

Online Education as an Agent of Transformation

WHEN the first commercially successful steamship traveled the Hudson River in 1807, it didn't appear to be much of a competitive threat to transoceanic sailing ships. It was more expensive, less reliable and couldn't travel very far. Sailors dismissed the idea that steam technology could ever measure up — the vast reach of the Atlantic Ocean surely demanded sails. And so steam power gained its foothold as a “disruptive innovation” in inland waterways, where the ability to move against the wind, or when there was no wind at all, was important.

In 1819, the technology vastly improved, the S.S. Savannah made the first Atlantic crossing powered by steam and sail (in truth, only 80 of the 633-hour voyage was by steam). Sailing ship companies didn't completely ignore the advancement. They built hybrid ships, adding steam engines to their sailing vessels, but never entered the pure steamship market. Ultimately, they paid the price for this decision. By the early 1900s, with steam able to power a ship across the ocean on its own, and do so faster than the wind, customers migrated to steamships. Every single transoceanic sailing-ship company went out of business.

Traditional colleges are currently on their hybrid voyage across the ocean.

Like steam, online education is a disruptive innovation — one that introduces more convenient and affordable products or services that over time transform sectors. Yet many bricks-and-mortar colleges are making the same mistake as the once-dominant tall ships: they offer online courses but are not changing the existing model. They are not saving students time and money, the essential steps to disruption. And though their approach makes sense in the short term, it leaves them vulnerable as students gravitate toward less expensive colleges.

For-profit universities latched on early to online learning, rough as it was in the 1990s. The target, as with all disruptive innovations, was customers who wouldn't otherwise consume their product — in this case, working adults for whom

traditional higher education was inconvenient. In theory, for-profit companies should have shaken up the higher education landscape. But federal financial aid seems to have gummed up the disruption: the easy revenue has encouraged some schools to indiscriminately enroll, often at the expense of quality, and has discouraged cost reduction.

Still, the theory predicts that, be it steam or online education, existing consumers will ultimately adopt the disruption, and a host of struggling colleges and universities — the bottom 25 percent of every tier, we predict — will disappear or merge in the next 10 to 15 years. Already traditional universities are showing the strains of a broken business model, reflecting demand and pricing pressures previously unheard-of in higher education. One example: Needing a cash infusion, Thunderbird School of Global Management in July announced a merger with Laureate Education Inc., an online pioneer.

Even the venerable Harvard Business School has ceded ground to online instruction. Before starting school, students are directed to learning modules on the web that cover entry-level accounting concepts. With the basic competencies covered, classes spend more time on higher-order discussion, and more deeply explore real-world applications. Harvard Business School is also developing a series of “pre-M.B.A. and post-M.B.A.” online courses that it plans to have ready by summer. It calls the initiative HBX.

Meanwhile, many universities have jumped on the MOOC bandwagon, creating a hodgepodge of these massive open online courses for public consumption. But for MOOCs to really fulfill their disruptive potential, they must be built into low-cost programs with certification of skills of value to employers. So far, only a few traditional universities have incorporated MOOCs into their curriculum, and only to supplement what they are already doing — like “flipping the classroom,” with lectures watched from home.

MITx is trying to add structure to the MOOC free-for-all by rolling out a sequence of computer science foundational courses this fall, and the MOOC provider Coursera

has just started the Wharton M.B.A. Foundation Series. But perhaps the most promising experiment is from the Georgia Institute of Technology, which next year will start offering a \$6,600 online master's degree, a sixth the price of its current degree, in partnership with the MOOC platform Udacity and AT&T Georgia Tech is putting its reputation behind a MOOC credential.

The lessons from any number of industries teach us that those that truly innovate — fundamentally transforming the model, instead of just incorporating the technology into established methods of operation — will have the final say. So it's no wonder that observers of this phenomenon ask if online learning portends the end of the residential collegiate experience — the opportunity for students to live, socialize and learn together.

The experience that so many of us remember fondly — those bridge years from childhood to functioning adult — is already one that only a minority of students enjoys. According to the Census Bureau, just 30 percent of all beginning students live on a college campus. But it's unlikely that the residential experience will disappear. Counterintuitive as it may seem, online instruction may mean even more students benefit from the collegial spirit, though one that looks quite different from the residential experience of today.

Right now, some students who want to live on campus find it prohibitively expensive; some who would rather commute live too far away to do so. As online learning evolves, students should be able to customize their experience with what they need and can afford. This kind of unbundling has occurred in countless industries.

Consider personal computers. Nascent technologies always underserve their customers. As they mature, the opposite happens: they overserve, with bells and whistles customers are less willing to pay for. In the beginning, computer components were unpredictable and not standardized, and each company had to build every one of its parts. As the ways in which the components fit together became better understood, companies like Dell could quickly and affordably

customize a computer. A customer ordering a Dell in the 1990s specified the amount of memory wanted and type of Seagate drive and Intel processor. Dell simply snapped the modules together and shipped out a computer within 48 hours.

The Minerva Project, a start-up headquartered in San Francisco that aims to provide an affordable liberal arts education, offers clues as to how this might unfold in higher education. Minerva anticipates that most of its students will be from outside the United States. To serve them, it will enlist operators to create mini-campuses around the globe where clusters of its students will live and socialize together in residence halls, as well as take online courses and work together on projects.

With this unbundling, many more students should have the ability to create aspects of a residential experience for themselves. Some students might take courses online and then, to develop their skills, attend learning spaces like Dev Bootcamp in Chicago and San Francisco, or one of General Assembly's eight locations around the world. Others may just value the flexibility and convenience of a total online learning experience.

As concepts and skills are taught more effectively online, it's unlikely that face-to-face interaction will cease to matter. Instead, students will be able to arrange for such experiences when it suits the job they need to get done. Given the reality that we all have different learning needs at different times, that's a far more student-centered experience. It may not benefit some colleges but should create more options for all students.

Clayton M. Christensen is a professor of business administration at Harvard. Michael B. Horn is executive director for education at the Clayton Christensen Institute for Disruptive Innovation. They are co-authors of "Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns."