

# Chapter 11

## DIY U: Higher Education Goes Hybrid

Anya Kamenetz

The days in which the phrase “digital higher education” is meaningfully distinguishable from simply “higher education” are numbered. Very few moments of our lives are free of the influence of electronic media. And the digital atmosphere we breathe reaches farther than we know: There are six billion mobile subscriptions for the world’s seven billion people<sup>i</sup>. The ability to hold a global conversation at the tap of a button and to find any bit of information in an instant can’t help but transform education. So, while a third of the nation’s postsecondary students were taking at least one online course in the United States in 2010, in a broader sense, nearly all education today is hybrid.<sup>ii</sup> Whether designated “traditional,” “online,” or some combination of the two, it consists of live humans located in physical locations pursuing knowledge by whatever means available—digital, analog, and usually both.

That said, we have a legacy infrastructure, particularly for broad-access institutions, built before the digital mode existed. The further hybridization of higher education will not automatically result in better outcomes for the students these institutions serve. Until now, online education has been primarily associated with for-profit colleges, which have very poor graduation rates and account for a disproportionate share of all student loan defaults<sup>iii</sup>. To correct that vision, this chapter focuses on the most innovative nonprofit and public providers. Still, for-profit service providers (and certain venturesome nonprofit foundations) are heavily involved in bringing new technologies to higher education, with complex implications that will be noted later on.

I am interested in the ways that technology might serve all learners better. I will discuss five in this chapter.

### Meet the New Traditional Learner

“Nontraditional learners” have at least one of these characteristics: they have no high school diploma, enrolled more than one year after high school, are financially independent from parents, work full time, or are responsible for children or other dependents. Three-fourths of all enrolled students are “nontraditional” by these measurements<sup>iv</sup>. To these student groups of special concern we might add the overlapping populations from the bottom quartile of income, immigrants, and first-generation college students, who have trouble succeeding in college because of lack of cultural familiarity, lack of money, or both.

What does technology promise for nontraditional students? Convenience. Cost. Customization. Completion. Connection. And more.

## First: Convenience. Learning when and where you need it.

Merely offering classes online, or posting recordings of lectures after the fact, doesn't necessarily meet the threshold for convenience for broad-access students today. Best-of-breed programs offer anytime-anywhere access to classes.

"They're not all studying at home," says Mark Milliron<sup>v</sup>, chancellor of Western Governor's University-Texas, a nonprofit, low-cost, online, competency-based undergraduate institution integrated with the state's public university system. WGU nationally, with additional state branches in Indiana and Washington State, serves a largely adult working-class population of 35,000 students.<sup>vi</sup> "They're accessing materials during an hour break at work, or waiting to pick up their kids in the car for twenty minutes. That's why we're rolling out a BYOD—bring your own device—portal accessible through multiple platforms." Like a Netflix or Kindle account, whether WGU students sign in on their phones, tablets or laptop, they'll be able to see all their course materials and pick up where they left off.

The University of the People, a nonprofit and not-yet-accredited online college, offers four-year undergraduate degrees in computer science and business administration for free. They have admitted 1,500 students from 132 countries, and designed the course materials to be accessible for students who may be accessing the Internet on their phones<sup>vii</sup>. Billy Sichone is a 40-year-old nonprofit worker from Zambia who studies business with University of the People. "Last year I was traveling abroad to Ghana on business. But my Nokia smartphone was very helpful for doing my assignments and sending them in on time. I can be at any point in the globe, traveling, as long as there's a network."<sup>viii</sup>

Convenience may mean rolling starts: Rio Salado Community College in Arizona has 48 start dates a year.<sup>ix</sup> For online and hybrid programs it also means access to support and information when and where it is needed, by phone, Skype, email, text, or however the student chooses. "We have to pick up the phone, treat our students as customers, respect their opinions," says Yvonne Simon, director of online programs at Southern New Hampshire University, a nonprofit brick-and-mortar campus whose Center for Online and Continuing Education (COCE), is the largest online-degree provider in New England. SNHU's president, Paul LeBlanc, hired Steve Hodownes, former CEO of an online customer-relationship company, to shape online operations in the style of award-winning online retailers like Amazon or Zappos.

Convenience is a word from the world of customer service, which may make it distasteful to some traditional educators. It's exactly that attitude that the innovators are trying to challenge in the name of better reaching underserved students. To be sure, there's a balance to be struck between student-centeredness and the rigor required for advanced learning. Convenience doesn't necessarily mean being fully disconnected from the calendar or refusing to put any demands of time and place on students. Most online programs have some synchronous elements, such as proctored exams. Even the massively open online course platforms, like Coursera and Udacity and edX, where courses have thousands of registrants, have start and

end dates and weekly deadlines with penalties for lateness. This timeliness maintains course integrity, a sense of urgency, and the social benefits of a class cohort.

## **Second: Cheaper cost to students.**

Meaningful innovation in any field requires improvement to come simultaneously with cost reduction. Moore's Law is the famous observation by Gordon Moore, of the computer chip manufacturer Intel, that over the life of computing hardware the number of transistors on integrated circuits doubles approximately every two years. Economics actually "dictates" the law as originally stated:<sup>x</sup> chips must not only get faster and smaller, but get faster and smaller while also minimizing cost. An Ipad would be far less useful, not only if it were the size of a refrigerator, but if it cost millions of dollars.

The need to hold down college costs likewise offers a prime rationale for doing things differently. And it is broad-access institutions, serving lower-income students with fewer dollars per head, that feel this impetus most keenly. Or, at least they should.

In fact, there are no functioning marketplaces in the world of higher education. It's been observed that universities in the real world seem to conduct their accounting instead by Bowen's Rule: they get all the money they can and spend all the money they can get. The large for-profit universities like Kaplan and Phoenix follow the same rule. Despite the lower costs of online delivery, they tend to set their tuition at the maximum rate allowable by student loan limits, getting close to 90% of their funding from federal student aid—essentially making them federal contractors.<sup>xi</sup>

Over the past thirty years, our public broad-access institutions have responded to cuts in state spending by raising tuition, while putting less money into instruction and more into administration.<sup>xii</sup> As tuition has risen at double the rate of inflation for four-year colleges, graduation rates have stagnated.<sup>xiii</sup>

Under this regime, new technologies—whiteboards and clickers in lecture halls, high-speed Internet in residence halls, massive enterprise-based software systems, audiovisual recordings of classes—have added costs without subtracting any to speak of.<sup>xiv</sup>

## **Cost and Technology: Three Bites of the Apple**

A few programs are showing a different way forward. Technology offers paths to cost savings while also improving teaching and learning. For many, the first bite of the apple is sharing and reuse of digital course content. The second bite is learning models that replace paid instructor time with a combination of digital tutors and social platforms that increase the role of peers in learning and assessment. The third, most radical bite challenges the very notion of "seat time," improving efficiency of the entire system while encouraging learners to take a more active role in identifying and pursuing their goals. Technology supports strategies like centralized course planning, streamlining of degree programs, competency-based learning, credit by portfolio and credit by exam.

The online-only, nonprofit WGU, as mentioned earlier, represents all three bites of the apple. WGU certifies working adults in the specific competencies that will connect them to better jobs in teaching, healthcare, computer science, and business, awarding full BAs and MAs in a matter of months, not years. Students work through self-paced material designed with input from corporate board members like AT&T and Oracle. They always have the option of earning credit by passing an assessment rather than completing specific course material. In the 2011-2012 academic year, the governors of Indiana, Washington State and Texas each invited WGU to integrate with their public university systems by opening virtual branch campuses.<sup>xv</sup> Not lost on these states, surely, is that WGU is completely self-sustaining on tuition of \$6000 a year with no outside funding—a figure that’s remained flat for 5 years, during which time tuition at the average public university rose 45 or 56% each year.<sup>xvi</sup>

“Our goal is to increase productivity fast enough to give a better education without having to raise tuition,” says Chancellor Bob Mendenhall. The institution pushes efficiency through new technologies—for example, they just moved from administering exams at test centers to virtual proctoring, verifying identities through webcam observation and biometrics. Meanwhile, they obsessively track metrics on student engagement, satisfaction, and success, including independent tools like the National Survey of Student Engagement and the Collegiate Learning Assessment.

Not every institution can or should be a WGU. The college focuses on older adults who already have a chosen career. Upwards of three-quarters are already working full time. They have high self-motivation and sufficient technical skills to participate in online learning. The university offers programs in only four disciplines, with limited attention to the liberal arts or sciences, and no research. The state governments that have adopted WGU into their “family” of public institutions, as Indiana’s governor Mitch Daniels likes to put it, see it as filling a gap, not providing a comprehensive solution.

Broad access institutions that serve students who are just identifying their life paths, or support missions of scientific inquiry and liberal arts research, may stop at one or two bites of the apple of technology: by adopting open content or accreditation policies for open learning, for example. They may also gain from collaborating with institutions like WGU that have gone farther.

## Digital Content

Traditional college textbooks cost typical full-time students around \$900 per semester.<sup>xvii</sup> For community college students, that is similar to their tuition. Over the past decade there has been a growing international movement, headed by the Open Courseware Consortium, to create digital open educational resources (OER) that are licensed under a Creative Commons license, permitting free remixing, reuse and redistribution digitally at a marginal cost of approximately \$0.0007 per copy.<sup>xviii</sup>

Since early 2012, there’s been a new brand of free digital resource on the block: the MOOC (Massively Open Online Course). Offered first by professors at Stanford and MIT (building on earlier work at Brigham Young, Canada’s Athabasca University, and elsewhere), a MOOC is a sequence of video lectures often broken up into 5 to 10 minute chunks, interspersed with quick

recall questions; longer assignments; and a final exam. All of this material is free and accessible through a web site with social features, like a message board and wiki, that can accommodate tens of thousands, even 250,000 students at once. Once such a course is created, it can be run infinite times, with additional costs limited to the cost of servers and live support.

Coursera, a for-profit venture started by two Stanford professors, has partnered with 33 leading international universities to enroll 1.6 million users as of fall 2012, offering over 200 courses;<sup>xix</sup> edX is a joint nonprofit venture of Harvard, MIT, Berkeley and UT Austin; Udacity has an original curriculum created by professors at Stanford and elsewhere.<sup>xx</sup> Each is offering the courses for free, without accreditation. (Only edX courses are technically OER, meaning the software platform on which they are published remains open-source; rules for remixing and reuse of course content vary from platform to platform. The Saylor Foundation, Peer to Peer University, and Codecademy have offered an open “mechanical MOOC” that remixes material available around the web to construct a course in the programming language Python.)

MOOCs are currently causing a huge stir throughout the world of higher education.<sup>xxi</sup>

The *Times* reported that Helen Dragas, the University of Virginia Board member responsible for the summary dismissal of president Teresa Sullivan, forwarded an article about Coursera to a board colleague with the subject line: “Why we can’t afford to wait.”<sup>xxii</sup> (The reinstated Sullivan announced that UVA would partner with Coursera.)

For a small percentage of nontraditional students, MOOC platforms may constitute the first viable and radically cheap alternative to undergraduate or graduate study. The successful students I talked with were remarkable for their intelligence, curiosity and self-motivation. These are often working adults, often in other countries, who are supplementing or enhancing an existing university. Anuj Kumar, 28, of Bangalore, has an Indian master’s degree in computer science and spent four years working at Oracle; he took a Stanford-based Machine Learning course to assist him in starting a business. Dennis Cahillane, 29, found no work as an attorney despite a law degree from the University of Chicago. So he embarked on an intensive self-study of Stanford computer science classes, as well as an internship at a nonprofit, and was employed as a computer programmer within 19 months.

These are wonderful success stories. But broad-access institutions by definition serve the majority of students, not merely the most self-directed and motivated, let alone those who already have a degree. For most students free online courses, while exciting, do not constitute an end-to-end solution to the problem of rising college costs. For one thing, every MOOC platform has reported attrition rates of 75 to 95 percent for individual courses—not too much worse than most community colleges, but still a troubling statistic. And the courses are not yet organized into full curricula. For another, “free” MOOC platforms are currently supported by a combination of venture capital and investments from participating universities. At some point they will have to implement business models, which may include advertising, data collection on students, or charging students a fee of \$50-\$100 to certify completion of a particular course. Broad-access institutions could leverage their limited campus resources to guide, motivate, support and certify students participating in free online courses. Or they could adopt free best-of-breed MOOCs as a supplement, extension or substitute for their own curricular development. “Does it really make sense to have thousands of community-college instructors developing the

same courses?” asks Daphne Koller, Stanford professor and founder of Coursera. “We see this as an easy, very natural direction for the world to take.”

True OER, with its rules concerning sharing and reuse, may be a more solid foundation for improving productivity at public broad-access institutions. In January 2011 the Department of Education and Department of Labor jointly announced \$2 billion in grants for the creation of innovations including open educational resources at community colleges.<sup>xxiii</sup>

## Third: Completion

Open learning resources present a chance to glean tens of millions of new graduates at the lowest possible cost by offering flexible reentry points for adults who have already begun their educational journeys.

### Prior Learning

Prior learning assessment, or PLA, the awarding of college credit through exams or portfolios, has been around for decades but is rarely used outside of the AP exam. A 2010 study by the Center for Adult and Experiential Learning of over 60,000 students at 48 colleges and universities, found that participation in prior learning assessment has a dramatic effect on graduation rates and time to degree.<sup>xxiv</sup> The students saved between 2.5 and 10 months in their time to graduation through PLA. Even those who did not graduate accumulated more credits than non-PLA students. A majority of PLA participants earned a degree within seven years, compared to 21 percent of non-PLA students. The differences persisted after accounting for the level of academic preparation, the income levels of the students, and the type of college. Other studies have found that students who create portfolios gain insight into how they learn best and confidence that helps them become more engaged and successful students.

In 2011, the nonprofit Council for Adult and Experiential Learning (CAEL) launched LearningCounts.org as a national service for Prior Learning Assessment (PLA).<sup>xxv</sup> Anyone can call and speak to an advisor to learn about their options for receiving college credit for prior learning, either through an exam program like ACE or CLEP, or directly through LearningCounts’ online portfolio class. Their 6-week course costs \$500 plus \$50 for each credit you want to have evaluated. LearningCounts.org has partnered with hundreds of universities that agree to accept their credits to enhance their use of prior learning.

Prior learning assessment is a ready path for colleges to domesticate the free and wild learning going on in open provinces of the web. Wayne Mackintosh directs the International Center for Open Education at Otago Polytechnic in New Zealand and is the founder of the Open Educational Resources University. OERU is committed to developing assessments and accreditation for learning accomplished through the use of open educational resources. “It’s a simple concept aimed to provide free learning for all students worldwide and start tackling the obstacles,” says Mackintosh. “Given the technology we have combined with free content licensing, it’s certainly possible to provide learning materials for degree programs for free.” So far, OERU counts 18 anchor partners on five continents, including SNHU, Empire State and Thomas Edison State College in the US.<sup>xxvi</sup>

Part of the public college system of New York, Empire State College is a national leader in prior learning assessment and an instructive model for broad-access institutions that seek the hybrid path. It offers both online and on-campus programs in several locations around the state. Of

Empire State's 20,000 students, five to ten percent a year participate in prior learning.<sup>xxvii</sup> Students have earned college credit for running a business, military training, professional licenses and certifications, or even hobbies such as gardening or theater. Students who want this kind of credit must take an online workshop where they reflect on their learning and create a "portrait" of their experiences, which may be a written essay or multimedia presentation documenting what they've learned and how it satisfies the college's requirements. Adjunct faculty mentors earn \$100 to \$150 for working with a student to create a portfolio and then evaluating it, and outside experts may review it. An adjunct might earn \$2,000 for teaching a four-credit course, so if there are fewer than 20 students in that course, PLA is cheaper.<sup>xxviii</sup> That savings is passed on to the student, who pays \$80 to \$100 when seeking four credits through PLA.<sup>xxix</sup>

## Badges and Microcertifications

A badge, as familiar to all Scouts, is defined as any recognition of a specific skill, competency, or achievement. In the past decade, there's been increasing interest in badges that recognize the learning going on in informal and especially digital domains. The Mozilla Foundations' Open Badges project was initially developed to salute web development skills.<sup>xxx</sup> They're now building a shared, free open-source infrastructure to enable libraries, museums, afterschool programs, labor unions, and other providers or verifiers of learning to create badges that can be earned and displayed by anyone across the web. A badge could be awarded based on challenges created by the issuer, or by peer assessment, or self-verified by being linked transparently to the accomplishment itself. In 2012, the MacArthur Foundation, in partnership with Mozilla, sponsored a national competition for badges for lifelong learning.<sup>xxxi</sup> One winner was the Department of Veterans Affairs, BadgesWork for Vets program, created to "visually represent military training and real world skills acquired while serving in any of branch of the US military."

While badges represent an edge case, they're not the first or only alternative postsecondary credential. States and hundreds of nonprofit industry associations in the US offer thousands of licenses and certifications to qualify people in specific careers, from state-licensed massage therapist to LEED-certified green building specialist. These vary widely in quality and their value in various professional circles, but an open digital infrastructure where they could be compared along various dimensions could go a long way toward enhancing their visibility, transparency, and interoperability—and therefore their value to nontraditional learners.

## Hurdles to the Finish Line

The tens of millions of Americans who have started college and not finished it constitute our best hope for improving the national education rate. The current edifice of higher education blocks the "swirling" of these millions in their path toward a degree.

Prior learning assessment and other kinds of competency-based assessments are at odds with a regulatory system based on the credit hour. While WGU and other institutions have found ways around it, many leaders see regulation stifling innovation. "The traditional system has been a barrier," says President Chris Bustamante at Rio Salado Community College.<sup>xxxii</sup> "We'd like to see more opportunities for prior learning assessment, where we can cut the time to a

degree or certificate, and especially in the developmental education mode—being able to diagnose and modularize curriculum to address gaps in learning rather than starting from a to z.”

## **Fourth: Customization**

While the stereotypical 18-year-old, upper-middle-class, high-scoring college freshman might be expected to conform to the requirements of an institution, broad-access institutions are charged instead to meet the requirements of their students. The Platonic ideal in higher education is a close relationship between a tutor and student where a young mind is kindled and drawn out, developing a personal philosophy and view of the good life. Unfortunately, the budgetary constraints of mass higher education have led to its expansion along industrial lines: large classes and standardized assessments that leave little room for the idealized human encounter. For thirty years or more, broad-access institutions have been spending less money on instruction, cutting costs by increasing class sizes or putting less experienced, lower-paid teachers in front of students. By contrast, the web offers students infinite office hours at no additional cost: the opportunity to seek multiple explanations of a stubborn math or science concept, via animation, text, audio, and video, until comprehension dawns. Many learning platforms offer embedded assessment to provide immediate feedback, prompting spaced recall, which has advantages for memorization. And artificial intelligence informs digital textbooks that learn as the student interacts with them, offering material and exercises at an individualized pace and sequence. Finally, software systems can aid college counseling staff in assessing, tracking and responding to students’ needs. Digital resources can free up humans to offer a more personal experience to students.

## **Adaptive learning: Computer as Tutor**

Mass customization is a paradox that the Web nonetheless supplies almost effortlessly in every area of our lives, from movie suggestions to finding a nearby restaurant recommended by your Facebook friends. A digital lecture can be paused and rewound again and again. You can move through the material as quickly or slowly as you like. And reams of supplemental material are only a click away. Daphne Koller, founder of Coursera, told me why she believes the online MOOC learning experience is in fact preferable to the large lecture courses she was used to teaching at Stanford. “When you’re giving a lecture and you stop to ask a question, 50% of the class are scribbling away and didn’t hear you, another 20% are on Facebook, and one smarty-pants in the front row blurts out the answer and you feel good,” she says. By contrast, on Coursera, when each video lecture chunk comes to the end the viewer must answer a few multiple-choice questions in order to continue. Koller and her cofounder Andrew Ng drew on neuroscience research showing that these instant-retrieval questions actually enhance memory and comprehension more than complex questions answered later. And, with the Coursera course, there’s no sitting in the back. “This way,” Koller says, “every single person needs to answer the question and retrieve the information.”

Adaptive learning designates software that takes in data on the learner as she views content and answers questions, much as a video game moves the player on to harder and faster levels. An adaptive learning platform can offer hints and encouragement, much like a tutor, while storing information on the pace at which you learn and which specific concepts you have trouble with, for your own insight and that of a professor or curriculum developer. Knewton is a leading for-profit company in the adaptive learning field. What founder Jose Ferreira calls a “data interoperability engine” promises to take any kind of educational content, break it down to the concept level, and present each concept to students at exactly the sequence and pace they need, while giving detailed feedback on performance to students, professors, and curriculum designers.

Using content from large textbook publisher Pearson, Knewton built a math “College Readiness” course that is both remedial and diagnostic.<sup>xxxiii</sup> It’s online and self-paced. Students can take it prior to registration, with the goal of placing into a regular college math class, or in their first semester. Tens of thousands of students at Arizona State, Penn State University (PSU), University of Nevada, Las Vegas (UNLV), the State University of New York (SUNY), and the small private Mount St. Mary’s University tried “College Readiness” for the first time in the fall of 2012.<sup>xxxiv</sup>

### **Customized Paths: Computer As Advisor**

The new normal for students is transferring from institution to institution, stopping out or dropping out more than once along the way to graduation. Technology can help manage and clarify these movements, handling transfer credits and articulation issues that our educational bureaucracies do not find easy, and mapping the path to graduation more clearly for students. The first round of grant winners in the \$2 billion Department of Education grant previously mentioned seek to improve efficiency. For example, every community college in Arkansas is banding together in a consortium to accelerate program completions by 15 percent by restructuring 146 certificate and associate’s degree programs.<sup>xxxv</sup> The 22 colleges, led by Northwest Arkansas Community College in Bentonville, plan to work together to streamline the programs to reduce time and credit to completion rates, and improve student advisement so students can make better choices and achieve their goals more efficiently.

Software systems based on customer relationship management can also enhance counseling and advising services, providing a more personal level of contact that can help students succeed. Rio Salado Community College in Arizona has 42,000 online students, making it the largest online public community college, plus 27,000 students “on the ground.”<sup>xxxvi</sup> Their students are 100% nontraditional, predominantly lower-income, Hispanic, and first-generation; they partner with high schools and serve adult GED learners and even prisoners. They’ve created RioLearn, a customized course-management and student-services system, which alerts faculty when a student’s attendance slips or she misses assignments, and sends the students text message reminders. This year, a redesign to the system offers integrated news, alerts, and new social networking features, and a single sign-on for all campus systems. They’re currently testing a program called PACE (Progress and Course Engagement) that can predict with 70% probability which students are likely to drop out within the first eight days of class.<sup>xxxvii</sup>

Diana Oblinger of Educause, in her ebook *Game Changers*, cites the STAR program at the University of Hawaii, Degree Compass at Austin Peay State University, Valencia College’s

LifeMap, and Central Piedmont Community College's Online Student Profile system as best examples of the applications of IT to drive better student decision making, by recommending courses, transfers, majors, or degrees based on the choices of other students.

## **Fifth: Connection**

Distance education does not exist. I've interviewed dozens of students in online, traditional and hybrid programs over the years and without exception they did their learning while seated in a physical place, mere inches away from the course material. While I've been responsible for promulgating the term "DIY U," I likewise never meant to imply that learning is a solitary activity. From the time we speak our first words, the motivation to learn is social. Broad-access education that is scalable and adaptive depends more than ever before on strong relationships between students and their professors, peers, local and professional communities. This is especially true for nontraditional students, who are more likely to need higher education for social mobility, which, of necessity, means forming new connections beyond their existing families, friends, and communities. The DIY community itself is a great example of how learning advances through connections.

### **Connections with Peers: the Mechanical TA**

Open learning environments are making the key role of peers in learning ever more visible, and making it easier to learn with and from peers. Coursera is the first major MOOC platform to offer humanities courses alongside technical topics. Founders Daphne Koller and Andrew Ng considered and swiftly rejected the notion of "robo-grading" of essays and other written assignments. Instead they have pioneered and tested a method called "calibrated peer review." My aunt happens to be taking Modern American Poetry, taught by Al Filreis at the University of Pennsylvania. She wrote a paper, submitted it, and received four other students' papers for grading. Each of the 40,000-odd students in the course will have their papers graded by four classmates. Software programs will compare and track the grades to try to resolve discrepancies, and human sampling by TAs will provide an additional control on the process. Meanwhile, students like my aunt are learning even more by reading other students' work.

Over the past few decades, much research has shown that cooperative small group learning can make the difference in students' success or failure in a variety of contexts and subjects. Asking and answering questions is a fundamental human activity; "How to" is one of the most popular query strings on Google and Youtube. Sites like Stackoverflow.com and Mathoverflow.com are like buzzing hives where practitioners and students post and reply to questions, collectively advancing their knowledge. Websites like Openstudy and Peer 2 Peer University offer the chance to convene study groups on particular topics or assignments for the length of a course or for an afternoon. Message boards and wikis are key to the success of MOOC platforms; students use them to arrange study groups in various languages and time zones, and the platforms reward students for participating and answering each others' questions. In one iteration of a Coursera course, students received responses to their questions in the forum from other students within an average of 22 minutes—responses that, the program showed, helped them arrive at the correct answer. Most students in traditional programs,

meanwhile, resist the clunky interfaces provided by enterprise learning management systems such as Blackboard, and seek support from each other via Facebook.

## **Connected Teaching: Collaborating With Watson**

An emerging theme across the economy is the use of people to do what only people can do, while technology does what it does best. The majority of costs for public colleges is in salaries; a likely trend over the coming decades is for salaries to remain static while job titles and descriptions change greatly. Large numbers of web developers with curricular expertise will be required to create and update software systems for learning, counseling, and administration. When information becomes a commodity, and course materials can be delivered in multimedia, oftentimes that means the best use of faculty resources is not in professorial expert mode, but in the supporting roles of mentor, advisor, librarian and coach—all of whom will use software to do their jobs better.

Mentors take a warm ongoing interest in learners, helping them develop a plan, stick to it, and overcome obstacles. Advisors relate students' interests to the formal requirements of schools and workplaces. Librarians help people frame their own research questions and acquaint them with the resources available for pursuing them. Coaches are experts in motivation, goalsetting, and helping teams form and function.

At Empire State, enrolling students begin with an initial two-hour phone conversation with a mentor to plan an individualized degree program based on their goals, experiences, and needs. The mentor helps students match their goals and interests to the framework of academic programs offered by Empire State in order to create a personal degree plan. This may be designed around a problem in society such as suicide or local food supplies. Assuming that most students come with previous courses and other experience, the mentor can help the students figure out where this fits into the new degree plan. The college is investing its resources in building closer one-on-one advising relationships.

At Western Governor's University, there are no traditional professors. Students make their way through material with the help of PhD expert "course mentors" and personal "student mentors." While the software systems give them insights into the students' progress, it is the student mentors' job to cheerlead and handhold via Skype, phone or email. These professionals are rewarded based on their students' performance. Assessments are graded by an outside group to ensure the integrity of the process.

At SNHU's online COCE program, faculty advisers stay with students from their first application throughout their careers. The advisers use a software system that tracks a slew of factors predictive of student success, from the amount of time since their last college class, to the length of an average post on a class discussion board. The same system is used to

evaluate the performance of professors: do they respond to student posting? Are they present for their virtual office hours? Since the software and advising system was adopted, retention from the first to second year has doubled since 2008, up from 35% to 69%.<sup>xxxviii</sup>

Inside Track is a freestanding for-profit that offers coaching by telephone as a service to students at several dozen institutions, divided evenly between four-year institutions serving traditional-aged students, nonprofit institutions serving working adults both online and on

campus, and for-profit, online institutions. Whatever the student's background, says Dave Jarrat, Inside Track's VP of marketing, the coaching works much the same. "Ultimately what we're focused on is making sure the student is able to articulate a vision for what they're getting out of school and where they want to be when they graduate; helping them develop some contingency planning for what might get in the way, and ongoing support/encouragement to get them through the tough times." Planning may include things like arranging backup childcare or transportation, or researching the best way to transfer from an associate's to a bachelor's degree. In over 55 studies Inside Track's services have been shown to improve graduation rates by an average of 15 percent.<sup>xxxix</sup>

One can easily imagine a public university operating like a digital Oxford, in which faculty mentors, advisors, or coaches focus their efforts on helping students build a personal learning plan, relate their studies to a broader academic framework, and form teams for mutual support, and on providing feedback and evaluation. Students, meanwhile, are responsible for learning independently, collaborating with others, and pursuing their interests in the context of nearly infinite resources.

Concentrating on coaching, advising and mentoring brings to the forefront the emotional dimension of the mission at broad-access institutions. "There's a lot of fear," among adult, low-performing and returning students, says Yvonne Simon at SNHU. "Targeting the underserved market means figuring out how to reach those folks who had a bad experience with education in first grade."

## **Community Connections: Microfinance Model of Education**

In 2006 Mohammed Yunus won the Nobel Peace Prize for his work founding Grameen Bank. He empowered the poor, uneducated and disenfranchised women of Bangladesh by extending capital where large banks were unwilling to go. He ensured that his loans would be paid back by leveraging the women's existing social capital: women joined groups that were collectively responsible for the debts of each member. This model has been followed throughout the field of microfinance. It is starting to emerge as a new hybrid prototype of digital education: education that starts in the workplace and uses employers and other social ties to provide the connection, support and motivation a nontraditional learner requires, while the digital resources are provided centrally at low cost.

SNHU President Paul LeBlanc started the Innovation Lab, known as the "I-Lab," to create the business model that would put his own university out of business. His new degree program introduced in the fall of 2012 consists of material that is self-paced and delivered entirely on low-cost e-readers.<sup>xl</sup> The program allows students to access multiple kinds of support: peers online, faculty experts for an additional fee, and, most intriguingly, people from their local communities. "You're a line worker at Stonyfield Farm taking a math course trying to finish your college degree," LeBlanc offered by way of example. "We will work with Stonyfield to have someone in its accounting department do brown-bag-lunch tutoring."

SNHU's campus also hosts the third chapter of College Unbound, a new program that anchors the learning experience for nontraditional students with strong connections to peers, mentors, and a workplace all at once. Working intensively with faculty mentors and their peers in a small

group of 12 or 15, College Unbound students create a personalized learning plan tailored as much as possible to a personal passion and designed to dovetail with a job. Students can work full time while participating in the program—College Unbound was founded by Dennis Littky, who also founded the Big Picture network of charter schools, which use a similar community placement model. In three to four years, the students, who are primarily in their mid-20s to early 30s and the first in their families to go to college, will earn a bachelor’s degree accredited by either SNHU or Roger Williams College in Rhode Island. The cost for the program, all told, is \$10,000 per student.

The hybrid aspect of College Unbound comes from the individualized research and exploration each student must do, a great deal of which happens online. “Unlike a traditional classroom, where the teacher gives you the textbooks and the assignments, we have to frame our own essential questions and get all the information we need on our own,” 18-year-old Ebony Byas, an SNHU College Unbound student who is exploring child psychology while interning at an Easter Seals day-care center, told me.

Call it the microfinance model of education: an online curriculum coordinated and supplemented with structured support from students’ existing employers, community organizations, family and friends. It’s a lower-cost and potentially very productive model, particularly attractive to traditional-age students who may need more support. With its state chapters, WGU is already working to help students form real-world connections; their Texas chapter held ice-cream socials across the state this past year so that students and mentors could meet each other for the first time. LearnerWeb, an adult basic education program out of Portland State University, and HOPE, a network of K-12 charter schools, are two further examples; each combines an online curriculum with in-person mentorship by community groups, churches, and charities. Portmont College at Mount St. Mary’s, funded in part by the Gates Foundation and opening in the winter of 2012-2013, will also combine an online curriculum with periodic visits to campus to participate in group projects and presentations, bond with mentors and classmates. Starting in Denver, the college plans to grow nationwide through a network of local on-the-ground partners.

We already see nontraditional students struggling to juggle low-wage jobs with their educations; what if the various threads of their lives could enhance each other, rather than working at cross-purposes?

What distinguishes this from traditional tuition benefits is the idea of companies – or trade unions, or other labor market intermediaries or community groups—using their existing social networks to promote learning and success. Starbucks, for example, is partnering with LearningCounts, providing tuition assistance, while the organization provides career and education advising, plus assessments that can allow baristas to earn course credit for their training in restaurant hospitality, basic health, even coffee roasting.<sup>xii</sup> They could take a step further and provide their employees an opportunity to form small learning groups together, plus free coffee and wi-fi and a place to study.

## **Connections: Reputation-based Networks**

For nontraditional students, the foremost aim of higher education is a better life, and more often than not a better job. To this end, a diploma and a resume are no longer sufficient. They are inert documents whose usefulness declines with each passing second.

Instead people need a way for work to find them. When their name is typed in a Google search bar, it needs to return a rich story about skills and character. Students must express themselves artfully on reputation-based networks, sites where people immerse themselves in enthusiasms and exhibit their accomplishments: writing, computer programs, photography, web design, international development. One leading example is Behance, where creative workers such as photographers, graphic designers, and illustrators can upload multimedia portfolios. These are seen, commented on, and voted up or down by the community. Portfolios that get the most recognition are easier to find. Advertising and consumer companies like Saatchi & Saatchi, JWT, R/GA, Crispin, Ogilvy, Nike, Apple, Facebook, Zappos, Target, and Netflix all actively recruit from the site.<sup>xlii</sup>

A second reputation-based network is Github. The largest software code-hosting site in the world, Github was created as a place for open-source programmers to work together on code.<sup>xliii</sup> It now has 2 million members. Companies such as Twitter recruit developers from Github. Instead of just looking at a resume or school transcript, they can use the site to get far more detailed information about a person's skills and interests by looking at their actual record of work and collaboration. Stackoverflow, mentioned earlier in this chapter as a peer learning forum, also works as a reputation-based network. Engineers gain credit with their peers by being helpful in answering questions, which can lead to employment.

Yet another fascinating network that's emerged as an alternative path to legitimacy for thousands of creative professionals is Kickstarter. Anyone can post a project or product and request pledges from donors. If you don't meet the goal you've set by a deadline, the money is not collected. This enables an individual with a good idea to find funds without having to go through a grantmaker or other institution. Indeed, Kickstarter facilitated more funding directly for the arts than the NEA in 2011.<sup>xliiv</sup>

On reputation-based networks, people connect based on shared interests, not shared backgrounds. They are rich in the type of "weak ties" that have been shown to be most useful in finding employment. Simply by joining one, aspiring professionals in any field can have access to what theorists call "legitimate peripheral participation," learning the language and concepts that are part of the implicit information needed to negotiate a particular community of practice.

## **Connections: Careers from the Cloud**

Broad-access institutions would benefit from partly outsourcing their career services to the cloud, making participation on reputation-based networks a necessary part of their curriculum and requiring students to publish work for evaluation by the open web. Some institutions are even using artificial intelligence to forecast workforce needs. Jobs for the Future, a nonprofit dedicated to expanding opportunities for low-income youth through education, has an initiative called Credentials That Work. They commissioned a software engine to crawl job websites like Monster.com, CareerBuilder, and LinkedIn looking for phrases that map to key skills and

competencies. The idea is to get labor market information in the hands of community colleges more quickly so they can share it in turn with job seekers and use it to update credentials and programs. “There’s no question that any training institution is up against a more dynamic, fast-moving economy,” says program director John Dorrer. “In the past, the data was aged and we were looking in the rear-view mirror. That doesn’t work for the active job seeker today.”

## **Conclusion: The Constantly Arriving Future**

The phrase “the digital divide” expresses a legitimate fear: that the latest consumer iGadget, with its several hundred dollar price tag and six month obsolescence cycle, will burnish the prospects of elite students who already have every advantage while leaving the majority further out in the cold. This chapter has provided a flock of examples to counter this perception. Digital technology, carefully designed, can address the prime needs of the nontraditional student, and thus may redress the significant social and economic problem of equitable access to higher education in the United States.

In order to accomplish this aim, public and nonprofit institutions must take the lead as they always have in extending the franchise of education. They must dedicate themselves to designing, adopting, and testing the best technologies and collaborating with the for-profit companies and nonprofit foundations that are doing the same. The “good” news is that with our completion rates currently so low, and spending on higher education so high by international standards, there is a lot of headroom to improve outcomes without greatly increasing overall spending. The focus should be on reallocating resources to investments in the future, not on finding new sources of money that will not be forthcoming in the current climate.

Each of the innovative institutions mentioned in this chapter—and there are many more—is working to keep costs low, educational standards high (which often requires, first, better defining and measuring these standards), and maintain a professional team flexible enough to be open to what’s next. The hybridization of higher education requires more than a particular set of tools—those will change again nine months from now. It requires a new mindset that can preserve the ideals of the past in a constantly evolving future.

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