Connecting the Dots to the Future of Technology in Higher Education

If the rate of change inside an institution is less than the rate of change outside, the end is in sight.

—Jack Welch (while CEO of General Electric)

If Welch’s statement holds true, what does that portend for higher education? Are higher education institutions maintaining currency with the rate of change outside their “four walls,” particularly in the area of technology?

This column is not intended to align with Peter Thiel’s hypothesis that the higher education “bubble” is about to burst, although his is a point worth examining. Higher education as it is structured today is not going anywhere. The institution is far too ingrained in the culture, economy, government, and status quo. Any attempt to forecast the future of higher education must be painted with broad strokes. Certainly there are pockets of innovation and emerging technologies within colleges and universities and among their faculty. This column is about connecting the dots—these pockets of innovation—to reveal the picture of the future of technology in higher education.

Much of this future has less to do with technologies and more to do with the leadership guiding the strategic use of technologies. For those tasked with envisioning the future of technology in higher education, where is the dividing line between managing current technologies and establishing a strategic plan to embrace the unpredictable and accelerated pace of evolving technologies? A few campuses have begun to incorporate technology innovation into institutional strategic plans, and more have added positions that reflect a commitment to emerging technologies and establishing a strategic plan to connect this dot is not at all straight.

“Faster, faster until the thrill of speed overcomes the fear of death.” Although Hunter Thompson’s notion may be a tad extreme, particularly given the glacial pace with which higher education tends to adopt change, the spirit of his statement should be considered seriously. Speed to decision and agility of action appear to be required characteristics for the individuals and the organizations responsible for leveraging technologies. What is the time-to-market for many technology start-ups? Is the time-to-adoption on campuses equal to that? Are organizational structures developed for agility? Are the correct skills-in-seats? Is today’s academy truly built for speed? Concepts that address agility and adaptability must be clearly stated in the mission and vision of the organizations responsible for administering technologies in all their forms and functions. Defining a plan to maintain acceleration equal to external change is another point of connection to the future.

There was a time when technologies were introduced by a finite number of manufacturers. The source and pace of development was predictable. But change is no longer predictable. It is ubiquitous and uncertain. Ambiguity has become a business partner and office buddy. Factors external to the academy will be driving strategic planning and the construct of technology organizations. Reacting to market conditions will be replaced by proactively planning for the unknown. Connecting this dot is akin to connecting to a moving yet invisible target.

Administration of technology on campuses is becoming bifurcated. Hardware is a commodity. Networks are being subsumed by the grid. Systems are being relegated to “the cloud.” The browser rules but is soon to be overtaken by apps. Applications and platforms are developed in classrooms, residences, and start-up firms run by teenagers. Computers are in the pockets of incoming freshmen. The vagaries of social media platforms, both for academic purposes advanced by faculty and for casual social use by students, are upon the academy. Technology leadership must transition to managing access rather than managing assets. The line to connect this dot is not at all straight.

Students today, in the post-PC era, arrive on campus with learning modalities distinctly different from those of previous students. To that point, technology leadership must become fully engaged to ensure that teaching and learning have priority consideration. If the teaching and learning dot is overlooked, the final picture will not be revealed.

One final influencing factor that will have the most profound and longest-lasting impact on the future of technology in higher education is the hiring practices of college and university chancellors/presidents/provosts and human resources departments. These practices must include a careful evaluation of what value technology has for the institution and must establish a clearly defined vision to ensure that the most appropriate leaders are charged with enabling that vision. The hiring practices must avoid the standard “check the box” requirements of the past. The academy must look to characteristics of leadership, attitude versus aptitude, and not to who has the most certifications, years
of experience, and discipline-specific academic degrees. As for specific technologies that will shape the future of higher education, the view inside the crystal ball is a bit foggy. One thing is certain: those technologies that will require the greatest agility and speed of adoption are yet to be developed. In addition, any discussion of technology triggers must take into account the vagaries of the adoption curve. Nearly six years ago, I was quoted in the Chronicle of Higher Education as stating: “From an academic point of view, the mobile phone will be the next killer device.” How has higher education addressed mobile devices since then? Recently, EDUCAUSE devoted entire issues of EDUCAUSE Review and EQ and a week of online interaction to this “killer device” and mobile computing.5

The emerging and evolving technologies that may have the greatest likelihood to intersect with higher education and to support teaching and learning include the following: curation, second screen learning, near field communication (NFC), spatial operating environments, learner developed apps, and augmented reality. Leveraging value from the evolution of these and other technologies will require inquisitiveness, innovation, creativity, risk, and an army of fearless early adopters. These dots are larger and easier to connect:

- **Curation**, though not entirely new, will require solutions not yet available to facilitate learners in curating collections relevant to their formal studies across all disciplines. This is an activity far different from portfolio management.
- **Second screen learning** refers to students using their post-PC devices to augment institutionally supplied PCs.6
- **Near field communication (NFC)** has the possibility to replace or supplement one-card systems and assist with attendance tracking, marketing efforts, ticket sales, and gallery exhibits.7
- **Spatial operating environments** are suited for any learning space that requires physical manipulation, physics, engineering, art, allied health.8
- **Learner developed apps** is another example of the flipping of the classroom. At Penn State, students rewrote the LMS to address the students’ requirements (http://www.coursekit.com/).

**Augmented reality** holds potential for teaching and learning activities similar to spatial operating environments, with the unique feature that the experience is personalized and individualized.

Connecting the dots of technology reveals an ever-changing picture of higher education. The future of technology in higher education will come from organic growth. Universal or enterprise adoption precludes the ability to effectively leverage change and adapt quickly. Individuals acting in maverick roles and small groups working collaboratively within an ecosystem of administrative championing, academic freedom, and individual curiosity—driven by pedagogy and a student-centric attitude—will nurture change, allowing technology to flourish and ultimately to support quantifiable academic and business outcomes.

“Our intelligence tends to produce technological and social change at a rate faster than our institutions and emotions can cope with . . . We therefore find ourselves continually trying to accommodate new realities within inappropriate existing institutions, and trying to think about those new realities in traditional but sometimes dangerously irrelevant terms.”9 It should be the daily goal of every person who has chosen to participate in the leadership of higher education to take every action possible to connect these dots, thus ensuring that the future academy will not become “dangerously irrelevant.”

**Notes**


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