The Human-Technology Intersection: A Framework

The enthusiasm of the ed tech and DIY sectors sometimes lapses into a kind of insurgent rhetoric. In this narrative, all traditional colleges and universities are dinosaurs, and the meteor that will spell their doom is about to hit. A key part of this “disruptive innovation” argument is the broad displacement of faculty and staff by technology.

In truth, higher education, like health care, is a highly regulated industry that remains slow to change. There is no precipice. But there are certainly tough times ahead. Even if technology will not soon replace people, it seems poised to dramatically redefine roles and to change the nature of faculty/staff work.

The forces that shape the broader labor market shape higher education as well. The U.S. economy continues to emerge from the depths of the Great Recession, which technically ended in June 2009.1 We have seen the stock market hit record highs, companies amass mountains of cash, and college/university endowments bounce back. However, even recognizing that job growth lags in any recovery, we can’t ignore that the return of good-paying jobs has been excruciatingly slow. According to the Pew Research Center, jobs have increased 5.7% during this recovery, whereas prior recessions were followed by much more robust job growth (17.3% in the “Go-Go” 1960s; 16.4% in the “Reagan Recovery” of the 1980s; and 9.6% in the 1990s “Tech Boom” recovery). 2

Still, many companies are hitting new levels of productivity with far fewer employees. As the MIT researchers Erik Brynjolfsson and Andrew McAfee argue, a combination of robotics, automation, and artificial intelligence is driving productivity and replacing human jobs. They contend that technology, conventionally seen as a creator of new industries and jobs, is now displacing ever larger numbers of people while allowing companies to be more productive. 3 Although much debated, that notion is a frightening one, and a version of it is playing out in higher education.

For example, the emergence of MOOCs has certainly sparked confident assertions that faculty jobs will disappear. As Nathan Harden has argued: “The most popular professors will enjoy massive influence as they teach vast global courses with registrants numbering in the hundreds of thousands (even though ‘most popular’ may well equate to most entertaining rather than to most rigorous). Meanwhile, professors who are less popular, even if they are better but more demanding instructors, will be squeezed out. Fair or not, a reduction in the number of faculty needed to teach the world’s students will result.”4

Advances in grading by machines (even in writing assessment by machines), adaptive learning systems, and online learning in general all enable a rethinking of educational delivery models. Similarly, new administrative systems should allow institutions to serve more students with fewer staff. If banks can operate with fewer tellers and if hotels can use robots to deliver services to guests (the newest trend), why can’t higher education make analogous cuts?

I say “should” because unlike the for-profit industry, non-profit higher education is neither as disciplined nor as ruthless in cutting positions (I’m not arguing it should be), so the promise of technology has not yet resulted in the job losses that some predict and others fear. However, as politicians and policymakers focus on the cost of education and issue $10,000 degree challenges, and as higher education institutions see their business models being blown up, there is now real pressure to use technology to reduce costs. And the biggest cost in our human-capital-intensive industry is staffing. Thus I fear that for some, the appeal of self-paced competency-based education (CBE) programs is their far lower staffing costs rather than their more substantial virtues.

We should look at the intersection of technology and people in higher education not through the lens of cost-cutting but instead through the lens of student success: getting more students to graduation with a higher-quality education than we now deliver. For me, higher-quality education means demonstrable mastery of well-defined learning outcomes and competencies delivered in the particular ways that various student segments need (i.e., traditional-age students often want a coming-of-age experience, whereas 35-year-olds with full-time jobs and families often place greater value on customer service and convenience). We might ask three key questions:

1. What human interactions are most critical for student success?
2. How can technology enable better versions of those interactions?
3. Where can technology replace people so that human resources can be redirected to accomplish more of those interactions?

This framework gets us away from either attacking or defending traditional roles and positions and makes cost not an end to itself but, rather, a more accurate reflection of what an optimized student-success delivery model requires.

Let me illustrate. For a traditional-age student at a residential campus, the large-lecture-hall, introductory-class experience is still far too common and far too ineffective, a not very useful way to use a superbly and expensively trained (and paid) faculty
member. A recent New York Times article outlined innovative ways to flip the classroom, using technology for delivering content and quizzesing students to assess learning roadblocks and using classroom time for engaging in active learning by students with guidance from the faculty member. The results are very encouraging. In this case, technology replaces the lecture for the delivery of content while faculty time is redirected to effective practices.

However, for students who are attending an institution for a coming-of-age experience along with their academics, there is no technology replacement for long chats with a faculty member about big questions they are grappling with (everything from the meaning of life to what they should do with their future). There is no technology replacement for a counselor in the wellness center. There is no technology replacement for being able to take on a leadership role in a student organization. These are human and social engagements, often messy and complicated because... well, because they are human engagements. And they are every bit as much a part of traditional residential higher education as is the academic program.

In contrast, when we think about the large online student populations, again keeping in mind their particular needs, we do not need to worry about the typical 19-year-old’s growing pains. These online students usually do not need or want the coming-of-age experience. Most of them are adults, long out of the classroom and requiring a degree to improve their work, their lives, and the lives of their families. But they also have a great deal of anxiety and fear about their studies. For that challenge, we know that a dedicated advisor, one who will work with them throughout their program, is the key to their success. When a student gets that first bad grade in that first course and thinks “I knew I wasn’t college material,” it is the advisor who reframes the experience, helping the student understand what he/she might have done differently, identifying the learning resources that might help in the next assignment, and encouraging the student to keep trying.

Technology provides enormous assistance in this advising process, but usually in the background. Advisors often use a robust Customer Relationship Management (CRM) system that includes predictive scoring (helping to identify levels of risk), active grade reporting (so that an advisor knows as soon as a student when a poor grade has been assigned), activity reports, warning flags, and more. Advisors are thus better informed and can be proactive. In return, students attest again and again that their advisors got them to the finish line.

Similarly, higher education is now seeing a new generation of Learning Relationship Management (LRM) systems that shift from the more traditional Learning Management System (LMS). The traditional LMS seeks to replicate in virtual space the classroom and its activities or transactions (mostly faculty-centered activities including management of assignments, storage and dissemination of content, gradebooks, course policies, and so on). LRM systems, by contrast, are more student-focused; they are built to support the various human interactions that drive learning and try to offer a 360-degree view of each student experience. These systems are built around individualized human dynamics, and technology becomes the enabler, not the shaper, of those human interactions.

Using my three-question framework for thinking through the human-technology interaction in student success, we will see a reaffirmation of many current roles—including traditional faculty roles—in many kinds of institutions and within institutions. We will also likely see an unbundling and redefinition of those traditional roles. Some roles may be taken up by people who are better suited and better trained for a task. Some may best be handled by technology. Finally, we will see the emergence of new roles as well. For example, in CBE, there is a critically important academic role for people who can understand, define, and develop competencies and then organize the learning activities that help students work toward mastery of those competencies. Assessment looms even larger in CBE than in traditional programs.

With this framework, we view all these roles—which reaffirmed, redefined, or newly emerged—through the lens of student success and through a recognition that human interaction, with all of its messiness and complexity, is not easily automated or reduced to an algorithm. In other words, we move from asking how to replace people with technology to asking how we can make people more effective with technology, using people and technology where each works best. In that process, we will continue to find reassurance that genuine education remains enough of a mystery that educators are still needed (albeit often in new or altered roles) and will be for a long time to come.

Notes
4. Nathan Harden, “The End of the University As We Know It,” American Interest 8, no. 3 (December 2012), http://www.the-american-interest.com/2012/12/11/the-end-of-the-university-as-we-know-it/.

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