in 1997, CSHE scholarly activity has include the growing influence of technology on the classroom and the changing nature of scholarly communication, issues of access and equity, student engagement and institutional improvement, the future of public universities, and comparative analysis regarding the societal and economic role of universities within a globalizing world. For a more extensive history of

CSHE, including a list of publications past and present, and an extensive list of past affiliated faculty, research staff and visiting scholars and policymakers, see the Center's website: http://cshe.berkeley.edu/. A sample of important CSHE related publications over the years is offered below.

1957-1969
Sample CSHE Related Publications

Glenny, Lyman A. *Autonomy of Public Colleges*, McGraw-Hill 1959

Burton Clark, *The Open Door College: A Case Study*, 1960

Burton Clark, "The Cooling-Out Function in Higher Education," *American Journal of Sociology*, 1960

Paul Heist, "Diversity in College Student Characteristics," *Journal of Educational Sociology,* 1960

Herbert Maccoby, "Controversy, Neutrality and Higher Education," *American Sociology Review*, 1960

T.R. McConnell (with P. Heist), "Do College Students Make the College," *College and University*, 1959

Leland Medsker. *The Junior College Progress and Prospect,* McGraw-Hill 1960.

Martin Trow, "Reflections of the Recruitment to College Teaching," in J.W. Gustad (ed) *Faculty Supply Demand and Recruitment*, 1960

Harold Webster (with Paul Heist and Marvin Freedman), "Changes in personality During College," in Nevitt Sanford (ed) *Social Science and Higher Education*, 1960

Martin Trow, "The Democratization of Higher Education in America*." The European Journal of Sociology* , 1962

Martin Meyerson, "The ethos of the American college student" in *The contemporary U.S.A,* 1966

Trow, Martin A. *The Democratization of Higher Education in America*, New York: Atherton, 1966.

Martin A. Trow, Undergraduate teaching at large state universities. The Educational Record, 47(3), 1966.

Henderson, Algo D. "State planning and coordination of public and private higher education." The Educational Record, 47(4), 1966.

Harold L. Hodgkinson, *Education interaction and social change*, Prentiss Hall 1967, winner of NEA Book Award

K. Patricia Cross, "When will research improve education?" *Research Reporter*, 1967.

Joseph Axelrod, "An experimental college model" *Educational Record*, 1967

Leland L. Medsker, *Beyond high school: A psycho-sociological study of 10,000 High School Graduates*, 1968

T.F. Lunsford, "Authority and ideology in the administered university" *American Behavioral Scientist*, 1968

1970 - 1989
Sample CSHE Related Publications

Hodgkinson, H. L. Institutions in transition Change in American higher education Carnegie Commission, 1970.

Heiss, A. M. Doctoral education in prestigious universities, Jossey-Bass, 1970

Martin Trow and A. H. Halsey. The British Academics. London: Faber & Faber, 1971

Martin Trow and B. R. Clark, et al. *Students and Colleges: Interaction and Change.* Center for Research and Development in Higher Education, 1972.

Trow, Martin, Judy Roizen and Oliver Fulton. Naional Survey of Higher Education, Carnegie Commission, 1972.

Glenny, L. A., & Dalglish, T. K. *Public universities state agencies and the law: Constitutional autonomy in decline*, 1973

McConnell, T. R., & Fay, M. *From elite to mass to universal higher education: The British and-American transformations*, 1973

Martin Trow, "Problems in the Transition from Elite to Mass Higher Education." *Policies for Higher Education*, Organisation for Economic Co-operation and Development, 1974

Schuster, Jack (ed). Encountering the unionized university. New Directions in Higher Education series. Jossey-Bass, 1974.

Bowen, Frank M. (Co-author) E. C. Lee. Managing multicampus systems. San Francisco: Jossey-Bass, 1975.

Martin Trow, "The Public and Private Lives of Higher Education," *Deadalus*, 1975

Shapiro, Barbara. *Probability and Certainty in Seventeenth-Century England A Study of the Relationships between Science Religion History Law and Literature.* Princeton University Press, 1983

Clark Kerr and Marian Gade, *The Many Lives of Academic Presidents:* Association of Governing Boards of Universities and Colleges, 1986

Smelser, Neil. "Major Dimensions in the Relations between the State and Higher Education," in *The Role of Government in Asian Higher Education,* Hiroshima: Research Institute for Higher Education, 1988

Rothblatt, Sheldon. "Historical and Comparative Remarks on the Federal Principle in Higher Education." *History of Education* 16, no. 3 1987

Trow, Martin. "American Higher Education: Past, Present, and Future. *Educational Researcher* ,1988

Clark Kerr and Marian Gade. *The Guardians Boards of Trustees of American Colleges and Universities,* Association of Governing Boards of Universities and Colleges, 1989.

1990 - 2007
Sample CSHE Related publications

Rothblatt, Sheldon (ed). *The OECD, the Master Plan, and the California Dream,* CSHE 1991

Rothblatt, Sheldon, Bjorn Wittrock (ed). *The European and American University Since 1800,* Cambridge University Press 1993

Martin Trow. "Trust, Markets and Accountability in Higher Education," *Higher Education Policy*, 1996

Rothblatt, Sheldon. *The Modern University and its Discontents,* Cambridge University Press, 1997

John Aubrey Douglass. "Anatomy of Conflict: The Making and Unmaking of Affirmative Action at the University of California," *American Behavioral Scientist,* 1998

Detlef Mueller-Boelling, Anne MacLachlan et al (ed), *University in Transition: Research Mission, Interdisciplinarity and Governance,* Bartelsmann Foundation 1998

John Aubrey Douglass. *The California Idea and American Higher Education,* Stanford University Press, 2000.

Kerr, Clark, *The Gold and the Blue: Academic Triumphs*. University of California Press 2001

Diane Harley, "A U.S. Perspective on Why accurate Predictions About ICTs May Be Difficult.'. *Journal of Studies in International Education,* 2002

Kerr, Clark, "The Gold and the Blue: *Political Turmoil*. University of California Press, 2003

Anne Maclachlan et al, "Careers of Women in Science," *Bulletin of Science, Technology and Society*, 2003

C. Judson King, "Let Engineers Go to College." *Issues in Science and Technology*, 2006

Sheldon Rothblatt, *Education's Abiding Moral Dilemma*, Oxford Symposium Books, 2006

Diane Harley, C. Judson King et al. "The Influence of Academic Values on Scholarly Publication and Communication Practices," *Journal of Electronic Publishing* 2007

John Aubrey Douglass, *The Conditions for Admission: Access, Equity and the Social Contract of Public Universities*, Stanford University Press, 2007

John Aubrey Douglass, "The Entrepreneurial State and Research Universities, *Higher Education Management and Policy*, 2007

Richard Atkinson, *The Pursuit of Knowledge*, University of California Press, 2007

Charles M. Vest, *The American Research University from World Ward II to the World Wide Web*, University of California Press, 2007

2.   The Focus of the Conference – The Characteristic of Globalization and Higher Education

The CSHE@50 co-organizers, C. Judson King and John Aubrey Douglass, began the event by welcoming an international audience and outlining the major focus of the conference.

C Judson King

The movement toward mass higher education and the increasingly important role of colleges and universities for socio-economic mobility and global competitiveness has resulted in increasing interest in comparative models. The CSHE@50 symposium focused on the following issues related to globalization:

> *Opening Comments:*
> - *C. Judson King – CSHE Director*
> - *John Aubrey Douglass – Senior Research Fellow, CSHE*

1) How have international models influenced the development of national higher education systems and institutions over the last 50 years (for the purpose of this conference, what we call Phase 1 in the process of globalization)?

2) How is globalization now influencing national higher education systems and institutions, and higher education markets (Phase 2), and how is it different from the past?

3) How will the process of globalization shape the future of higher education and its role in society (Phase 3)?

John Aubrey Douglass

In the following, I attempt to briefly decipher the characteristics of past, present, and possibly future changes in higher education with an international comparative and global view.

Phase 1 – Limited Internationalism

Fifty years ago, many nations in Europe and in other parts of the world were just embarking on a path for building their mass higher education systems. They often looking to the United States to help guide their efforts, but their respective systems remained largely as manifestations of their earlier network of colleges and universities. Germany, France, and the UK had distinct system approaches and degree standards, and higher education systems in most developing nations were influenced largely by their colonial heritages.

The policy-transfer process was limited, constrained by each nation's own political and cultural roots and focused on national and regional markets for students. With the exception of the US, and to a lesser extent the colonial networks of former, largely European nations, most nations engaged in hiring faculty almost exclusively from within their own national university systems. International collaborations between institutions and between their faculty members were rather limited. These collaborations were perhaps most pronounced among a growing community of scientists and engineers.

> **Phase 1**
> **Major Forces Influencing Higher Education 50 Years Ago**
>
> - Initial era for building mass higher education systems
> - Higher education seen as largely a public good
> - Limited adoption of international higher education models and practices
> - National and regional markets for undergraduate students
> - Marginal international market for faculty and research talent
> - High institutional autonomy - limited accountability measures
> - Government as partner with the higher education community
> - National accreditation and quality review
> - Traditional pedagogy – limited technological adoption
> - Substantial government subsidization
> - Small for-profit sector – mostly in U.S.
> - Beginnings of a burgeoning scientific community
> - Limits on cross-national knowledge sharing and communications

In promoting mass higher education, governments tended to be partners with existing higher education institutions and were nearly the sole source of funding. Higher education was emerging as a public good, a decided break from its past as often elite institutions linked with existing social and political caste systems. Again, with the exception of the US and later Japan, most nations had small to non-existent private sector colleges and universities.

At the same time, America's unique position as the pioneer in mass higher education reinforced its largely isolationist impulse, with few academic leaders and policymakers looking abroad at higher education reform efforts. In this first era of globalization, the lack of a comparative international view in the US had no significant adverse effects; indeed, it may have been a benefit, as America built on its unique strengths, which included a highly diverse higher education system and willingness to accept talent from around the world.

Phase 2 – The New Globalization
Since that post-World War II era, much has changed. Globalization is a phenomenon often described as a process of opening and expanding markets for educational services. Beyond market forces, there are also the influences of technological advances. Higher education institutions are also undergoing organizational and behavioral changes as they seek new financial resources, face new competition, and seek greater prestige domestically and internationally.

A variety of trends demonstrate the significant influence of the globalization process on higher education. Most tug and pull at the traditional notion of national boundaries as the critical political and economic environment for higher education.

One result is that the command economy approaches for creating and regulating mass higher education in many parts of the world are withering. What is emerging is what I call a "Structure Opportunity Market" in higher education—essentially, a convergence, in some form, in the effort of nation-states to create a more lightly regulated and more flexible network of public higher education institutions. For example, efforts are being made internationally to converge and standardize undergraduate and graduate degree programs, most notably under the Bologna Agreement. International collaborations with other academic institutions

> **Phase 2**
> **The New Globalization**
>
> - Maturing era for mass higher education systems in most developed nations
> - Higher education increasingly viewed as a private good
> - Growing international adoption and convergence of higher education practices and models
> - Growing international and supra-national market for undergraduate students
> - Growing international market for faculty and research talent
> - Eroding institutional autonomy – growing accountability measures
> - Government as adversary with the higher education community
> - Possible international accreditation and quality review
> - Changing pedagogy – growing technological adoption
> - Declining government subsidization – rising student fees, growing diversity of funding sources/privatization
> - Growing for-profit sector
> - Established scientific community
> - Global knowledge sharing and communications

and businesses are now commonplace. Universities seek new avenues to fund and promote the commoditization of their knowledge-production capabilities.

When compared to fifty years ago, the global network and marketplace for academic researchers has grown significantly. Many higher education institutions are also recruiting relatively new pools of students outside national borders. In this quest, most are seeking to apply new instructional technologies to expand enrollment and to enhance the viability and profitability of international ventures. Facilitated by these technologies, there is the specter of a competitive environment between existing and new providers, including the rise of new non-traditional and for-profit competitors. With this more competitive global framework has come talk of a need for international accreditation processes and new efforts at quality review.

We are in a relatively new era marked by a consensus that the educational attainment of a population and increasingly the growth in access to postsecondary education are factors that, more than ever, will determine the fate

of nations in the modern world. This widely understood fact is causing a worldwide effort to reform and reshape higher education systems focused on making national higher education systems not just widely accessible, but higher quality and more accountable.

Phase 3 – Post-Globalization Dreaming
What will the future hold for national higher education systems? Many scholars of globalization argued that the process of globalization is a force more powerful than industrialization, urbanization and secularization combined. Globalization, notes one observer, is the "inexorable integration of markets, nation-states and technologies to a degree never witnessed before—in a way that is enabling individuals, corporations and nation-states to reach around the world farther, faster, deeper and cheaper than ever before." In contrast, some groups of scholars and activists view globalization not as an inexorable process but rather as a deliberate ideological project of economic liberalization that subjects states and individuals to more intense market forces.

Whatever the sources of globalization, most globalist scholars predict an acute and sweeping effect on higher education. There are two main and interconnected reasons for this prediction. First, the opening of what were previously closed markets dominated by state-subsidized providers will force a reconfiguration of the higher education sector, thus opening opportunities for new providers. Second, new providers will have a competitive advantage, in large part because of their ability to adopt more efficient instructional technologies quickly. In this futurist vision, a once ubiquitous mode of delivery (the classroom) is replaced by another (online courses).

However, many observers of higher education are dubious about whether the extent of these market shifts will foster homogeneity and convergence to the degree anticipated by some. Might these forces of change foster a greater diversity of institutional types and culturally related institutions? Have the complexities of policymaking and markets been fully appreciated? This is but one topic among many that the symposium participants discussed. Whatever the view, it is clear that there are similar emerging approaches to key policy areas. Some have called this the "Americanization" of higher education, in part because of the iconic and, dare I say, somewhat romanticized advantages of the US model. But I would argue that that characterization is a misnomer, in large part because some of the most dramatic higher education reforms are occurring in other parts of the world, providing the new models in key areas such as access and financing. What is emerging is a much more dynamic and global policy-transfer environment.

3.   Higher Education Politics and Policymaking, Then and Now – A Discussion with Past CSHE Directors and Alumni

The CSHE@50 symposium began with a panel of past Center directors and alumni who discussed a variety of topics. Neil Smelser spoke about the constituencies to which modern universities must cater. Karl Pister addressed the transition of higher education from the tyranny of academic disciplines and rugged individualism to team efforts that cross disciplines. Jack Schuster described major shifts over the past 50 years in policies that affect higher education. Janet Ruyle briefly summarized the history of the Center. Sheldon Rothblatt discussed the role of the Center in bringing people together

Chair: C. Judson King – CSHE Director

Panelists:
- *Neil Smelser, CSHE Director Emeritus*
- *Karl Pister, CSHE Director Emeritus*
- *Jack Schuster, CSHE Alumnus*
- *Janet Ruyle, CSHE Researcher/Alumna*
- *Sheldon Rothblatt, CSHE Director Emeritus*
- *I. Michael Heyman, CSHE Director Emeritus*

from all walks of life, both inside and out of academia. I. Michael Heyman raised the issue of public institutions being unable to compete with private universities that raise massive endowments.

Neil Smelser

The constituencies of universities have always existed but they have changed in character in recent decades. The traditional constituencies have included the town/gown aspect, legislators and policy makers, parents, and alumni and other donors. Today, external constituencies have become much more numerous and strident – and since the old ones have not gone away, coping with the constituencies has become increasingly complex and difficult.

Among the new constituencies that must be attended to are the federal government, with its increasing role in grants, environmental mandates and affirmative action issues; industry, which has become far more important as a source of partnerships and funding, especially for research universities; groups representing racial, ethnic, gender and other minorities that monitor institutional policies closely; and a diversity of social movements, including animal rights and advocates for peace.

Among the consequences of dealing with this expanded list of constituents is an increase in public pressure and political conflict that makes the administration's job much more difficult. In addition, there is a proliferation of bureaucracy, a natural protective reaction to external threats. Finally, in general there is an increasing timidity as the administration becomes more acutely aware of all the many toes waiting to be stepped on. At the very time that universities are asked to do more, they are tempted to do much less because of the precarious nature of modern university life.

Karl Pister

The academic culture at universities has been evolving since the 19th century when Lincoln signed the act creating the land grant institutions. That changed universities enormously, but no more so than did other forces over the succeeding years, including the arrival of veterans after World War II and the drive to make America first in scientific research that followed Sputnik – and today, the Internet and other new technologies.

All of these have had a great effect on shared governance and what faculty does and how they spend their time. In what could be called the tyranny of the academic disciplines, different departments on campuses over time became the forces that controlled courses and curricula. Incredible pressure from the peer review system and the identification of disciplines, further divided into sub-disciplines, as well as perceptions about what was hot and what was cold in terms of winning funding, had an enormous impact on academic shared governance, giving departments greater and greater power.

At the same time, faculty operated under a system that encouraged academic rugged individualism. Judged by their scholarship, faculty avoided multiple authorships and found that their work was narrowing. Research did not count as a scholarly effort if something new was not discovered, often trivializing the search for knowledge and understanding.

Today, this trend is beginning to change. There is a reversal from rugged individualism and distinct disciplines, with more emphasis on teams that operate across disciplines. Faculty members are now rewarded for multiple-author articles. What was once a tyranny apparently is beginning to be mitigated.

Jack Schuster

There have been several major shifts in politics and policies affecting higher education over the past 50 years. They include:

- An enormous increase in the federal role regarding higher education, both as a player and a regulator.

- An increased reliance on market mechanisms, based on the untested theory that more efficient and effective higher education would result.

- The rise of the proprietary sector and an increasing privatization of higher education – not to mention an entire industry that has grown up around student financial aid.

- An increase in and privileging of a utilitarian curriculum, expanding well beyond the embrace of agriculture and the mechanical arts to science and technology, with the purpose of equipping the United States to compete more effectively in the global economy.

- An accountability mandate to measure outcomes and standardize higher education that may have the spillover effect of tinkering with the current system of accreditation.

The unintended consequences of this bundle of changing policies over the past half century include a blurring of the distinction between public and private institutions. Public higher education is becoming increasingly dependent on private sources of revenue, and state institutions are increasingly dependent on federal sources of funding. At the same time, the autonomous private sector of higher education has become irrevocably dependent on the public sources of revenue represented by student financial aid.

Janet Ruyle
The history of the Center for the Study of Higher Education is being compiled and will be expanded to a more complete version in the future. The center, originally funded by the Carnegie Corporation, was designed to be interdisciplinary and to focus on longitudinal studies about students. Eventually, the mission of research and development was added, broadening the focus to student development, access, curriculum, governance and statewide control.

Over time, directors felt that the Center was an effective way to bring scholars together, which led to the development of the visiting scholars program. More than 200 people have come to the Center to share their research and learn what is happening in California.

In addition, the Center has conducted a series of seminars, focusing on the university itself, the undergraduate experience, graduate education and a number of other topics. As higher education moves into an era of globalization and the increasing use of technology, the Center has served as a forum to discuss the impact of the many changes.

Sheldon Rothblatt
When Martin Trow became director of the Center, he came forward with a whole set of ideas about what such an institution might do. He was one of the few people in the United States at the time who was equipped to think about the structure of the university and where in such a structure an organization like the Center might fit. One of his ambitions was to have the center create room for anyone on campus who wanted to participate, a largely egalitarian society, completely free of any hierarchy.

The Center brought in people from the UC President's office, from state government, from other segments of higher education – even from organizations that were enemies of the university. An international component was added to flesh out whatever was missing. The Center helped build an international community at a time of changing forces in the world, greater complexity and increasing fragmentation. The Center tried to capture something enduring. To this day, wherever one travels around the world in academic circles, people remember the Center and the larger community that has been built.

I. Michael Heyman
One topic that is worth exploring is the future for public universities that must compete with private counterparts that are able to raise huge endowments, especially at a time of reduced state funding. What will be the outcome if the resources of an institution like UC Berkeley are diminished in relation to private institutions?

Berkeley provides significant opportunity for upward mobility for students who are motivated to compete for admission. Institutions like Berkeley, with the highest intellectual ratings and the high quality of faculty and graduate students, produce eminent research – but it also has a spillover effect on undergraduate students, who are exposed to a high-quality intellectual core.

If resources are reduced, over time public institutions will fail to hire and retain the best faculty, and there will be an attrition of graduate students who are excellent in their fields and a diminished ability to attract consulting and research opportunities. This would be a tragedy that does not bode well for the future.

4. Strategic Issues Facing Africa: The Emerging Role for Higher Education and the Challenges that Lie Ahead

Narciso Matos of the Carnegie Corporation spoke about the progress and challenges for higher education in Africa. Ahmed Bawa, formerly of the Ford Foundation, provided comments.

Narciso Matos

The United Nations has established a set of Millennium Development Goals as a blueprint for providing assistance to reduce the effects of extreme poverty. The eight goals include eradicating poverty and hunger, achieving universal primary education, promoting gender equity, reducing child mortality, improving maternal health, combating disease, ensuring environmental sustainability, and developing a global partnership to address the needs of the least developed countries.

> Speaker: Narciso Matos, Carnegie Corporation
>
> Comments: Ahmed Bawa, University of Kwazula-Natal

Mozambique is one example of an African country that is working to meet the Millennium Development Goals. With a population of 20 million, Mozambique has four million students in primary education and 30,000 students in its 12 higher education institutions (three public and two private universities, plus three public and four private polytechnic institutions). The country is undertaking projects including expansion of the school system and health system, decentralization of public administration to rural areas, and construction of roads, schools and hospitals.

These initiatives depend on developing the necessary workforce to support them, including increasing the number of school teachers. To address the needs, the country is building two new universities and three polytechnic institutions. Each institution, with an annual budget of about $1.2 million, is being run by young Mozambique graduates who are taking on a large responsibility in the face of many challenges and few resources. Besides the limited funding, there is a lack of skilled people, facilities, equipment, books and journals.

There are similar challenges for higher education across all of Africa. Countries are attempting to cope with high demand for higher education and rapid expansion. A major challenge is to balance this expansion with the need for quality and relevance. There is too little, if any, research and too much rote memorization.

There is also very little context-relevant and indigenous content in the curriculum. Another challenge is to balance the demand for the university to be an instrument of development while at the same time preserving the core characteristics of the university as a place for research and knowledge production, academic freedom and unconstrained probing of ideas. As higher education expands, more people are connected to information networks – but this also serves to create a wider divide between those who have access and those who do not.

There is a debate going on about alternative strategies for higher education training. These alternatives include:

- The network model, with networks of scholars, research groups and innovative centers.
- The Indian model of creating advanced science and technology centers.
- The national vs. regional model, which emphasizes training within national borders.
- The overseas model, which leads to high costs, lack of relevance and potential brain drain.

There is a paucity of data and information on a number of issues that could help guide decision-making. These include the areas of progress on Millennium Development Goals; rates of HIV infection in schools; market demand

for professionals; the sustainability of schools, higher education institutions, hospitals and other infrastructure; and students' ability to share the cost of education.

While there are different perspectives on the part of development agencies, foundations and governments regarding the mission of higher education, increasingly higher education is being looked to as a means of producing professionals who can implement the agendas of policy makers and aid organizations. This is progress from the more traditional view of higher education as a luxury. But it is not a complete transformation to the perspective of higher education as an engine or incubator for development in the knowledge society.

Where is the funding for higher education in Africa coming from? The data indicates that while the World Bank is a leading source, the Partnership for Higher Education in Africa – an organization of six foundations (Ford, MacArthur, Rockefeller, Mellon, Hewlett and Carnegie) – is providing about half the amount earmarked by the World Bank and more than many major countries. But the bottom line is that the total over five years – about $1 billion – is really very little money going to higher education in Africa.

Development Aid to HE in Africa
Data Base 2000-05 (US$)

Organisation	Funding	Projects
World Bank	259 200 000	28
Netherlands PPET	140 000 000	14
PHEA (10% partnership - $200m 04-08)	135 000 000	638
Swedish IDA	124 900 000	7
European Union	110 800 000	7
Japanese International Cooperation Agency	85 000 000	7
Canadian IDA	72 000 000	32
Norwegian OFA	70 000 000	42
US Aid	17 220 000	84 (1.3 Billion)
UK DfID	10 000 000	5
Germany (DAAD)	10 000 000	12
Portugal	9 800 000	13

In summary, the challenges in Africa include:

- Lack of support for developing higher education, particularly institution building and research.
- Avoiding "projectization", with its lack of focus, coherence and continuity of learning.
- Lack of higher education study and information that could inform development.
- Development of higher education by foreign affairs policy makers rather than by departments of education, science and technology.
- Lack of research and cumulative learning.

Ahmed Bawa

Ahmed Bawa, University of Kwazula-Natal, provided commentary on the presentation about African higher education. Among his key points was that higher education as it has developed in Africa has been within a colonial context rather than an African context. Although many countries in Africa are making great progress on higher education, the progress is often focused on addressing the immediate and utilitarian problems of society without any deep understanding of the role that a knowledge-building institution can play.

Bawa said that a fundamental requirement of creating a vital higher education system in Africa is the re-imagining of the system as complementary, rather than supplementary, to the context of Africa. A fundamental challenge for African higher education is to understand the humanities and social sciences, and to begin to shape knowledge production based on the African context. This does not mean partnerships should not be formed and that African universities should not work with scholars in other countries. But it is the responsibility of African universities to generate knowledge about their own context.

One example Bawa cited is that with rampant globalization, there is an increasing use of English and French as the dominant languages of higher education. Although there are 10 million speakers of Zulu, a student would have to travel to the United Kingdom to study in that language because it is not a language of discourse in African

universities. Bawa concluded that by re-imagining its role, African higher education will emerge as an integral part of and legitimate partner in the global higher education system.

5.   Higher Education, Then and Now – Internationalization and Globalization

Sheldon Rothblatt discussed the conflicting pressures that make equitable access to higher education difficult. Grant Harman described the higher education scene in the Asia Pacific Region, as well as Australian developments. Michael Shattock contrasted the often-positive perspective of globalization with the commercialization of higher education. Kerstin Eliasson spoke about the Swedish experience with access. Irwin Feller commented on the benefits and drawbacks of globalization.

Session Chair and Commentator: Irwin Feller, Penn State/AAAS

Speakers:
- *Sheldon Rothblatt, CSHE Director Emeritus*
- *Grant Harman, University of New England, Australia*
- *Michael Shattock, University of London*
- *Kerstin Eliasson, former State Secretary, Sweden*

Sheldon Rothblatt
Student access is both a national and a global issue. It is an old issue that was not initially caused by globalization but is exacerbated by it. The strains and stresses that universities are undergoing at the moment are intensifying, as western democracies become more ethnically and religiously plural, and government and public pressure to admit more broadly and especially from low income and particular ethnic minorities increases. While higher education has always had to deal with the issues of selection, today's situation particularly involves universities that are commonly described as "elite," where entry is regarded by students as necessary for entering desirable labor markets. It matters not whether a degree from an elite college or university actually does provide real employment benefits. The perception that it does is common.

Who gets into universities historically is not a subject that has been much studied because the evidence and the records are very difficult to locate and interpret. If one goes back hundreds of years, those who entered were almost always members of the privileged portion of society, but we still lack a clear understanding of how selection was carried out or who was rejected for admission. We're generally certain that in the distant past those who were rejected probably came from social strata and families similar to those who were accepted, which makes the issue of selection even more puzzling. Probably, as today, students did not seek entry to institutions that were, in their view, likely to reject them. So self-selection was an important feature of university admissions in the past.

Today there is fierce international competition for all kinds of talent, especially within elite research-led institutions. Original research and discovery are held to be the life-blood of progressive societies, essential for economic development but also for conceptions of what constitutes a good life. Yet any emphasis on talent recruitment puts those who are perceived to lack the required ability at a great disadvantage. Many universities and governments have adopted policies meant to improve the chances of less competitive students I need not say how controversial those policies are. America in particular is divided on what is usually summarized as "affirmative action." But what I choose to emphasize at the moment is that merit-based admissions policies and affirmative action measures work against one another. This is an immense dilemma. Or, as I call it in a recent book, it is an "abiding moral dilemma" for pluralistic democracies. The more that merit is stressed, the more difficult it is for those who cannot compete. And the more emphasis there is on affirmative action and recruitment from a broader base of the population, the more the selection process for talent is compromised. So the pressure to recruit talent is at a very high level at the same time that the pressure to uphold the democratic promise for all segments of society is increasing.

One qualification is essential. When I use the word "merit" I mean measurable merit, usually in the form of some standard criterion. Otherwise the definition of merit can be stretched to cover all sorts of abilities and personal traits.

Precisely because access is a moral issue for democracies, the tendency to redefine the basis for merit and selection is always present.

The growth of national systems of education, with linkages and transitions between the various levels, has resulted in structural systems that are enormously complicated. Scotland and England, with very different heritages, solved higher education access the same way: linking upper secondary education to the process of higher education admission, so getting into upper secondary institutions became the issue.

In the United States, where the conception of a democratic society was initially different from other countries that became democratic, the nation struggled long and hard to erect publicly financed schemes of lower education that link an upper secondary sector to higher education. Private preparatory high schools were able to provide the kind of academic preparation that universities and colleges preferred, but public-sector schooling was and remains erratic and unreliable. Universities have constantly struggled with high schools in order to obtain a qualified student body and avoid remediation in first year. A system that treats all people as though they are on a level playing field as they come out of secondary education is problematic when it is well known that students do not start at the same level. This has led to complications as universities have tried to make the access outcomes more equitable despite a secondary education process that often fails.

Access and selection are national issues exacerbated as I said by global pressures creating cross-national markets for students and researchers. Quality, both defining it and maintaining it, is a concern that constantly intrudes itself into all discussions of curricula. Maintaining uniform standards not only across the boundaries of nations and particular higher education institutions but within them has always been a problem for those who try to make different kinds of curricula equivalent in some noticeable way. In the United States, the Department of Education in Washington has recently tried to force higher education institutions to adopt various kinds of "student learning outcomes" that interfere with institutional autonomy and diversity, but such discussions are not limited to the United States. In fact, we find new quality dilemmas arising in Europe as more and more universities adopt various forms of the American credit-unit or modular systems of instruction and evaluation.

Around the turn of the twentieth century American academics discovered that if a curriculum was divided into discrete bits, students would have greater choice in choosing subjects to study, faculty would have more opportunity to teach their specialties, and the separate courses, while most often unrelated to other courses, could nevertheless be accumulated and used to facilitate student transfer. Americans more or less accepted the consequence that a common standard of achievement was impossible to maintain where so many different types of subjects and courses existed. For most of the twentieth century European colleagues criticized American higher education for having a plurality of academic standards; but the widespread adoption of modular systems abroad seems to indicate that other countries and universities believe that the advantages of a course-credit system outweigh the disadvantages. But even if this is the case, quality issues will remain and become a real problem as talent circulates between nations.

Finally I would like to mention that merit determination, selection and the competition now raging in the academic world has made cheating a greater problem than at any other time. By all accounts, the cut-throat environment that national and international competition has helped produce has reached new levels. Not only students at school and university are engaged in extensive cheating: we also find that degree and resume information is being falsified in order to improve employment chances or acquire undeserved status and attention. Those who wish to cheat have always found ingenious ways to do so, but the advent of an electronic universe has extended the range of possibilities. We read that text messaging on cell phones and downloadable work from the Internet are widely employed. Some institutions are taking defensive measures, such as making buildings less "smart" so that students cannot access the Internet from test rooms or receive email answers from friends.

Grant Harman
This presentation summarizes the main themes of Australia's higher education experimentation over the past three decades related to university funding, student tuition and income-generating entrepreneurial activities. It does so within the context of the transition to mass higher education and rapid expansion in enrolments. In addition, a

"snapshot" of the Asia Pacific Region – a vast area of three billion people, with 60 percent of the world's population – is also provided.

Over three decades ago, Martin Trow, former CSHE Director, correctly predicted many of the implications of the transition from elite to mass higher education. Mass higher education changes the size and social composition of the student body, student motivations, and the work roles of academics. But it also generates substantial budgetary needs, especially in times of rapid expansion and strong competing claims for public expenditures. This is usually combined with increasing high school completion rates, strong pressures for enhanced access, and new labor market demands.

At times, governments are able to meet the financial challenges and sometimes to invest generously. But in other cases funding higher education leads to considerable strain, producing friction, criticism, and difficulty in arriving at funding and tuition fee policies. With mass or rapidly expanding systems, governments respond to the funding needs by adopting one or a combination of strategies:

- Public support in the form of grants, loans, vouchers, or subsidies.
- Introduction or increases in tuition and other fees and charges, borne by students and/or their parents.
- Encouragement of institutions to generate their own income through entrepreneurial activity, or seek support from alumni or other sponsors.
- Attraction of foreign donor support.
- Schemes to ration access, achieve enhanced "efficiencies," or seek low-cost alternatives.
- Establishment and/or encouragement of expansion of private higher education.

Even in wealthy nations, higher education is often forced to cope with reduced funding per student unit, leading to deterioration in teaching and staffing strategies, worsening staff-to-student ratios, and postponement of maintenance and capital works.

> **Terrorism's Impact on the Academic World**
>
> Heightened sensitivity about the threat of terrorism is disrupting the free flow of international students and scholars. One participant suggested security measures have been particularly damaging to American higher education, with a level of delay and scrutiny that could be considered harassment.
>
> Sheldon Rothblatt said that the historical context for open borders for academics has not always been lived up to, with institutions sometimes failing to be as open or tolerant as the ideal that has been aspired to. Nonetheless, the terrorism issue presents a very tricky problem since universities cannot be naïve about the threat of violence in today's world. Universities have to stand for open borders when it comes to scholarship, but it is a sensitive issue.
>
> Michael Shattock noted that universities have had to defend themselves for admitting or granting degrees to people who have been linked to terrorism. He said there is a serious difficulty with universities being painted into a corner because of the publicity that comes with such issues. However, security is a fundamental issue for governments, not for the university, which should be focused on freedom of research and freedom of speech. He said it is important to keep the two roles separate.
>
> Irwin Feller agreed that it is not reasonable to expect universities to screen international students and foreign scholars for terrorism threats. Such a burden would impede universities, which are creating an environment for international cooperation, and reduce the opportunity for long-term cultural compatibility.

Turning to the Asia Pacific Region, there is an impressive diversity accompanied by rapid social and economic change. Higher education reflects this diversity, from the sophisticated systems in Japan and Korea to the much smaller efforts of countries like Bhutan. Rapid expansion in enrollment is placing a considerable strain on government budgets. In China enrollment increased from 3 million in 1990 to 23 million in 2006, while in India enrollments rose from 6.2 million in 1993 to 9.3 million in 2000.

One outcome of the strain created by growth is that tuition fees generally are increasing substantially. Another result is a major expansion of private higher education. The Philippines, Japan, Korea and Thailand all have large and strong private sectors, but private higher education institutions are being established in many other countries, including India, China, Malaysia and Vietnam. All of this is accompanied by significant concern about quality and the establishment of quality assurance mechanisms.

Australia has seen many of the same pressures as other countries in the region and has responded with three major changes since 1974. That was the year that a Labor Federal government moved to increase student access and

increase participation of disadvantaged groups by eliminating tuition fees. While the absence of fees did facilitate a major expansion in enrollment, the policy was regarded as a failure because it produced little change in the social composition of the student body.

The policy continued until 1989, when a new Labor government developed an innovative form of student contribution. Students pay for their education only after they graduate and only after their income reaches the average of the total community. The cost of their education is then repaid through the income tax system, so no banks or lenders are involved. Students who prefer and are able may pay 'upfront' in advance with a 25 percent discount. The system has been highly successful, with a high degree of public support and only limited adverse effects on student participation. The scheme now contributes enough to fund about 30 percent of government operating grants to universities.

The third change came in 1990 when the government encouraged universities to generate increasing proportions of their own budgets by admitting more fee-paying international students and allowing universities to admit full-fee domestic students who fail to secure a higher education government-supported student place.

These efforts have been highly successful. Universities today enroll some 239,000 international students (25 percent of total university enrollments), generating about $4 billion to $5 billion per year. In addition there are increasing numbers of domestic fee-paying students. The drawback is that universities have been so successful in raising funds that it makes it difficult to argue convincingly for a greater public investment in higher education. The current Federal government refuses to provide any substantial increases in the higher education subsidy to teaching. While the opposition Labor Party is highly critical of government higher education funding policy, to date it has failed to make commitments to substantially increase investment in universities.

Michael Shattock

This presentation is meant to de-mythologize globalization, as well as suggest that some of the theorizing around globalization actually represents the post-hoc rationalization of the commercialization of higher education. This trend, often spoken of in positive terms, actually has disturbing aspects in regard to the way universities operate.

The United Kingdom was actually a leader in the move to raise money from overseas students. When Margaret Thatcher became prime minister in 1979, she inherited an economy under siege. Her Secretary of State for Education was looking for ways to trim 100 million pounds and quickly took up the idea of eliminating subsidies for overseas students and making them pay full fees. Universities learned to treat foreign students as profit centers because they could recruit as many as they wanted and use the funding to appoint more academic staff, conduct more research and expand programs at a time of severe budget cuts. Some universities were very careful to impose targets on admission of international students and require equivalent qualifications, but some were not. In fact, recruiting agencies that earn discounts for the number of students they send to UK universities have been established around the world – it is a growing and profitable business in the Far East.

In addition to bringing foreign students to the United Kingdom, many universities in England and Australia have begun to establish branch campuses in other countries. One example is the commercial park in Dubai that houses some 50 university overseas campuses. These campuses tend to be small and all have heavy start-up costs that make it difficult to do well financially. They often use local staff at local rates, since professors at the home university often do not want to go overseas to the new locations.

The countries involved argue that this is not commercialization but instead represents globalization and internationalization, a key part of their mission. But the reality is that certificates are being handed out to students who do not go anywhere near the universities whose names are on the degrees. It raises significant issues about what universities should be involved in doing and if this is a trend that should be encouraged.

On the other hand, there is a much more positive side of globalization, especially for research and research universities. There is an extraordinary generosity of collaboration among foreign scholars. This has a long history from the times when scholars would congregate wherever great research was being produced or great books were

being written. There has always been collaboration in research, but today it is enhanced by technology that allows instant communication and information sharing.

When the question "Where is globalization taking us?" is asked there should be a distinction between the globalization that is really commercialization and the globalization that is about the transfer of ideas. One puts academic integrity in jeopardy, and the other lays the groundwork for unique discoveries and shared Nobel prizes.

Kerstin Eliasson

Access is one of the issues raised that Sweden has been working on for some time, with at least partial success. In the past 10 years, the proportion of students from working class backgrounds in higher education has grown from 18 percent to 24 percent. However, there are few of these students who go into the more prestigious programs, such as medicine.

In many ways, the problems being discussed are not problems of higher education but of the secondary education system, where so many young people make their decisions about what to do with their lives.

On the issue of globalization, research has always been international in character. Not only technology developments but also the rise of "big science," with large, shared scientific installations, has encouraged increased international cooperation.

Finally, when globalization is discussed, it is important to talk about student mobility. There has been a definite increase in international students in OECD countries between 1998 and 2004, with 70 percent growth to 2.3 million students. In Sweden, there has been a large increase in students from Germany, Finland and France, as well as increasing numbers of Asian students. The one notable population that is missing is American students.

Irwin Feller

There are increasing signs of globalization. A recent study on trends in publications has indicated that the U.S. share of titles published is declining. However, there is a noticeable increase in co-authorships, particularly between authors in the United States and other countries – which speaks to the collaboration that is occurring because of globalization. Today if one wants to do high-quality research, one has to work with other high-quality researchers, wherever they are. The trend is driven in part by "big science," but also in part by increased mobility.

Mobility plays a key role in globalization, both in facilitating collaboration but also in transforming research into practical applications. Under the "moving van" theory of technology transfer, students take the knowledge that they have learned and migrate out. This launches new industries and transforms existing companies. It's a powerful kind of model that is an antidote to the patent-licensing paradigm.

There are downsides to globalization. For example, because much of academic communication is in English, there is a tendency for United States academics not to invest in learning a foreign language – a loss for the United States, where we have so much to learn from how other countries conduct research. In addition, since performance in higher education is often measured by publication, it is much more difficult for people publishing in other languages to receive citations in major indices. This places pressure on the vitality of national languages. So while globalization leads to increased scientific productivity, it also has a potential cost to nations.

Finally, a closing observation about the role of higher education in terms of culture and civic contribution: Over time, as universities have grown, and faculty and students have come from more and more countries, the whole dynamic of community has changed. Instead of talking about six degrees of separation, it is becoming six degrees of closeness. An important contribution universities make is to bring together people of many different cultures and experiences, enriching all of our lives.

6.   Global Trends: The Environment for Higher Education in the Future

Martin Kenney provided figures on evolving trends in patents, research and development, and overseas job growth. Henry Etzkowitz described the university of the future as expanding its mission beyond teaching and research to economic and social development. Alison Bernstein raised questions about the impact of "McDonaldization," massification and marketization of higher education. John Gage discussed the changes that ubiquitous information sources and increased mobility are bringing to the world of academia.

Session Chair and Commentator: John Zysman, UC Berkeley

Speakers:
- *Martin Kenney, UC Davis*
- *Henry Etzkowitz, University of Newcastle*
- *Alison Bernstein, Ford Foundation*
- *John Gage, Sun Microsystems*

Martin Kenney

This presentation looks at how entrepreneurial venture capital and patenting are beginning to change in a global economy. This is important because the trends may well change where the centers of university excellence are in the future.

Data from the United States Patent and Trademark Office shows the United States has increased only slowly over the past 40 years to about 95,000 patents per year. Below that is Japan, which grew rapidly from the 1960s through the 1980s but leveled off in the 90s. And below Japan are Taiwan and Korea, whose growth appears to be leveling off. More interesting are China and India, which are seeing the kind of steep growth that Japan, Taiwan and Korea did in early years.
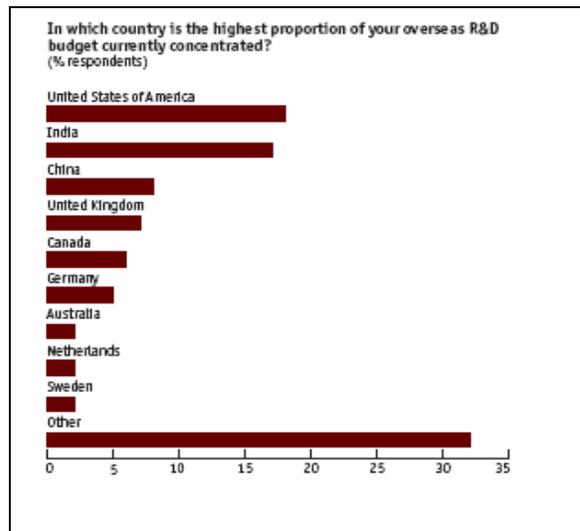
One can also look at where research and development is being done today. The Economist Intelligence Unit surveyed 300 executives from global Fortune 1000 companies and asked which country, other than their own, they would choose as being the best overall location for research and development. India was selected most often, followed by the United States and China. The other countries were not seen as significant areas for research.

When the same respondents were asked where the highest proportion of their overseas R&D budget is currently concentrated, the United States and India led, followed by at a distance by China, the United Kingdom and Canada. This is a significant change over the past 15 years; India is starting to play an increasingly significant role in research by multinational firms.
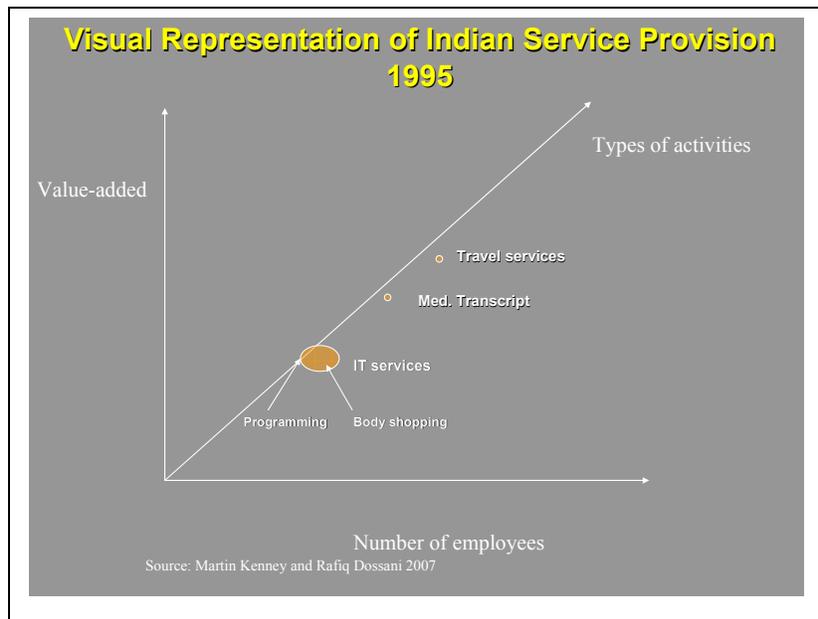
Turning to venture capital, the United States – and in particular the Silicon Valley – leads the world by a significant margin. In 2005, ventu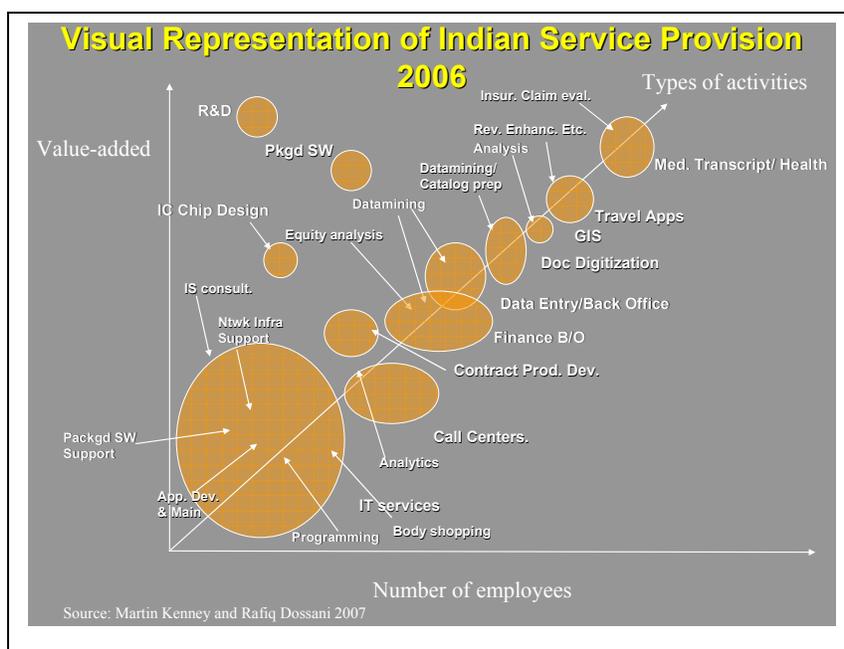re capital totaled $14.8 billion in the United States, followed by $1.2 billion in the United Kingdom and $1.1 billion each in Israel, China and India. Looking at the 2006 figures, China has leaped ahead: The United States totaled $25.7 billion and China $1.9 billion, followed by the United Kingdom at $1.7 billion and Israel at $1.6 billion. At the same time, venture-capital-backed companies are increasingly sending their research and development dollars to India, China and Eastern Europe. This tells us that venture capitalists are starting to see new opportunities and redirecting their investments.

To see the potential impact of these changing trends in patents and research and development investments, one can look at India. The first chart is a "stylized visual" representation of the services India was providing in 1995, the one axis representing the degree of value added and the other axis showing the number of employees. Originally, the type of activities was of low value, but when one looks at the same chart for 2006, one finds that India has expanded in terms of the number of employees, increased the value-added activities, and the types of work undertaken. The head count providing these services is growing at about 35 to 40 percent a year. It cannot grow at that rate forever, particularly given the challenges India faces in educating large numbers of its population, but is likely to sustain that rate for the next few years.

Taken together, what do these trends mean? When it comes to the educated workforce of the world, centers of excellence are emerging in lower-cost locations such as India. There is beginning to be a demand for educated people in places were there was little or no demand before. India in particular, but also China and Eastern Europe, are new and important locations for research and development, as well as for venture capital investment. Graduates from the United States can no longer be guaranteed good jobs simply by being located in the United States – that was a potent advantage that existed for a long time, but it is increasingly weakening. The location of jobs that require "think" work is up for grabs.

Visual Representation of Indian Service Provision 2006

Source: Martin Kenney and Rafiq Dossani 2007

Henry Etzkowitz

This presentation is titled The University of the Future. If one takes seriously the concept that we are now in a knowledge-based society, then the university is fated to play a much more important role than it has in the past – not only as a producer of trained persons, but also as a generator of the knowledge that becomes the basis for entrepreneurial firms.

This transformation of the university's role is not the first time there has been an academic revolution. In the late 19th century, the research university arose, creating research groups and centers. The second academic revolution in the 20th century, which is still ongoing, is the rise of the entrepreneurial university. During these revolutions, the mission of the university has evolved from teaching and research to driving economic and social development, as well.

MIT was the first entrepreneurial university. It was created in the mid 19th century as a science-based technology university that would infuse new ideas into industry, while at the same time training engineers in a broader way that

incorporated both Ivory Tower and Humboldtian models. In the late 19th century, this new university drew in professors from industry, consulting engineers, who became the first researchers at MIT. The independence of the entrepreneurial university model in the long term is based on generating income from the knowledge created. Thus, the university became a source of spin-offs.

The entrepreneurial university was generated out of the very nature of the development of the research university in the United States. There was never enough money within the university to pay for research, so entrepreneurial academics would go out and seek funding from external sources. For faculty members shaped by this experience, forming a firm did not feel that much different from what they were doing in the university. Instead of publicizing research at meetings, now they were presenting their findings to investors.

The European entrepreneurial university presents a different model that is also seen in Brazil, one not based on professors but on students. Students are trained as entrepreneurs, put through a process of incubation, and then sent out to begin firms, often based on their mentor's research or to work in firms with a very practical foundation of knowledge.

In either model, the university has distinct advantages because of the students. Students flow through the university, coming in with ideas, staying awhile and then leaving with new knowledge. Students are the competitive advantage of universities in contrast to government and corporate labs with a slower flow through of human capital.

The University of the Future will have incubators integrated throughout academic units to prepare students for either beginning their own companies or working effectively in companies that others create. They will be centers of research that are hybrids composed of academic, industry and government researchers. Moreover, they will expand their teaching role, through virtual classes for on- and off-campus participants.

While universities can expect to play a leading role in a knowledge-based society, the Triple Helix Thesis envisions different spheres taking on each other's roles. For example, universities will form firms, as the private sector does; government will function as a venture capitalist; and industry will raise its training to higher levels. At the intersection of the three spheres is the focal point where innovation is stimulated and new formats, like the venture capital firm invented.

There is no single organizational model to follow but there is a common objective. When a university is in a region without significant innovation resources, it must play a proactive role in order to achieve knowledge-based economic growth. Conversely, a university in a region with a strong innovation ecosystem can maintain strong boundaries and still contribute to knowledge-based innovation.

There will be adaptation of organizational innovations to local circumstances. One example is the Science City that Newcastle is attempting to create in the northeast region of the United Kingdom. The Hass School of Business at the University of California, Berkeley brings in entrepreneurs as adjunct professors to teach entrepreneurship. Newcastle has borrowed the concept and turned it around from a teaching to a research model, creating Professors of Practice (PoP), or half-time positions for PhD entrepreneurs who have come up with ideas for research that are too advanced for their start-ups and who would like to form a research group in a university setting. Newcastle has established four Professors of Practice, one for each of its Science City themes. The expectation is also that a PoP will bring all or part of their company with them to Newcastle when they join the university. If this concept can be scaled up, PoPs can assist Newcastle in becoming a leading center for innovation and establish a new core for the region's economy.

Alison Bernstein

What do scholars tell us about what the trends in higher education are and where they are taking us? A great deal of research has been funded by the Ford Foundation, as well as others. Many of the authors talk about phenomena that can be capsulated in three M's: McDonaldization, massification and marketization. Those three M's characterize the privatization and globalization revolution that has both positives and some very troubling aspects.

The United States was the biggest kid on the block in terms of higher education enrollment up until 2005 when China surpassed us; India is right behind, on an upward curve of McDonaldization, massification and marketization.

What do the three M's mean? One of the dangers is that it is a shift in the way that students are thought of – a shift away from the student-centered learning that should be the basis of higher education. Instead, higher education has begun to look at students as consumers who can fill their coffers, and as future corporate employees. There should be a third "C." Universities should remember their function of developing students as citizens in democratic societies.

There is an upward trend in privatization that needs to be explored. As the non-profit and for-profit sector grows, researchers should be helping define what the rise of privatization is all about. One fear is that it is simply about finding markets and exploiting them. In that context, globalization feels less like a positive force and more like colonization. Researchers could look at the access question. What kinds of students are attending these institutions? In some countries, it appears the poorest students are being exploited because the public universities are not able to develop alternatives that expand enrollment and help retain these students. Researchers could also look at what privatization is doing to gender inequality.

In the Middle East and parts of Asia, a number of private institutions are being created for women only. Is that a good phenomenon? The answer is yes if it is giving access to women for the first time. But the answer is less clear if their access to careers is limited and sex stereotyping is occurring.

The Ford Foundation is addressing these issues in several ways. Ford has funded portable fellowships with $280 million, allowing students who are typically underserved by higher education to go anywhere in the world and providing an opportunity for interdisciplinary studies at the undergraduate level. In addition, Ford created Pathways, a 10-year effort to help universities transform the way they serve marginalized communities in countries around the world. A third initiative is Ford's participation in a foundation partnership to improve African higher education opportunities, particularly for women.

In conclusion, the troubling aspects of emerging higher education trends involve the role of the university of the future in educating people to be informed citizens in their societies. If universities, businesses and governments are becoming more closely aligned, what does that do to academic freedom and the role of the university as a challenger of the status quo? How can universities keep from becoming just a participant in the government or industry agenda? And what will happen to the concept of participatory governance, where the faculty has a role in how universities operate?

In the end, the role of the university in helping people is not just about looking at them as consumers or corporate employees, but about helping them imagine a future as well-rounded citizens of the world.

John Gage

When the four founders of Sun Microsystems came together to start the company in 1982, they were drawing upon the global resources of their university experiences. It's a pattern that can be seen from the much earlier era of Fairchild Semiconductor and Hewlett-Packard, and other companies that created the nexus that is now Silicon Valley. There has been a constant cycling of knowledge and acquaintanceship that began in the university environment and has shaped how businesses have grown.

Can India Keep Pace with Demand?

Because India has only a small capacity for high-quality higher education, one participant asked John Gage if he thought companies would run into problems trying to find enough graduates and the quality of graduates they need to do the work they are outsourcing.

Gage agreed that quality is a problem in India. Already some companies have had difficulty recruiting enough Indian graduates to fill openings. The disparity between the quality at the top six institutions in India and the next level of higher education is widely recognized. Gage said there is a serious need for more investment in higher education at the level below the national technology institutes.

Gage also said that China has done a much better job of creating high-quality universities. He speculated that they will lead the world, not in pure science research but in producing students with engineering degrees.

An important function of universities is to link people together so they can share knowledge. It can be seen in the initiative that the six foundations are undertaking in Africa to bring broadband to universities that are struggling to find the funds simply to keep holding classes. China provides a contrasting story, where the Internet links 400 universities but still allows the government to control what can be accessed.

The wandering scholar is an age-old phenomenon, with everyone moving from place to place to exchange information. Today, the Internet has made it much more likely that research will be shared and that links will take people behind the scenes of what researchers are doing. We are in an era of ubiquitous information, with the Internet, cell phones and other technology providing connections between people. With virtual immersive environments and technology like Google Earth that allows people to see locations in great detail in real time, the world is becoming increasingly interconnected.

At the same time that universities are facing pressure to generate talented people, there is a movement to expand the employment of engineers and other educated workers in countries like China and Bangalore. The future may see more people in the United States going to work in countries where the cost of living is much cheaper, or working virtually with others in those countries.

7.   Use of the Internet and Higher Education: Likely Future Trends

Rory Hume spoke briefly about the as-yet-unrealized promise of the Internet. Gary Matkin discussed how the Internet is already changing what takes place on campus. Diane Harley discussed the tensions that information and communication technologies can introduce into traditional academic environments. The research on information communication technology has been carried out by the Center for the Study of Higher Education. Clifford Lynch addressed how technology is changing the way research is conducted and communicated. Richard Garrett shared statistics on online education.

Rory Hume

Many enthusiasts of the Internet as an adjunct of and servant to higher education see this technology as capable of having a profound effect on the nature of higher education. The Internet has totally revolutionized access to information, and it has both proven and potential benefits for systems of administrative support, but it has not yet revolutionized teaching and learning. The enhancement of availability of information is a great advance, but there appear to be enduring verities in the way people teach and learn that have yet to be markedly changed by the availability of the Internet. People still seem to learn better from talking with other people, often in groups, than they do from the written word, even when creatively presented.

> *Session Chair and Commentator: C. Judson King, CSHE, UC Berkeley*
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> *Speakers:*
> - *Rory Hume, UC Provost and Senior Vice President*
> - *Gary Matkin, UC Irvine*
> - *Diane Harley, CSHE, UC Berkeley*
> - *Clifford Lynch, Coalition for Networked Information*
> - *Richard Garrett, Eduventures*

The University of California system has been energetic and creative in finding ways to push broader usage of the Internet, while at the same time looking closely at the investments being made to ensure they support the university's service role for society. There has been uncoordinated and creative work around technology projects at various campuses, but UC is now moving to plan more rationally and collectively to create common systems in support of the academic enterprise. However, administrative systems and support for those systems still have a way to go before technology is completely incorporated.

Technology has often advanced faster than the university's ability to think and plan how to use it. Sometimes UC and other universities have tended to invest unwisely in things that look attractive but that do not make sense in the long run. One priority is to have any investment in technology aligned with the administrative needs of the university;

another is to continue to experiment with the uses of the Internet in education and to evaluate what works and what does not, using the proven technologies of research.

Gary Matkin

Since 1994, the University of California system has been involved in online education, first through Berkeley Extension, then at other campuses, most notably at UC Irvine where a group of faculty members created the first online degree program in the UC system. These 13 years of experience have prompted several observations:

- Internet technology has had and is going to have a great impact on higher education, to a parallel extent of changes such as the GI bill and federal funding for research. In most cases, when a large external force impacts universities, the initial reaction is to overestimate the short-run effects and underestimate the long-term impact. That has certainly been the case with the Internet, where a number of wild claims were made about what would happen to teaching and learning that have proven overrated. Instead, expectations about the educational value, cost effectiveness, and learning support are beginning to be realized slowly but surely.

- While many have worried about what might be lost as a result of online teaching, most have failed to consider the benefits to be gained. It was much the same reaction when the GI bill prompted an influx of students and many worried about the effect of married veterans entering the system. The Internet indeed is changing the behavior of students, teachers and everyone involved in higher education. The speed with which one can access information and communicate back and forth across time and place is changing the way students learn. Papers are put together using rich media, social networking is occurring and distance learning is taking place. As the context of learning has changed, so has the context of teaching, with instructors doing things differently and spending time differently. There is a profound effect, and while some things may be lost, as there have been with every change, in other ways there will be great gains.

Successful Online Education

In response to a question about how successful online education is, Gary Matkin offered the following thoughts:

There's no substitute for a well-taught course – but very few people can teach a well-taught course. If you want to be successful in the distance education business, you have to do faculty training and you have to create a whole system that supports the type of student you are addressing.

We are collecting data on students who have gone through online education with us, and we will be using this data for research. One of the things our faculty tells us is that students taking a fully distance education course do at least as well as those taking the course face-to-face. After researching the cause, the conclusion is that when distance learning is well done, in essence all of the students are in the front row, raising their hands for every question asked, all are providing feedback, all are engaged.

Distance education is a very useful way for people who cannot make it to an institution to earn their degrees. The overwhelming majority are females with jobs and young children. Distance learning has brought them access and employability, allowing them to move up in their careers.

UC Irvine provides an example of the context for higher education on the Internet. In April, UC Irvine Extension will receive grades from 39 Brazilian students who have taken the first project management course translated from English into Portuguese. A local partner for UC Irvine translated the content and localized it, Portuguese-speaking instructors that were qualified and certified by UC Irvine delivered the course, and now this body of knowledge has been transferred online to students in Brazil.

What this experience proves is that it is possible to develop and transfer educational products, particularly across international and economic boundaries, from the developed world to developing countries. Today a lot of online education remains geographically defined, but inevitably the Internet will allow universities to help the world solve its problems.

Diane Harley

Objective analysis of the impact of information and communication technologies (ICTs) on higher education has been an active area of research at the Center for Studies in Higher Education since 1994. Our work points to a number of tensions and challenges between old and new ways of doing academic work in these emerging environments:

- The ease and convenience of remote participation versus losing the potential richness of face to face interaction.
- The necessity of having time for contemplation versus the demands on attention by multitasking and responding to bells whistles, flashes, and beeps.
- The recent notion that user-generated content, including the wisdom of crowds, will trump the role of quality, peer review, elitism, and authority in the academy.

The potential of information communication technologies is often described as transformational. Reduced cost, increased quality, and wider access are promised --and frequently all three at once. Unfortunately, like the adage about getting something cheap, good, and fast, we are ultimately forced to pick any two. For example, the assumption that costs can be reduced derives from the argument that by substituting capital (an upfront investment in infrastructure and courseware) for labor costs (faculty time), more students, particularly in large lecture courses, can be served more cheaply. The barriers to realization of cost-savings in many institutions, however, include a faculty culture that is resistant to sharing and reusing course materials and the large amounts of time it takes faculty to integrate ICTs into their teaching. As a respondent to a CSHE survey remarked: "e-mail allows me to do in one hour what I never had to do before." Moreover, the ever-escalating costs of technical support personnel and the rapidly changing technologies themselves add barriers to cost-savings being fully realized.

One often hears techno-enthusiasts suggest that traditional teaching, when compared to technology-mediated learning, is of low quality and in need of improvement. A corollary to this suggestion is that faculty are not adopting technology quickly enough. In fact, much traditional teaching is often of exceptionally high quality; available ICTs have simply not reached a state where they can appreciably improve quality over traditional methods. Indeed, faculty told us the most prominent reason for not using technology was that it simply did not support their preferred teaching approaches and practices.

As technologies continue to evolve, and students of the "net generation" come to colleges and universities armed with a multitude of electronic gadgets and, some would say, very short attention spans, there are questions about the future of scholarship. One faculty member with whom we spoke was representative: "There is a real danger of students becoming too computer literate and 'connected' in ways that undermine, or at least compete with, other crucial skills: argumentative writing, careful and critical reading of long texts, and oral argument."

What voice will scholars have in the design of future teaching and research environments? Will catering to the technical proclivities of teenagers have a negative impact on planning for the future of the academy in the long run? Our work suggests that scholars, either in the classroom or when doing research, rely on peer-reviewed and

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The MIT OpenCourseWare Experiment

One participant asked how successful MITOCW has been with its experience of putting curricula online.

Clifford Lynch responded that MIT's own research found heavy international use of the material, with about half of those accessing the MIT site being independent learners and the other half faculty looking for ideas to enhance their own courses. It did not appear that many were picking up the entire curriculum for use in their own teaching environments.

Diane Harley agreed that the MIT site appears to be attracting mostly informal learners, as well as international visitors interested in the technical courses. But she also pointed out the difficulty of interpreting MITOCW user studies because of the exceptionally small number of individuals who actually responded to their online surveys out of the total number of actual visitors. She said as others create their own open coursework projects, there is a real question about the level of demand for open courseware in academic environments where degrees and certificates are granted. One important finding about online education initiatives in general is the degree to which matriculated students at a variety of institutions take advantage of online offerings to supplement their more traditional courses.

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authoritative expert sources. We suspect they will ask their students to do the same. Distributed group editing and content creation, which result in an avalanche of raw information and unexpurgated opinion, are not likely to soon overtake the traditional mechanisms of quality control seen as necessary to high-quality scholarly work.

Finally, ICTs hold promise for widening access to higher education, but it will require more than downloading syllabi from sites like MIT OpenCourseWare (MITOCW) or watching lecture webcasts. Increasing access will require significant front-end investments in course redesign, provision of the necessary infrastructure and tools to enable high quality interactions among faculty and students, and putting mechanisms in place to assure quality and the seamless transfer of credit.

Clifford Lynch

This presentation focuses more on the impact of the Internet on the research focus of universities. Universities themselves have not been particularly brilliant about using and predicting the impact of technology. But in terms of changing the practice of scholarly work and conducting research, there has been a tremendous amount of adoption and exploitation of technology in a way that has been much more aggressive and widespread than in traditional teaching.

It is important to observe that "Internet" is actually inaccurate shorthand for a plethora of technology developments, including high-performance networking, high-performance computing, graphics, visualization, simulations, and the ability to store, manipulate and curate an enormous amount of data. In fact, networks are beginning to link not just people and computers but also experimental apparatus, such as microscopes and telescopes.

An integral part of the cyber infrastructure is an environment of collaboration, with virtual organizations. A group of researchers, ignoring institutional affiliation and geography, bound together by a common research interest or a common piece of experimental apparatus, may come together to conduct research, establishing collaboration in an agile way and then breaking apart again when the purpose has been fulfilled.

There are other developments besides technology-enhanced collaboration. One is the massive migration of scholarly communication to the digital form. All scientific journals have a digital version today, and there are projects to digitize public domain materials, as well as special collections, manuscripts, photos and more. The whole relationship between scholars and the evidence they work with is changing. Artifacts are not becoming irrelevant, but virtual access may substitute for physical access or be used to guide scholars so they can make their pilgrimage to the source in a much more informed way.

In addition, there are alliances that bring together professional scientists and amateurs to work together, from biodiversity to astronomy. These are a new kind of alliance that stretches out where the university connects with its audiences.

Overall, technology is radically changing the way research is conducted and communicated, as well as impacting teaching and learning in the university.

Richard Garrett

Since the 1990s, online higher education has grown from small experiments at the faculty and department level to a method of learning that gained momentum from 1997 onward. This presentation looks at the scale and variety of online education that exists today and addresses trends in the role of geography and the efforts of online schools to take the lead in learning-outcomes accountability.

Online education has become more prominent in recent years. The majority of universities offer some online courses to students, who may never see the instructor or their fellow classmates. But online education has not lived up to the often-wild predictions from the early years of slashing the cost of education by eliminating campus-based learning. By the end of 2006, only about 1.5 million students were taking a whole educational program 100 percent online. Those students represent 8.6 percent of the headcount at degree-granting schools, and they are about 20 percent of the

higher-education-enrolled population who are 25 years or older. By the end of 2008, enrollment is expected to reach more than two million.

Universities of every size and shape offer online education: Ivy Leagues, public schools, community colleges and private schools. The for-profit colleges represent a large share, with 30 percent of the wholly online students. While the rate of growth is declining as the base enrollment grows larger, growth is expected to continue. Research conducted with higher education students shows they are very open to online education. Only 5 percent of those surveyed have experienced a wholly online program, and 15 percent have taken a wholly online course. But 41 percent say it is likely they will take a wholly online course or

Online Higher Education: Scale & Growth

EDUVENTURES

8.6% of headcount at degree-granting schools

Legend:
- Online Students
- Growth

Year	Online Students	Growth
2002	483,113	55%
2003	701,295	45%
2004	936,727	34%
2005	1,219,000	30%
2006F	1,518,750	24%
2007F	1,822,500	20%
2008F	2,132,325	17%

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program in the future, and 84 percent say they are willing to consider it.
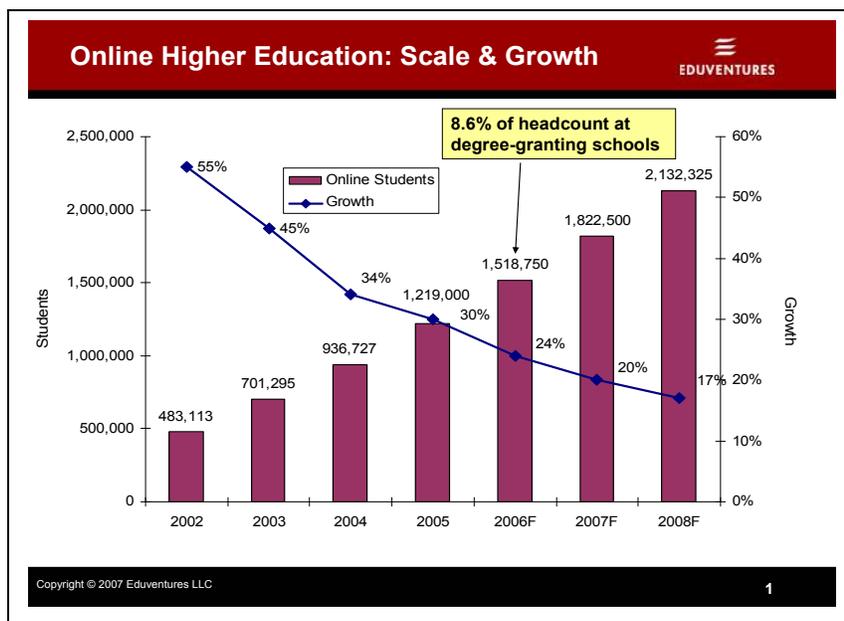
What is the nature of online education in contemporary America? Much online education has advanced the commercialization and massification of higher education by providing faster and easier access to students. Online higher education focuses on instruction and career relevance, putting aside sports, socialization and other aspects of campus-based learning. Most of the participants are working adults, who value online education for its stripped-down form and are much less interested in traditional pedagogy. It goes very much to the heart of the age-old question about applied education vs. theoretical education: Do you give the customer what he wants or what you believe he needs? Universities providing online education position the approach as particularly appropriate for the lifelong learning that has been embraced as a goal by educators.

While online education is typically thought of as divorced from geography, this is not the case when schools are asked to report on where students are based in comparison to the location of the school. More than a third (36 percent) are within 50 miles of the school and about two-thirds have some geographical relationship with the institution. This is largely because institutions tend to leverage their local competitive advantage and are best known in their local area. However, there is a genuine national online market; about 27 percent of students have no geographic connection with the online provider, 4 percent are Americans abroad and another 4 percent are international students enrolling in U.S. courses.

The last point is that the online education community is taking a lead in the current debate about accountability, following the Spellings Commission report. These schools, under the umbrella of the Presidents' Forum out of Excelsior College, believe they have a positive story to tell about outcomes, they argue that they are able to track students in greater detail than traditional campuses, and they claim to have strong graduation rates. It will be interesting to see whether the profile of online education – often stereotyped as a stripped-down version of higher education – changes as outcome measurement is implemented.

8.   The Worldwide Structure of Higher Education

Robert Berdahl discussed the negative aspects of globalization. Marijk van der Wende addressed the need to promote diversification at a time of increasing pressure toward standardization. Philip Altbach outlined the problems inherent in globalization for higher education in developing countries. Wilhelm Krull described the changing role of universities and foundations in addressing internationalization.

Session Chair and Commentator: John Douglass, CSHE, UC Berkeley

Speakers:
- *Robert Berdahl, AAU*
- *Marijk van der Wende, IMHE OECD/ CHEPS/Vrije Universiteit Amsterdam*
- *Philip Altbach, Boston College*
- *Wilhelm Krull, Volkswagen Foundation*

Robert Berdahl

It is well recognized that the national structures, traditions and cultures in which universities are embedded shape their governance, sources of funding, relations with government and much more. Nonetheless, one cynical hypothesis – that universities will respond more quickly to changing economic imperatives than to changing frameworks of knowledge – may bring about a much larger convergence of higher education than has ever been seen before.

The Market Economy and the Brain Drain

In commenting on the U.S. role in the brain drain, Robert Berdahl noted that the United States "feeds" on the brain drain because there are not adequate numbers of American students being trained in science and engineering.

He added that implicit in the notion of globalization is that market forces are the most efficient way to allocate goods – and that universities have become infected with this concept, importing students to balance their budgets. He said that one possibility is that a worldwide crisis, such as global warming, may stimulate the degree of cooperative collaboration that nothing else has been able to achieve.

Much of the discussion at this conference has represented globalization as rather a benign influence, although some speakers have pointed to exceptions and consequences. It is not entirely benign, and it is not something that is value-free. Globalization represents the emergence of a worldwide market for labor, capital and goods. It is dependent on instant communication that affects markets and the capacity of nation states to limit access to information and control markets within their boundaries. Globalization represents the end of a bipolar economic structure, divided between socialists and capitalists, and the ascendancy of neo-liberal economic ideology – to such an extent that it is difficult for most to imagine another structure for the economy other than one that is market-driven and market-dominated. To a large extent, it has been marked by the decline in regard for and investment in public goods. Globalization sees the market as the most efficient arbiter and distributor of goods, and that has profound consequences for the university.

Accompanying globalization is massification, and Sheldon Rothblatt talked at length about the stresses that democratization has caused in terms of access. One aspect is that the quality of secondary education is increasingly important once universities expand beyond educating the top 15-20 percent of students. Universities have not had a good means of deciding who merits access because of the differentiated quality of high schools. The call for quality assessment and outcome measures that this has prompted in secondary schools has now moved to the university level, reflecting an increasing commoditization of higher education.

The Spellings Commission report calls for a kind of consumer report on universities, arguing that a person can find more information about a car that they want to buy than about a university they might send their daughter to. This points to the whole notion of students as consumers and education as a commodity that can be easily measured so consumer can decide if they are getting a good deal.

What does all of this mean for universities? It will drive them to more standardization. There will be increasing measurement of universities. There will be an increasing number of for-profit institutions that will target their training at a particular kind of capacity. It does not mean that the type of university that most are familiar with will disappear, but it does mean there will be increasing competition and a likely devaluation of many of the things that research universities focus on. So in the restructuring of the future universities, there are a lot of things to be concerned about.

Marijk van der Wende

Globalization requires universities to shift their perspective on a number of issues. One is their mission of diversity. In the United States, diversity as a mission of higher education is well understood and a great feature of the success of institutions. That is not the case everywhere; within the countries of Europe and Europe as a whole, this is much less well developed. However, change is occurring. Germany, for example, is actively seeking to create a more diverse education landscape in order to be more competitive.

There is a trend toward more concentration and specialization in research universities. This leads to questions about the division of labor between institutions of various types, and whether this division of labor should be defined within countries or between countries or at the regional level. If it is between countries or at a supranational level, would it be competition driven or cooperative, as in the direction that Europe is undertaking with the Bologna Process and Lisbon Strategy. Within the global context, the question would be how individual countries would balance global competitiveness with issues like language and culture. It may be efficient to think of locating all research institutions in the northern hemisphere, but what would that imply to a southern hemisphere country that does not have a research institution?

It seems likely that one-sided competitive models would enhance vertical differentiation by building strengths in some areas and weakening others. This may not only lead to a lack of diversity but also raises concerns as higher education is driven into a reputation race. Global rankings are already having an impact, with the focus shifting to research performance rather than on learning or measuring the value added during the education process.

As universities move into the future, it will be necessary to address the imbalances created by globalization. Institutions should broaden their mission. To be sustainable, they will have to address more than income and resources but also will have to be responsive to the more difficult sides of globalization – problems related to immigration, economic and social problems. Universities need to move to a model that shifts from "brain drain" to "brain circulation," addressing diversity as a key to success.

Philip Altbach

How might we think about the problems and issues related to globalization and higher education for developing countries?

First, we need to think about few definitions of some common terms that have been used at this conference. Globalization is the economic, market-driven and social trends that affect the world's economy. These are essentially inevitable changes that scholars, institutions and nations need to adjust to; there are very few ways of opting out. Internationalization, on the other hand, is a specific

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Differentiation versus Standardization

One participant said that global competition works against diversification and differentiation, instead promoting standardization and ultimately trivialization. He asked how diversity and differentiation can be encouraged.

Marijk van der Wende said the question is how to counterbalance competitive pressure that forces universities down the same paths. In Europe, a classification system that encourages institutions to create distinct and different profiles is being developed. Such a system will encourage multidimensional approaches beyond research as a way for a university to be considered top ranked. It would also provide students with better information about the quality of teaching and learning outcomes.

Wilhelm Krull responded that competition does not necessarily lead to standardization. In Germany, the competitive grant process that has been established encourages institutions to strike a balance between local and global strengths and weaknesses. The initiative is stimulating universities to develop in different directions, as opposed to agreements like the Bologna Process that lead to standardization.

set of policies that governments, institutions and individuals may take in their approach to the global environment. Here, opting out is possible but to one's own detriment. Finally, there is multinationalization – academic and scientific programs and institutions that are from one country but operate in another country, whether in collaboration or for purposes of franchising or "McDonaldization" of higher education.

Some of the specific ways that globalization of higher education affects developing countries includes:

- **Language –** Much of the business of the academic and scientific world is conducted in English. In Africa, one cannot go to university in an African language, unless one counts Arabic for Egypt or Afrikaans; all of the rest of teaching is conducted in English, French or Portuguese, so local languages are squeezed out.

- **The brain drain –** It is generously called brain circulation now, and there is some element of truth since the Internet, modern telecommunications and accessible air travel all help communication. But still the majority of scholars and students go from the southern to the northern hemisphere and the majority do not return, although the proportions who do are growing.

- **The international academic labor market –** Similarly, the major flow of academic labor is from developing countries to advanced countries.

- **The internationalization of the scientific community –** This is a benefit on average, but it may also mean less scientific autonomy and the diminishing use of national language for scientific communication at the local level. Scientists are increasingly linked to international journals on the Internet, which may have negative effects for local science and is especially problematic for the humanities and social sciences. Advanced countries in the northern hemisphere dominate decisions that are made about what is published and how – and none of the decisions takes into account the perspective of developing countries.

- **Branch campuses –** These may build higher education capacity and provide needed training but they do not provide any kind of autonomy for developing companies. Curriculum is not designed with a focus on the local country.

- **Top ranking –** It is increasingly difficult for developing countries to play in the top-rank university league. It is very expensive to build these kinds of institutions, but it is very important for these large countries to have institutions that play in the big leagues, that can interpret science from the world scientific community within a country. They need this level of institution, but they are very expensive to develop.

There are many variations of higher education among developing countries. Countries in Africa have tremendous intellectual capacity but very different approaches to higher education than places like China and India. The trends in higher education are challenging everywhere, but they are much more problematic in the developing countries.

Wilhelm Krull
There are many different aspects to how universities can and should deal with internationalization. Looking at just a few from the perspective of universities and foundations provides some issues for further research and discussion:

- In Europe, there has been a strong move toward teaching courses in English, but this means recruiting international faculty – at which point, a university has to rethink what the competitive advantage is. The Volkswagen Foundation has begun a multilingual initiative, and many institutions are beginning to look at bilingual training.

- On the issue of developing countries, the Volkswagen Foundation has begun to rethink its approach to partnerships, which for the past decades has indirectly and involuntarily contributed to the brain drain. With two- and three-year grants, the foundation has not been able to prevent the migration of some of the developing

world's most eminent researchers. The foundation has now begun to reconfigure its approach, e.g. by creating longer-range projects, engaging African researchers in creating the research agenda upfront, and encouraging them through further funding opportunities along their respective career paths to remain in their home countries.

- The private/public interface is changing rapidly. Increasingly in Europe, there are two different tendencies among major foundations. Some are heavily supporting public institutions to help restructure and redevelop governance and enhance research. But more and more foundations are disappointed with the outcomes of their support of public universities, and therefore are linking up with private higher education institutions, and this is something that will probably increase in the years to come.

- One of the most critical questions is how should the future generation be trained. There has been some restructuring of course work and a more clear dividing line between bachelor and master degrees. In most universities, about 60 percent of students are leaving after the bachelor's degree. But it is important to think beyond the specialization that is occurring. Universities cannot simply train highly specialized people, but need to continue to produce people with analytical and communicational skills who can take on leadership roles in society.

> **Higher Education as a Growth Sector**
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> In his comments on the session, John Aubrey Douglass observed that the growing demand for higher education – in enrollment, in research, public services, and as force for economic development and socioeconomic opportunity -- is a vital context for thinking about globalization and the future of higher education.
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> Marketization and differentiation of mission among institutions is, thus far, the national and supranational approach that, in some form, is meeting short-term needs.
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> But will is suffice in a longer horizon? In the US, one major innovation occurred to help with growth, and governance, and in turn quality control: the development, beginning largely in the 1950s, of multi-campus systems.

Finally, it is critically important for the future that universities and foundations find a way to provide space for truly original thinking and to enable teams that can develop creative approaches to the world's challenges.

9.   A Final Reflection

Daniel Fallon of Carnegie Corporation of New York, which sponsored the conference, was asked to share some final thoughts with participants.

Daniel Fallon
In his 1926 classic, *The Renaissance of the Twelfth Century*, Charles Homer Haskins explored the origin of the university, noting that the original scholars took to the road. Students and scholars traveled to be where the people and the ideas were. These were the market centers, places like Bologna, Salamanca, and Paris. So from the very beginning universities were both international and commercial; they have never been invulnerable to market forces. The relationship has been dynamic and ongoing – and unsettling in its effects.

For higher education, what has been seen in the United States is the impact of the success of the accumulation of intellectual capital. The United States has educated so many people that a different economy has been created: an economy that derives wealth from knowledge and services rather than the agriculture and manufacturing of the past.

If one considers an economy that generates wealth through knowledge, information and services, then inevitably there will be social and governmental pressure for more and better education. People will want to have more intellectual capital generated since it is the source of wealth. In some ways, this is fine, and higher education has been busy producing more educated people.

But a critical question for the university goes beyond more education to what a better education would look like. Intellectual capital has produced a great many benefits, but it has also produced Enron, Internet fraud, phishing, spam and more. An economy that depends on knowledge requires a highly refined ethical sensibility. It values the ability to determine right from wrong, the ability to understand the difference between good and bad, the ability to sort out the plain from the beautiful. Refined intellectual judgment depends upon adaptability, good communication, and critical thinking. In fact, a knowledge economy demands precisely those virtues that have always been at the core of what we call the liberal arts in our universities.

Higher education is facing a crisis. The Chinese character for the word crisis combines character for danger and opportunity. The opportunity for the United States lies in its historic commitment to liberal education and, therefore, its capacity to meet periods of stress and change with confidence and optimism.

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A knowledge-based economy is not an end in itself. Knowledge leads us ever onward toward new ways of living and experiencing the world. Knowledge is not inert. Universities have always been concerned with knowledge unsolved and insoluble – because whenever a point is reached where we believe that we have reached complete understanding, then knowledge itself, incapable of stagnation, disappears. Great universities understand the value of a curriculum that addresses knowledge as unsolved and insoluble, and thus make of apparent crisis actual opportunity.

Participant Biographies

Philip G. Altbach
Professor and Director – Center for International Higher Education
Lynch School of Education at Boston College
Philip G. Altbach is J. Donald Monan, S.J. professor of higher education and director of the Center for International Higher Education in the Lynch School of Education at Boston College. He has been a senior associate of the Carnegie Foundation for the Advancement of Teaching, and served as editor of the *Review of Higher Education*, *Comparative Education Review,* and as an editor of *Educational Policy.* He is author of *Comparative Higher Education, Student Politics in America,* and other books. He co-edited the *International Handbook of Higher Education.* He has taught the University of Wisconsin-Madison and the State University of New York at Buffalo, where he directed the Comparative Education Center, and chaired the Department of Educational Organization, Administration and Policy, and was a post-doctoral fellow and lecturer on education at Harvard University. He is a Guest Professor at the Institute of Higher Education at Peking University in the Peoples Republic of China, and as been a visiting professor at Stanford University, the Institut de Sciences Politique in Paris, and at the University of Bombay in India. He has had awards from the Japan Society for the Promotion of Science and the German Academic Exchange Service (DAAD), has been an Onwell Fellow at the University of Hong Kong, and a senior scholar of the Taiwan Government. He was the 2004-2006 Distinguished Scholar Leader of the New Century Scholars initiative of the Fulbright program.

Ahmed Bawa
Deputy Vice-Chancellor – Research, Knowledge Production, and Partnerships
University of KwaZulu-Natal
Ahmed Bawa is Deputy Vice-Chancellor (Research, Knowledge Production and Partnerships) at the University of KwaZulu-Natal. He was recently Professor of Physics at Hunter College in the City University of New York. Before that he worked as Higher Education program officer at the Ford Foundation with the portfolio of building universities across Africa. He has been a member of many policy processes and commissions in post-1994 South Africa and has served on the Boards of Directors of Telkom, the Atomic Energy Corporation and SANLAM. He was also a member of the National Advisory Council on Innovation and served as Chair of the Board of the Foundation for Research Development. Bawa is a theoretical physicist and works in the area of Particle Physics. He holds a Ph.D. in Theoretical Physics from the University of Durham.

Robert M. Berdahl
President – Association of American Universities
Robert M. Berdahl became president of the Association of American Universities (AAU) in May 2006. Prior to this position, Berdahl served as chancellor of the University of California, Berkeley from 1997 to 2004. Following his tenure as chancellor at Berkeley, Berdahl remained as a faculty member. Prior to going to Berkeley, Berdahl served as president of The University of Texas at Austin from 1993 to 1997. While at The University of Texas and at Berkeley, Berdahl was an active member of AAU, including service as its executive committee chair. Berdahl began his academic career in the history department at the University of Massachusetts Boston in 1965. He joined the history faculty at the University of Oregon in 1967 and served as Oregon's Dean of the College of Arts and Sciences from 1981 to 1986, when he left Oregon to become Vice Chancellor of Academic Affairs at the University of Illinois at Urbana-Champaign. He is recipient of numerous honors and awards, including an honorary doctorate and distinguished alumnus award from Augustana College, a Fulbright Research Fellowship, and an NEH Independent Study and Research Fellowship. He has been a Research Associate at the Institute for Advanced Study in Princeton and at the Max Planck Institute for History in Goettingen, Germany. Berdahl was elected to the American Academy of Arts and Sciences in 2001.

Alison R. Bernstein
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John Douglass is a Senior Research Fellow whose current research interests are focused on the student experience in research universities, the role of universities in economic development, science policy as a component of national and multinational economic policy, the evolving role of mass higher education in society, and the influence of globalization. He is the author of *The California Idea and American Higher Education* (Stanford University Press 2000) recently reissued in paperback and also published in Chinese, and *The Conditions for Admission: Access, Equity and the Social Contract of Public Universities* (Stanford University Press 2007). Recent scholarly publications include articles in *Higher Education Policy and Management* (OECD), *Higher Education Policy* (Association of International Universities), *Perspectives* (UK), *Change Magazine*, *Minerva*, *The Journal of Policy History*, *California Politics and Policy*, *History of Education Quarterly*, *The American Behavioral Scientists*, and the *European Journal of Education*. He is the editor of the Center's Research and Occasional Papers Series (ROPS) and recently was a Visiting Professor at the Institute d'Etudes Politiques de Paris (Sciences Po), and has been a Visiting Research Fellow at the Oxford Center for Higher Education Policy Studies (OxCHEPS) and a Visiting Policy Analyst at the California Postsecondary Education Commission.

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Kerstin Eliasson is a former State Secretary for Sweden's Ministry of Education, Science and Culture. Prior to his time as State Secretary, Eliasson served in a variety of positions including Director for Research Policy for the Ministry of Education, Science and Culture; Advisor to the Prime Minister's Office; and Chair of the OECD Committee for Scientific and Technological Policy. He currently serves as Chief Negotiator for Sweden's participation in several international research organizations, and as a consultant for Vinnova on US-Swedish R&D cooperation.

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Daniel Fallon is Program Director for Higher Education at Carnegie Corporation of New York, supervising the award and administration of grants in support of teacher education reform, school leadership development, general education, and other areas of higher education important to the national interest. He is Professor Emeritus of Psychology and of Public Policy at the University of Maryland, College Park, where he also served as Vice President for Academic Affairs and Provost. Dr. Fallon held earlier appointments as Dean of the College of Liberal Arts at Texas A&M University, Dean of the College of Liberal Arts and Sciences at the University of Colorado at Denver, and Associate Dean of Arts and Sciences and of Harpur College at Binghamton University. Dr. Fallon has published widely on learning and motivation through his work in experimental psychology, on academic public policy, on teacher education reform, and on comparative higher education. He is the author of a prize–winning book, The German University.

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Irwin Feller is a senior visiting scientist at the American Association for the Advancement of Science (AAAS) and Professor Emeritus of Economics at the Pennsylvania State University, where he was on the faculty between 1963-2002. His research interests include science and technology policy, economics of higher education and program evaluation. He is the author of over 100 refereed journal articles, final research reports, and book chapters, as well as of numerous papers presented to academic, professional, and policy audiences. He has been a consultant to the President's Office of Science and Technology Policy, National Aeronautics and Space Administration, Carnegie Commission on Science, Technology, and Government, The Ford Foundation, National Science Foundation, National Institute of Standards and Technology, COSMOS Corporation, SRI International, U.S. General Accounting Office, and the U.S. Departments of Education and Energy, among others. He received his Ph.D. in economics from the University of Minnesota.

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John Gage is Chief Researcher and Vice President of the Science Office for Sun Microsystems, an international information technology company based in California. He was one of the founders of Sun, in 1982, when a group of students and professors from Stanford and the University of California, Berkeley joined to create open systems in hardware and software. He has served on the Boards of Trustees of the United States National Library of Medicine, FermiLabs, the Mathematical Sciences Research Institute, NetDay, Schools OnLine, United States National Research Council, the Internet Society (ISOC) and other scientific and educational groups. He serves on the Markle Foundation Task Force on National Security, the Board of Advisors of the United States Institute of Peace, the National Academy of Sciences, and the

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Richard Garrett is Program Director and Senior Research Analyst serving Eduventures' Learning Collaborative program for Online Higher Education. Eduventures is a research and consulting company based in Boston, specializing in education. Prior to joining Eduventures, Richard was Deputy Director of the Observatory on Borderless Higher Education in the United Kingdom, a position he held from 2001 to 2005. His research and consultancy work has focused on higher education trends worldwide, particularly online learning, internationalization and commercial activity. Recent publications include Online Higher Education Market Update 2006 (Eduventures, 2006), Competing in Online Higher Education: Positioning & Differentiation Strategies (Eduventures, 2006), Expanding Demand for Online Higher Education (Eduventures, 2006), E-Learning in Tertiary Education- where do we stand? (a 2005 book commissioned by the OECD, Paris) and The Global Education Index 2005 (a study of 50 firms worldwide operating in the postsecondary education market, OBHE, 2005). Richard has also worked as a researcher in the School of Education, University of Surrey and at the Quality Assurance Agency for Higher Education, both in the United Kingdom.

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Diane Harley is an anthropologist and senior researcher at UC Berkeley's Center for Studies in Higher Education (CSHE). Her research focuses on the policy implications of integrating new media into complex academic environments. Areas of investigation include digital resource use in the arts and humanities, the economics of educational technologies, cross border e-learning, the future of general education, and the relationship between faculty culture and emerging models of scholarly communication.   As Executive Director of Berkeley's Multimedia Research Center (BMRC) she contributed to the development, deployment, and evaluation of the prototype for Berkeley Webcast. Prior to her work at UC, Diane managed multimedia education projects with various universities, publishers, museums, and software developers, as well as taught undergraduate and graduate courses in anthropology and human biology. She holds M.A. and Ph.D. degrees in Anthropology from UC Berkeley. Diane is currently co-Principal Investigator with C. Judson King on a Andrew W. Mellon Foundation funded project: Assessing the Future Landscape of Scholarly Communication.

Grant Harman
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Grant Harman is an Emeritus Professor of Education Management at the University of New England, located in the college town of Armidale in New South Wales, Australia. He also has held academic appointments at the Australian National University and the University of Melbourne. At the University of New England, he has held appointments as Professor of Education Managment, Chair of the Academic Senate and Pro Vice-Chancellor Research. His research interests are in higher education management and policy, and comparative higher education studies. He is Editor in Chief of the journal Higher Education, published by Springer in the Netherlands.

I. Michael Heyman
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I. Michael Heyman is a CSHE faculty affiliate, and he served as the interim director of the Center from 2000 to 2002. Heyman has spent nearly five decades on the Berkeley faculty, including ten years as chancellor. He joined the Boalt Hall law school faculty in 1959 and since 1966 has held a joint appointment with the Department of City and Regional Planning. He has also been a visiting professor at Stanford and Yale law schools. Heyman was vice chancellor of UC Berkeley from 1974 to 1980 and chancellor from 1980 to 1990. His record of service away from the Berkeley campus is equally impressive. From 1993 to 1994 he was counselor to the secretary and deputy assistant secretary for policy of the U.S. Department of the Interior. From 1994 to 1999 he served as secretary of the Smithsonian Institution, where he oversaw 6,000 employees and the functioning of 16 museums and galleries, the National Zoo, and numerous research facilities. Heyman has published many journal articles, papers, and legal documents in the areas of civil rights, constitutional law, land planning, metropolitan government and housing, environmental law and management, and affirmative action.

Jeroen Huisman
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Jeroen Huisman is professor in Higher Education Management and director of the International Centre for Higher Education Management (ICHEM), University of Bath. His research interests are higher education policy; management and leadership; organisational change and diversity; internationalisation; and comparative research. He is editor of TEAM (Tertiary Education and Management) and Higher Education Policy. Other activities he is involved in include consultancy projects (e.g. OECD) and teaching on ICHEM's Doctorate in Business Administration in Higher Education Management.

Wyatt R. (Rory) Hume, DDS, PhD
Provost and Executive Vice President, Academic and Health Affairs

University of California

Rory Hume has served in a wide variety of academic and administrative roles, both in his home country of Australia and at the University of California. He chaired the Department of Dentistry at the University of Adelaide from 1984-1986, and served as Dean of the University of Sydney's School of Dentistry from 1989-1991. From 1991 to 1996, he chaired the Department of Restorative Dentistry at UCSF. In 1996 he became Dean of UCLA's School of Dentistry. Dr. Hume was appointed Executive Vice Chancellor at UCLA, acting as Chief Operating Officer for the campus from 1998 to 2002. In 2002 Dr. Hume returned to Australia to become Vice Chancellor and President of the University of New South Wales, where he served until 2004. He was appointed Vice President for Academic and Health Affairs for the University of California system in September 2005 and Provost and Executive Vice President for Academic and Health Affairs in June 2006.

Martin Kenney

Professor and Senior Project Director

University of California, Davis & Berkeley Roundtable on the International Economy (BRIE)

Martin Kenney is a Professor at the University of California, Davis and a Senior Project Director at the Berkeley Roundtable on the International Economy. He has published five books and over 100 scholarly articles on the development of Silicon Valley, venture capital, university-industry relations and the globalization of services. His two recent edited books *Understanding Silicon Valley* and *Locating Global Advantage* were published by Stanford University Press where he is the editor of a book series in innovation and globalization. Currently, he is preparing a book on the history of the venture capital industry. He was a visiting professor at the Copenhagen Business School, Cambridge University, Hitotsubashi University, Kobe University, and Tokyo University. He has consulted for or presented to various organizations including IADB, WB, PCAST, NAE, NAS, NRC, OECD, PCAST, and various corporate entities. His research has been supported by the NSF, the Sloan Foundation, and the Kauffman Foundation.

C. Judson King

Director – Center for Studies in Higher Education

University of California, Berkeley

C. Judson King was from 1995 until 2004 Provost and Senior Vice President – Academic Affairs of the University of California system. Before that, he was Provost, Professional Schools and Colleges on the Berkeley campus. He has been at Berkeley since 1963 as a faculty member in Chemical Engineering, chaired that department and was Dean of the College of Chemistry. He now directs the Center for Studies in Higher Education on the Berkeley campus. He is a member of the National Academy of Engineering and has received a number of national awards from the American Institute of Chemical Engineers, the American Chemical Society, the American Society for Engineering Education and the Council for Chemical Research. His research before turning his interests to the study of higher education has been in methods of separating mixtures and solutions. He is the author of over 240 journal articles and the text, "Separation Processes", McGraw-Hill, 1971, 1980.

Wilhelm Krull

Secretary General – Volkswagen Foundation

Dr. Wilhelm Krull is the Secretary General of the Volkswagen Foundation which is located in Hanover, Germany. He is currently the Chairman of the European Foundation Centre, and a member of the Advisory Board of the German Bundesverband Deutscher Stiftungen. From 2003 – 2005 he was Chairman of the Hague Club of major European foundations. He has been and still is a member of numerous advisory committees and governing boards of universities, Max Planck Institutes, academies, and research organizations. At the European level he chaired expert panels on benchmarking of scientific and technological productivity as well as on monitoring of the Sixth Framework Programme. He was also strongly involved in developing the concept for establishing the European Research Council.

Katharine Lyall

Professor of Economics and President Emeritus – University of Wisconsin System

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Katharine Lyall is president-emeritus of the University of Wisconsin System, professor of Economics at UW-Madison, and visiting senior scholar at the Carnegie Foundation for the Advancement of Teaching. She served as Deputy Assistant Secretary at the US Dept of Housing and Urban Development in the Carter Administration and has held faculty positions at Syracuse University and The Johns Hopkins University. Her most recent book is "The True Genius of America at Risk: Are We Losing Our Public Universities to De Facto Privatization?" (Praeger/Greenwood, 2006).

Clifford Lynch

Executive Director, Coalition for Networked Information

Clifford Lynch has been the Director of the Coalition for Networked Information (CNI) since July 1997. CNI, jointly sponsored by the Association of Research Libraries and Educause, includes about 200 member organizations concerned with the use of information technology and networked information to enhance scholarship and intellectual productivity. Prior to joining CNI, Lynch spent 18 years at the University of California Office of the President, the last 10 as Director of Library Automation. Lynch, who holds a Ph.D. in Computer Science from the University of California, Berkeley, is an adjunct professor at Berkeley's School of Information. He is a past president of the American Society for Information Science and a fellow of the American Association for the Advancement of Science and the National Information Standards Organization. Lynch serves on the National Digital Preservation Strategy Advisory Board of the Library of Congress; he was a member of the National Research Council committees that published *The Digital Dilemma: Intellectual Property in the Information Infrastructure* and *Broadband: Bringing Home the Bits*, and now serves on the NRC's committee on digital archiving and the National Archives and Records Administration.

Wan-Hua Ma

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Dr. Wan-Hua Ma is a Professor at the Graduate School of Education, Peking University. She received her Masters and Ph.D. degrees from Cornell University. She came to work at Peking University in 1997, specializing in educational psychology and higher education administration. Since then she has carried out many research projects funded by UNDP, UNESCO, the Ford Foundation, the National Science Foundation in China and APRU, concerning the issues of higher education reform, girls education, research university building in China, internationalization and globalization of higher education. In conjunction with her research, she has been invited to visit, teach and conduct joint research projects with different universities in New Zealand, Australia, Canada and the United States. Currently, she is a Fulbright New Century Scholar, conducting joint research with 30 other scholars world-wide on "Higher education in the 21st Century: Global Challenge and National Response."

Anne J. Maclachlan
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Anne MacLachlan is a Senior Researcher at the Center for Studies in Higher Education at the
University of California Berkeley where she has been since 1997. Her work focuses on issues of women and minorities in science, in the educational pipeline, graduate school and professional life. For the last 19 years she has conducted research and developed and presented programs on graduate education and academic careers. Her most recently completed study is a longitudinal study of minority Ph.D.s in science and engineering earned at U.C. from 1980 to 1990, (Spencer Foundation and UC funding). She has taught at U.C. Berkeley, U.C. Santa Barbara and the University of Maryland overseas campus. Her current projects include one on women scientists of color in partnership with Harvard's GSE (NSF funded), California Community Colleges and why they prepare so few students of color to transfer in STEM fields to any 4 year institution, editing a volume on the impact of Proposition 209 (outlawing affirmative action in California), evaluating and organizing a summer research program in biology for diverse undergraduates (NSF REU funding), developing a project on evaluating programs for increasing women scientists at largely research institutions.

Gary W. Matkin
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Gary W. Matkin is Dean of Continuing Education at the University of California, Irvine. In this capacity he is responsible for University Extension, Summer Session, and the UCI Distance Learning Center. He has been involved with starting online-based distance learning operations at UC Berkeley and at UC Irvine. He is presently the Principal Investigator on two Hewlett Foundation grants supporting Open Education Resources, and serves on WASC's Substantive Change Committee. Dr. Matkin has a Ph.D. in Education, an MBA from UC Berkeley, and a Bachelor of Science degree from the University of San Francisco. He has been an associate of the Center for Studies in Higher Education since 1980.

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Narciso Matos is director of African Higher Education overseeing Carnegie Corporation's work in sub-Saharan Africa which focuses on strengthening higher education in select African universities, creating scholarships for women students and revitalizing libraries. Matos served as Executive Secretary of the Association of African Universities, a member of the advisory group on higher education for the Secretary General of UNESCO, and vice chancellor of Mozambique's Eduardo Mondlane University. He received a B.S. in chemistry from Eduardo Mondlane University in Maputo, Mozambique and a Ph.D. in organic chemistry from Humboldt University in Berlin, Germany.

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Christine Musselin is senior researcher at the Centre de Sociologie des Organisations, a research unit of the Sciences-Po university and the CNRS (National Centre for Scientific Research). She leads comparative studies on higher education systems and primarily deals with university governance, public policies on higher education and research, state-universities relationships and academic labour markets. One of her books, *La longue marche des universités françaises* published by the P.U.F in 2001 has recently been edited in English (*The Long March of French Universities*) by Routledge (2004). A new book, *Le marché des universitaires*, dealing with hiring committees and academic labour markets in French, German and American universities was published in November 2005 by the Presses de Sciences Po. She has been a DAAD fellow in 1984-1985 and a Fulbright and Harvard fellow in 1998-1999.

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David Palfreyman, Bursar and Fellow, New College, Oxford, is also the Director of OxCHEPS (The Oxford Centre for Higher Education Policy Studies). His publications include: *Higher Education Management: the key elements* (1996), *Oxford and the Decline of the Collegiate Tradition*

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Former Director – Center for Studies in Higher Education
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Sheldon Rothblatt is Professor Emeritus, former Chair of the Department of History and sometime Director of the Center for Studies in Higher Education, University of California, Berkeley. He is a Fellow of the Royal Historical Society of Britain, a Fellow of the Society for Research in Higher Education (Britain), a Member of the National Academy of Education (US) and a Foreign Member of the Royal Swedish Academy of Sciences. He has been a regular columnist for The Times Higher Education Supplement (London) and continues to serve on the boards of various professional societies   and journals. Main published works are The Revolution of the Dons, Cambridge and Society in Victorian England; Tradition and Change in English Liberal Education, An Essay in History and Culture; The European and American University since 1800 (edited with Bjorn Wittrock); The Modern University and its Discontents, The Fate of Newman's Legacies in Britain and America (a translation into Chinese is underway); and most recently, Education's Abiding Moral Dilemma: Merit and Worth in the Cross-Atlantic Democracies, 1800-2006. A selection of his writings has been translated into Italian, Spanish and Japanese. He has held visiting appointments at Stanford, Samford, Columbia, New York, Monash and Oslo universities and the Royal Institute of Technology in Stockholm. He holds an honorary doctorate from Gothenburg University.

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Janet Ruyle joined the CSHE in 1960 as a Post-Graduate Research Psychologist, moving on to the position of Specialist, then Assistant Director from 1974-93, when she retired. She currently serves on the Editorial Board of the Chronicle of the University of California. She earned her bachelors degree from Berkeley in 1959.

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Jack H. Schuster is author or co-author of six books on various aspects of higher education and the American faculty, among them *American Professors* (1986) with Howard R. Bowen (which received the Ness Award) and *The American Faculty* (2006) with Martin J. Finkelstein. Prior to joining Claremont Graduate University's faculty in 1977, Schuster was Legislative Assistant, then Administrative Assistant, to Congressman John Brademas of Indiana. He next served as Assistant to the Chancellor at the University of California, Berkeley, and as Lecturer in Political Science. He has been Visiting Professor or Guest Scholar at the Universities of Michigan, Oxford, Melbourne, Haifa, and at Harvard University, and at the Brookings Institution. Dr. Schuster's B.A. (in history) is from Tulane University, a J.D. from Harvard Law School, M.A. in Political Science from Columbia University, and Ph.D. in education from the University of California, Berkeley.

Michael Shattock
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Michael Shattock is a Visiting Professor at the Institute of Education, University of London where he founded an MBA in Higher Education Management. Prior to this and until 1999 he was Registrar (broadly equivalent to Provost in the US system) at the University of Warwick. His best known books are "The UGC and the Management of the British University System" 1994 Open University Press and "Creating a University System" (Ed) 1996 Blackwells (both historical), and "Managing Successful Universities" 2003 Open University Press and "Managing Good Governance in Higher Education" 2006 Open University Press (both in the field of contemporary management issues). He is now preparing a book on "Universities and the Knowledge Economy" arising out of an EU Framework 6 grant and researching a book on Policy Making in British Higher Education 1945-2006. He edits the OECD Journal "Higher Education Management and Policy". He is well known for his advisory work eg on the Governance and Management of Cambridge 2001 and chairing the OECD Review of Irish Higher Education 2003.

Neil J. Smelser

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Neil J. Smelser, University Professor of Sociology Emeritus, was a member of sociology faculty at Berkeley from 1958 to 1994, and Director of the Center for Advanced Study in the Behavioral Sciences, Stanford, from 1994 to 1991. His research interests include sociological theory, historical sociology, collective behavior and social movements, psychoanalysis, and the sociology of higher education. Two of his books in the last area are THE CHANGING ACADEMIC MARKET (1980) and PUBLIC HIGHER EDUCATION IN CALIFORNIA (1974). He served as Director of CSHE from 1987 to 1989.

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OECD Centre for Educational Research and Innovation
Stéphan Vincent-Lancrin has been working at the OECD Centre for Educational Research and Innovation (Directorate for Education) for 6 years on various topics, including internationalisation of higher education, e-learning, international quality assurance, knowledge management, learning cities and regions. He has co-authored and coordinated the recent OECD/CERI publications on *Internationalisation and trade in higher education* and on *E-learning in tertiary education*. He is currently leading two projects: a follow-up of CERI work on internationalisation and trade in higher education geared towards developing countries, in collaboration with the World Bank (Capacity development through cross-border higher education); a major project on the future of higher education, based on thematic analyses, consultation and scenario building. Before joining the OECD, Stéphan has worked for 7 years as lecturer and researcher in economics at the University of Paris-Nanterre and the London School of Economics. He holds a PhD in economics and master's degrees in business administration and in philosophy.

Marijk van der Wende
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Marijk C. van der Wende (1960) holds professorial chairs at the Center for Higher Education Policy Studies (CHEPS) at the University of Twente and at the Vrije Universiteit Amsterdam in the Netherlands, in addition to being a senior lecturer on the ERASMUS MUNDUS Master Programme on Higher Education (Universities of Oslo, Tampere, Aveiro, Twente). She is currently the President of the Governing Board of the OECD's Programme on Institutional Management in Higher Education (IMHE) and a member of various national and international advisory committees and editorial boards. Her research focuses on the impact of globalisation on higher education and related processes of internationalisation and Europeanisation. She published widely on how these processes affect higher education systems, their structure and governance, institutional strategies, curriculum design, innovation, quality assurance methods, and the use of technology. Between 1990 – 2002 Van der Wende held positions at NUFFIC (the Netherlands Organisation for International Cooperation in Higher Education), the Academic Cooperation Association (ACA) in Brussels, the University of Amsterdam, and was a visiting scholar at the Centre for Studies in Higher Education, at the University of California, Berkeley (USA).

John Zysman
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John Zysman is a Professor of Political Science at the University of California Berkeley. Professor John Zysman has been a member of the University of California, Berkeley faculty since 1974, and is Co-Director and Co-Founder of the Berkeley Roundtable on the International Economy (BRIE), established in 1982. Professor Zysman received his B.A. from Harvard University and his Ph.D. from the Massachusetts Institute of Technology. Over the years his research has spanned an array of topics on the political economy, from French post-industrialist policy to the influence of the internet on industrial competition (*Tracking the Transformation*). His most recent work assesses the impact of the digital transformation. *How Revolutionary was the Digital Revolution? National Responses, Market Transitions, and Global Technology in the Digital Era*, (Stanford University Press) is the product of a joint multi year project between BRIE and the Institute on the Finnish Economy (ETLA), and in part the University of Helsinki Institute on European Studies. Professor Zysman's recent research has two foci. One concerns Re-priming the American Technology Pump. The second foci is The Service Transformation, which looks at the transformation of the service sector and the reality that service reorganization in a digital era should be able to generate productivity increases.