

HIGHER EDUCATION LEADERS SYMPOSIUM

UNLIMITED LEARNING:
PREPARATION FOR A LIFE OF CHANGE AND CHALLENGE

FEBRUARY 4–5, 2004
REDMOND, WASHINGTON

Microsoft
Executive Engagement

The Challenge

For the first time in history, higher education is both a social and an economic imperative. Without it, we limit our ability to be successful not just as individuals but also as nations, economies, and societies. Higher education has shifted from an enterprise geared toward educating an elite few to one that must meet the educational needs of the majority. In the developing world, it is believed that access to postsecondary education is the best mechanism for nations to develop viable and self-sustaining economies.

How big is the education disparity between the developed and the developing nations? According to MIT's Richard Larson, 40 to 60 percent of young people in the developed world have had some form of tertiary education. In the developing world, it's 4 percent, which leaves many countries ill prepared for knowledge jobs in a global knowledge economy. Even though young people are motivated to learn, developing countries do not always have the necessary infrastructure. Only by expanding people's access to higher education in those nations can they take their place in the global knowledge economy.

> "THE GOAL IS AN ORGANIZATION THAT IS CONSTANTLY MAKING ITS FUTURE RATHER THAN DEFENDING ITS PAST."
>
> *Gary Hamel, Chairman, and Liisa Valikangas, Managing Director, Woodside Institute*

A number of experts say the need for change is urgent. For example, Renaldas Gudauskas, professor at Vilnius University and adviser to the prime minister of Lithuania, said, "Today the challenge is to change the rules of the game and to become architects of revolution in higher education." In the developing world, the pace of change is dramatic—and it's happening at the public policy level. In China, for example, the government has mandated that 40 percent of teachers at all universities must have graduate degrees by 2005; otherwise, the institution risks losing funding.

Most nations recognize that a strong system of postsecondary education is a prerequisite to participation in the new economy. In fact, in many countries, higher education has been placed at the center of national development. Recognizing an urgent need to build a skilled workforce, nations are searching for ways of shifting the focus of their higher education systems away from creating an educated elite and toward providing postsecondary education for large numbers of citizens.[1]

Technology has long promised major breakthroughs in ensuring that learning would be available to anyone, at any time. Higher education and governments are rethinking how higher education should operate, now that postsecondary education has become central to an individual's and a society's success. The emerging goal is unlimited learning, which implies removal of barriers to education and instead ensuring a seamless system that operates on the premise that learning is central to everyone's life.

From that vantage point, we can begin to ask critical questions: What should we expect from higher education? What do we need to do to prepare citizens for satisfying and productive lives? What does it mean to be educated? We know we're operating in a new economy with a different set of conditions for success. Information technology has permeated our lives. We're experiencing rising demand for educational services. And we have a new generation of learners, many of whom are digitally literate, always connected, educationally ambitious, and community oriented.

Although there are ample examples of progress—of new ways of learning and of "doing the business of higher education"—those examples are not systemic. While there is a sense that change is needed, it's not clear how the new system should look. One view is that the current structure of higher education is successful and simply needs to be modified to accommodate the diverse needs of lifelong learners and to be scaled up to accommodate a growing demand for education worldwide. Another view is that change must be more fundamental—that the existing model cannot address emerging needs. How can we sharpen our focus so we arrive at the needed solutions?

In February 2004 Microsoft Corporation brought together 31 educators and experts in learning, education, and technology to explore unlimited learning. The group articulated a vision of a higher education that is free of barriers and completely integrated, with seamless experiences from the undergraduate to the graduate levels and from on campus to off campus. The notion that colleges and universities need to respond to the way today's students—young and old—live and work was prominent within the group. Participants also agreed that the strengths of the existing system, such as scholarship and research, should not be compromised by the emergence of new capabilities.

Although originally conceptualized as a "visioning" session, the theme of "getting going" dominated the discussion. Few would deny that significant change is needed to address the global demand for higher education. The sense of impatience becomes more palpable when examples of true innovation surface: projects, initiatives, and new enterprises that are making a difference. It was agreed that partnership, cooperation, innovation, leadership, and technology will be needed if we are to be successful in meeting worldwide education demand. In addition, it was agreed that the greatest impediments are institutional culture, self-protectionism at both the national and the institutional levels, and complacency. What needs to happen for true change to occur? And what will that change look like?

What Limits Learning? And What Makes Learning Unlimited?

ACCESS

Educational institutions are faced with unprecedented numbers of students. In the United States, 90 percent of high school students intend to go to college; 75 percent of students who complete high school will go on to some form of postsecondary education.[2] Estimates are that by 2015, an additional 1 million to 2 million students will seek access to higher education, many of them from low-income or minority families.[3] And demand in developing countries is exploding: in Asia alone, it is estimated that the demand for higher education will grow by 48 million students from 1995 to 2020.[4]

Throughout the world, demand for higher education is driven by the size of the population as well as a desire to increase the percentage of the populace that has access to higher education. In 2001, more than 90 million students were enrolled in higher education worldwide. Estimates are that by 2025, that number will reach 160 million.[5] One driver is the sheer number of young people. In many of the developing countries, two-thirds or more of the population is younger than 25 years of age.[6] For example, in Latin America, 36 percent of the population is less than 14 years of age compared with 21 percent in the United States. On top of that, there's been a worldwide increase in the number of students completing secondary education.

Another important driver is the number of students who go on to postsecondary education. Most countries are striving to increase that number. The combined effects of population growth and improved access ensure that global demand for postsecondary education will continue to grow. In China today, for example, 6 percent of students are entering postsecondary education institutions. If that increases to 19 percent by 2020, then a total of 20 million students will need to be accommodated. In India, if participation rates grow from the current 5 percent to just 8 percent, a total of 11 million students will need seats.[7]

Even though demand exists, the ability to meet it is limited. In developing countries the necessary resources such as qualified faculty, curriculum materials, equipment, libraries, and laboratories are often lacking.[8] This is true in specific areas of certain developed countries as well. If quality education is not available where students are located, students may be sent abroad to obtain degrees. While many institutions recruit foreign students and provide high-caliber instruction, the challenge for their home countries lies in ensuring that those students return. An estimated one-third of foreign students studying in the United States do not return home after completing their studies.[9] Even in the United States, colleges and universities have programs for students from rural areas—in nursing, for example—that are designed to keep the students in their home communities, where their education and skills can contribute to social and economic development.

Beyond institutional capacity, other factors, too, can limit learning, such as insufficient time, lack of physical facilities, or geographic location. While online access may resolve some of those issues, it often has its own limitations—such as lack of bandwidth, lack of computers, or outdated hardware and software. Even if those capacity issues are resolved, access to learning may not be enough. Access does not necessarily equate to graduation. Access alone is insufficient because many students do not succeed once in college, and many students fail to engage in the kind of powerful learning that would equip them for a world in flux.[10]

ASSUMPTIONS

Beyond the tangible constraints, such as capacity, the assumptions we bring to learning and learning environments also limit educational success. How often are institutional models based on the assumption

that resources must be owned rather than shared? How often is it assumed that teaching is defined as telling rather than guiding? How pervasive is the notion that learning is measured in credit hours rather than by competence? Clara Lovett reminded the group that we too often assume learning takes place only in classrooms. “Students who are engaged in activities outside the classroom are developing skills that are important to their future as productive members of society—perhaps as important as those we make available in our classrooms,” she said.

Even the way we envision the learning space is based on a set of assumptions that many would challenge: Should college and university buildings be full of classrooms? Or should classrooms be adjacent to informal, collaborative space? Is our vision of a campus limited by assumptions about its physical nature without taking adequately into account its nature as a home for a learning community?[11]

Considering all we already know about learning—that it involves the personal construction of meaning and that it is socially and physically situated as well as highly dependent on information gathering, interaction, feedback, and context—how should we envision productive learning environments? Perhaps a real learning community requires a range of interwoven activity: solitary study and reflection, group learning, interaction, and social time.[12] According to symposium participant Richard Detweiler: “The bedrock assumption that education must take place in classrooms in which professors teach groups of students underlies the entire organizational framework of higher education, affecting everything from course accounting and faculty workload to tuition and state funding. But this assumption is no longer valid, mainly because of advances in information technology.”[13]

In an atmosphere of unlimited learning, the best of what higher education has to offer—the areas in which it succeeds—would be preserved and expanded. For many, the radical notion of discarding either things that aren’t working or those components that won’t scale to meet current and future needs is equally, if not more, important. How do we decide what works in higher education and what doesn’t?

What Stays? What Changes?

As symposium leader Diana Oblinger said in her introductory comments: “There are many good things about higher education that we want to keep. There are also some things that are problematic. If you want to design a new system, then you want to know which pieces to keep and which to alter.”

With that in mind, symposium participants were asked to reflect on what works well in higher education and what doesn’t work. A synthesis of the results—with undercurrents of matters such as faculty rewards and incentives, issues of institutional focus, and problems of inaction—paints an interesting picture of the work ahead.

POSITIVES: WHAT HIGHER EDUCATION DOES WELL

When the group was asked to describe what higher education does well—and should continue to do—four themes emerged:

> Development of human capital
> Positive impact on the economy and society
> Research
> Building of faculty

Human development

Each subgroup described different ways colleges and universities help individuals develop their potential—intellectually, socially, culturally, and ethically. Some mentioned the group socialization that takes place on residential campuses, emphasizing the importance of the experience in helping students mature and become acculturated to their discipline and the broader society. Some cited the fact that the opportunity for social and human networking augments human development. Others described an environment that successfully brings together diverse people to share a common agenda. In European institutions, collaboration, mobility, multilingualism, and multiculturalism were emphasized. Perhaps most important was the sense that higher education encourages critical thinking and helps build self-esteem.

Impact on economy and society

Many mentioned the positive impact that students have on society and the economy, ranging from teachers to medical practitioners, lawyers, and so on. And the education received is seen as the gateway to higher social status and well-paying jobs. Plus, colleges and universities turn out to be major contributors to local economies—by creating jobs and increasing the demand for local services.

Research

Higher education is good at research. That research produces innovation, ideas, and new products. It also provides a vehicle for motivating students and introducing them to a level of inquiry that prepares them well for a rapidly changing environment. In their engagement with research, universities also show how they’re capable of being innovative, globally minded, collaborative, and sensitive to national needs. Breaking down barriers between research and teaching may be one way to stimulate the flow of innovation.

Faculty

Higher education creates an environment within which faculty flourish. The collegiality of faculty—supported by the culture and structure of higher education—gives rise to many of the strengths of colleges

and universities. The quality of an institution is due in large part to the quality of its faculty. And faculty are developed by the current system.

WHAT COULD HIGHER EDUCATION DO BETTER?

When asked to explore some of the things higher education could do better, several items related to the strengths mentioned. For example, the research agenda can overpower the teaching agenda, and the existing reward and recognition system may not align with current and future priorities.

When the group was asked to explore specific things higher education can do better, five themes emerged:

> Learner focus
> Student success
> Scalability
> Adaptability
> Action

Learner focus

The group strongly supported the notion that institutions should be learner focused. They were less sanguine about the degree to which that notion is put into practice. Attendees said colleges and universities are not sufficiently geared toward learners—a customer service approach; they are too institutionally focused. They also said colleges and universities need to do a better job of adapting to the Net generation. Beyond the service orientation implied in being learner focused, the group suggested this goes much deeper. "There is too much uncertainty about learning outcomes," said one participant. "What are students really getting out of their education?"

Student success

Throughout the session, attendees remarked on the importance of shifting the focus from enrollment to successful learning. Student preparation for college may be inadequate, thereby leading to the need for remediation, course repeats, or incomplete mastery of subjects. A prerequisite is knowledge of the outcomes or competencies that should result from education. These are not always clear, and neither are the measures that would enable institutions to validate those outcomes. Some expressed concern that too much specialized information is being taught rather than the development of transferable skills and attitudes. Lack of success in targeting underrepresented groups was also cited. Another participant reiterated that student failure rates are too high.

Scalability

With the enormous worldwide demand for higher education learning environments, student support systems, infrastructure, and faculty development must be scalable. The fear is that few of today's models scale, particularly on a worldwide basis. And in an environment in which demand and cost pressures are likely to heighten, it may be imperative for institutions to reexamine the assumptions that lie behind today's models.

Adaptability

For all of the positives, higher education is seen—even from the inside—as being slow to change, inflexible, and less adaptable than times require. Participants described higher education as "beholden to tradition,"

"hierarchical and antidemocratic," "resistant to change," and "arrogant." Although education is credited with making individuals more adaptable and more resilient, institutions themselves are not perceived to be. Beyond the broad sentiment, specific examples were cited such as a narrow mind-set toward adopting new pedagogies and student learning styles.

Action

In what may be the most resounding sentiment of the symposium, the group said more action is needed. As one group reported, higher education has "too much reliance on process and not enough focus on actions and results." The group said it was time to stop studying and discussing issues and was "time to get on with it." According to Sally Johnstone, "The students are ready."

Setting Priorities

According to symposium participant Michael Crock, "If you're going to be successful in unlimited learning, you need three attributes: quality, responsiveness, and continuity of supply." When Griffith University began looking to introduce unlimited learning environments, the school's leaders engaged in a process of examining business entities in order to conduct an honest assessment of the things businesses did well and what they did not do so well. In the end, Crock concluded that success was a question of how to get the right blend of individuals and policies that will result in environments in which effective learning occurs.

Not only do institutions need to engage in harsh self-assessment; they also must be willing to look at the implications of the results. To that end, participants were asked to examine five areas of higher education and then craft an action list of what should be done to create the next generation of anytime, anywhere learning.

INFORMATION TECHNOLOGY

> *Ease of use.* Participants said higher education needs a set of easy-to-use tools to meet teaching and learning needs. Such everyday tools should be useful, simple, transportable, and accessible.
> *Adaptability.* Individualization and customization are important education principles that can be facilitated by information technology. Participants also said educators need access to intelligent—adaptable or smart—educational tools. The tools should adapt to student or faculty needs and preferences and allow users to customize their learning places. Recent developments in such areas as artificial intelligence, agent technologies, augmented reality, and user-centered systems design may prove to be valuable in this regard.
> *Integration of learning into everyday tools.* It was said that learning is a fundamental part of virtually everyone's job. Most people use software for productivity. As a result, developers should think about the so-called learning functionality of the tools we use to do our jobs, such as word processors, calendars, and PowerPoint. More attention needs to be given to the issues of integrating tools for learning with tools for work. Lifelong, lifewide learning needs ubiquitous technology.

PEDAGOGY

> *Individualization.* Learning is a highly individualized process. New combinations of pedagogy and technology are essential both to help educators cater to different needs and learning styles and to help students tackle learning tasks in ways that suit them.
> *Social context.* Learning is a social process. Today's students use technology to communicate, socialize, and collaborate. Students need to be able to work in teams so as to further develop their ability to communicate and collaborate in learning environments. For a variety of reasons, learning environments need to take into account the social aspects of learning and working as a group.
> *Competencies.* The group said more attention should be paid to the competencies students need. This asks for a focus that's different from merely defining the number of credit hours and listing which categories of courses lead to a degree. Although difficult to define, it will be important for institutions to articulate the competencies that result from a college education.
> *Faculty skills.* The skills of the faculty should be taken into account in decisions about pedagogy. Faculty styles can either complement or conflict with students' learning styles. It may also be important to create teams so that faculty skills can be augmented by others who have complementary skills.

INSTITUTIONAL PERSPECTIVE

> *Rethinking the meaning of a college degree.* Participants said it was important to re-think the overall meaning of a college degree as well as individual degree requirements. The group noted that degrees have a shelf life and that lifelong learning may be part of our future thinking about a college degree.
> *Lifelong learning.* The group said most institutions are not organized to support lifelong learning. Lifelong learning will be a prerequisite to maintaining competence.
> *Structural change.* Many in the group said structural change would be required if higher education is to fulfill the vision of unlimited learning. However, the challenges are enormous. How can we change a system in which we have already made huge investments in intellectual capital, facilities, and so on? And if we are to make structural changes, how do we get started?
> *Mobilization of students.* The group said students could be instrumental in catalyzing change. After all, graduate students will be the next generation of faculty. Can institutions work with graduate students to change their ideas about teaching, learning, and service? Undergraduates may also be influential in helping faculty, staff, and administrators understand how they can address technology and new ways of learning.

PUBLIC POLICY

> *Empowering individuals.* Public policies that focus on users were advocated. For example, federal policies that eliminate restrictions on financial aid and that make need an important part of financial aid might make it easier for low-income students to be successful.
> *Catalysts for institutional change.* The group discussed the possibility that public policies might catalyze institutional change. For example, in the late 1940s, the creation of the National Science Foundation and the competitive research environment caused a shift in institutional focus from teaching to research. Some say that teaching and learning today are in need of a similar boost. Might we catalyze a strong shift to more innovative teaching and to breaking down barriers within and around universities by means of a set of competitive grants that focus on innovations in teaching and learning?
> *Regulatory issues.* The group said it would be important to pay attention to regulatory issues, not just to other types of policy issues. For example, regulatory issues can restrict institutions' ability to respond to market, student, and societal needs.
> *Capacity building.* Encouraging universities to play a greater role in higher education capacity building in the developing world was seen as another important public policy area.

COLLABORATION

> *Creation of an environment for collaboration.* Collaboration cannot be mandated, but a change in the overall environment may lead to greater collaboration. To a certain degree, policy can encourage collaboration within and among institutions. The group said collaboration cannot—and should not—be forced. Institutions should target those who are ready for change. And professional development opportunities may help others see the value of collaboration and the opportunities for using technology to improve learning.
> *Interoperability.* A focus on interoperability will be necessary to facilitate collaboration. Technology standards and common business processes will make it easier to share information, reuse content, and

leverage the strengths of multiple institutions. Efforts here need to be forward-looking and informed by a deep understanding of pedagogy and developments in technology.

> *Partnerships.* Building more effective partnerships will be essential to sustaining collaboration. Partnerships can be seeded by using funds as well as by establishing intra- and inter-institutional relationships. Then those with common goals are most likely to develop partnerships.

New Ways of Thinking Lead to New Models

In business, innovation is essential. New ways of thinking lead to competitive advantage. Businesses are built by entrepreneurs: visionaries who don't just imagine a single solution but who envision an entire business operation at its best. Businesses that stagnate risk failure. In business, innovation outflanks tradition. Can the same be said for higher education? Surely universities generate innovative ideas. But as organizations, they do not have the same culture, structures, or incentives as entrepreneurs enjoy in successful businesses. To help inspire new thinking, Detweiler brought Albert Einstein into the symposium—or at least Einstein's genius. That genius, said Detweiler, consisted of Einstein's ability to change his perspective—his ability to engage in thought experiments as a mechanism for inspiring innovation.

As Detweiler said, today's higher education exists in a Newtonian world—a world that's fixed, stable, standardized, and rigid. Indeed, the model for higher education has changed relatively little in centuries: scholars gather around libraries, and students gather around the scholars. It is a model based on the premise of scarcity—scarcity of books, laboratories, and faculty. "Are we being Newtonian?" asked Detweiler. "Is education too constrained in its thinking to see—in technological innovation, among other developments—important opportunities for entirely new perspectives?"

By conducting what Detweiler refers to as thought experiments, educational leaders can begin to imagine a different higher education—one that's built not on scarcity but on unlimited access and flexibility. "Institutions today are committed to making all kinds of digital material available," said Detweiler. "Anybody can have access." With the possibilities for access to high-quality learning materials and learning environments in mind, Detweiler challenged the group to imagine what the implication might be for the way education is structured. "Let's use Einstein's idea of shifting perspective," he said. "Rather than assuming an environment of scarcity, think of everything, everywhere, anytime—lots of access."

Under such a thought experiment, higher education becomes an entirely different enterprise. As in most enterprises, innovations in higher education are born out of new ways of thinking. They're influenced by new needs, such as the needs of today's learners. The group explored ways in which new thinking leads to new educational models. And the participants discussed the characteristics of successful strategies.

According to Richard Larson, new models in general succeed when the leadership is not top down but enabling. Edward Walker said they succeed when they incorporate three critical elements: emergence of leadership, support, and infrastructure. "Without support, the activities are self-limiting," he said. "We see people and activities building on those possibilities."

Today new thinking about learning is leading to innovations in learning environments. "We've been limited in how we interact, because we assume students should learn by listening, in abstract mode, by certain subjects," said Frank Newman. "We need to deal with students in a new way." At Rensselaer Polytechnic Institute, studio classes have captured the attention of institutional leaders nationwide, with introductory classes in physics and a number of other courses that have been designed with students literally at the center of the class as well as with active learning and widespread access to technology. Instructors serve as guides who roam the classroom, responding to questions and stimulating student understanding. In this way, students interact with each other, they have information at their fingertips, and they can get help

when necessary. “Students learn least effectively while they’re listening,” said Newman. “When in discussion, they are engaged. When in teams and when doing, learning jumps.”

Among symposium participants, it was widely agreed that models of collaboration are essential if we are to move to unlimited learning environments. Collaborative environments enable students to work together in ways that multiply their individual talents and that encourage self-organization and responsibility, yet allow educators to monitor those students’ progress and give feedback. “This is a revolution,” says Randy Hinrichs of Microsoft Corporation. “With technology, I can watch the progression of a student’s thinking.”

At Massachusetts Institute of Technology, Prof. Jesús del Alamo is using technology to enhance the laboratory experience. Since the equipment he wanted his students to work with at MIT was not readily accessible, he created a Web interface that enabled students to conduct lab experiments from anywhere and at any time. Tracking usage, del Alamo found that lab activity spiked immediately before experiments were due; he also found there was tremendous excess capacity, even after sharing the WebLab with students in Singapore and Sweden. Del Alamo is now exploring the sharing of that capacity with students in sub-Saharan Africa.

Creating access to content has become an important priority at MIT, where educational materials from 500 of the school’s courses are on the Web as part of its OpenCourseWare program. The impact of providing high-quality content is felt throughout the world, with 39 OpenCourseWare courses in Spanish and Portuguese now available through a partnership with Universia.net and individual courses available in at least 10 languages. In fact, MIT OpenCourseWare has embarked on a pilot partnership with the China Open Resources for Education (CORE) organization to translate MIT OCW courses into Chinese and to foster the open sharing of educational materials in China. CORE will translate 2,000 MIT OCW courses and will openly publish 1,000 exemplary courses from Chinese universities over the next four years.

The beauty of technology, Detweiler said, is that it makes firsthand learning more available. “You no longer need to be a Ph.D. with the right credentials to have access to particular types of research materials.” For instance, the Valley of the Shadow project at the University of Virginia enables students worldwide to explore the information historians use to reconstruct history. Through personal letters, newspaper articles, photographs, census data, and military records, individuals can explore the story of two different counties during the Civil War. The counties are essentially the same, with the exception that one is Confederate and the other is Union. The university’s Ed Ayers and his colleagues have used information technology to create a resource that advances scholarship as well as individual learning.

Even laboratories are becoming more available as technology advances. At the University of Virginia, Charles Grisham’s Lab3D project enables students to conduct virtual chemistry and biochemistry experiments. Data are generated as students manipulate the virtual laboratory equipment by increasing the temperature on the hot plate, slowing down the stirring motor, or adding more of a chemical substance. Each student gets a unique set of results; a student using a different temperature or a different chemical concentration, generates different data.

Many say true innovation in education happens more quickly outside the realm of established colleges and universities. Interactive University (IU) is a global publishing and distribution company in the Scottish higher education sector, working with universities to publish course content online and then working with

local partners to deliver education. In this way, IU, which delivers education to more than 90,000 students worldwide, connects students to degree programs without their having to leave their home country.

According to IU's Roy Leitch, the company is creating a network of peer organizations around the world that have built learning models based on content sharing. Leitch said that this type of innovation is too difficult to attain from inside higher education, so the company persuaded the Scottish government to create IU as a catalyst for change. "We're using this particular international global education as the Trojan horse," he said. "We're developing content and exploiting it internationally, then reinvesting income back into Scotland. It's much easier to create change through a third party than to tackle it head-on." And the company is committed to ensuring that its partners realize a fair share of the income as well.

IU uses a model reminiscent of software distribution. "The value proposition is that we have an infrastructure in place," said David Farquhar. "We can get your courses to market faster, more cheaply, and with more international breadth." The resellers are generally local colleges, which means that IU can help make an institution more competitive. And it can help individuals in developing nations get a degree from a developed country—either online or through a local college. IU provides student support.

While these represent only a handful of models of unlimited learning innovations, they offer evidence that meeting demand for education worldwide means challenging traditional assumptions and moving beyond conventions, particularly in terms of sharing, collaboration, and global access. The models offer tangible proof that learning can happen as effectively—if not more effectively—when the conventional wisdom regarding where, how, and when learning is supposed to happen is altered. And they paint a compelling picture of the ways technology can extend the reach of higher education to individuals and communities worldwide.

The Role of Higher Education in Achieving Educational Success

What do students need to be successful in today's world? According to a report called Greater Expectations—recently released by the Association of American Colleges and Universities (AAC&U)—students need to be "intentional learners who can adapt to new environments, integrate knowledge from different sources, and continue learning throughout their lives."[14] To some, that means radical change in how we think about education. To many, it captures the essence of recent innovation. The report itself recommends ending the distinctions that separate liberal and practical education. It states: "Liberal education in all fields will have the strongest impact when studies look beyond the classroom to the world's major questions, asking students to apply their developing analytical skills and ethical judgment to significant problems in the world around them."[15]

The AAC&U report reflects much of today's thinking about how learning happens and what it means to be educated. Detweiler, for example, argues that becoming educated is the process of creating experts.[16] Unlike novices, he says, experts have a conceptual framework into which information fits, they notice features and patterns that are not noticed by novices, and they organize their content knowledge in ways that reflect a deep understanding of the subject matter. Experts are able to mobilize facts and apply them to new situations. They monitor their own understanding in a process called adaptive expertise by modifying concepts, identifying information gaps, and taking control of their learning.[17]

Experts understand, whereas novices only know; until novices become able to apply their knowledge to a new situation, they will never truly understand the information. For learning to be successful, says Detweiler, educators must be able to comprehend that distinction. The diverse subject matter encompassed by a liberal education increasingly will have relevance in a student's life. Lovett expanded on the value of a liberal education. "Those skills may be a necessary foundation for the future of our students, but not sufficient for the future of our students. They're going to need a high level of ability to experience and deal with others. They need the ability to recognize points of view, cultures, and technologies that are fundamentally different than their own." Summing it up, she concluded, "They must have significant exposure to otherness."

As Newman said, citizens need to be prepared for change: they need to be resilient, resourceful, creative, and innovative. They need to be able to start activities and commit themselves to action. They need cultural skills to be able to work across boundaries. They need to be able to use mathematics and science to solve practical problems. And they need to have the ability to enjoy life. "These all describe a life of change and challenge," Newman said.

To accommodate the new demands, higher education faces numerous challenges that new educational enterprises do not. For-profit institutions have the benefit of starting from scratch with practices that truly address customer need and with business models that may be impossible to duplicate in traditional institutions. When for-profit institutions see uses for information technology, they can more readily mobilize resources to act on that knowledge. Higher education's tradition has a lot to offer, but it also creates barriers, the most frequently mentioned being faculty rewards. As Newman said, "Somehow, when technology integration is necessary for research, it just happens. But when it's needed for teaching, it's too difficult."

Even the idea of teaching is a barrier that needs to be broken. "We speak of those who learned by themselves as self-taught," said Eduardo Chaves. "This is something to consider: that we must be taught.

It contaminates our language. We do not seem ready to imagine a version of higher education that may dispense with teaching as we normally understand it: with courses and textbooks and things of that nature."

There are other barriers as well. Student perceptions and expectations can be one of them. Many students come to higher education more or less expecting the lecture model—one that many say needs to be changed. In their personal lives, students may be enjoying the latest technology, but when they come to college, they expect a traditional model. So student expectations about environments can create barriers to change, too.

As Kathy Christoph said at the beginning of the symposium: "Technology is the easy part. It's the people and understanding change that we need to get working on."

A VISION FOR HIGHER EDUCATION

Today we know more about how students learn. We know what constitutes an educated citizen. And we know which characteristics and qualities are likely to help those citizens be successful in a global knowledge economy. The next step is to create a vision for unlimited learning that is consistent with the competencies we seek as outcomes. Symposium participants were asked to select one of five target audiences—research universities, liberal arts colleges, adult learners, community colleges, and emerging economies—and determine what unlimited learning would look like for each.

Research Universities

The vision of what education could be within research universities centers on students as apprentice knowledge workers. This group proposed that students become much more engaged in authentic research projects with sponsors and mentors from the real world. Most important, this group expressed the need to accelerate the process of breaking down the boundaries that separate research from instruction and the university from the rest of the world. Technology helps students, teachers, researchers, and people outside the university collaborate on real-world problems, and "students can get a first-hand experience of helping change the world," said Sydney University's Peter Goodyear. "They get clearer insights into complex problems and develop the kinds of understanding and sensibility needed for global citizenship."

Liberal Arts Colleges

This group began by setting up a framework for the mission of liberal education, one that involved intellectual competencies and value competencies. In the traditional institutional mission, liberal arts colleges articulate the intellectual and value competencies and provide ways to examine, develop, demonstrate, and reiterate those competencies. How does unlimited learning fit in that framework? First, the institution should not limit the learner. Unlimited learning integrates academic, workplace, home, and community experiences.

Adult Learners

This group began by defining the concept of an adult learner. An adult learner may be defined by an individual's need for continuing professional education. Adult learners may be those who completed degrees and are now looking for additional education opportunities. Or they may be employed, unemployed, or older. Whoever they are, the group agreed that they are mature—25 years or older—and probably more technologically savvy than the previous generation of adult learners.

With that in mind, the group agreed that the future of the adult learner rested on several concepts. First, it's no longer the institution that is the giver of knowledge to the lifelong learner; learners come to the world of learning and navigate through institutions. This creates the very real possibility that learners will end up confused and unable to determine what's best for them. Therefore, the vision for the adult learner is one that includes some sort of electronic or human agent who can answer questions and make recommendations. Some institutions already do that, such as Thomas Edison State College in New Jersey or Excelsior College in New York. They act as counselors and offer learners various pathways to obtaining credentials. The group said the combination of an agent as well as an e-portfolio would enable adult learners both to find their pathways and to document their lifelong learning experiences.

Community Colleges

For this group, the overall vision for community colleges was one that embraces a universal, convenient system of education and support that extends to low-income learners, rural areas, and inner cities more than the system does today. A stronger support system figured prominently in that vision. Costs need to be driven down to make learning more accessible to those populations, but quality cannot be compromised. "Community colleges have fought to be recognized," said one participant. "We don't want them to lose that traction." To stay on track, the model for community colleges must be one that promotes portability of options or broad articulation agreements: whether students are seeking degrees or simply continuing their education, they should be able to move easily from community college to community college.

Emerging Economies

Putting the community at the center figured prominently in the vision for emerging economies, including empowerment at the local level and the ability to integrate local content into the learning process. The infrastructure must be affordable and there must be a balance between appropriate technology and human presence so as to enable students to connect to faculty, other students, and content. Without sufficient numbers of qualified professors in emerging economies, mechanisms would have to be put into place to pull in expertise. Local value was emphasized.

Out of each vision emerged a growing sense that degrees and competencies need to be rethought. Participant Joan Lippincott suggested rethinking postsecondary education entirely. "We not only need to think in terms of competencies that we expect adult students to have," she said. "We also have to think from outside higher education. We need to look at society from the view of local, regional, national, and global perspectives and say what is expected."

More specifically, Leitch added, "the problem is that we're living with an educational system designed for 5 percent of the population, and we're trying to deliver it to 80 percent of the population."

What Role Does Technology Play?

Ten years ago, parents and educators feared that technology would be responsible for spawning a whole generation of socially isolated youth. The reality is that technology increases both communication and many of the social aspects of learning. And it both promotes and facilitates collaboration. But can it help us realize a vision for higher education that is fundamentally better than the model that exists? According to Detweiler, the answer is yes. “Part of the obligation we have for the future is to step outside the current context,” he said. “Technology gives us hugely powerful tools to accomplish that.”

Newman takes that one step further. “Technology is the facilitator for doing what we should be doing anyway,” he said. “We can change the basic pedagogy of learning, and we can adapt to new learning styles.”

If partnerships and collaboration are at the heart of a new model for higher education, then technology gets high marks for making those relationships possible. According to Robert Ubell, Stevens Institute of Technology in New Jersey requires its faculty to create online teams that facilitate learning. Patricio López of Tecnológico de Monterrey says his institution has been doing that for the past 15 years—and with outstanding results. Team-based teaching and course design are becoming more common, though they’re still far from the norm. Institutions need to identify and remove structural barriers to such collaboration if they are to take full advantage of new technology.

While some of the benefits of technology are obvious, others are not easily seen. For some faculty, teaching still means lecturing. From such a perspective, technology is a just mechanism for posting lectures on the Net for the convenience of students. Even students can have a difficult time seeing the benefits of technology in education, though technology is so deeply embedded in their lives. “I can’t tell you how many students tell me a course is a lecture,” says Newman. “According to students, ‘I take notes, take a test, and that’s the deal.’”

Many participants expressed the need to get to the next level with technology: a place where it becomes much easier to use, with modules that one can just pick up and use like textbooks.

Technology also facilitates access, offering tools for the sharing of data, information, and insights. Participant Sally Johnstone pointed to her organization’s work that promotes and encourages partnerships and collaborations to secure higher-quality learning tools and resources. “We need to develop system strategies for redesign of high-enrollment courses with shared content.” And currently under way are course reviews: “It’s my hope that we can continue to create tools that enable the current structure in higher education to take advantage of collaborative opportunities,” she said.

Summary

Clearly articulated at the symposium was the sense of just how imperative higher and continuing education are; the knowledge age is upon us, students have new educational needs, and meeting those needs is essential. Unprepared, citizens will be unable to compete, which compromises the ability of nations to succeed. When citizens are educationally unprepared, the economic chasm between rich and poor nations widens. Such disparities do not serve the global society at large.

In agreement over the imperative, symposium participants contributed to a vision of anytime, anywhere learning around which strategies can be formed. Several common themes emerged: the notion of removing barriers to education by making the education process seamless. Without barriers, participants envisioned an education system that is a continuum, integrating life, work, learning, and leisure—a system that incorporates real-life experiences into the learning process in order to create a better context for learning that leads to educational success. To accomplish that requires customization and individualization; no two learners are alike. Historically, that was not possible. Without technology, education was centered on a specific time and space. With the increased use of technology, time and space have become less relevant, and education becomes more accessible and better integrated into the realities of our lives.

Finally, participants agreed that it's time to get moving. While discussion is essential, participants said strongly that we can't afford to be complacent. In the United States and other Western nations, the urgency is masked by tremendous wealth and a general acceptance that the current system of higher education is adequate. In many other nations, the urgency is heightened by economic realities, a dearth of faculty, and limited resources. Although examples of new systems exist—examples that expand the reach of higher education to rural areas and examples of uses of technology that are breaking through the traditional model in order to meet the needs of large populations that would not otherwise have access to higher education—we are only beginning.

Anytime, anywhere learning is a future vision that must be agreed to and planned for so it can become reality. The past offers examples of success that are relevant to specific times and specific needs. It has given rise to a system that is capable of growing if we challenge our assumptions about what's possible and are willing to change what is no longer relevant. Participants had similar conclusions. Roy Leitch called for "more change at a faster rate." Ed Walker was "convinced that we're at a turning point in the way education is delivered." Perhaps Darcy Hardy best summed up the thinking of the group: "If you put your mind to something, you can do it."

Diana Oblinger and Wendy Rickard
April 2004

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Higher Education Leaders Symposium: Unlimited Learning: Preparation For A Life Of Change And Challenge
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