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# The Dynamic Nature of Knowledge: Future Challenges and Opportunities for College and University Leaders.

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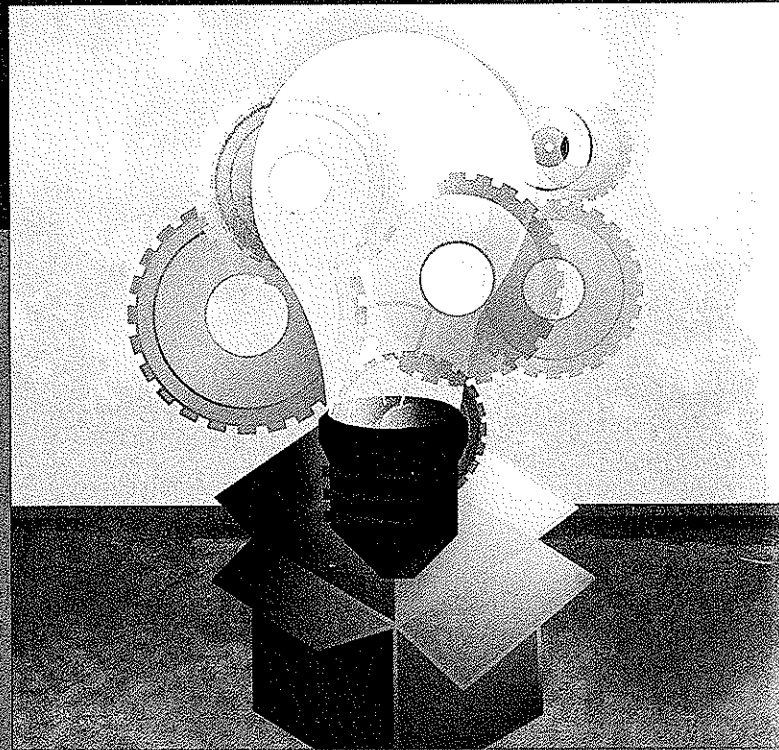
# The Dynamic Nature of Knowledge: Future Challenges and Opportunities for College and University Leaders.

## **Disciplines**

Higher Education Administration

Second in a Series of Essays:  
Discussing Higher Education's Future

# The Dynamic Nature of Knowledge: Future Challenges *and* Opportunities *for* College and University **LEADERS**



**ACE** AMERICAN COUNCIL ON EDUCATION  
The Unifying Voice for Higher Education

Second in a Series of Essays:  
Discussing Higher Education's Future

The Dynamic Nature of Knowledge:  
Future Challenges *and* Opportunities  
*for* College and University  
**LEADERS**

By

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**ACE** AMERICAN COUNCIL ON EDUCATION  
The Unifying Voice for Higher Education

*With generous support from*  
TIAA-CREF institute

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## Preface

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One of the most difficult tasks college and university leaders face is balancing the demands of the present with doing the work necessary to ensure a successful future. To many on campus, focusing on the future may seem like a distraction or even an imprudent use of time and resources, given immediate pressures. However, it is essential to lay a groundwork now that positions colleges and universities to be successful and relevant in the future. They can't do this without simultaneously addressing immediate pressures and taking advantage of rapidly expiring opportunities. It is this tension between today and tomorrow, driven by different senses of urgency and degrees of clarity, that is the focus of this series of presidential roundtables and essays discussing the future.

Campus leaders are not clairvoyant, but they must lead as though they are. A need exists to project trends and challenges for higher education over the next 10–15 years and to ensure that higher education's leaders are giving them sufficient attention to best prepare for what is to come. A useful way to gain clarity regarding the future is through dialogue among those with different perspectives. By bringing individuals together with complementary and competing ideas and observations, higher education can begin to accumulate what we call "collective foresight."

In April 2007, ACE convened a group of 14 presidents from diverse types of institutions to begin to explore higher education's long-term future. The key points from that conversation are captured in the essay *Collective Foresight: The Leadership Challenges for Higher Education's Future*. This first essay in a new series explored the trends most likely to shape higher education in the mid-range to distant future and outlined actions that campus leaders should consider to position their institutions now for the future. (The essay is available on the ACE web site at [www.acenet.edu](http://www.acenet.edu). Select Center for Effective Leadership from the Programs & Services menu, then click on Presidential Roundtables.) From that conversation, three key topics emerged that the participants thought demanded additional attention from campus leaders. ACE has organized a subsequent roundtable conversation for each of the three issues, the first of which is discussed in this essay.

The American Council on Education is grateful to the TIAA-CREF Institute for its generous support of this project.

The three roundtable conversations are:

- *The Evolving Nature of Knowledge: Exploring the Potential Impact on Colleges and Universities*
- *Shifting Demographics, Shifting Expectations: How Can Higher Education Best Prepare for and Shape Its Future?*
- *American Higher Education's Global Future: Preparing Now for the Increasingly Small World*

At the conclusion of these discussions, ACE will host a summit of presidents and other leaders to articulate an ideal future and outline a broad action agenda, given the insights from the previous conversations.

This essay and the others are directed toward today's leaders to best prepare their institutions and all of higher education for the future. However, emerging leaders—those to whom the mantle of leadership will fall in 10–15 years—will also find the essays helpful. They will provide a roadmap for what to give attention to and areas around which to develop their own leadership skills and talents.

We thank Robert Glidden, president emeritus of Ohio University, who served as facilitator for the conversation on which this essay is based. We also thank roundtable participants Zach Hodges, Elaine Maimon, Dennis Murray, Regina Peruggi, Shirley Pippins, Edward Ray, and Herman Saatkamp and ACE staff, Ellen Babby, Paula Moore, and Claire Van Ummersen for their responses to a previous draft of this essay. A list of roundtable participants appears at the end of this essay.

Finally, we are grateful to the TIAA-CREF Institute and its committed leader, Vice President and Executive Director Madeleine d'Ambrosio, for generous support of this essay as well as the roundtable itself.

# The Dynamic Nature of Knowledge

*Where's the wisdom we have lost in knowledge,  
Where's the knowledge we have lost in information?*

T.S. Eliot, *The Rock*

Knowledge is the central currency of higher education and the foundation supporting its role in society. Colleges and universities have four important relationships with knowledge. First, they generate new knowledge and integrate knowledge in novel ways. Institutions house experts and strive to create an environment that engenders creativity and innovation so they can be at the forefront of knowledge generation through basic and applied research and scholarship. Second, they disseminate and apply knowledge. Faculty convey it to their students through coursework and to wider audiences through diverse mediums. Colleges and universities apply knowledge to solve problems on local, regional, national, and international levels. Third, they preserve and organize knowledge in the holdings of their libraries and in their curricula. Fourth, colleges and universities determine what knowledge is most important and validate its acquisition through credentialing and the conferring of degrees. Knowledge is both product—something that faculty and students create and discover through scholarship—and the key input—something that they use to create the magic that happens in the classrooms, labs, and beyond. Knowledge is our business; it is our identity.

## Higher Education's Relationship with Knowledge:

1. Generate and integrate knowledge.
2. Disseminate and apply knowledge.
3. Preserve and organize knowledge.
4. Validate knowledge.

Of course, this relationship with knowledge has changed over time as the roles and functions of colleges and universities have evolved. Mark Hopkins, the famed 19th-century president of Williams College—a philosopher by training—once said that the only book Williams needed in its library was the Bible. That sentiment reflects

the priorities of many small colleges at that time that sought to prepare an elite few for positions of religious and civic leadership. Character formation and a classical education sharply delineated the sort of knowledge deemed relevant. Time would see the dictates of a liberal education broaden. The arts and sciences and foreign languages replaced rote memorization and Latin and Greek. Land-grant universities emerged, with their emphasis on knowledge generation and application addressing real world problems. Later, community colleges focused on the technical uses of knowledge. In the late 1940s, many universities emphasized their knowledge production capabilities, fueled by federal funds aimed at keeping the nation competitive during the Cold War.

As the nature of knowledge changes, it continues to shape the future of colleges and universities. Knowledge is growing exponentially, as are the ways in which knowledge is conveyed. The Sloan Foundation reports that in 2005, 3.2 million college students took at least one online course, a 39 percent increase over just the previous year.<sup>1</sup> Accompanying this trend, institutions are also expanding their online offerings. MIT now offers free lecture notes, exams, and other educational resources for more than 1,800 of its courses. And a Taiwanese businessman is translating MIT's OpenCourseWare courses into Chinese and posting them online. In turn, MIT has found the quality high enough to post 35 of 178 translated courses on its web site.<sup>2</sup>

This changing dynamic has produced new opportunities for institutions to capitalize on these efforts. The old phrase says, "Time is money," but the contemporary version might well be, "Knowledge is money." The "knowledge business" is enticing traditional universities to aggressively leverage their capacities to serve the knowledge economy. Colorado State, the University of North Carolina, and the University of Illinois are stepping up their efforts in this regard through subsidiaries that leverage their curricular capacities in the marketplace, joining Duke University, New York University, and Babson College, among others, in efforts to reach new audiences. Furthermore, institutions are jumping into the knowledge economy through licensing and patent efforts. For instance, in 2006, 26 universities collected more than \$10 million annually from licensing efforts and 155 institutions created 484

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1 Allen, I. Elaine, & Seaman, J. (2007, October). *Online nation: Five years in a growth in online learning*. Needham, MA: Sloan Foundation.

2 Cohen, N. (2007, April 3). OCW gives overseas education without MIT degree. *The Tech*, p. 17.

spinoff companies.<sup>3</sup> Privately supported research continues to be big business for some institutions as well. For example, BP awarded a \$500 million grant to the University of California at Berkeley, the University of Illinois at Urbana-Champaign, and Lawrence Berkeley National Lab to develop biofuels and other alternative-energy sources.<sup>4</sup>

Colleges and universities are not the only ones seeking to gain a strong position in the dynamic knowledge marketplace. Other expected and unexpected players are positioning themselves as knowledge providers. The storied (and publicly traded) Washington Post Company defines itself first as an education company and second as a media company. According to its web site:

The Washington Post Company is a diversified **education** and media company whose principal operations include **educational and career services**, newspaper and magazine publishing, television broadcasting, cable television systems and electronic information services. (Emphasis added.)

The Post's recent annual report noted that 50 percent of its income comes from Kaplan Higher Education, which operates 70 campuses in the United States and abroad, as well as distance learning operations, including an accredited law school.

Google, too, is part of the expanding knowledge business of which higher education has historically been at the center. Its mission is "to organize the world's information and make it universally accessible and useful." Furthermore, Wikipedia, the online encyclopedia that anyone can edit, has launched Wikiversity, a portion of its web site "where you are invited to explore your learning goals and participate in active learning projects" and "everyone is welcome to help create and develop learning resources." The curious thing is that one does not need to be an expert to contribute either to the encyclopedia's entries or its educational offerings. It is what some call the ultimate democratization of knowledge.

3 According to a report by the Association of University Technology Managers. See Blumenstyk, G. (2007, March 2). Universities report more licensing income but fewer start ups in 2005. *The Chronicle of Higher Education*, p. A29.

4 Blumenstyk, G. (2007, November 23). BP gets good terms in U. of California deal. *The Chronicle of Higher Education*, p. A21.



# The Shifting Landscape of Knowledge and Technology

Converging Missions?	
<p><b>Kaplan®</b> <i>(for-profit subsidiary of the Washington Post Company)</i></p> <p>"To help individuals achieve their educational and career goals. We build futures one success story at a time."</p>	<p><b>Google™</b></p> <p>"To organize the world's information and make it universally accessible and useful."</p>
<p><b>Joliet Community College (IL)</b> <i>(pioneering community college)</i></p> <p>To provide "a quality education that is affordable and accessible to the diverse student population it serves. Through a rich variety of educational programs and support services, it prepares its students for success."</p>	<p><b>Michigan State University</b> <i>(pioneering land-grant university)</i></p> <p>It "is committed to intellectual leadership and to excellence in both developing new knowledge and conveying that knowledge... It strives to discover practical uses for theoretical knowledge, and to speed the diffusion of information to residents of the state, the nation, and the world."</p>

What are the various ways in which the knowledge economy is influencing or reshaping the work of colleges and universities? What are the short- and long-term effects of the dynamic nature of knowledge for these institutions? How will advances in technology shape knowledge production and dissemination and, by extension, higher education? How will these trends impact campus structures and priorities? What might they mean for higher education's place in society? It is these questions that we asked college and university presidents to explore.

### Questions to Consider:

- What are the ways in which the knowledge economy is affecting your campus? What opportunities—economic and otherwise—does knowledge as a cornerstone of the economy create for your campus?
- How is the competitive nature of higher education changing as new entrants join the game? What have new competitors (such as for-profit institutions, corporate providers and other institutions via distance learning) meant for your campus? What trends are emerging and how will they create a different competitive environment?
- How have distance learning and technology affected teaching and learning on campus? What might be the impact of new, emerging technologies?

One cannot talk about the dynamic nature of knowledge without acknowledging the central role that advances in technology are playing, as the roundtable conversation demonstrated. While the future of knowledge is not solely about technology-driven change, it is significantly shaped by it. In the production and conveyance of knowledge, technology challenges how colleges and universities have traditionally been organized, multiplies the ways in which students and faculty can interact, shapes the physical environment, and profoundly influences the economics of higher education. In the same way that new parents quickly learn that a baby "changes everything," the consensus among those at the roundtable was that technology changes everything, although they disagreed about the extent of its effects. As one president put it, "We haven't seen the full impact of technology on higher education." Others readily agreed.

### A Changed Student Experience

Regina Peruggi, president of the City University of New York—Kingsborough Community College, opened the roundtable by observing, "The students are on a different level regarding technology and its use." That descriptive statement reflects the emerging gulf between the entering generation of students and their institutions (especially the faculty) when it comes to technology. Technology, as with all innovations, can have a destabilizing effect that requires institutions to adapt. The ubiquitous cell phones, text messaging, and interactions through Facebook and MySpace are a few examples of how students have integrated technology into how they live and learn. The ways in which these students obtain and process information, how they communicate, and their expectations inside (and outside) the classroom are different from their predecessors.

To educate current and future generations of students, higher education will need to think differently about the student experience. While not a new observation, the implications of these changes are hitting campuses in deeper ways than in the past. As Dennis Murray, president of Marist College, put it, "I originally thought of

technology as just a tool to support traditional teaching and learning, but now I believe it offers a whole new pedagogical approach.”

Today’s students have unprecedented access to knowledge and information through technology, which can lead to tremendous learning opportunities, presidents said.

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[Students] can communicate with peers and experts around the world in real time, so that they can gain a better understanding of far-off Amazon ecosystems or firsthand knowledge of political science principles at play in emerging democracies.

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They can use 3-D simulators and various computer programs to grapple with complex principles and concepts. For example, medical and veterinary students now practice virtual operations to gain a deeper understanding of complex physiological systems before they attempt procedures on living creatures. Students have ready access to data sets which they can analyze and manipulate to engage in their own inquiries and even produce original research. They can communicate with peers and experts around the world in real time, so that they can gain a better understanding of far-off Amazon ecosystems or firsthand knowledge of political science principles at play in emerging democracies. They can simultaneously access the world’s collection of fine art, regardless of the location of the wall upon which the artwork hangs. Outside the classroom, technology provides instantaneous information to students and their academic advisers as they map degree plans, even while sitting at different computer screens. Institutions can build virtual safety

nets that identify and develop retention strategies for at-risk students.

Despite these prodigious benefits, the knowledge age has produced some unintended consequences as well. The roundtable participants remarked that many of today’s students are highly stressed. Said one president, “The stress and frustrations from living in a multi-information world that is moving so fast [means that] students can’t keep up. They can’t think and reflect. This [24/7 lifestyle] creates an enormous amount of stress.”

On the positive side of the ledger, students are developing new ways of organizing themselves and building community. Zach Hodges, president of Houston Community College Northwest, spoke about a campus film club that enjoyed popularity because it had a “virtual presence” on campus, despite its lack of traditional bulletin board announcements or flyers. However, this environment also produces new challenges for campus leaders responsible for fostering an academic community. As a result, administrators are also changing how they interact with students. In order to get

feedback on a potentially controversial fee change, Oregon State University created virtual discussion groups to solicit student input. They used Facebook to reach out to student leaders and others to convene discussions rather than the university e-mail system, which students rarely check for messages.

#### Key Points:

- Technology is having a destabilizing effect on institutions that requires them to adapt.
- Campuses will have to think differently about the complete student experience, from teaching and learning to living arrangements, social and civic activities, and methods for communicating with students.
- Technology offers tremendous opportunities, but also creates significant stress in students as they cannot easily “unplug” and reflect.

### Teaching and Learning Dynamics

Presidents also expressed concern about the ability of their institutions to prepare students for a knowledge-driven future. To say that knowledge and technology are changing teaching and learning is to state the obvious. Distance learning, computer-assisted pedagogy, and self-paced modules accompanied by immediate feedback are commonplace. A key concern is determining the means and methods for giving students the ability to sort, decipher, connect, order, and understand information, and to put it into context to create knowledge. Recognizing that simply having more information does not equate with knowledge—particularly when that information is found on the web—is very much a challenge for today’s learners. Students have to develop the ability to sort through streams of information in the pursuit of knowledge. Not all information is equally relevant, reliable, or valid, and many have difficulty understanding this point. “The ability to retrieve uncountable bits of information is increasingly important. [We] are drowning our students in information. It is like drinking from the fire hose,” said Edward Ray, president of Oregon State.

The tension between managing the abundance of information to create knowledge and the speed with which knowledge and context change suggested to many leaders that they need to work with their institutions to rethink how they view and approach curricula. Rather than a discrete set of courses to be debated, agreed upon, and then implemented—a finite script—what would happen if institutions instead viewed

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curricula as an institution-wide, ongoing *conversation* about what students need to know and how they should learn? “We agree that learning isn’t just about memorizing dates and facts. It is something deeper, but how is that something deeper changing? What is knowledge and knowing? What are the interminable elements? What are the things that need to be known? Students need both capacities to think and things to know. This body of knowledge keeps evolving. It is different and should be different from the body of knowledge I had to know 40 years ago,” said Ray.

Too often, the curriculum is viewed as something to be decided and negotiated *in toto*, rather than a vehicle for continuing campus discussions about essential knowledge. Simply resorting to an uneasy truce in which different stakeholders cut deals to get a course or two or a major onto the books may be insufficient in the future. It will be too easy to fall into worn habits or to misalign the curriculum with an out-of-date context. As one president said, “The curriculum

is not steadfast. What should be steadfast are the academic ideals and values, such as open debate, critical inquiry, the desire to keep learning, etc.” Creating the means to have these essential continuing dialogues via curricula reform will be challenging as most institutions are not rehearsed in this type of process. Developing the curriculum should become a way for the faculty to engage in conversations about the core focus of learning in light of changing contexts.

A second dynamic related to the curriculum is the relationship between skills and content knowledge. Said one president, “Critical thinking used to be adequate, but now it must be paired with, if not embedded into, the content they are learning.” No longer is the “skills versus content” debate appropriate. Rather, campuses must find new ways to intellectually link the two. Elaine Maimon, president of Governors State University, commented, “Knowledge is no longer in silos but requires integration and synthesis”—a statement to which others readily agreed. However, participants noted this ideal is difficult to implement because of disciplinary preferences and institutional structures. Understanding the roots of knowledge—how new knowledge is created, validated, and used in different disciplines and fields—they believed, will serve well students who are flooded with information.

## Organizing Knowledge: Google vs. General Education

Once upon a time, the mission to “organize the world’s knowledge” would clearly have been the purview of universities through their curricula. Today, it is the stated mission of Google.

The general education curriculum is an institution’s embodiment of the core knowledge its students must learn. It is the framework that organizes that knowledge. It typically is created through much discussion and debate—often long and frequently contentious—among experts. But at the most fundamental level, it is an agreement of what is important to know. Search engines attempt a similar challenge. One might argue that sites such as Google have an objective similar to, if not the same as (in a broad sense), general education. However, search engines’ means of organizing—rather than the result of dialogue and debate among experts with deep content knowledge—is based on an algorithm of frequency, a very different method. Should the number of hits (or computer-generated public opinion) be responsible for determining the organization of knowledge and identifying what is important to know? This is a very different methodology from that used to determine general education content.

The dynamic nature of knowledge changes the curriculum and pedagogy, but more fundamentally it may change the role of the professor. As Herman Saatkamp, president of the Richard Stockton College of New Jersey, noted, “In some areas, content will be structured—it is the nature of the field or discipline—but in other areas, students and faculty will partner to teach and learn.” It is the latter idea that has the potential to be transformational as well as controversial. Faculty member as learner, and student as teacher (or both as student-teacher), blur familiar roles. Technology may push classrooms and labs to become places where knowledge is co-created at the undergraduate level—a partnership between students and professors. Another president remarked, “The real cultural change needed is a demystification of knowledge, to show and understand that we are all learners, [not experts]. How out of step is the academic culture [with this]?” Saatkamp later wondered, “What will be the new metaphor for teaching: Coaching? Partnering?”

This reconfiguration will be no simple undertaking. Hamid Shirvani, president of California State University–Stanislaus said, “Some faculty won’t want to do the work; others are threatened by it and have to ask others, mostly non-faculty, for assistance.” Another president said faculty could easily say, “I didn’t come here to ‘co-create’ knowledge with some underling in my undergraduate course. I did the hard work to become an expert and gain knowledge.” Clearly, a bumpy path lies ahead.

### Key Points:

- Education will need to focus on helping students develop the ability to sort, decipher, connect, order, and understand information to create knowledge.
- The curricula will need to balance the needed knowledge and the increasingly rapid pace at which knowledge is created and evolves.
- Curricula might be best thought of as an institution-wide ongoing conversation about which knowledge is important and why.
- How can campuses move beyond or reframe the “skills versus content” pedagogical debates?
- The role of the professor will change, possibly in ways both comfortable and uncomfortable.

## The Effects on Historically Underprepared Students

The changes in technology that allow greater access to knowledge will not affect all students in the same way. For some, it is liberating, but presidents expressed concerns that others continue to be limited by the digital divide—the line between students who have ready access to technology and information and those who do not. Students with limited access to current technology will clearly be at a disadvantage compared to students who carry laptops in their backpacks or have computers at home or ready access at schools.

Presidents, particularly those from institutions that serve less-prepared students, believed that technology harnessed appropriately could be a boon for those students typically at risk in higher education. At its most basic level, technology can facilitate access to knowledge for students once systematically closed out of higher education. Said Shirley Pippins, president of Suffolk County Community College, “Looking back 40 to 50 years, certain types of people were barred from libraries and particular schools, but now they can have access to knowledge.” Furthermore, technology can be used to assess prior knowledge and develop a personalized academic plan that builds on a student’s individual strengths, ways of learning, and existing knowledge, regardless of background and preparation. These approaches can target specific developmental needs. No longer does higher education need a one-size-fits-all

approach. Mickey Burnim, president of Bowie State University, a historically black university, noted that his students use their cell phones differently from what is reported in the popular media by predominately talking rather than texting. He drew a distinction between the “talkers and the texters,” noting that cultural and economic backgrounds may shape how students tap technology to assist their learning. Therefore, students can experiment with different pedagogies to find the ones that best suit their approaches to learning.

Presidents thought that more research and guidance were needed to help institutions understand how technology might best be used with different types of students. They thought a need existed to better understand how different types of students—by race and ethnicity, socioeconomic status, field of study—learn differently through technology-enhanced pedagogies. The trick, they noted, was then applying these findings to their own curricula and pedagogies.

### Key Points:

- The digital divide will be increasingly important to address.
- Technology can help traditionally underserved students by assessing prior knowledge and developing personalized learning plans that best tap their strengths and address their shortcomings.
- Students from different backgrounds will have affinity for different types of technology.

## Expanding Research

The earliest universities were loose collections of learned individuals who drew students to them to study. Technology may well be helping recreate these clusters of scholar/researchers who no longer need to be tied to a single institution. Said Saatkamp of Richard Stockton, “Technology has enabled some of the faculty at my college to collaborate with major institutions like MIT and NYU on various projects.” OSU’s Ray noted, “Because of its size and scope, Oregon State is never going to be a mega-university. So we are working to create a virtual one, without the size and scope of an Ohio State, Texas, Illinois, or Michigan.” An example of such an effort is Oregon State’s tsunami research lab, in which researchers have recreated coastlines in a research pool and are able to model simulations. Now, via

technology, Oregon State faculty members and graduate students can collaborate in the experiments with academics from around the world.

The rise of e-journals and other technologically mediated scholarly exchange has created a more level playing field for researchers from a variety of institutions. Further democratizing research are open-source efforts and online publications that allow scholars to quickly post findings, rather than relying solely on time-consuming peer-reviewed journals.

#### Key Points:

- Technology will facilitate tighter circles of researchers who are housed around the world addressing pressing problems.
- In many ways, it will allow researchers from a wider range of institutions access to top research efforts and collaborations.
- Institutions can create beneficial virtual economies of scale for their research.

### Different Physical Space

Technology is thought of as virtual, but trends in technology have important implications for the physical space we call our campuses. "We need the physical space that fosters new types of learning," said one president, "But many institutions are balancing significant amounts of deferred maintenance. We build smart classrooms, but we don't have the financing to build buildings and classrooms at the rate or on the scale necessary to have an impact."

Institutional leaders are rethinking both the spaces they have and the ones that they are planning, including not only classrooms, but also libraries and living spaces. How can institutions remodel and build new spaces that foster collaboration in new ways? A lecture hall cannot easily accommodate small group pedagogies. How do residence halls foster communication and group learning for students and faculty together? To complicate matters, collaboration occurs between students and faculty, across departments and disciplines, and with other institutions that are no longer separated in meaningful ways by distance and time and therefore rely on different

infrastructures from the ones we currently have. The built-space demands of the future will need to foster, not impede, innovative communication and collaboration.

Physical space has costs. Presidents are concerned about securing the necessary resources to bring their buildings and infrastructure in line with the changing nature of knowledge. As one president noted, all campuses have digital classrooms, but what is needed is the ability to renovate beyond one classroom at a time and, as he pointed out, that costs real money.

#### Key Points:

- Technology and accompanying new pedagogies will have a tremendous impact on physical space.
- The pace of upgrading physical space is slow and uneven to meet the demands of technology and take advantage of emerging opportunities.
- Physical space has real costs and few institutions are able to rapidly make necessary investments.

### Rewriting Traditional Boundaries Within and Outside the Campus

Ivory towers, we are not. That said, colleges and universities do have boundaries that traditionally have set them apart from the outside. Leaders have known what is "on campus" and what is "off campus." They traditionally have known their physical footprint and how to demarcate the campus. Technology is calling much of this into question, with potentially great consequences. One president told the story of an ongoing investigation at her institution of an alleged burning of the Koran by students. The situation was complicated by the fact that the photos of the incident appeared on a social networking site with a caption specifying her institution as the site of the incident. No strong evidence existed beyond that posting that it was her students or on her campus. She wondered, was the photo taken on her campus? Were they her students? Can the text accompanying the photo be believed? What is the institution's responsibility in this issue? The lines between campus community, community, and virtual community are blurring. Implications for oversight and discipline, respect, tolerance, and responsibility are shifting, making institutional

action difficult. Said Deborah Stanley, president of SUNY–Oswego, “We need to think about how technology intersects with the norms of an academic community.” She continued, “No longer is it simply about graffiti on the residence hall doors.”

This shifting boundary between what is inside and therefore part of the institution and what is not has many implications beyond student responsibility. For example, given technology and the web, institutions struggle with how best to position themselves publicly, what is factual knowledge about them, and what is not. Blogs, fake web sites, and social networking sites can all convey an image of an institution and often one that is at odds with the official view of the institution. Said Stanley, “We have lost our ability to control our reputation.” The ubiquity of information, both accurate and not, and the ability to be anonymous means that rumor and fact about a campus and its goings-on are difficult—if not impossible—to control.

Familiar internal campus boundaries are changing as well. Colleges and universities have departments. Technology and the dynamic nature of knowledge, particularly as it is driven by cutting-edge research, may well recast the role of the department as the essential academic unit. One participant reminded the group, “The world has problems, but universities have departments.” Ray, president of Oregon State, told the story of his top-rated Conservation Biology department—only to inform the group that OSU doesn’t have such a department. Instead, it is a virtual unit that draws together academics and students from other departments. While such a high ranking might suggest that the university turn this loose confederation into an academic unit, the faculty were against such an action. Said Ray, “The faculty didn’t want such a structure because they thought it was limiting. Those ‘in’ the department would define the field in their own way, shutting out others who might contribute in other ways. Institutionalizing it [the faculty felt] would lose its flexibility and ability to adapt.”

#### **Key Points:**

- Technology is altering boundaries between the campus and outside communities.
- Conveying information about an institution, and correcting misinformation, is different and more challenging in a technologically rich environment.
- The changing dynamics of knowledge have the potential to alter departmental structures.

## **Competition**

Changes in technology and the nature of knowledge are having an impact on how campuses compete with one another and with newcomers to the knowledge business. For-profit institutions that often tap distance learning technology are entering many markets. Their presence simultaneously attracts and repels some presidents. Some are concerned about their presence and how they often target low-income and underprepared, and often ill-informed, students. But presidents also pointed to for-profit institutions that centralize courses and gain tremendous economies of scale that they then pass along to their student-customers. These institutions are building a new model of faculty work based on a different set of assumptions of how knowledge is synthesized and delivered and how student learning is assessed. A few presidents wondered aloud about what traditional higher education might learn from some of these approaches that are more common in for-profit institutions.

Competition is not limited to for-profit providers. While not affecting all U.S. institutions equally, some presidents were concerned with universities abroad catching up to U.S. higher education in terms of educational quality and research. As quality elsewhere rises, the effects have the potential to be far reaching, they noted. For instance, multinational corporations are already contracting with foreign universities for both research and development and for the education of their workforces, rather than turning to their traditional U.S. institutional partners. International graduate students will have more options for study, and highly talented academics may see other places as more favorable for their work. Two competing lines of argument emerged on whether such competition (or losing ground to such competition) was good or bad. On the one hand, individuals in other countries will benefit from higher-caliber postsecondary institutions. A rising tide lifts all boats, they said. However, the other side argued, such changes may have negative implications for the long-term quality of life in this country.

#### **Key Points:**

- Competition will intensify for colleges and universities through distance learning efforts, for-profit providers, and other new entrants into higher education.
- Traditional higher education might be able to learn some things from these new providers with regard both to educating students and to operating differently.
- Competition with universities in other countries will continue to intensify for students, scholars, and research dollars.

## Shifting Economic Calculus

Many believed that the dynamic nature of knowledge will foster an even more uneasy relationship with the market. New competitors to the knowledge business historically cornered by higher education, the tensions between open access to knowledge and its growing monetary value in the knowledge economy, the strengthening of universities in other countries, and the sheer costs of staying current all contribute to this belief. Tough economic times further add to this complex, if not dour, picture.

The demands of a knowledge-rich (if not information-saturated) environment push institutions into new expense categories, as well as create the need to make additional investments in traditional areas. Faculty require new equipment, students inquire about the latest amenities, online programs demand software and hardware, and information systems require new software. Even the realized (or planned) productivity gains of technology do not always compensate for the expense.

The economic realities of the knowledge age extend beyond costs and outlays for new technology. For example, they suggest new business models, which often need to be tested before fully adapted. OSU's Ray said, "The first thinking about online courses was that they would be instant money-makers. You develop a course, [and] 2 million Chinese take it for \$2,000 each. Students no longer need the close personal relationship with faculty. That didn't work. All of a sudden, the predicted economies of scale shrunk, making online education less profitable and less appealing."

### Key Points:

- The knowledge-rich environment is creating new expense categories for institutions and requires additional investments in longstanding budget lines.
- New economic and business models that are tied to the knowledge economy and student demand for higher education may emerge.

## How Much Is at Risk?

"Do the above challenges require a revolution or not? Or will there *be* a revolution?" asked the facilitator, Bob Glidden, president emeritus of Ohio University. Interestingly, two camps clearly emerged. Some strongly believed that these trends will require deep change, some to the extent that higher education's culture must change. They saw a cumulative effect of changes in organizational structures, pedagogies, activities, buildings, priorities, and budgets. Asked one president, "Should we consider a future in which higher education would not be here or whose role is greatly reduced? Ten years out, a lot of colleges may not be here. At the same time, we may see more systems and collaborations, more combined private institutions. And will that be a bad thing?" Noted Governors State's Maimon, "We are in the midst of a major evolution. Socrates worried about how writing as a technology would impact memory. The printing press raised concerns about the dangers of democratizing knowledge." A third president suggested, "We must think on a different level and operate on a different level."

Others took a different view. Asked one president, "Are we too ready to accept the possible future and get caught up in the gee-whiz nature of technology?" This side warned of the dangers of trusting predictions to come true or even questioning the ability to make useful predictions. Another president reminded colleagues of the predicted golden age of progress. "In the '60s, I remember futurists predicting that technology would allow us to work 25-hour workweeks because it would increase productivity. That hasn't happened," he said, holding his Blackberry to emphasize the point. While this camp agreed that change is necessary, they didn't feel as strongly that the future would require revolutionary change.

Some questioned how we could predict the type of change needed given the difficulty of forecasting what changes will come. Who would have predicted the dramatic changes brought about by the Internet, e-mail, text messaging, and instructional technology? Said one person, "My sense is that the next changes may be even more dramatic. In some ways, our task is to try to prepare ourselves and our students for the unexpected." Others questioned how different technology really is from the academy. Said Geoff Cox of Alliant International University, "We need to examine implicit values of the online culture. It promotes the democratization of education,

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Asked one president, "Are we too ready to accept the possible future and get caught up in the gee-whiz nature of technology?"

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widens participation, and promotes active learning. Much of this is consistent with the core values of the academy.”

While participants disagreed on the extent to which higher education would have to change, they did agree that higher education may be on the brink of a crisis tied to funding and costs, often driven by technology. Said one president, “Will these changes mean that higher education becomes a place for people who can afford it?” And another echoed that point, “Do we end up with one higher education system for those individuals with resources and one for those with none? Do we risk creating two types of experiences that shortchange those who need access to life-changing education?” Part of the challenge is leveraging technology to keep costs down, which has been difficult, if not impossible, so far. The other part of the challenge is, as one president put it, “to fight the good fight for continued support of public spaces necessary for learning, which are our colleges and universities.”

## The Work of Leaders

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*“We have a lot of responsibility for how faculty view their work. We have the responsibility to create favorable environments. What projects do you support with institutional resources? What things do you encourage? We create the setting to meet the challenge of these new demands.”*

Herman Saatkamp, President, the Richard Stockton College of New Jersey

Leaders set the tone and the stage for their institutions to take on the future. They must balance current demands with future needs, make educated guesses on what will matter in the future, work to develop the capacities of their institutions, and lead efforts to stop activities that are no longer viable. The following leadership agenda emerged from the roundtable conversation.

### The Work of Leaders (Summary):

- Lead the critical conversations. Preparing for the future requires sustained and sometimes difficult dialogue among a range of stakeholders.
- Invest in people. To make technology work, it is the people—not the hardware or software—that must be highly functioning.
- Foster innovation and experimentation. Support, reward, encourage, and develop continued innovation throughout the institution.
- Develop the right physical environment. Technology may well drive the need for new and different physical space.
- Make the institution more permeable. Campuses will need the capacity to both partner better with different types of institutions and develop and maintain new types of relationships.

### Lead the Critical Conversations

Presidents have the responsibility for working with key campus stakeholders to frame the essential conversations about the future. As Burnim of Bowie State said, “We must ask: What is happening? What does it *mean* for what we do?” Added Stanley,



“As presidents, we are leading the conversations that tackle and challenge the status quo and the common wisdom prevalent on campuses. . . We can’t lead on every issue, but we can be the lead on asking the important questions.”

The critical conversations will involve a broad range of individuals. Said Hodges of Houston Community College Northwest, “Who you listen to is the issue for campus leaders; such differences exist between generations. If you don’t have a 25-year-old daughter, you should get yourself one.” He invited his daughter to speak with the college’s cabinet about how she and her peers use social networking web sites. But it is not only the young that should be engaged. Said one president, “Don’t discount the senior faculty. The faculty member leading our efforts to change teaching and learning via technology must be something like 137 years old. Technology has become the vehicle for his renewal.” Involving the chief information officer in key strategic discussions, including facilities planning, was a commonly mentioned strategy. These critical conversations involving the right individuals can be part of ongoing efforts, such as cabinet, dean’s council, and senate meetings. But they might also be intentional elements of strategic planning activities and board retreats.

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Part of framing these conversations is articulating institutional values to carry forward into the future.

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Part of framing these conversations is articulating institutional values to carry forward into the future. How does the changing dynamic of knowledge, the shifting sense of mastery of knowledge, and new assumptions about how knowledge is validated and accessed challenge beliefs and values that have long been unexamined?

Such conversations can be difficult. First, campuses may not have had much experience with these sustained dialogues. Therefore, they may not occur naturally. Second, conversations that address values and unquestioned assumptions can be highly threatening. Skeptics, but also those individuals benefiting from the current paradigm, may push back, avoid, or even sabotage efforts to focus the campus community. Third, the reality of today’s college or university president is that he or she spends significant amounts of time off campus. As one participant asked, “As demands pull presidents off campus, who is going to raise the tough questions on campus” and follow through on the answers? While others can lead the efforts, presidential attention sends the message that such conversations are important for the institution.

### Questions for Discussion:

- Who participates in critical conversations? How often do campus leaders engage people from different generations?
- What are the key institutional values that must be carried forward as knowledge and technology alter other things?
- How can leaders create a culture of critical conversations, particularly when one might not currently exist?

### Invest in People

To make technology work effectively for higher education, it is not the hardware or software that is important, but the people. “We have the challenge of keeping faculty abreast of technological changes. We need to help them upgrade their skills. We can do that by creating conversations like the one we are having here about the challenges and by providing professional development around how students are using technology,” said Bowie State’s Burnim. As discussed above, some faculty will fully embrace technology and are excited about the opportunities it creates. They will find creative ways to tap it to advance their scholarship and teaching. Others will shy away from technology and view the changing dynamics in the classroom as foreign and even threatening. Institutional leaders will need to develop and support creative means to identify willing individuals and develop the requisite skills and knowledge to take advantage of new technologies and the dynamic nature of knowledge. Said Murray of Marist College, “We originally tried to get all faculty to buy into new technologies at the same time, but we found it more effective to support early adopters who could show others the way.”

Campuses must also invest in their administrative leaders. The dynamics of knowledge and the knowledge economy mean that the traditional sources of competition, the financial investments needed in the future, and possibly even the leadership necessary for the future will be different. Presidents identified the abilities of future leaders to determine and articulate what is “eternal” about higher education and their own institution and what is “changeable” as essential. The difficulty, they noted, is that the calculus for sorting these things is changing. Future leaders will need a keen ability to peer into the future. Attending to future trends and issues, while important now, may be even more key as the pace of change quickens and future

changes are potentially more disruptive. Future leaders will also need the capacity to identify and frame what the presidents called “big-picture challenges.” These are the looming challenges for which no easy or tested solutions exist and that have the potential to rock the foundations of higher education. Finally, to address these challenges, they will need the ability to create powerful networks and alliances throughout higher education both domestically and internationally, particularly across sectors, and with businesses, not-for-profit organizations, and governments.

#### Questions for Discussion:

- How is the campus investing in people and helping them gain new knowledge and develop new skills?
- How is the institution identifying and supporting early adopters regarding technology? How is it sharing their insights with a wider group who might follow their lead?
- What are the implications for future administrative leaders? How are they being identified and mentored to be tomorrow's leaders?

### Foster Innovation and Experimentation

Presidents and other key leaders have the responsibility of not only being innovative themselves, but also creating an environment and providing the resources that spur innovation in others, campus-wide. The challenge for leaders is to identify those areas of important innovation that are already occurring on campus and to foster innovation in areas slow to adapt. They then must reinforce, support, and reward good work. Said Kingsborough's Peruggi, “We offer a little money—grants—that encourages cross-disciplinary work and bringing technology into the classroom.” Earmarking institutional resources for such work sends strong messages about the importance of innovation. Leaders can also spur widespread innovation by linking smaller efforts to create important synergies. Administrators often tend to be well positioned within the institution to see such overlapping or complementary efforts. Finally, senior administrators and faculty can serve as idea brokers. They often spend significant time off campus and are linked to national conversations in higher education and their disciplines. They have opportunities to identify ideas from elsewhere that will work at home. The danger, of course, is trying to foist ideas upon an unwilling institution. However, by making the case for why innovation is

necessary and understanding the needs and desires of the institution, leaders can help diffuse good ideas.<sup>5</sup>

#### Questions for Discussion:

- How innovative is your campus currently? In what areas or departments is the institution most innovative?
- How can campus leaders better foster innovation between units and translate good ideas from one area to others?
- Where might innovative ideas be found outside the institution that might be helpful?

### Develop the Right Physical Environment

The changing nature of knowledge and technology-driven change will require different and new physical space. Physical space needs to accommodate new and different interactions and should be developed to foster access to different types of engagement with changing knowledge. The leader's role in creating the right space is to ask questions, involve the right talent in the decisions, and secure the means to develop the needed space.

Leaders will need to rely on others to help design and develop new space for pedagogies and interactions yet to be developed. Oswego's Stanley described a new building “where the disciplines can bump into one another.” Determining what are the right questions to pose and who to engage can be difficult. Yet, concrete once poured is difficult to alter.

Institutional leaders may ask even more challenging questions driven by conversations about space. Asked one president, “Do colleges and universities need to be physical places to the extent that they are now? Are we sure we will need places like colleges and universities to foster learning? Might students be able to do it virtually? At one time, Princeton's old physics building had hallways lined with chalkboards. Faculty put up problems they were working on and anyone could comment—

<sup>5</sup> For additional resources on leading innovation and change, please see the ACE publications *Times Demand Innovation: Responding to Declining Resources and Heightened Accountability* (2007) and *Riding the Waves of Change* (2005).

students, faculty, visitors. Technology allows us to recreate the chalkboard but not tie it to a university hallway.”

Campus leaders also carry the burden of securing dollars to build spaces that are conducive to new collaborations and interactions. With state resources increasingly scarce or invested elsewhere, campus leaders will need to continue to think creatively about financing major building efforts as well as smaller scale renovations. Furthermore, the resource-scarce environment means that they will have to make choices regarding one set of facilities and priorities over others, ensuring that at least one group of stakeholders will feel slighted.

#### Questions for Discussion:

- How can leaders determine what new or different physical space is needed (or will be needed)?
- What are the key principles or design elements that physical space should promote given trends in knowledge and technology? How might they be constructed in flexible designs to accommodate future changes and needs?
- How can these new spaces be funded? Where will the needed resources come from?

### Make the Institution More Permeable

As knowledge changes, how campuses create, use, disseminate, organize, and validate knowledge will change, requiring different institutional structures and ways of operating. Campuses may be better served by becoming more permeable and by having deeper and different connections and linkages with other entities outside their traditional boundaries. They likely will need access to the expertise, capacities, and resources found in other organizations and institutions locally and internationally. They may need different collaborations with other campuses, both similar and dissimilar, as well as community agencies, nonprofits, and business and industry. They will work in consortia, alliances, networks, and associations. Although collaborations often require different ways of working, many institutions are already partnering in innovative ways. Richard Stockton College is involving off-campus stakeholders such as industry leaders and alumni in faculty searches. Research universities, such as Oregon State, are creating “virtual” institutes and research centers

that bring together scholars from a variety of institutions to conduct joint research, particularly to conduct “big science research.” Marist College provides training for IBM employees around the world, which helps build an important relationship, allowing access to the most advanced computer equipment for its students.

Partnering well has its own leadership challenges. As institutions (and as experts), higher education is used to steering itself. In the future, colleges and universities may need to let others take the wheel or at least provide direction in some instances. They may exchange the ability to control and dictate for better returns and heightened productivity. Campus leaders may need to develop the means to identify and select potential partners. They will implement shared financial systems, develop new decision-making structures, and create mechanisms to monitor collaborations and assess their value. Increasingly, to accomplish their individual missions, colleges and universities will have to learn to become even more reliant on others in systematic ways.

However, leaders will have to tread carefully. Ill-formed alliances may allow partners too much say in their activities, jeopardizing institutional autonomy. Already the higher education trade press carries frequent stories of institutions that have gone too far and developed relationships that restrict intellectual property and the rights to disseminate unflattering findings. A critical component of partnering is developing and knowing when to use an effective exit strategy.

#### Questions for Discussion:

- What current partnerships and relationships exist that can help the campus in the future? What new partnerships might be needed?
- Where will you find new partners? How might existing partnerships be altered to accommodate new goals or tasks?
- How might increased permeability alter current ways of working?
- What are the risks of partnering more extensively? What might be gained, and what might be lost?

Conclusion:

## Paradoxes Sharpened by the Dynamic Nature of Knowledge

Conversations about the future are projections at best. Those projections are often tied up in paradoxes with little resolution in sight. Campus leaders may have to wrestle with the following as they prepare their institutions for the future:

*Widespread and easy access to knowledge will increase **and** the increasing monetary value of knowledge makes its control beneficial to those who possess it.* As one president commented, "Knowledge is a public good; but we have privatized it, packaged it, and priced it." Higher education is quickly developing its capacity to commercialize knowledge as other sources of funding have become insufficient, particularly public support for higher education. At the same time, it is involved in producing and using new tools to disseminate knowledge more readily and freely. Free and open debate is an important and longstanding academic value.

*The rise **and** decline of the expert.* Expertise, a resource rich in higher education, will be in increased demand as social problems become more complex and call for novel solutions. At the same time, expertise may be less important as knowledge is more easily co-created by groups of people. Many point to Wikipedia as an example of this latter trend. According to its web site, "Visitors do not need specialized qualifications to contribute, since their primary role is to write articles that cover existing knowledge; this means that people of all ages and cultural and social backgrounds can write Wikipedia articles. Most of the articles can be edited by anyone with access to the Internet..."

*Faculty need to be both content experts **and** instructional generalists.* How well an institution educates its students in the future may well be linked to the ability of its faculty to be both experts in their fields and have the ability to teach in ways that best reach their students. Although this idea is not new, higher education has not developed the structures and processes to address this paradox. Graduate training of future faculty members, departmental structures, promotion and tenure

reward systems, and faculty development opportunities, for the most part favor one side of this equation.

*Students will need specialized content knowledge and broad understanding.*

This paradox is not new; it has long played itself out in the tensions between general education and the major. But this easy truce may be under strain. The world that future students will be entering will demand more specialized knowledge and skills. The complexity of the workplace and of the world is demanding it. At the same time, this complexity makes a broad command of knowledge increasingly important. The ability to make connections between sources of ideas will be essential. Predicted CSU–Stanislaus’ Shirvani, “Corporations will seek two types of people. First, they will want to hire people and retrain them to do specific tasks or provide specific services. Second, they will hire people who are thinkers and can develop ideas and concepts” for new products and services. The problem is that the requirements to know broadly and deeply will grow concurrently, while limited resources and rising costs make it more difficult to keep students in the classroom, given the expense. For instance, policy leaders are pushing institutions to become more efficient in light of public dollar shortfalls, leading some to wonder if the “luxury” of the 120-credit (four-year) degree that has accommodated both objectives, albeit often uneasily, may be threatened.

No simple answers exist to resolve these and other paradoxes that will play themselves out on campuses. As one president asked, “Do we risk being surpassed by technology instead of harnessing it to be useful?” What is likely required is a concerted effort to address the future head on, in order to ensure that colleges and universities remain central social institutions and major contributors to the knowledge economy. The challenge is thus, as noted by Deborah Stanley, president of SUNY–Oswego, “We need more dynamic ways to talk about the future, to encourage our best minds to think constructively about the future and what it means for higher education.” Much creative, exciting, and difficult work lies ahead.

## Appendix

**Participants in the April 8, 2008, ACE Roundtable, *The Evolving Nature of Knowledge: Exploring the Potential Impact on Colleges and Universities*.**

Their titles and affiliations reflect those at the time of the discussion.

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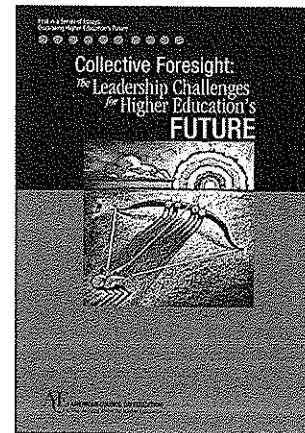
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## Collective Foresight:

The Leadership Challenges for Higher Education's Future



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Crystal balls, amulets, and tea leaves are not the go-to tools of effective campus presidents and trustees. However, today's leaders must lead as though they are clairvoyant. This first essay in a new ACE series, *Discussing Higher Education's Future*, draws on the collective foresight of diverse presidents to identify key trends and issues that will shape American higher education over the next 15 years.