The Questions We Need to Ask *First*: Setting Priorities for Higher Education in Our Technology-Rich World

Debra Humphreys

NEW TECHNOLOGIES—and particularly new information technologies—are dramatically changing higher education institutions and practices. Advances in technology, of course, are also changing many sectors of society other than education, including the news media, culture, music, marketing, philanthropy, community organizing, and politics. All these varied enterprises are roiled by new ways of sharing information and producing cultural products, new ways of organizing workplaces and work functions, and pressures on older business models. Many articles in this book address the myriad ways that technology is changing our enterprise. As those changes proceed, on another track, political leaders are crafting new policies that are setting the stage for a revolution in how colleges are financed and how they are held accountable for meeting increased expectations with fewer resources. College presidents face daunting challenges as they lead their institutions through this volatile period. Below, I suggest a set of "prior" questions that both educational and policy leaders should ask before setting their priorities—including those related to technology.

In a recent guest blog post in the *Washington Post*, L. Randolph Lowry, president of Lipscomb University, made several useful suggestions about how college presidents should be meeting new challenges they are likely to meet in 2012. Among the ten challenges he discussed, he noted that "Technology rules. Changes in technology *define* how we deliver an education. It *defines* what we do, and it *defines* our students even down to how they think and process learning [emphasis mine]."[1] On this particular point, I think Lowry is mistaken. While new technology developments are certainly *changing* how educational institutions operate, technology alone does not—or should not—"define" what we do. Technology is, indeed, having an impact on two things at least. It is changing how students think about learning and their educational

---

pathways. It is also, of course, changing how educators do their work. However, leaders and educators on the ground are the ones steering how their institutions invest in and use technology. They are managing the changes being wrought. And priorities and wise decision making are crucial. It isn't technology that "defines" institutional direction. *People* define how technology is deployed, not the technologies that people invent.

The larger aims of education and the practices we use to achieve those aims must be the drivers of our priority setting, not the availability of new technologies in and of itself. Comments from several student speakers at a recent Association of American Colleges and Universities (AAC&U) conference drive this point home. Remarking on what they truly valued in their educational experiences—what was really helping them achieve important learning outcomes—students expressed frustration with *too much* focus on technology usage and new online platforms in their classes. One student noted that, "So far, I haven't found that any one of the technologies added to my humanities seminars has added any value." Another student, commenting on some assignments related to fractals, noted that "I found that when I used the computer and the technology available to me, I didn't *think* any more."[2] Educational leaders and good instructors, of course, know that using new technologies doesn't necessarily improve learning and that *educational* goals rather than just the *availability* of new technological innovations should drive their setting of priorities. But it is helpful to be reminded by students themselves that they, too, understand that, while they may be "digital natives," new technologies are just tools—means rather than ends to educational goals.

Keeping this in mind and especially during times of rapid change, then, it is imperative for leaders to be very clear about their first principles. And, in the educational sector, those principles must, first and foremost, address the quality and learning outcomes of our educational programs. Whatever the profound changes are that we and our students are facing, at a basic level, the larger aims of education are pretty enduring. As college educators, we aim to equip our students with the capacity to function successfully as responsible citizens and productive members of the workforce throughout their lifetimes. Especially in times as troubling as our own, we must also, through our educational choices and practices, enable, equip, and inspire graduates to be agents of change rather than victims of change. We must use technology to educate students who can *create* the next generation of technical tools through which future generations will build new workplaces and institutions of their own.

The Association of American Colleges and Universities published a report in 2007, *College Learning for the New Global Century*,[3] that sketched out a new vision for learning in this rapidly changing twenty-first century. Authored

by a national leadership council composed of leaders in business, education, policy, and community action, this report, published as part of AAC&U's Liberal Education and America's Promise (LEAP) initiative, noted that, "In the twenty-first century, the world itself is setting very high expectations for knowledge and skill. This report . . . describes the learning contemporary students need from college, and what it will take to help them achieve it."[4] It further noted the following:

- In an era when knowledge is the key to the future, all students need the scope and depth of learning that will enable them to understand and navigate the dramatic forces—physical, cultural, economic, technological—that directly affect the quality, character, and perils of the world in which they live.
- In an economy where every industry . . . is challenged to innovate or be displaced, all students need the kind of intellectual skills and capacities that enable them to get things done in the world, at a high level of effectiveness.
- In a world of daunting complexity, all students need practice in integrating and applying their learning to challenging questions and real-world problems.
- In a period of relentless change, all students need the kind of education that leads them to ask not just "How do we get this done?" but also "What is most worth doing?"[5]

Technology is, of course, implicated in how we will enable all our students to reach these new levels of achievement and meet all these challenges. And clearly, information technology can help educators develop these capacities in students. But technological innovations alone are not the answer to meeting these raised expectations for learning.

The LEAP report also included a set of learning outcomes that had been developed and deemed essential by leaders and practitioners across a wide array of sectors of the economy, levels of education, and regions of the country (see Figure 1).

These outcomes include many that are shaped by the current technology-rich world of work. They also, however, include several traditional outcomes on which employers say that colleges should be placing more emphasis. Employers, for instance, want more emphasis on oral and written communication, analytic reasoning, quantitative literacy, knowledge of science and society, global knowledge and acumen, intercultural skills, team problem solving, and ethical reasoning and decision making.[6] Some of these outcomes are tried-and-true elements of a quality education and have been for years, but even in

Figure 1. **Essential Learning Outcomes**

The Essential Learning Outcomes

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Beginning in school, and continuing at successively higher levels across their college studies, students should prepare for twenty-first-century challenges by gaining:

✶ Knowledge of Human Cultures and the Physical and Natural World

- Through study in the sciences and mathematics, social sciences, humanities, histories, languages, and the arts

Focused by engagement with big questions, both contemporary and enduring

✶ Intellectual and Practical Skills, including

- Inquiry and analysis
- Critical and creative thinking
- Written and oral communication
- Quantitative literacy
- Information literacy
- Teamwork and problem solving

Practiced extensively, across the curriculum, in the context of progressively more challenging problems, projects, and standards for performance

✶ Personal and Social Responsibility, including

- Civic knowledge and engagement—local and global
- Intercultural knowledge and competence
- Ethical reasoning and action
- Foundations and skills for lifelong learning

Anchored through active involvement with diverse communities and real-world challenges

✶ Integrative and Applied Learning, including

- Synthesis and advanced accomplishment across general and specialized studies

Demonstrated through the application of knowledge, skills, and responsibilities to new settings and complex problems

Note: This listing was developed through a multiyear dialogue with hundreds of colleges and universities about needed goals for student learning; analysis of a long series of recommendations and reports from the business community; and analysis of the accreditation requirements for engineering, business, nursing, and teacher education. The findings are documented in previous publications of the Association of American Colleges and Universities: *Greater Expectations: A New Vision for Learning as a Nation Goes to College* (2002), *Taking Responsibility for the Quality of the Baccalaureate Degree* (2004), and *College Learning for the New Global Century* (2007). For further information, see www.aacu.org/leap.

LEAP

these areas, employers want graduates with *much higher* levels of these skills than even the best students attained in years past.

These learning outcomes—and the larger challenges of navigating our complex world—should guide how we lead our educational institutions, how we develop new public policies to support educational institutions in advancing these outcomes, and how we enact new educational practices on the ground. Many of those practices can and should be steeped in new technologies and can and should make use of information technology. But all of our educational practices and policies must be guided by the need to develop these broad outcomes of a more practical and engaged liberal education for our students. It is only this kind of education that will, indeed, prepare them to be effective change agents and navigators of our technology-rich and knowledge-intensive world.

If we listen carefully, in particular, to what employers tell us about the college graduates they are hiring and those they are seeking, we can learn a great deal about priorities for the uses of technology as we reshape our curricular practices and programs. A recent national survey found that 90 percent of employers say that their employees are now expected to "work harder to coordinate with other departments than in the past." Eighty-eight percent note that the challenges employees face within their companies "are more complex today than they were in the past."[7] As we develop new ways to deploy information technology in education, we must ensure that we are not only finding new ways of delivering content more efficiently, but we must seek ways to use technology to enable students to work together effectively in teams, communicate their ideas clearly both online *and* in face-to-face settings, and solve complex problems that may require cross-disciplinary collaboration.

Others in this volume detail some ways technology is changing the higher education enterprise. I want to suggest that it is in these areas of improving learning outcomes that *more* of our technology energies should be focused. Unfortunately, the current national policy dialogue in higher education—and specifically the dialogue about the role of technology in our sector—is not focused on these *educational* challenges. Much positive educational reform work is happening on the ground, but the larger policy conversation has been distorted by the economic downturn and by myopic thinking on the part of some policy makers and educators. Too much discussion about technology and education is filtered exclusively through the lenses of productivity and efficiency. The questions driving this debate often have little or nothing to do with student *learning*. Instead, they are questions about how many more students our current systems can graduate with the same or fewer financial resources. Instead of charting a new course for higher education institutions—including

how they are financed—by addressing the larger question of how technological and other societal shifts are changing what *quality* education means, too many are simply focused on whether technology can produce greater efficiency. For example, the National Governors Association (NGA) project Complete to Compete is a multifaceted national initiative focused primarily on "increasing productivity in higher education . . . [by] building strong accountability systems that move away from the ones primarily in use today, which tend to emphasize inputs over outcomes and the collection and reporting of data as opposed to using the information in decision-making."[8] This initiative responds, in part, to President Obama's call for "America [to] once again have the highest proportion of college graduates in the world."[9] As Washington governor Christine Gregoire put it in a letter introducing an NGA report issued in July of 2011, "The road to economic growth and competitiveness runs through our community and technical colleges and our four-year colleges and universities. We need more of our people to have education beyond high school—certificates and degrees—to meet the needs of our economy, now and in the future."[10] All the various initiatives focused on increasing college-degree attainment and completion levels, then, are rightly responding to the changing knowledge economy that, indeed, is demanding more *numbers* of college-educated workers. However, research commissioned by AAC&U has also shown that this new economy is demanding more *skills and knowledge* as well as just more college-educated people.[11] Complete to Compete and other partner efforts such as Complete College America, however, are focused on "efficiency and effectiveness metrics" and on "using metrics to make and evaluate policy decisions."[12] Unfortunately, the metrics on which they focus don't address what students are learning, but instead address only their general progress in accumulating credits efficiently. The NGA Center for Best Practices urges governors to collect data on questions such as, "How many students at public institutions are graduating relative to total enrollment?" and "What is the return on states' and students' investment in public institutions in terms of completed certificates and degrees?"[13] The policy recommendations the NGA offers to states also focus on changing "financing structures to incentivize improved performance," with performance measured by graduation rates and time to degree alone. In one of the early reports from Complete to Compete, NGA staff members suggest that states focus particularly on serving adult students. They offer four goals related to this effort: "Provide flexible and integrated learning environments, offer comprehensive support services, use cross-institutional data to track performance, and create financing structures to incentivize improved performance."[14] While each of these goals is worthy in and of itself, none addresses the larger issue of how we ensure that all students, including returning

adult students, attain the most important learning outcomes—outcomes that will really enable them to compete in a rapidly changing knowledge economy. Information technologies can and should play a role in meeting all these goals, but too little focus is currently being directed toward the *learning* goals and too much is focused on the efficiency goals. For example, in its focus on adult students, the NGA sees a lack of "flexible learning environments" for these students. It notes the role of technology in solving this problem, focusing exclusively on issues of course scheduling and *availability* of asynchronous or online learning opportunities to "enable students to complete classes on their own schedules."[15] While these goals are certainly worthy ones, they miss entirely attention to *how* those online learning environments can and should be designed to advance important learning outcomes. I have written elsewhere that "It should be a national priority to pursue productive approaches that help different groups of students stay in college and graduate on time, but that isn't all we should do. We also must attend simultaneously to the serious quality of learning shortfall that threatens to get even worse if we maintain an exclusive focus on completion and efficiency."[16] There are ways that the NGA and other policy leaders could help advance more-productive and "quality-driven" policy and data-collection changes. For instance, state-level agencies could require colleges and universities to clarify the broad learning outcomes required for the awarding of degrees. They could also collect data not just on credits accumulated, but on how many and which students in an institution or system are participating in high-impact educational practices (e.g., first-year seminars, learning communities, service learning, or undergraduate research programs) delivered in either online or face-to-face settings.

Information technology may indeed produce efficiencies within our sector as it has in other sectors. But if it does so at the expense of our ability to truly prepare students with the capacities they need in our complex world, we will have failed them and our larger mission. Ironically, we also will have squandered the true promise of technology—which is to significantly *improve* educational outcomes; increase the opportunities students have to interact with each other, with scholars around the world, and with faculty; and help a diverse array of students learn in new and more effective ways.

How then can we avoid thinking too narrowly about technology and the ways in which higher education can and must change in our time? To answer this question, we might turn to an unlikely source in another sector. We can extract a valuable lesson by looking to the news media and, in particular, to one influential institution at the center of that sector, the *New York Times*. Like every print news organization in the country, the *Times* has been forced into wrenching changes as it has weathered the recent economic downturn

and broader trends in the ways in which people access information and "consume" news. Seth Mnookin described it this way in a recent article in *New York Magazine*. "The paper's financial troubles . . . appeared to have pushed it to the brink of extinction. For well over a decade, the Internet had been relentlessly consuming the paper's business model. . . . In the months after the collapse of the credit market in the fall of 2008, the company was forced to take drastic measures to stay afloat."[17] Mnookin proceeds from this gloomy beginning to tell a story of how the *Times* took drastic measures but ultimately came out in a very strong position by staying true to the company's core principles, doubling down on its reputation for quality while also investing in both information technology and in the fundamentals of good national and international reporting. American higher education institutions could learn something from this company's recent decisions. We can, as a sector or as institutions within the sector, take a strong stand on the quality of education as our touchstone—and all decisions related to technology or anything else will be measured by how much the quality of learning can be improved. As Mnookin notes about the *New York Times*, "*The Times* has taken a do-or-die stand for hard-core, boots-on-the-ground journalism, for earnest civic purpose, for the primacy of content creators over aggregators, and has brought itself back from the precipice."[18] College and university leaders can also take a do-or-die stand for the primacy of high-quality faculty-student interactions, for the commitment to broad learning outcomes for both work and responsible civic engagement, and for the development of high-quality learning experiences that produce in all students sophisticated and lasting competencies. The *New York Times* has poured money into its website, but not in a quest to somehow reduce the costs of creating its "product." Instead, it has used technology to *improve* the quality of the product it provides—it has built on the foundation of its news-gathering operation but added online features to enhance the information it provides to its readers. We should do the same—keeping in mind that "quality" means something different today than it did years ago. Attending to quality isn't just about ensuring that we don't lose ground from the status quo. It means actually increasing the levels of student achievement on a host of important learning outcomes.

How would an analogous strategy work in higher education? Again, it is instructive to turn to the employers of our graduates for perspective. Employers are calling for more focus on requiring students to take courses in wide areas of knowledge and skill, but also on educational practices that require students to do research projects and to apply what they are learning in real-world settings. How can we use the Internet to help students conduct research? How can we use technology to free up faculty to spend more time helping students

do applied-learning projects in their communities or in high-tech laboratories rather than just delivering lectures in person or online to passive students? Eighty-four percent of employers believe that requiring students to complete a significant project before graduation that demonstrates their depth of knowledge in their major and their acquisition of analytical, problem-solving, and communication skills would help prepare them for success in the global economy. Eighty-one percent of employers believe that requiring students to complete an internship or community-based field project to connect classroom learning with real-world experiences would also help better prepare students.[19] How can technology help us do this better and for more students?

There are myriad examples of individual institutions and faculty members advancing complex learning goals such as these through new uses of technology. I share only a few here as an illustration of the kinds of technological innovations that deserve more attention from the media, policy makers, and educators. We know that survey after survey suggests that employers want new college graduates to be skilled in working collaboratively in technology-rich environments. Queensborough Community College in New York has developed an interdisciplinary group Wiki project designed specifically to meet six educational objectives, including such things as improving students' abilities to "collaborate across disciplines and departments," "communicate effectively," "use analytic reasoning to identify issues or problems," and "use information-management and technology skills effectively for academic research and lifelong learning," among others. The project partners English, basic educational skills courses, and additional content courses in education, nursing, social sciences, and speech/theater. Students in these linked courses use a shared online work space through which they archive and share their written, visual, and aural compositions with each other. Through this virtual learning community, students share their work, gain feedback on it from their peers as well as from their instructors, and reflect on their achievements.[20] Another example of technological innovation put to use in the service of advancing specific learning outcomes comes from the Center for Global Geography Education (CGGE). Since 2003, CGGE has built a collection of online modules for undergraduate courses in geography and related social and environmental sciences. The modules don't replace faculty members or existing campus-based online or face-to-face classes, but provide to faculty teaching geography courses around the world online materials, case studies, and access to collaborative projects that their students can do with students in different countries. Using a Moodle e-technology platform, students from a wide array of countries work on collaborative projects on such issues as migration, global climate change, water resources, global economic change, and national identity.[21]

Thousands of such examples of advancing twenty-first-century learning outcomes through new uses of information technology exist—and investing in the development and spread of these kinds of educational innovations is one way we in higher education can, like the *New York Times*, "double down" on quality. I conclude with just one final example of a technological innovation that shows great promise in this area and that might also help in increasing retention and completion rates as well. Many colleges and universities across all sectors have increased their investments in electronic portfolio tools and services.[22] Educators from a variety of institutions and from many disciplines are using these particular tools to deepen learning and facilitate knowledge and skill transfer and to foster students' abilities to make connections between their learning experiences in an assortment of classroom, workplace, and community settings. As e-portfolio experts Helen L. Chen and Tracy Penny Light put it,

> E-portfolios offer a framework within which students can personalize their learning experiences (student ownership of the e-portfolio and its contents leads to greater responsibility for learning); develop multimedia capabilities to support student-created media; and create representations of their learning experiences for different audiences. Moreover, unlike other assessment tools, e-portfolios enable students to represent their own learning as well as their interpretations of what Kathleen Yancey calls the multiple curricula within higher education: the *delivered* curriculum, which is defined by the faculty and described in the syllabus; the *experienced* curriculum, which is represented by what is actually practiced by the student in the classroom; and the *lived* curriculum, which is based on the individual student's cumulative learning to date. At least potentially, e-portfolios provide insight into the curriculum as students have both *lived* and *experienced* it.[23]

Other unpublished research also suggests that this technological innovation—and the exploitation of it for intentional educational purposes—may also produce better results in terms of student retention and graduation rates.[24] We can see, then, that this kind of technological innovation can be developed in ways wholly consistent with the larger aims of education, but also in ways that may advance a more cost-efficient educational institution. First and foremost, however, this tool is being developed to improve the quality of students' learning. As Ross Miller and Wende Morgaine put it, "E-portfolios provide a rich resource for both students and faculty to learn about achievement of important outcomes over time, make connections among disparate parts of the

curriculum, gain insights leading to improvement, and develop identities as learners or as facilitators of learning."[25] Given how important it is in today's economy for graduates to have the capacity to continue learning over time, especially in technology-rich environments, investing in this kind of technological innovation is exactly the kind of "bet on quality" we should make.

It is important for our nation to invest in productive and affordable ways to increase the numbers of people who obtain college degrees. But the economy also needs those graduates to be more capable and better educated in many ways. We must ensure that every college graduate is informed and committed to using technology and other tools to build an economy and civil society that is more equitable and just and that includes more effective democratic decision making. Both these goals—increasing the number of college graduates and the number of responsible and engaged citizens—depend on how we deploy technology not only to deliver information more efficiently, but also to help define and assess educational *outcomes* and craft and implement *practices* that build student and societal capacity for constructive change.

Notes

1. L. Randolph Lowry, "Guest Post: 10 Challenges for College Presidents in 2011–12," on Daniel de Vise, *College Inc.* (blog), *Washington Post*, September 9, 2011.
2. Association of American Colleges and Universities (AAC&U), "Giving Voice to the Future: Students Take the Mic," podcast of student panel at AAC&U meeting held November 5, 2011, accessed December 2, 2011, http://www.aacu.org/podcast/feed/159/nov5_studentpanel.mp3.
3. Association of American Colleges and Universities, *College Learning for the New Global Century* (Washington, DC: Association of American Colleges and Universities, 2007): 1.
4. Ibid., 1.
5. Ibid., 13.
6. Hart Research Associates, *Raising the Bar: Employers' Views on College Learning in the Wake of the Economic Downturn* (Washington, DC: Association of American Colleges and Universities, 2010).
7. Ibid., 5.
8. T. Reindl and Ryan Reyna, *From Information to Action: Revamping Higher Education Accountability Systems* (Washington, DC: National Governors Association Center for Best Practices, July 2011): 3.
9. B. H. Obama, "Remarks of President Barack Obama—As Prepared for Delivery; Address to Joint Session of Congress," February 24, 2009, http://www.whitehouse.gov/the_press_office/Remarks-of-President-Barack-Obama-Address-to-Joint-Session-of-Congress.

10. Reindl and Reyna, *From Information to Action*.
11. Hart Research Associates, *Raising the Bar*.
12. Reindl and Reyna, *From Information to Action,* 1.
13. Ibid., 3.
14. L. Hoffman and T. Reindl, *Improving Postsecondary Attainment among Adults* (Washington, DC: National Governors Association Center for Best Practices, February 2011): 5.
15. Ibid., 9.
16. D. Humphreys, "What's Wrong with the Completion Agenda—And What We Can Do About It," *Liberal Education* 98, no. 1 (Washington, DC: Association of American Colleges and Universities, forthcoming).
17. S. Mnookin, "The Kingdom and the Paywall," *New York Magazine*, July 24, 2011, 1.
18. Ibid., 2.
19. Hart Research Associates, *Raising the Bar*.
20. Jean Darcy and Michele Cuomo, "Queensborough's Student Wiki Interdisciplinary Group," http://leap.aacu.org/toolkit/high-impact-practices/2011/queensboroughs-student-wiki-interdisciplinary-group.
21. AAG Center for Global Geography Education, "Internationalizing the Teaching and Learning of Geography" (2010), http://globalgeography.aag.org.
22. K. Green, *Campus Computing 2008: The 19th National Survey of Computing and Information Technology in American Higher Education* (Encino, CA: Campus Computing Project, 2008); D. Schaffhauser, "Here, There, and Everywhere," *Campus Technology* (2009), http://campustechnology.com/Articles/2009/11/01/ePortfolios.aspx?p=1.
23. H. L. Chen and T. P. Light, *Electronic Portfolios and Student Success: Effectiveness, Efficiency, and Learning* (Washington, DC: Association of American Colleges and Universities, 2010): 3.
24. Bret Eynon, "Making Connections: High Impact Practices & the Integrative ePortfolio" (PowerPoint presentation slides), accessed December 6, 2011, http://www.aacu.org/meetings/institute_gened/documents/EynonePandIntegrativeLearningAACU2011.06.15.pdf.
25. R. Miller and W. Morgaine, "The Benefits of E-portfolios for Students and Faculty in Their Own Words," *Peer Review* 11, no. 1 (Washington, DC: Association of American Colleges and Universities, 2009): 8–12.

Debra Humphreys, *Vice President for Communications and Public Affairs at the Association of American Colleges and Universities, oversees public affairs programs and outreach and regularly serves as AAC&U's official spokesperson. She leads national advocacy efforts related to student success and the quality of student learning through AAC&U's signature initiatives, Liberal Education and America's Promise and The Quality Collaboratives.*