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## A President's Perspective on EDUCAUSE's "Grand Challenges"

**T**his past year, EDUCAUSE President Brian Hawkins identified three "grand challenges" facing higher education: *access*, *affordability*, and *accountability*. I'd like to share my perspective, as a university president, on two of these challenges, as well as a third: *assessment*. I'd also like to suggest how technology can help to address these grand challenges.

### Access

Let us first look at access to higher education, which for students means getting into a college or university. It also should mean having strong support after enrollment, so that students can acquire the skills they need to be successful and graduate. High school graduates have incomes 37 percent less, on average, than college/university graduates.<sup>1</sup> Over a lifetime, this difference amounts to more than one million dollars.<sup>2</sup>

In his book *The World Is Flat*, Thomas Friedman highlights the importance of the knowledge economy, noting that the United States is now competing locally and globally for the best minds. As a result, it is critical for U.S. higher education to promote success, not simply access. Nationally, out of every 100 students in ninth grade today, only 67 will graduate from high school in four years; only 26 will still be in college after their sophomore year; and only 18 will graduate with an associate's degree in three years or a bachelor's degree in six years. Statistics for low-income students and minority students are even more discouraging. In addition, one in three college freshmen needs remedial courses in math, reading, or writing. Only half of all minority

students are ready for college/university work, as are only two-thirds of whites.<sup>3</sup> Currently in the United States, just over half of those enrolled in degree-level programs complete the degree; by contrast, at least 80 percent of those enrolled receive degrees in Ireland, Japan, and Korea.<sup>4</sup>

Why is the United States lagging? It is more open than other countries, admitting a larger percentage of students. For example, Japanese students are not admitted to a college or university unless they pass an entrance exam, an issue the Spellings Commission highlighted in connection with U.S. national competitiveness. We need better alignment between K-12 and college/university curricula, better information for students to use in making choices, and more focus on programs serving adult learners.

One concern I share with EDUCAUSE is students' low interest in science, technology, engineering, and math (STEM), especially among women and minorities. Both groups are disproportionately underrepresented among STEM majors at all levels, but especially at the PhD level. At UMBC, two programs that address this issue are the Meyerhoff Scholars Program for high-achieving STEM students, established in 1988, and the Center for Women in Information Technology (CWIT) Scholars Program, established in 2001. The key to both programs is identifying talented young people from underrepresented groups and helping them succeed in professional STEM careers.

### What Role Can IT Play in Access?

IT can support improved access in three ways. First is e-learning. Just-in-time online-learning modules will ultimately

become important components in eliminating gaps in students' skills. Second is analytics. IT has revolutionized the buying experience through personalization: Amazon.com can correctly suggest books that a buyer might be interested in. Shouldn't colleges and universities be able to use data-analysis techniques to identify students who might be at risk and to develop personalized academic programs to address their needs? Finally, IT can help improve access to education through role models. IT campus staff can serve as excellent role models for students and should be encouraged to mentor students interested in IT. At a minimum, campus staff should highlight IT career opportunities and the fact that IT professionals earn (on average) more than most other professional workers while having an opportunity to be creative and innovative in their work.

### Assessment

Assessment is critical to ensuring that access leads to success, yet higher education has been slow to embrace assessment. Why? Because performing assessment is difficult, especially when trying to measure such skills as problem-solving and critical-thinking ability. Also, many people believe that K-12 assessment requirements, such as those related to the No Child Left Behind (NCLB) Act of 2001, have been at best ineffective and at worse counterproductive by focusing on "teaching to the test."

I believe we need to look at assessment holistically and work with our partners so that it is not associated with failed teaching, as has been the case too often in K-12. First, assessment should focus on how

each student learns best. People differ in how they learn, yet many colleges and universities offer only one class style: the traditional lecture, supplemented by textbooks. In addition, many faculty do not learn in the same ways as their students. Knowing this, faculty will have more insight about how best to reach students.

Second, student portfolios can allow students to demonstrate what they have learned inside and outside the classroom. Similar to the senior thesis requirement popular in the liberal arts, portfolios require students to show that they can apply critical thinking skills to major projects. Initially, the use of portfolios might be limited to a few disciplines; over time, it could be expanded as departments define expected learning outcomes.

Finally, students today have grown up with the Web and with instant access to information. They are accustomed to using information in a variety of digital forms, and they tend to multitask. If the goal is to encourage these students to be active learners, colleges and universities must create more engaging approaches to learning. One example at UMBC is our introductory “discovery learning” chemistry courses. We have completely redesigned the recitation section to place students in small groups where they use active learning techniques to solve problems. Initial results have shown substantially higher pass rates and higher grades.

### What Role Can IT Play In Assessment?

For IT to support assessment, there must first be a high degree of integration between e-learning and faculty development. Most faculty teach the way they were taught, and most weren’t taught using IT. Faculty need to learn new ways to learn with IT so that they can teach their students to do the same. Second, through the use of course management systems, IT staff should partner with student development offices to look at ways to assess learning styles during orientation. Then campus staff will be able to explain to students what these differences mean so that students will recognize when they may need to seek help in different courses. IT staff should also work with faculty on building and

sharing course materials to the extent the faculty are willing. Academic leaders on campus should encourage faculty members to share course content, a task that the course management system makes easier. Finally, through the use of electronic learning technologies, IT staff should work with faculty members to help build in application programming “hooks” for alternative approaches to learning course material. Simulation exercises, virtual experiments, sample quizzes, and other techniques can be used to augment traditional lectures. In fact, according to a recent study by the EDUCAUSE Center for Advanced Research (ECAR), checking grades and being able to self-assess new skills (through practice quizzes) are among the top benefits students cite in using a course management system.<sup>5</sup>

### Accountability

Accountability consists of two fundamental issues: (1) overall student success, measured by the quality of graduates and the percentage of students who graduate; and (2) how well institutions improve their organizational capacity and effectiveness to produce overall student success. In addition, accountability is very much tied to access and assessment and provides a method for gauging the success of initiatives in these areas.

Colleges and universities strive to produce graduates with solid critical-thinking skills and well-developed, discipline-specific skills that will help them succeed in the workplace and/or postgraduate study. Graduation alone is not a measure of success; institutions also need feedback from alumni, employers, and schools.

Regarding institutional capacity, efficiency, and effectiveness, we can do better. Because higher education is so highly labor-intensive, our costs have risen faster than the consumer price index and median family income. State support as a percentage of most states’ higher education budgets is decreasing as funding for colleges and universities is increasingly being squeezed by costs associated with health care and K–12 education. As a result, tuition has steadily risen over the past decade, hampering both affordability and access.

### What Role Can IT Play in Accountability?

In terms of growth, most institutions are limited by classroom space and faculty size. Thus, IT staff first need to look for ways that the institution can be more efficient. One model, used at the University of Central Florida, is to revamp how courses are scheduled and, using asynchronous tools or virtual class sessions, to give more classes seat time. Second, institutions need to utilize technology fully in order to improve business processes. Corporations are relentless in squeezing the transaction costs of doing business. Higher education has been much less aggressive in using technology. “Good enough” simply will not be “good enough” if institutions want to be serious about controlling costs. Finally, IT staff should look at ways to improve efficiency in all systems used heavily by faculty. If faculty are going to be asked to focus more time on teaching effectiveness, as many of their administrative tasks as possible need to be eliminated through automation.

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Ultimately, IT should help to solve problems or create new opportunities. The “grand challenges” of higher education need IT—never more so than today.

### Notes

1. U.S. Department of Education, *A Test of Leadership: Charting the Future of U.S. Higher Education*, a Report of the Commission Appointed by Secretary of Education Margaret Spellings (Washington, D.C., 2006), final report, September 2006, <<http://www.ed.gov/about/bdscomm/list/hiedfuture/reports/final-report.pdf>>, p. 1.
2. Anthony P. Carnevale, “Discounting Education’s Value,” *Chronicle of Higher Education*, September 22, 2006.
3. Richard Kazis, Joel Vargas, and Nancy Hoffman, eds., *Double the Numbers: Increasing Postsecondary Credentials for Underrepresented Youth* (Cambridge: Harvard Education Press, 2004).
4. Organisation for Economic Co-operation and Development (OECD), *Education at a Glance 2006*, “Executive Summary,” <<http://www.oecd.org/dataoecd/44/35/37376068.pdf>>, p. 3.
5. Robert B. Kvavik and Judith B. Caruso, “ECAR Study of Students and Information Technology, 2005: Convenience, Connection, Control, and Learning,” *EDUCAUSE Center for Applied Research (ECAR) Research Study*, vol. 6 (2005), <<http://www.educause.edu/ir/library/pdf/ers0506/rs/ERS0506w.pdf>>.

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