Unbundling and Unmooring: Technology and the Higher Ed Tsunami

There's a tsunami coming,” Stanford University President John Hennessy warned the New Yorker earlier this year. “I can't tell you exactly how it's going to break,” he later told the Wall Street Journal, “but my goal is to try to surf it, not to just stand there.”

If Stanford isn't running for cover and cowering from this impending storm, it may be because, as the New Yorker story notes, the university has a very close relationship with Silicon Valley. The university and the high-tech center share a culture of disruption and innovation, a culture that Stanford hopes will help it adapt to the changes ushered in by Silicon Valley. And that is key because the “tsunami” that Hennessy forecasts to strike higher education is, in part, a technological storm—a result of the ubiquity of mobile devices, Internet connectivity, consumer web technologies, and information access.

Of course, technology is just one factor contributing to what people are identifying as higher ed’s “perfect storm.” There’s also a faltering economy, institutional budget cuts, increasing demand for postsecondary education, skyrocketing tuition, record levels of student loan debt, and changing expectations of what a college/university education should look like—in terms of form and content. Others have adopted Hennessy’s weather metaphor to describe these forces compounded by technology. For example David Brooks, the New York Times Op-Ed columnist, predicts a “campus tsunami” where the coming waves will cause a “rescrambling” around the web by higher education.

As Brooks points out, online learning is hardly new. Nevertheless, the online education experiments launched by Stanford in late 2011—free and open enrollment in web-based versions of its “Introduction to Artificial Intelligence,” “Introduction to Machine Learning,” and “Introduction to Databases” classes—have garnered a remarkable level of interest. The university initially expected that just a few thousand students, at most, would want to participate in these online classes. But hundreds of thousands of students registered, and tens of thousands completed the massive open online courses (“MOOCs”).

On the heels of the popularity of these classes and so as not to appear left behind, MIT announced its own plans for MOOCs, adding that MITx (http://mitx.mit.edu/) would utilize open-source technology so that other colleges and universities could follow suit. It has since partnered with Harvard and the University of California, Berkeley, to create edX (http://www.edx.org/), a platform that will offer MITx, HarvardX, and BerkeleyX online classes. Meanwhile Professor Sebastian Thrun, who co-taught the artificial intelligence MOOC, announced: “Having done this, I can't teach at Stanford again.” He left to launch his own MOOC startup, Udacity (http://udacity.com), which plans to offer a complete computer science degree online. Two other Stanford professors, Daphne Koller and Andrew Ng (Ng taught Stanford's machine learning MOOC), have founded a startup called Coursera (http://www.coursera.org), another platform on which seventeen colleges and universities—at the current count and including Coursera's four original partners (Princeton, the University of Michigan, the University of Pennsylvania, and Stanford)—offer their courses in a massive online setting.

Less than a year after the buzzworthy success of Stanford's MOOCs, some of the most prestigious U.S. and international higher education institutions are now offering their classes online for free. Silicon Valley startups are right there too, providing online learning platforms, social study networks, content delivery, and information access. Tsunami indeed.

If the moorings of higher education are in danger of being loosened in this technology-driven storm, it may be in part because of those last two elements: content delivery and information access. The college or university no longer controls access to scholars and scholarship. The Internet has undeniably revolutionized this, with an abundance of information about just about everything now accessible online and with an increasing amount of educational content free and openly available: Textbooks, primary materials, research data, lessons, and academic journals. Open courseware is over a decade old, so the innovations here—the innovations of the coming tsunami, if you will—are enhancements to content delivery.

“Content delivery” is a poor way to describe what happens in the ideal classroom, no doubt. And it’s a poor way to describe the college/university experience. But it’s what technology is able to do quite easily: digitize and deliver print materials, record and distribute lectures. Doing so is cheaper and easier than ever. And by and large, it’s what these massive online courses offer: video lectures for students to watch and online...
Students in these classes pay no tuition. They receive no official credit from the institution—for now, at least. But even the question of credentialing—a monopoly that higher education has long held with its diploma—may be swept up in this tsunami. For example, Mozilla’s Open Badges project (https://wiki.mozilla.org/Badges) has built the initial technology infrastructure for an alternative credentialing model: a way for people to display badges marking their skills and achievements from both formal and informal learning opportunities. Although there have been some raised eyebrows and sneers over the idea that badges could replace diplomas, the credentialing system may not be so unassailable; one need look only at the hundreds of thousands of students who have signed up for the Stanford, Udacity, Coursera, and edX MOOCs, all without the ability to earn credits but with the possibility of getting a letter of completion from the professor.

“For whatever that’s worth,” one might say. But with the price tag of a college degree these days, more students might be willing to take a chance on the question of value, recognizing that they might be able to take general education or introductory-level courses for free and—more important, perhaps—wagering that a letter from someone like Sebastian Thrun, affirming completion of an online course, will really be worth something. Arguably, Thrun and his startup Udacity are wagering the same thing. For its part, Udacity hopes to match its students with technology companies looking to hire engineering talent.

That begs the question then: Who are these students enrolling in these massive online courses? According to a survey of the 104,000 students in Stanford’s Machine Learning class, almost three-quarters of the 14,045 survey respondents came from outside the United States, with the biggest markets for these courses being Brazil, Great Britain, India, and Russia. Technology is clearly facilitating access to and helping meet the global demand for high-quality education. But that demand isn’t different only geographically; it’s different professionally too. Just 11.6 percent of those enrolled in the undergraduate-level Machine Learning class were undergraduates; almost 20 percent were graduate students. The largest percentage—41 percent—were professionals who were already working in the software field.

How will this altered student demographic—at least the demographic that is signing up for MOOCs—change higher education? Will it change the expectations for a college experience and a university-level education, both online and offline? And will it change which courses are offered, again both online and offline? After all, although Coursera has started to offer some social science and humanities courses, most of these new massive online classes have centered on computer science and engineering.

One has to wonder about the force and the direction of the tsunami that’s being predicted to sweep across higher education. Is it one that answers only the intellectual and occupational demands of Silicon Valley? It’s easy to see how Silicon Valley and its technologies will help higher education become more accessible and more affordable and its diplomas more distributed—such is the long-standing promise of the Internet itself. But will this tsunami really unmoor credits and courses from campuses? If this tsunami “unbundles” higher education, as some have forecast, who will survive the storm? Who will thrive, and who will drown?

Notes
5. See https://plus.google.com/107809999089662019971/posts/5puBuzy5o9h; 107809999089662019971/posts/4puBuzy5o9h.

Audrey Watters (audrey@hackeducation.com)—rabble-rouser, rambler, folklorist, geek, and lifelong learner—is an education journalist who has worked in the education field for the past fifteen years: as a graduate student, college instructor, and program manager for an ed-tech non-profit.

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