Rebooting Online Education

**Editor’s note:** This article was reported before students left campus (see page 14) and the University pivoted to remote teaching, effective with the end of spring recess on March 23 (a huge effort highlighted by President Lawrence S. Bacow: see page 3). That overnight transition was enabled significantly by faculty members’ experience in Harvard courses (begun early in the decade); their discussions of pedagogy advanced through the Harvard Initiative on Learning and Teaching; the hundreds of online courses they have offered through the Extension School; the professional schools’ growing online executive-education programs; and the expert staff engaged in supporting all these activities. HarvardX, HILT, research, and more come under the umbrella of the Vice Provost for Advances in Learning (VPAL). This report focuses on VPAL’s new strategy for “asynchronous” (available any time) online learning of the sort initially developed for HarvardX—not on the shifting of enrolled degree candidates’ current classes to live, remote instruction via Zoom and other technological systems.

On May 2, 2012, when Harvard and MIT unveiled edX, their collaboration to create and disseminate classes online, the potential for massive open online courses (MOOCs) to transform learning worldwide seemed limitless. Stanford computer scientists had founded Coursera and Udacity to develop online teaching as a business; edX offered other schools a nonprofit way to explore virtual education for the greater good. All the ventures were motivated by what then-Harvard president Drew Gilpin Faust described as the “unprecedented opportunity to dramatically extend our collective reach by conducting groundbreaking research into effective education and by extending online access to higher quality education” in multiple beneficial ways. This was to be an ambitious experiment: the edX founders each committed $30 million in institutional funds and donor support to underwrite the fledgling enterprise.

The hope was that MOOCs would:

- help educate the unschooled worldwide;
- transform pedagogy on residential institutions’ campuses; and
- perhaps, harness technology to make the labor-intensive process of teaching more efficient and cost-effective.

Late this winter, professor of government and deputy vice provost for advances in learning Dustin Tingley put the outcome in the context of those goals. That edX generation of MOOCs, he said, “was an experiment that in some senses had to happen.”

A nonprofit organization was the best way to sample the breadth of the University’s instruction online: in the humanities, for example, alongside presumed high-demand computer-science and applied and professional skills. Having led the research to which Faust alluded, Tingley said those courses revealed a lot about how to “embrace the online format for what it is, rather than as a re-creation of what we do residentially but just delivered online”—initially by the taping and passive presentation of lectures.

Like most experiments, the initial MOOC enterprises have yielded mixed results:

- Analysis of Harvard’s MOOCs revealed that the vast majority of those who complete courses already have college degrees. Democratizing higher education for many people around the world is not simply a matter of posting a menu of MOOCs: the hurdles of awareness, access to the technology, and teaching largely in English compound the difficulties of limited opportunities and academic preparation.
- Engagement is not automatic. For all the millions of initial course registrants, only a single-digit percentage finish the work. Studying online is “a pretty lonely experience often, and it’s easy to become very passive,” Tingley said—and succumb to the distractions of doing something else online, skimming the text, or half-listening. Students have little patience for 30- or 50-minute units, particularly in the absence of “Nova’s production values,” as he put it.
- Nor is “free” a sustainable business model. HarvardX doesn’t disclose the cost of producing a MOOC (it has released 90-plus unique courses), but the available literature suggests that a high-quality equivalent to a semester offering can cost a quarter-million dollars. Enriching the presentation, and adding interactive tools that demonstrably enhance learning, can add substantially to that cost. The University’s staff of online videographers, data scientists, and others numbers between four and five dozen—excluding their counterparts in the schools. Unsurprisingly, Coursera and Udacity have developed fee-based businesses in corporate and professional training. And edX has asked member universities to allow it to assess user fees (Harvard has declined), and has turned progressively toward charging learners $75 to $750 for tiers of course certification.
- And finally, Tingley said, most online materials to date weren’t designed for classroom use, and have proved hard to adapt for that purpose. Harvard Business School (HBS) has recently accommodated overflow demand for a popular negotiation course by allowing students to use the online version, but that is a purpose-built exception that proves the rule. Many campus courses are now “flipped,” with lectures recorded for viewing and class time devoted to problem-solving and discussion of difficult concepts, but such teaching can be effected without engaging the full HarvardX apparatus (see a professor’s account, pre-edX, in “Reinventing the Classroom,” September-October 2012, page 54).

So is the online experiment at a dead end? Hardly, in light of the
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Yesterday’s News
From the pages of the Harvard Alumni Bulletin and Harvard Magazine

1915 The University’s new professor of hygiene institutes precautionary measures in the weekly inspection of milk, butter, and cream supplies in various Harvard dining halls to forestall the ‘epidemics and ‘flashes’ of typhoid which have wrought havoc in other colleges. . . .”

1925 The Massachusetts legislature passes an act to permit construction of a footbridge over the Charles River from the Cambridge side to the site of the Business School’s proposed buildings.

1935 President Conant’s proposal to eliminate Latin as an entrance requirement for A.B. candidates creates a furor. . . . The Faculty Council decides that knowledge of either Latin or Greek will remain a requirement for the A.B. degree.

1960 The Faculty of Arts and Sciences approves Social Studies as the second interdepartmental honors concentration for undergraduates, almost 60 years after History and Literature became the first.

1965 Chanting “Raise Cops’ Pay,” a shifting group of about 200 undergraduates stage a spring “riot” on Sunday, May 9, between 10 p.m. and 1 a.m., heading to Radcliffe twice and to Lesley College once for panty raids, largely unmolested by either Cambridge or Harvard police. The outbreak apparently forestalls a planned sit-in at Lamont by a Radcliffe group, WILL (Women to Invade Lamont Library).

Harvard asks the Cambridge City Council for permission to spend $2 million to depress Cambridge Street and build a pedestrian mall over it from Littauer Center and Phillips Brooks House to the fire station.

1985 A small protest fails to keep South Africa’s consul general from a Harvard Conservative Club luncheon at Lowell House, and the crowd grows to nearly 200; some block a Harvard police car; others scuffle with a police escort. (The consul leaves via steam tunnel.) The incident prompts the reconvening of the Committee on Rights and Responsibilities (set up in 1969) for the first time in seven years.

2000 A University committee recommends extending job training and health-insurance benefits to almost all University employees, including casual workers and those employed through subcontractors. Hundreds of students, meanwhile, turn out to hear Matt Damon ’92 endorse the living-wage campaign being sponsored by the Progressive Student Labor Movement.

many insights Harvard has acquired into what does work in online education. Byers professor of business administration Bharat N. Anand, who became vice provost in October 2018, has articulated a strategy focused on:

- emphasizing learning rather than teaching: moving from the broadcast model of disseminating lectures or other classroom teaching toward inductive, problem-solving learning experiences. The technologies now exist to record faculty members’ instruction, so they don’t need to be available online live, even as their courses engage widely dispersed students in active exercises and peer-to-peer interactions, making for immersive learning at a large scale.

- addressing big, important issues in which there is intense interest—and about which Harvard’s broad liberal-arts and professional-school faculties can teach through structured series of courses.

- and being flexible about where learning occurs and in what formats—for example, by creating shorter units rather than semester-length classes; creating foundational modules on basic concepts that might be useful entry points to multiple courses (on campus or online); and addressing prospective learners with diverse needs.

Drawing upon HarvardX, the large extension operation, and the University’s schools—including Harvard Business School, where he led development of HBS Online and its pedagogically driven platform—Anand and Tingley are far advanced in developing a new generation of online learning experiences, created and taught by colleagues from across the faculties.

Their common feature, as Tingley put it, is “start[ing] with a learning experience when it is a matter of discovery for the student, rather than leading with, ‘This is the thing you should discover.’” Thus, as teachers guide a course, the online platforms can now enable pedagogies that incorporate quick-reaction quizzes and pop-up “cold calls” to stimulate student thinking and expression, plus social-media-like ways of encouraging consultation with other learners online at the same time.

As opposed to long-form, didactic, lecture-based instruction, these features emulate some of the liveliest attributes of the case-method form of instruction pioneered at HBS, which effects “a powerful combination of inductive teaching and peer...
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learning.” Anand said: students engage with a problem in an area of interest, and discover for themselves, with their peers, underlying explanations and theories of action. (For a sense of how these features work, see harvardmag.com/onramps-19, which details how the HBS Online CORe sequence is used by entering M.B.A. students before they arrive in Allston.)

The multidirectional learning thus enabled—teacher to learners, learners back to teacher—produces radically higher online engagement and course completion: the fundamental insight from the past several years’ experience. (It can also be scaled up without requiring unlimited access to the instructor, the key to making the entire process feasible.)

That is especially the case when the courses “speak to the problems of our time,” Anand said. Such content lends itself to a curricular model of online course-planning. To jump-start experimentation across schools and disciplines in 2012, HarvardX invited professors to propose online versions of their classes. That helped course designers learn about features of online instruction in diverse disciplines—but also resulted in a mixed menu of one-off selections, driven (naturally) by what the teachers wanted to teach. Over time, courses from individual fields, like health care, accumulated, but they lacked coherent connections or a sense of direction toward a prospective learner’s larger goal. On a liberal-arts campus, where full-time matriculants may choose from among hundreds or even thousands of courses, this cornucopia of choices may be a signal strength. Online, however, the motivation differs.

Given that opportunity, Anand has set the stage for targeted online course series, squarely within Harvard’s focus on educating leaders.

HarvardX will still create stand-alone MOOCs. But its production pipeline now focuses on highly engaging, tiered course sequences for identifiable groups of learners. They are fee-based, at an anticipated cost of as much as $1,500 per course (coupled with financial aid, bundled discounts, and subscriptions—shaped for users’ needs). Among those envisioned are:

- Data and digital readiness: two multi-unit series on data science (led by Tingley) and digital readiness (led by Anand), scheduled to debut this coming winter. Unlike instruction focused on the skills required to program or work as a data engineer, Anand said, these courses are for the much larger set of learners, in all kinds of organizations, who need to “understand the issues, acquire intuitions, develop judgment and critical thinking that enables one to separate hype from hope, understand the privacy issues and ethical context”—and apply what they learn in contexts ranging from business to policymaking and government. To prepare leaders in those realms, he and teaching colleagues will cover strategy, design thinking, execution, organizational change, and technology ethics in a cumulative way. Course leaders identified to date come from statistics, government, engineering and applied sciences, philosophy, medicine, and HBS.

In outline, the data-science series begins with a course titled “Data Science Ready” (covering basics such as prediction, causality, and data privacy) and moves through successors on data science for managers, business contexts for data scientists, machine learning, and more. The series, Tingley said, “depends on a consistent, coherent framework for letting learners know how these classes fit together” in “an actual, integrated curriculum.” When those enrolled want to pursue a topic, he said, “I can tee up, ‘If you want to take a deeper dive, here’s a course for that.’” Teachers know that students will have encountered examples earlier, and in what context. The result, again drawing upon faculty members from across Harvard, should be an intentional, “integrated experience.”

- Healthcare leadership, being developed by David H. Roberts, dean for external education at the Medical School, and Leemore S. Dafny, Rauner professor of business administration. In support of healthcare information and transformation, the series will cover healthcare economics, strategy, patient care, digital system, policy, and technology.

Character Count

It is widely known that Harry Widener (Vita, May-June 2019, page 44) had a memorably unsuccessful experience boating—on the Titanic. Barely known is the role that African-American architect Julian Abele had in creating the eponymous library, in his capacity as chief designer in the Office of Horace Trumbauer, the name architect for the project.

Abele is now getting some overdue credit, thanks to a gemlike display in the dome of the library, assembled by Kate Donovan, associate librarian for public services in Houghton Library and curator of the Widener Memorial Collection. (Kudos to the news office’s senior writer, Colleen Walsh, and photographer, Stephanie B. Mitchell, for bringing the exhibition to the community’s attention.) Beyond rectifying the unjust news office’s senior writer, Colleen Walsh, and photographer, Stephanie B. Mitchell, for bringing the exhibition to the community’s attention.) Beyond rectifying the unjust

The front elevation of December 23, 1912, shown here, is not definitively from Abele’s hand. Nonetheless, the detail atop the columns merits amused attention: “INSCRIPTION HERE NOT TO EXCEED FIFTY LETTERS A.D. MCMXII.” As contemporary observers can attest, the stonemasons in the end had to chisel only 44—something anyone passing by can see even while the libraries are closed.
A lifetime of giving, continued. As reported, the sale of collections from the estate of David Rockefeller ’36, G ’37, LL.D. ’69, yielded additional gifts to Harvard, among other beneficiaries (Brevia, May–June 2019, page 30). The Harvard Crimson has now reported, and it has been confirmed, that the proceeds were $50 million or more.

Decanal news. Harvard Business School dean Nitin Nohria, scheduled to step down at the end of the academic year, will remain through 2020, easing search pressures during the coronavirus crisis; see harvardmag.com/nohria-stays-20...

Jones professor of American studies Elizabeth Cohen, the Radcliffe Institute dean emerita, won the Bancroft Prize, the highest honor for American history, for her recent book Saving America’s Cities (reviewed in September–October 2019, page 64); it was her second Bancroft. Read more at harvardmag.com/cohen-bancroft-20.

Miscellany. Harvard University Employees Credit Union president and CEO Gene Foley, who joined the organization in 1979 and has led it for the past quarter-century, will retire in July. Craig Rodgers, a counselor at the Bureau of Study Counsel for nearly two decades, has become program manager for military student services, a new role, within the College’s dean of students office. He is responsible for working with ROTC students and others interested in military service. Knafel professor of music Susannah Clark is the new director of the Mahindra Humanities Center, succeed ing interim director Sunil Amrith, Mehra Family profes sor of South Asian history.... The Harvard Law School Library has begun releasing papers from its Antonin Scalia, LL.B. ’60, collection. The late Supreme Court justice’s papers will be made available to researchers during the next 40 years. Dean John F. Manning clerked for Scalia in 1988-1989. In a bit of painful timing, the only faculty member appointed to the National Academy of Engineering this year, per its announcement February 6, was Friedman University Professor Charles M. Lieber; as reported (News Briefs, March–April, page 24), he was arrested on January 28 and charged with misleading the U.S. government and Harvard about his work for and compensation by programs in China.

• Smart cities and climate change, the newest and most nascent programs.

In the near term, the University’s re-focused online strategy appears promising. HBS and the Extension School have established large executive- and continuing-education businesses based on proven learner interest. They make increasingly effective use of purpose-built online platforms with engaging pedagogies—and, helpfully, generate substantial revenues. Careful consultations, taking into account existing programs like those, have identified subjects in which Harvard faculty members can and want to develop unique online learning experiences, for which demand is apparent. And the model—tailored to Harvard’s educational strengths—appears to have the potential to sustain itself: in his January annual update, his last as HBS dean, Nitin Nohria wrote that the school’s online program, created on his watch, “achieved a key milestone of financial sustainability by making a positive margin for the first time. Equally important, we have scaled while maintaining high levels of learner satisfaction and engagement.... Completion rates have remained at more than 85 percent for all courses.”

More broadly, both what has been learned to date, and the prospective University online programs, finally appear poised to have an impact on campus pedagogy. Those foundational modules—core skills and concepts—might be on-ramps to a host of courses across the University. And, said Tingley, “the exact intent of what we’re trying to do across the series” now under development might inform curricular planning within the Faculty of Arts and Sciences, enabling professors to “be in a better position to meet the needs, not just the interests, of our learners” with somewhat more intention and structure. As more faculty members engage with the new sequences, the appeal of that idea might spread.

And as faculty members gain experience with the large-scale, engaged learning enabled by the evolved online platforms, Anand thinks that it’s “much more likely that in the very near future we’ll be talking not about ‘online’ and ‘residential,’ but about blended experiences that seamlessly travel across formats.” In the coronavirus spring semester, essentially the entire teaching faculty and student body are encountering a primitive form of “distance” learning. It’s good to know that a multi-year investment in much more sophisticated, effective online pedagogies is maturing in the meantime, just as those appetites are whetted.

~J.S.R.

Divestment Digest

As reported, briefly, in the March-April issue, the Faculty of Arts and Sciences (FAS) voted on February 4 in favor of a motion calling on the Corporation to instruct Harvard Management Company to shed investments in future fossil-fuel production and to move toward assets that promote “decarbonization,” as part of the University’s response to climate change. (Find a detailed report at harvardmag.com/fas-divestdebate-feb-20.) Although President Lawrence S. Bacow has not yet reported back to the faculty about the Corporation’s response (only one intervening faculty meeting occurred before this issue went to press, and he had signaled that it would take some time to do so), much activity unfolded on other fronts.

• The demonstration effect. As of the day before the FAS vote, 550 faculty members and associates had signed Harvard Faculty for Divestment’s petition. By mid-February, that roster had essentially doubled, no doubt in part reflecting both publicity about and reaction to the passage of the FAS motion, and Harvard Medical School’s subsequent Faculty Council vote in favor of similar divestment resolutions (directed to the Corporation and to Dean George Q. Daley).

• On other campuses. On February 6, Georgetown’s board of directors decided to divest public fossil-fuel investments within five years, and private ones within a decade. The university “will continue to make investments that target a market rate of return in renewable energy, energy efficiency and related areas while freezing new endowment investments in companies or funds whose primary business is the exploration or extraction of fossil fuels.”

Two weeks later, the University of Michigan regents decided to freeze fossil-fuel investments—not “bring[ing] forward new direct investments” in such companies—while they pursue a thorough review of investment policy for the sector. It is apparently the first Big Ten school to adopt such a pause.

And in a March 4 letter to her commu-