

Connecticut Debate Association

May 30, 2020 eTournament

Resolved: College education should primarily be conducted online.

The Future of College Is Online, and It's Cheaper

The New York Times, By Hans Taparia, May 25, 2020

The coronavirus forced a shift to virtual classes, but their continuation could be beneficial even after the pandemic ends.

Forty years ago, going to college in America was a reliable pathway for upward mobility. Today, it has become yet another 21st-century symbol of privilege for the wealthy. Through this period, tuition rates soared 260 percent, double the rate of inflation. In 2019, the average cost of attending a four-year private college was over \$200,000. For a four-year public college, it was over \$100,000. To sustain these prices, more students are now admitted from the top 1 percent of the income scale than the entire bottom 40 percent at the top 80 colleges. Universities have also opened the floodgates to wealthy international students, willing to pay full tuition for the American brand.

Covid-19 is about to ravage that business model. Mass unemployment is looming large and is likely to put college out of reach for many. With America now the epicenter of the pandemic and bungling its response, many students are looking to defer enrollment. Foreign students are questioning whether to register at all, with greater uncertainty around visas and work prospects. The “Trump Effect” had already begun to cause declining foreign student enrollment over the past three years.

The mightiest of institutions are bracing for the worst. Harvard, home to the country’s largest endowment, recently announced drastic steps to manage the fallout, including salary cuts for its leadership, hiring freezes and cuts in discretionary spending. Most other universities have been forced to make similar decisions, and are nervous that if they continue with online teaching this fall, students will demand at least a partial remission of tuition.

Up until now, online education has been relegated to the equivalent of a hobby at most universities. With the pandemic, it has become a backup plan. But if universities embrace this moment strategically, online education could expand access exponentially and drop its cost by magnitudes — all while shoring up revenues for universities in a way that is more recession-proof, policy-proof and pandemic-proof.

To be clear, the scramble to move online over just a few days this March did not go well. Faculty members were forced to revamp lesson plans overnight. “Zoom-bombers” took advantage of lax privacy protocols. Students fled home, with many in faraway time zones prolonging jet lag just to continue synchronous learning. Not surprisingly, the experience for both students and faculty has left much to be desired. According to one survey, more than 75 percent of students do not feel they received a quality learning experience after classrooms closed.

But what surveys miss are the numerous spirited efforts to break new ground, as only a crisis can be the impetus for.

One professor at New York University’s Tisch School of the Arts taught a drama course that allows students to “act” with each other in virtual reality using Oculus Quest headsets. A music professor at Stanford trained his students on software that allows musicians in different locations to perform together using internet streaming. Professors are pioneering new methods and ed-tech companies are developing platforms at a pace not seen before, providing a glimpse into the untapped potential of online education. Not to be forgotten, of course, is the fact that just a few years ago, a transition to online learning at the current scale would have been unimaginable.

Before the pandemic, most universities never truly embraced online education, at least not strategically. For years, universities have allowed professors to offer some courses online, making them accessible through aggregators such as edX or Coursera. But rarely do universities offer their most popular and prestigious degrees remotely. It is still not possible to get an M.B.A. at Stanford, a biology degree at M.I.T. or a computer science degree at Brown online.

On one hand, universities don’t want to be seen as limiting access to education, so they have dabbled in the space. But to fully embrace it might render much of the faculty redundant, reduce the exclusivity of those degrees, and threaten the very existence of the physical campus, for which vast resources have been allocated over centuries.

For good reason, many educators have been skeptical of online learning. They have questioned how discussion-based courses, which require more intimate settings, would be coordinated. They wonder how lab work might be administered. Of course, no one doubts that the student experience would not be as holistic. But universities don’t need to abandon in-person teaching for students who see the value in it.

They simply need to create “parallel” online degrees for all their core degree programs. By doing so, universities could expand their reach by thousands, creating the economies of scale to drop their costs by tens of thousands.

There are a few, but instructive, examples of prestigious universities that have already shown the way. Georgia Tech, a top

engineering school, launched an online masters in computer science in 2014. The degree costs just \$7,000 (one-sixth the cost of its in-person program), and the school now has nearly 10,000 students enrolled, making it the largest computer science program in the country. Notably, the online degree has not cannibalized its on-campus revenue stream. Instead, it has opened up a prestigious degree program to a different population, mostly midcareer applicants looking for a meaningful skills upgrade.

Similarly, in 2015, the University of Illinois launched an online M.B.A. for \$22,000, a fraction of the cost of most business schools. In order to provide a forum for networking and experiential learning, critical to the business school experience, the university created micro-immersions, where students can connect with other students and work on live projects at companies at a regional level.

To do this would require a major reorientation of university resources and activities. Classrooms would need to be fitted with new technology so that lectures could be simultaneously delivered to students on campus as well as across the world. Professors would need to undergo training on how to effectively teach to a blended classroom. Universities would also be well served to build competencies in content production. Today, almost all theory-based content, whether in chemistry, computer science or finance, can be produced in advance and effectively delivered asynchronously. By tapping their best-rated professors to be the stars of those productions, universities could actually raise the pedagogical standard.

There are already strong examples of this. Most biology professors, for instance, would find themselves hard pressed to match the pedagogical quality, production values and inspirational nature of Eric Lander's online Introduction to Biology course at M.I.T. That free course currently has over 134,000 students enrolled this semester.

Once universities have developed a library of content, they can choose to draw from it for asynchronous delivery for years, both for their on-campus and online programs. Students may not mind. It would, after all, open up professor capacity for a larger number of live interactions. Three-hour lectures, which were never good for anyone, would become a thing of the past. Instead, a typical day might be broken up into one-hour sessions with a focus on problem-solving, Q. and A. or discussion.

Many universities are sounding bold about reopening in-person instruction this fall. The current business model requires them to, or face financial ruin. But a hasty decision driven by the financial imperative could prove lethal, and do little to help them weather a storm. The pandemic provides universities an opportunity to reimagine education around the pillars of access and affordability with the myriad tools and techniques now at their disposal. It could make them true pathways of upward mobility again.

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Online Learning Should Return to a Supporting Role

The New York Times, By David Deming, April 9, 2020

Winner-take-all economics and cost-cutting may make many in-person lectures obsolete, but the best education continues to be intensive, expensive and done in person.

As the coronavirus pandemic forces schools and college campuses to go online, the delivery model of education — largely unchanged for centuries — has suddenly been disrupted.

This may seem like the acceleration of a permanent shift toward online learning, but I have my doubts. In fact, economics tells us that technology will make in-person education more valuable than ever.

At the moment, teachers from kindergarten through graduate school are struggling to take their classes online, and the initial results are, understandably, spotty. But the longer this mass experiment continues, the more familiar remote learning will become. And, has been predicted for many years, online performances by superstars are increasingly likely to replace more pedestrian in-person lectures.

This can go only so far, because other important aspects of education are best done by teachers in more intimate settings. Educators will increasingly be tutors, mentors and role models, and economics also tells us that these features of a great education will not scale up.

Therefore, I worry not about the future of teachers but of students. I fear that on-campus learning will become an increasingly important quality differentiator, a luxury good that only students with means can afford.

Consider that online education has been around a lot longer than Covid-19. According to the latest estimates from the Department of Education, 35 percent of college students took at least one course online before the pandemic, and this share has been growing steadily for more than a decade.

This spring, schools and universities had to move courses online with only a few weeks' notice, and the results have often been ugly. Students face significant challenges, such as spotty access to the internet or an unstable living environment.

Yet the long-term prospects for online learning are good — up to a point. Many universities already offered high-quality

lectures online before this crisis, sometimes through partnerships with organization like edX and Coursera. Khan Academy has offered free courses for younger learners. The increased flexibility of online learning has been especially important when students need to balance burdens like jobs or, right now, to care for themselves or relatives who have fallen ill.

After this crisis ends, online lectures will still be increasingly valuable, because they are known in economics as “nonrival goods,” meaning they are not used up as more and more people view them. For this reason, the very best lecturers can teach everyone at the same time. This could make lesser lecturers obsolete and should, at least to some degree, generate much-needed productivity growth in education.

This seems grim for teachers, but I don’t think it will make us obsolete, for two reasons.

First, demand for education is a moving target, and as people become more prosperous they typically want better education, not worse.

So while cost is important, it’s not everything. Bending the higher-education cost curve through online lectures may seem appealing, but the point isn’t to enable everyone to learn on the cheap. Rather, people will want better education for the money, and online lectures alone won’t do it.

This explains why massive open online courses, known as MOOCs, have largely failed to disrupt traditional education despite the hype. Lectures are part of education, but they are not the best part.

Second, as online lectures become better and cheaper, the other essential components of education will take more time and energy.

Within economics this is known as unbalanced growth: the tendency for resources to shift toward parts of the economy where productivity growth is lowest. It is partly why the bulk of U.S. employment has moved away from manufacturing and into the service sector and, in education, why tuition and salaries keep rising. Precisely because they are personal, services are hard to scale up — few people are interested in mass-produced child care, for example.

The personal services provided by educators include tutoring, individualized feedback and mentoring, and numerous studies, as well as countless individual experiences, show that such services are essential for learning.

Good teachers work with students individually or in small groups to diagnose and remedy specific learning gaps. A survey of nearly 200 educational experiments found that “high dosage” tutoring — defined as groups of no more than six students meeting at least four times per week — was one of the most effective ways to improve learning. High-frequency individual feedback also greatly improves student performance.

Teachers are critically important as mentors and role models as well, the studies show. Students are more likely to complete a college degree when teachers have high expectations of them. A female instructor greatly increases the performance of women in math and science courses and their subsequent interest in STEM (science, technology, engineering and mathematics) careers.

Furthermore, racial gaps in course performance are smaller in classes taught by professors from underrepresented groups. Yet the implications of this research extend even beyond race and gender. Mentors matter for everyone, and they can have a powerful impact on students’ life choices and career success. There is simply no technological substitute for these aspects of great teaching.

Because of unbalanced growth, efficiency gains in online instruction will cause educators to shift toward more personal forms of education. Moreover, what economists call “cost disease” tells us that the price of tutoring, mentoring and direct personal intervention will rise, even as lectures are provided more efficiently online.

If these trends continue unchecked, on-campus learning and intensive interaction between teachers and students may eventually become unaffordable for all but the wealthiest institutions and, probably, the wealthiest families.

Two changes are necessary to avoid this tragedy.

First, we must broaden access to institutions that can afford a high-quality on-campus experience. Second, universities under budgetary pressure should resist the temptation to think of online learning technology only as a means of cost reduction.

It is wonderful that technology has enabled millions of students to keep learning even when direct contact is impossible. But once this crisis ends, we will be better off if technology frees up precious class time so that educators and students can engage deeply with each other and build personal connections that will last a lifetime.

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Will the Coronavirus Forever Alter the College Experience?

The New York Times, By Jon Marcus, April 23, 2020

The answer so far appears to be no. But some online education tools are likely to stick around.

A professor at Loyola University New Orleans taught his first virtual class from his courtyard, wearing a bathrobe and sipping from a glass of wine. Faculty at Lafayette College, in Easton, Penn., trained in making document cameras at home using cardboard and rubber bands.

Hamilton College, in Clinton, N.Y., set up drive-up Wi-Fi stations for faculty members whose connections weren't reliable enough to let them upload material to the internet. And students in a musicology course at Virginia Tech were assigned to create TikTok videos.

The disruption caused by the coronavirus pandemic has prompted cobbled-together responses ranging from the absurd to the ingenious at colleges and universities struggling to continue teaching even as their students have receded into diminutive images, in dire need of haircuts, on videoconference checkerboards.

But while all of this is widely being referred to as online higher education, that's not really what most of it is, at least so far. As for predictions that it will trigger a permanent exodus from brick-and-mortar campuses to virtual classrooms, all indications are that it probably won't.

"What we are talking about when we talk about online education is using digital technologies to transform the learning experience," said Vijay Govindarajan, a professor at Dartmouth's Tuck School of Business. "That is not what is happening right now. What is happening now is we had eight days to put everything we do in class onto Zoom."

There will be some important lasting impacts, though, experts say: Faculty may incorporate online tools, to which many are being exposed for the first time, into their conventional classes. And students are experiencing a flexible type of learning they may not like as undergraduates, but could return to when it's time to get a graduate degree.

These trends may not transform higher education, but they are likely to accelerate the integration of technology into it.

This semester "has the potential to raise expectations of using these online resources to complement what we were doing before, in an evolutionary way, not a revolutionary way," said Eric Fredericksen, associate vice president for online learning at the University of Rochester. "That's the more permanent impact."

Real online education lets students move at their own pace and includes such features as continual assessments so they can jump ahead as soon as they've mastered a skill, Dr. Fredericksen and others said.

Conceiving, planning, designing and developing a genuine online course or program can consume as much as a year of faculty training and collaboration with instructional designers, and often requires student orientation and support and a complex technological infrastructure.

"Not surprisingly, when we really do this, it does take more than seven or eight days," Dr. Fredericksen said wryly.

If anything, what people are mistaking now for online education — long class meetings in videoconference rooms, professors in their bathrobes, do-it-yourself tools made of rubber bands and cardboard — appears to be making them less, not more, open to it.

"The pessimistic view is that [students] are going to hate it and never want to do this again, because all they're doing is using Zoom to reproduce everything that's wrong with traditional passive, teacher-centered modes of teaching," said Bill Cope, a professor of education policy, organization and leadership at the University of Illinois at Urbana-Champaign.

Undergraduates already seemed lukewarm toward virtual higher education; only about 20 percent took even one online course in the fall of 2018, the consulting firm Eduventures estimates.

If they didn't like that, they definitely don't like what they're getting this semester.

More than 75 percent said they don't think they're receiving a quality learning experience, according to a survey of nearly 1,300 students by the online exam-prep provider OneClass. In a separate poll of 14,000 college and graduate students in early April by the website niche.com, which rates schools and colleges, 67 percent said they didn't find online classes as effective as in-person ones.

Among college-bound high school seniors, fewer than a quarter said in December that they were open to taking even some of their college courses online, Eduventures reported; by the end of March, after some had experienced virtual instruction from their shutdown high schools, fewer than one in 10 polled by niche.com said they would consider online college classes.

Sentiments like these suggest there's little likelihood that students will desert their real-world campuses for cyberspace en masse. In fact, if there's a silver lining in this situation for residential colleges and universities, it's that students no longer take for granted the everyday realities of campus life: low-tech face-to-face classes, cultural diversions, libraries, athletics, extracurricular activities, in-person office hours and social interaction with their classmates.

"The beauty of a residential education has never been more apparent to people," said Michael Roth, the president of Wesleyan University.

But advocates for true online instruction say that students' experience of taking courses on their own schedules over mobile

platforms may come back to them later, when they're ready to move on to graduate or professional educations.

Online higher education "is a thin diet for the typical 18-year-old," said Richard Garrett, the chief research officer at Eduventures. "But today's 18-year-olds are tomorrow's 28-year-olds with families and jobs, who then realize that online can be useful."

Already, more than half of American adults who expect to need more education or training after this pandemic say they would do it online, according to a survey of 1,000 people by the Strada Education Network, which advocates connections between education and work.

It isn't entirely students who will move this needle, observers say. It's also faculty.

Even those who had long avoided going online have had to do it this semester, in some form or other. And they may have the most to learn from the experience, said Michael Moe, chief executive of GSV Asset Management, which focuses on education technology.

Along with their students, faculty were "thrown into the deep end of the pool for digital learning and asked to swim," Mr. Moe said. "Some will sink, some will crawl to the edge of the pool and climb out and they'll never go back in the pool ever again. But many will figure out what to do and how to kick and how to stay afloat."

If there's anyone who's banking on this, it's the ed-tech sector. More than 70 percent of such companies have been offering products and services to schools and colleges free or at steep discounts this semester, anticipating sales later, according to the consulting firm Productive.

Cengage, for example, is providing free subscriptions to its online textbooks, and says it has seen a 55 percent increase in the number of students who have signed up for one. Coursera is providing 550 colleges and universities with free access to its online courses.

"Administrators and educators are reframing their attitudes," said John Rogers, education sector lead at the \$5 billion Rise Fund, which is managed by the asset company TPG and invests in ed tech. "That really is the difference-maker. The pace of adoption of those tools will accelerate."

People resist new ideas until external shocks force them to change, said Dr. Govindarajan, who cites as an example the way World War II propelled women into jobs that had traditionally been done by men. "We are at that kind of inflection point."

Faculty, he said, will ask themselves, "What part of what we just did can be substituted with technology and what part can be complemented by technology to transform higher education?"

Universities should consider this semester an experiment to see which classes were most effectively delivered online, he said — big introductory courses better taught through video-recorded lectures by faculty stars and with online textbooks, for example, which could be shared among institutions to lower the cost.

Students who want classes best provided face to face, such as those in the performing arts or that require lab work, would continue to take them that way.

"Let's take advantage of this moment to start a larger conversation" about the whole design of higher education, Dr. Govindarajan said.

"We had better not lose this opportunity."

The 'Public' in Public College Could Be Endangered

The New York Times, By Kevin Carey, May 5, 2020

Since the Great Recession, states have taken drastically different approaches to funding colleges. The pandemic poses an even bigger challenge.

Public colleges and universities are in trouble. Campuses may not reopen this fall, potentially gutting tuition and dormitory revenues. Endowments have been hit by the falling stock market, and alumni donations may dry up. Institutions without a financial cushion will struggle to survive.

Looming ahead is an even bigger problem, one that will last for years after the pandemic itself is over. The severe economic contraction is pummeling state tax revenues. Moody's Analytics projects a 20 percent decline in state receipts next fiscal year.

If historical patterns repeat, public college and university budgets will be slashed, sending tuition and student loan debt skyward. Some institutions will be so starved of funding that they will effectively cease to be "public" at all. Others will have a greatly diminished ability to help students learn.

Many colleges never fully recovered from the Great Recession. In 2008, commitment to higher learning already varied widely among the states, with spending per student ranging from less than \$7,000 in Ohio, Pennsylvania and Colorado to over \$10,000 in North Carolina, Massachusetts and New York.

Over the next five years, almost every state cut college spending, often more than other public services. Lawmakers know that colleges can increase tuition to make up lost revenue, while K-12 schools and prisons can't. By 2013, state spending on higher education was still down almost 22 percent from the pre-recession peak, adjusted for inflation. Tuition had increased by 27 percent.

What happened next was revealing, and should make students, families and professors in many states especially worried.

As the economy continued to grow, some states restored most or all of the recession-era cuts. By 2019, states including California, New York, Nebraska and Oregon were funding public colleges at levels higher than 11 years prior.

But other states made different choices. Arizona, Louisiana, Alabama and Pennsylvania had all reduced college funding per student by more than 30 percent. Rather than fill those budget holes, they mostly left them in place. Public university tuition in those states soared.

Now states are facing a budget crisis that could be even worse than the one caused by the Great Recession. What happens if public higher education takes it on the chin once again?

Daniel Greenstein is chancellor of the Pennsylvania State System of Higher Education, a network of 14 public universities educating nearly 100,000 students in locales including Edinboro, Slippery Rock and East Stroudsburg. After the last recession, Pennsylvania lawmakers cut overall public higher education spending statewide to \$4,300 per student from about \$6,900. If a similar cut were enacted again, it would bring funding to barely \$2,000 per student.

"If we have a recurrence of what happened in the past," Mr. Greenstein said, "it would be catastrophic."

Tuition and fees rose sharply after the last downturn, he notes. As a result, enrollment rates declined among low- and moderate-income people who could not afford to pay — the very students state universities like those he leads are expected to be most focused on serving. In-state tuition at Pennsylvania public universities is now among the highest in the nation.

Nationwide, the effect of the last recession on university finances was partly offset by tuition increases financed by federally guaranteed student loans. But that just shifted the problem from one place to another. When Lehman Brothers collapsed in September 2008, Americans owed about \$660 billion in outstanding student loan debt. That amount is over \$1.6 trillion today.

Alarm about the student debt problem grew in volume over the last decade as debt totals climbed. In the future, colleges and universities can't rely on students and parents borrowing another trillion dollars to make ends meet. Many are already taking out the maximum allowable amount of federal loans.

Some universities offset budget cuts by aggressively recruiting foreign and out-of-state students, who pay much higher tuition rates. Alabama cut funding by nearly 40 percent after the Great Recession. Most of those dollars were never restored. In response, the flagship University of Alabama sent recruiters fanning out across the nation. Today, the majority of undergraduates in Tuscaloosa are from out of state.

If Alabama makes similar cuts next year and tuition rises once again, the state's ratio of student tuition to public funding will have gone from 2:3 in 2008 — two dollars of student tuition for every three dollars of public funding — to 7:1, or seven dollars of student tuition for every one dollar of public funding. In other words, the privatization of a public university system in a single generation.

States are reopening bit by bit. This means that more public spaces are available for use and more and more businesses are being allowed to open again. The federal government is largely leaving the decision up to states, and some state leaders are leaving the decision up to local authorities. Even if you aren't being told to stay at home, it's still a good idea to limit trips outside and your interaction with other people.

Alabama would not be alone. If 2008-level cuts to state public higher education funding are repeated and replaced with tuition, 23 states will have a tuition-to-public-funding ratio greater than 2:1.

And that assumes they can actually increase tuition dollars. The flow of lucrative full-tuition-paying international students has been choked off by travel restrictions tied to the coronavirus pandemic. Domestic students who were planning to matriculate out of state may want to stay closer to home. Public universities are often a bulwark against the economic hollowing-out of many rural and nonurban communities. If the universities go under, more social devastation could follow.

Low-cost community colleges may be unable to raise prices in response to budget cuts. Their financial losses would result in diminished capacity — fewer professors, classes, course sections and degree programs, at precisely the moment when those institutions could best help millions of unemployed workers go back to school. This, in turn, could create ripe conditions for predatory colleges offering worthless debt-financed degrees, a dynamic that led to tens of thousands of defaulted student loans after the last recession.

Ideology is likely to play a role in state budget choices. The states that cut higher education funding deepest after the last recession and never brought the money back were, for the most part, led by Republicans. The states that made smaller cuts and restored lost revenue were largely run by Democrats.

Cutting universities loose to compete for customers in the free market could fundamentally alter the character of public institutions. Colleges chasing tuition dollars are more likely to spend scarce resources on marketing, amenities like luxury gymnasiums, and sports programs. They are less likely to prioritize need-based financial aid, student counseling and academic support. A university that is public in name only will make different decisions about which students matter and why. Without a solid foundation of taxpayer support, it may make different trade-offs between financial need and public health when it comes to bringing students back to campus this fall.

One possible solution would be for Congress to give states immediate financial relief in exchange for strengthening their long-term financial commitment to public higher education. James Kvaal, president of the nonprofit Institute for College Access and Success and a former Obama White House official, said: “This time, states should be required to restore funding as their economies recover. Unless states do their share, whatever money Congress spends is just pushing on a wet noodle.”

Mr. Greenstein sees a bleak path ahead if his system is forced to endure another round of huge budget cuts that would disproportionately hurt low-income students, people of color and students from rural areas. “You’re killing the state’s future,” he said.

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Remember the MOOCs? After Near-Death, They’re Booming

The New York Times, By Steve Lohr, May 26, 2020

The pioneering online learning networks offer hard-earned lessons for what works and what doesn’t with online education. Sandeep Gupta, a technology manager in California, sees the economic storm caused by the coronavirus as a time “to try to future-proof your working life.” So he is taking an online course in artificial intelligence.

Dr. Robert Davidson, an emergency-room physician in Michigan, says the pandemic has cast “a glaring light on the shortcomings of our public health infrastructure.” So he is pursuing an online master’s degree in public health.

Children and college students aren’t the only ones turning to online education during the coronavirus pandemic. Millions of adults have signed up for online classes in the last two months, too — a jolt that could signal a renaissance for big online learning networks that had struggled for years.

Coursera, in which Mr. Gupta and Dr. Davidson enrolled, added 10 million new users from mid-March to mid-May, seven times the pace of new sign-ups in the previous year. Enrollments at edX and Udacity, two smaller education sites, have jumped by similar multiples.

“Crises lead to accelerations, and this is best chance ever for online learning,” said Sebastian Thrun, a co-founder and chairman of Udacity.

Coursera, Udacity and edX sprang up nearly a decade ago as high-profile university experiments known as MOOCs, for massive open online courses. They were portrayed as tech-fueled insurgents destined to disrupt the antiquated ways of traditional higher education. But few people completed courses, grappling with the same challenges now facing students forced into distance learning because of the pandemic. Screen fatigue sets in, and attention strays.

The sites even became a punchline among academics: “Remember the MOOCs?”

But the online ventures adapted through trial and error, gathering lessons that could provide a road map for schools districts and universities pushed online. The instructional ingredients of success, the sites found, include short videos of six minutes or less, interspersed with interactive drills and tests; online forums where students share problems and suggestions; and online mentoring and tutoring.

“Active learning works, and social learning works,” said Anant Agarwal, founder and chief executive of edX. “And you have to understand that teaching online and learning online are skills of their own.”

The proclaimed mission of the MOOCs was to “democratize education.” The early courses attracted hundreds of thousands of students from around the world.

Udacity and Coursera were founded at Stanford University by high-profile professors in the hot field of artificial intelligence. EdX, created by the Massachusetts Institute of Technology and Harvard University in 2012, is a nonprofit.

Coursera and Udacity soon attracted money from Silicon Valley’s leading venture firms. The courses were all free. It was the classic internet formula: lure a big audience, and figure out a business model later.

Executives eventually discovered that earning credentials for completing courses and paying fees drove completion rates far higher. Typically, 10 percent or fewer students complete free courses, while the completion rates for paid courses that grant certificates or degrees range from 40 percent to 90 percent.

A few top-tier universities, such as the University of Michigan and the Georgia Institute of Technology, offer some full

degree programs through the online platforms. Dr. Davidson is taking Michigan's public health course.

While those academic programs are available, the online schools have tilted, either cautiously or wholeheartedly, toward skills-focused courses that match student demand and hiring trends.

"Our main goal is to solve learning, not the skills problem," Mr. Agarwal said. "Though frankly, that's where the money is."

Udacity has made the most drastic transformation toward a skills factory. It has developed dozens of courses on its own and with corporate collaborators including Google, Amazon and Mercedes. Its course offerings are largely in digital skills like programming, data science and artificial intelligence, fields where companies say they need workers.

"Companies are better positioned to see where the jobs of tomorrow will be and prepare people for them than universities," Mr. Thrun said.

Just a couple of years ago, Udacity's survival was in doubt. When Mr. Thrun returned to oversee operations in 2018, it was a few months from running out of cash. Over the next two years, Mr. Thrun laid off about half the work force. "The worst period of my life," he recalled.

Today, with 320 employees and 1,300 part-time project reviewers and mentors, Udacity's fortunes have improved. It is tightly focused on its training business, for both individual students and for corporations that pay Udacity to upgrade the skills of their employees and to advise them on redeploying workers in digital operations.

The Udacity courses, which it calls nanodegrees, take most students four to six months to complete, if they put in 10 hours a week. The average cost is \$1,200. The learning is based on projects, rapid feedback — including project reviews in two hours — and online mentoring.

David Hundley has taken several Udacity courses in data science and machine learning in the last two years. A business analyst at State Farm, he wanted to develop tech skills for a better job and brighter career prospects.

Today, Mr. Hundley, 30, is proficient in modern software tools like Python and TensorFlow and has a portfolio of projects on GitHub, where software developers display their work. In January, he landed a new job at the insurance company as a machine-learning engineer.

State Farm paid for a couple of the Udacity courses, and he paid for the others. "It was a hundred-percent worth it," Mr. Hundley said. "Two years ago, I didn't know anything about coding. Now, I'm a machine-learning engineer."

Coursera is a hybrid, retaining much of the character of the original MOOCs, while striving to build a sizable business.

Coursera has raised more than \$300 million in venture funding over the years. It hosts more than 4,000 courses, created mainly by university professors but also by companies like Google and IBM. The certificate courses are typically priced at \$39 to \$79 a month, or a \$399 annual fee. University master's degree programs start at \$15,000 and go up to \$40,000.

But fewer than 10 percent of Coursera students pay for courses; they take them free. That is part of the company's mixed model of offering both free and paid-for learning options, said Jeff Maggioncalda, chief executive of Coursera, noting that 60 percent of students in its degree programs try free courses first.

Some of the most popular courses are not about writing code or making money. The breakout hit of the pandemic season is "The Science of Well-Being" by Laurie Santos, a professor of psychology at Yale University.

Mr. Maggioncalda describes Coursera as a "managed marketplace," similar in concept to Apple's app store. Coursera determines which institutions get to publish courses on its platform, and has rules and guidelines for format standards and price ranges. For degree courses, universities collect 60 percent of the revenue and Coursera 40 percent. On certificate courses, mainly in technology and business subjects, the split is 50-50.

The millions of people flocking to take courses on Coursera in recent weeks suggest the brand value of its learning network. About half the company's 600 employees are product managers, engineers and data scientists, working to improve the online learning experience and more effectively market the university courses.

Before the pandemic hit, Coursera projected growth of 30 percent this year, to more than \$200 million. That forecast looks decidedly outdated, given the surge in the last two months, but how long the trend lasts is uncertain.

The Covid-19 effect on online learning could broaden the range of popular subjects, education experts say. But so far, training for the tech economy is where the digital-learning money lies. With more of work and everyday life moving online — some of it permanently — that will probably not change.

"Digital-skills jobs will be where there is greatest demand," Mr. Maggioncalda said, "and those jobs will be less likely to be affected by pandemics in the future."

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A Crisis for Urban Universities

The Wall Street Journal, By Richard Florida and Jeffrey Selinger, May 7, 2020

Academic institutions have driven the revival of many U.S. cities, but the pandemic is threatening the sources of their success.

More than a month after the Covid-19 pandemic forced universities across the U.S. to shut down their campuses and quickly shift to online learning, many college officials are warning that they may not be able to reopen in the fall. Urban colleges and universities are particularly vulnerable.

More than half of the nation's students attend college in metro areas with more than one million people. Today, greater New York City is the nation's largest college town, with more than one million students, followed by Los Angeles with 950,000 and Chicago with 520,000. Indeed, Los Angeles is on par with famed college towns like Austin, Texas, with college students making up some 7% of its population.

This a relatively recent development, and urban universities are still more fragile than they might seem. Traditionally, higher education in America meant bucolic campuses nestled in small towns and rural areas. This is true not just of small liberal-arts colleges in New England, like Amherst, Williams and Middlebury, but also of many of the major state universities in the Midwest and Ivy League schools like Cornell and Dartmouth.

Not too long ago, urban universities such as New York University, the University of Southern California and Boston University had lackluster academic reputations. They also suffered from being located in what were perceived as higher-crime areas. Many of the neighborhoods surrounding these urban campuses were damaged by the misguided urban renewal strategies of the 1950s, '60s and '70s.

But as the back-to-the-city movement hit its stride in the late 1990s, urban universities were in vogue. Even those in smaller metro areas, like Brown University in Providence, R.I., jumped to the front ranks. Former NYU president John Sexton liked to say that his university was blessed by a spectacular "locational endowment" to compensate for its more meager financial one. These urban universities benefited immensely from the buzz and liveliness of their surrounding neighborhoods, which in turn propelled further gentrification, making some of them, like the area surrounding NYU, among the most desirable and expensive ZIP codes in the country.

As the neighborhoods surrounding these colleges and universities improved, so did their rankings and application volumes. The University of Pennsylvania was one of the first to see the potential in its urban location. In the 1990s, under the leadership of its president Judith Rodin and COO John Fry, Penn's West Philadelphia Initiatives invested hundreds of millions of dollars in retail stores, a hotel and a public school, as well as encouraging university employees to buy homes in the neighborhood.

Today, as president of Philadelphia's Drexel University, Mr. Fry is leading a multibillion-dollar effort to transform the Schuylkill rail yards into an urban innovation district. Many urban universities have followed the same playbook, including the University of Pittsburgh and Carnegie Mellon in Pittsburgh, Ohio State in Columbus, Arizona State in Phoenix and Creighton in Omaha. In Los Angeles, USC built a new mixed-use district of residences and shops to attract students, and unleashed a major marketing campaign that set campus landmarks against a backdrop of downtown skyscrapers.

As the neighborhoods surrounding these colleges and universities improved, so did their rankings and application volumes. The schools' bottom lines benefited as well: Moody's Investors Services has been consistently bullish on urban institutions, even as it has generally been pessimistic about the higher education sector as a whole.

In many places, universities play the critical role of 'anchor institution,' serving as the largest employer and the most important driver of urban revival.

But now, the Covid-19 lockdown and its economic fallout threaten the fabric of urban life: restaurants and bars, arts and cultural activities, and the career opportunities that big cities offer. The impact of this shift is troubling not only for higher education but for cities themselves. In many places, universities play the critical role of "anchor institution," serving as the largest employer and the most important driver of urban revival, thanks to the talent and high-tech innovation they attract. The crisis is likely to hit hardest at less well-endowed institutions in smaller and medium-size cities. The University of Akron, a key force in that Ohio city's ongoing economic transformation, recently announced that it was eliminating six of its 11 colleges to cope with the budget crisis brought on by the pandemic.

For the next six to 18 months, urban universities must prepare for a painful period of adjustment as the country struggles to get the coronavirus under control. They will have to retrofit classrooms, residences and dining halls to allow students to return safely, just as cities must prepare their transit systems and office buildings.

Urbanization is a more powerful force than infectious disease, but urban universities have no such guarantee.

But crises, as difficult and wrenching as they can be, also offer opportunities. The ways that urban universities and their cities reinforce and need one another has never been more apparent. From the start of the pandemic, academic medical

centers have been key in treating Covid-19 patients. Universities and cities can also work together to create new therapies and design healthier physical spaces.

Urban universities must also prepare for the possibility that campuses won't be able to reopen in the fall and consider alternatives. With many students likely to stay home for a semester or two, colleges and cities can work together to create AmeriCorps-like public service programs, enlisting students to battle the virus and rebuild their communities. The new consortia of states that are being created to manage the recovery are a perfect vehicle for mobilizing students who go to college in one state and live in another.

For those who would rather go back to college in the fall, urban institutions can craft a domestic version of a study-abroad program, where students spend a semester or two at rural colleges that are able to reopen. Such a network of institutions could help to address the urban-rural divide by sharing academic resources, exchanging students and faculty, attracting young talent to rural areas and strengthening smaller rural colleges and universities that are crucial anchors for their communities.

In the long run, our great cities will survive Covid-19, just as they have survived previous crises. Urbanization is a more powerful force than infectious disease. But urban universities have no such guarantee. What they do now will determine whether they can thrive, or even survive, in this challenging new chapter for urban America.

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