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BY TIM LASETER



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**B**y one, and only one, measure, the institutions of higher education around the world are remarkably successful: They reach far more people today than ever before. About a third of Americans over the age of 18 have attained a bachelor's degree or higher — up from less than 20 percent 30 years ago. In the rest of the world, far more people than in the past are seeking higher education, especially in emerging economies, where immense numbers of young people yearn for professional careers. By all other measures, however, the 4,500 institutions currently serving more than 21 million students in the U.S., and the 6,500 other institutions around the world, collectively deserve failing grades.

First, they fail to help students fulfill their goals. Even in the U.S., which has 60 percent of the top-ranked universities in the world, the overall metrics on successful matriculation are dismal. Less than two-thirds of students enrolled in a four-year institution attain the targeted degree. Of students entering a community college, less than half graduate or transfer to a four-year school within six years. Although not every aspirant will be destined for success in higher education, these statistics suggest a systemic institutional problem.

Second, the cost of a college or university degree is out of control. Despite their questionable performance, tuition at four-year universities has tripled in constant dollars over the past 30 years — a faster rate of increase than much-maligned

healthcare — and total U.S. student debt now stands at more than US\$1 trillion. Worse still, one out of two recent college graduates is unemployed or working in a job that does not require a degree.

Third, institutions of higher education fail to meet the needs of another critical constituency: employers. Even as the U.S. unemployment rate remains stubbornly high, employment forecasts predict a shortage of educated, medium- to high-skilled employees in the fields of science, technology, engineering, and math (known collectively as STEM). There are simply not enough mathematically capable young people in the pipeline. Despite the prospect of millions of unfilled jobs, many institutions continue to allocate their scarce resources to the softer fields — the humanities and social sciences — while underfunding the investment in science education that would enable and encourage students to pursue these high-demand positions.

In the business world, such poor performance typically leads to industry restructuring fueled by new entrants, as well as innovation by a subset of incumbents. Those moving too slowly or in the wrong direction don't survive. Higher education might seem immune from such dynamics. And it probably would be immune if it weren't for one factor: the technological disruption of the Internet and online learning.

For years, experts have predicted that online learning would change the basic operating model of higher education. Now, this transformation finally seems poised to happen. Nascent competitors appear eager to disrupt the existing, complacent enterprise structure of universities. Students seem similarly

eager for change; according to the Sloan Consortium, in the U.S., more than 6 million students took at least one online course during the fall of 2011; that's more than 30 percent of all higher education students. In one

ruptive forces, the vast majority of institutions of higher education face disintermediation in their existing relationships among employers and students. Pressure from new entrants as well as the leaders among

1990s, more may be learned by their failures than their successes. Graduation rates are a dismal 14 percent, and loan defaults run rampant as graduates fail to find employment. None of the online universities seem to have developed any breakthrough technology for delivering education; they have simply avoided the capital investment in facilities while extending their reach to a larger target market. That's a classic "virtual model." Although profitable for some investors and executives, these institutions seem to have exploited a niche but have not truly innovated.

## Videotaped lectures fall short of solving the fundamental problems of effectiveness and cost.

recent experiment, Stanford University attracted the interest of 356,000 people from 190 countries by offering three free online computer science courses. Forty-three thousand people received a certificate of completion of at least one course.

The distribution of free videotaped lectures by renowned professors spreads knowledge for social good; however, it falls far short of solving the fundamental problems of effectiveness, cost, and relevance in higher education. Fortunately, university leaders are beginning to recognize that they could soon face the kind of disruptive competition already familiar to those in the corporate world.

Clayton Christensen and Henry J. Eyring have articulated a view of this potential disruption in *The Innovative University* (Jossey-Bass, 2011). "Until the relatively recent emergence of the Internet and online learning, the higher education industry enjoyed an anomalously long run of disruption-free growth," they write. "The demand for the prestige the elite schools confer far exceeds the supply, allowing them to cover rising costs with tuition increases and fundraising campaigns."

Although those few elite institutions may be buffered from dis-

existing players could squeeze out weaker institutions, repeating the pattern of so many other industries.

To navigate through these forces, universities need to follow the example of their business counterparts and fundamentally rethink what they do. They need to foster new capabilities, reconsider their means of attracting revenues, and allocate costs more closely to their value proposition. In short, using the language of strategy, it's time for a new business model.

### Know Your Potential Rivals

Sun Tzu, one of the earliest writers on the art of strategy, implored his readers, "Know your enemies and know yourself." Faced with a competitive threat, businesses seek to benchmark their rival (and potential rival) innovators, not just in their own industry but across industries. Like most businesses over the past decade, higher education should focus on the disruptive implications of Internet-enabled innovation.

The most obvious place to start would be the for-profit, online universities — such as Phoenix, DeVry, and Kaplan — which currently serve 9 percent of all college and graduate students. But, as with the early Internet businesses of the

There are also sources of innovation within universities themselves. Some neurologists, cognitive psychologists, and education researchers have just recently begun to collaborate in a multidisciplinary field dubbed "mind, brain, and education." They are employing increasingly sophisticated equipment to examine the neurobiological responses within the brain and applying those insights to the classroom. For example, a cross-disciplinary research team from the University of Bristol, including faculty of the Graduate School of Education, the Department of Computer Science, and the Department of Experimental Psychology, examined the role of dopamine release in response to uncertain rewards in a computer-based learning activity.

But just as with businesses that ignore innovative ideas that bubble up from within, these innovations often fail to interest the broader organization. In his presidential address to the International Mind, Brain, and Education Society conference in 2009, Kurt Fischer of Harvard University acknowledged the prevalent skepticism about building a bridge between research scientists

and education practitioners. But he countered by highlighting the integration of scientists, doctors, and nurses in major teaching hospitals. He also invoked the private-sector example: “Almost every major modern business grounds itself solidly in research that is shaped by practical questions about how products function and how they can be used effectively in context. What happened to education?”

One innovative company, Carnegie Learning Inc., has demonstrated the practical value of this integration in computer-aided learning. Founded in 1998 by cognitive psychologists Steven Ritter and John Anderson, the company continuously tests and refines its products — such as its MATHia software, developed for primary school students and teachers — in response to constant feedback from field experience and new research on such areas as intrinsic motivation and academic alienation. MATHia monitors student performance to adjust problems dynamically to the appropriate degree of difficulty and also customizes word problems to reflect student interests, even including names of friends. Although it is focused on primary education, Carnegie Learning’s successful science-based approach offers an excellent model for multidisciplinary efforts targeting adult learners in higher education.

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Another model tied to the traditional higher education players, Coursera, was founded in 2011 by Stanford professors Andrew Ng and Daphne Koller with funding from venture capitalists John Doerr of Kleiner Perkins Caufield & Byers and Scott Sandell of New Enterprise Associates. Positioned as social entrepreneurship, Coursera grabs headlines by building tools to broadcast existing content through free video lectures in partnerships with top-ranked universities such as Princeton and the University of Virginia. Intent on efficiently managing massive course enrollment, the company seeks to develop new tools, such as software that prioritizes student questions for interactive sessions with thousands of participants and for organizing peer-reviewed grading. Research in primary education has shown that blind grading, peer grading, and self-grading correlate strongly with teacher assessments, and can enhance learning. (Disclosure: The Darden School of Business, where I am on the faculty, is offering its own Coursera Massive Open Online Course, called “Grow to Greatness: Smart Growth for Private Businesses,” beginning January 28, 2013, as part of a University of Virginia initiative. I am not directly involved in this course. As of September 2012, more than 23,000 people had registered for it.)

Farther afield, the software company TopCoder Inc. is challenging the fundamental need for an advanced degree by explicitly measuring ability, not pedigree. When Jack Hughes founded it in 2000, the company set out to tackle the business challenge of recruiting and assessing programming talent. Rather than relying on education credentials, TopCoder runs coding compe-

titions to identify top talent on the basis of demonstrated proficiency. These Web-based challenges are often sponsored by technology leaders, such as Google and Sun Microsystems, and attract participants from around the world; the site maintains more than 400,000 individual profiles. The ratings inform companies seeking to crowdsource software components in a reverse auction or hold “bug races” to eliminate errors in programs. The TopCoder model offers a new spin on certification and fulfills workers’ growing desire for flexible working arrangements rather than 9 a.m. to 5 p.m. cubicle-based jobs.

Although not an obvious place to find innovative business models, evangelical megachurches offer lessons on scaling up technology while maintaining an immersive experience. For example, North Point Ministries in Atlanta serves an average of 30,000 congregants each week through a network of five campuses, and its collection of podcasts, newsletters, and streaming videos are accessed a million times per month. Each facility seats from 1,000 to 5,000 attendees; the church employs theater-style screens broadcasting from high-definition cameras originally designed for NASA. The multi-campus network supports this immersive experience through three levels of engagement using a house as the metaphor: The “foyer” hosts Sunday morning sermons (with production values worthy of a premium rock concert); the “living room” holds smaller, more active periodic events; and the “kitchen” is the place for weekly study groups of eight to 12 people led by lay members of the church. Those who remember how the televangelists of the 1970s and ’80s leveraged cable television

will recognize the need to watch this model closely.

Online gaming offers another technology model worth exploring. Massive multiplayer role-playing games — such as the immensely popular *World of Warcraft* — create a world in which participants can collaborate to tackle complex challenges. The original *Warcraft* game, first released in 1994, has spawned three additional releases; the latest version supports more than 9 million subscribers. More than 200 servers around the world host “realms” with up to 1,500 simultaneous users controlling avatars who individually or collectively pursue quests and battle for dominance against competing factions. The game was not designed for educational purposes, but some believe it could play more of a university-like role. The popular science fiction novel *Ready Player One*, by Ernest Cline (Crown, 2011) portrays an energy-drained future world in which most of the population spends time plugged into “OASIS,” a massive multiplayer environment accessed with goggles and gloves by the poor — or fully immersive clothing and equipment by the wealthy. In this dystopia, set in 2044, the masses attend virtual schools that were built by simply replicating software code and recruiting teachers to connect and lecture remotely — using technology that mostly already exists.

### Know Yourself

These examples of disruptive applications of technology represent a threat or an opportunity, depending on how institutions of higher education react. An ordinary, second-tier college cannot compete if Stanford finds a way to cost-effectively monetize a 100-fold increase in its stu-

dent population reached online. It isn't clear whether Stanford seeks to do so, but someone almost certainly will — and institutions of higher learning must plan for that day.

Before taking action, universities and colleges need to take stock in their own positioning: “Know

college, an admissions director captured the essence of the philosophy: “We *train* you for nothing...but we *educate* you for anything.” A financially stretched parent may bristle at the thought of paying \$200,000 for that four-year education; however, in a fast-changing world, the ability

## “Almost every major modern business grounds itself in research shaped by practical questions. What happened to education?”

yourself,” as Sun Tzu advised. Using the language of business strategy, institutions must understand their “value propositions” from a set of four distinct benefits.

**Selection.** For employers, the admissions process of a top-ranked university generates tremendous value by culling applicants to create a select pool of potential employees. At top business schools, the recruiting process begins before matriculation starts; recruiters track the progress of those who have been accepted. In other high-demand fields and for the right undergraduate majors (such as finance, economics, and some engineering fields), hiring decisions can occur well before graduation. The value generated through the admissions process directly correlates to a university’s “brand value.”

**Knowledge.** The creation of new understanding and capabilities, for society as a whole (and perhaps for faculty egos), resides at the center of the mission of leading universities. Although imparting that knowledge to students may take a backseat, it offers a potentially critical value for employers. At a leading liberal arts

to build on foundational knowledge and adapt can be a highly prized asset — if you can afford it.

**Certification.** Many university leaders balk at the idea of providing training in technical and problem-solving skills, but it should be a critical part of their value proposition. In many of the STEM disciplines, employers seek technical skill certification. A few short tests in a typical job interview process cannot validate the breadth and depth of technical skills typically sought.

**Immersion.** First-generation college students may not realize the worth of this factor, and it may seem less tangibly valuable than the fast track to employment that can come with selection or certification. But immersion can yield the most lasting and meaningful benefits.

The college experience offers an opportunity for creating rich connections among like-minded peers pursuing stimulating activities independent of the pursuit of higher grade-point averages and a job upon graduation. Parents who blossomed during their own college years often maintain deep loyalty to their



undergraduate institution and may willingly place a high value on immersion despite its less-measurable return on investment.

Together, these four benefits provide a basic way to think about the value proposition for higher education. Different institutions compete along different dimensions. Community colleges highlight certification; many large state universities with top-ranked basketball and football programs emphasize immersion. Secluded liberal arts colleges offer a different form of immersion built on long-term networking value. Research universities often stress knowledge, whereas the Ivy League schools achieve excellence in selection. Few schools do well on all four dimensions.

In the emerging disruptive environment, all universities should start with an explicit articulation of the customer value proposition and design a path forward that leverages technology to deliver it. Simply put: Which of these four benefits should you emphasize, and which should you put aside? And how can you leverage the Internet to deliver that value proposition more widely and cost-effectively?

As the early days of the Internet demonstrated, attracting eyeballs is easier than monetizing them. Coursera seems bent on proving that axiom again, citing the societal benefits of spreading knowledge in emerging markets rather than addressing the current crisis in higher education. But can it create those benefits? A \$10 fee for a computer class of 100,000 students would generate a windfall and postpone cost-cutting decisions at leading universities that have the reputation to attract such a following. Integrating activities that validate the accrued knowledge of

those students through TopCoder-style competitions would increase the value of the courses.

Another path might be to leverage partnerships to create satellite campuses — not just internationally as many leading universities have done, but with second-tier or community colleges. Following the lead of the megachurches, this model would multiply the reach of “rock star” professors with local facilitators. Such a model would require partnerships with a broader reach, but it parallels the current model of professor lectures augmented by research assistants that is common in introductory courses on most campuses. Conceivably, this model could be delivered largely online, linking the center with the satellites through high-quality videoconferencing such as Cisco’s TelePresence.

Such paths would leverage the talent at top universities and defray the costs of their highly immersive offering, but what about second-tier schools? Aggressive players might leverage their physical assets and access to a local population but cut out all research as well as much of their faculty and administrative support. Others might specialize more narrowly in the needs of local businesses in fields requiring hands-on training. But attempting to be all things to all people will not be sustainable. The once-feared shortage of college professors may quickly become a glut — tenure or no tenure.

### Forward to the Basics

Modern universities emerged in the fourth and fifth centuries A.D. as monastic schools in Europe, focusing on disseminating knowledge rather than creating it. The disruptions of the Internet may return education to those roots. Today,

many academics invest their efforts in relatively narrow research, writing papers read only by other academics, with relatively little time spent teaching and training students. In some fields — such as the STEM disciplines — research advancements continue to fuel economic growth and societal prosperity. But in others, the research simply offers alternative perspectives on long-standing, foundational knowledge such as the writings of Aristotle. In light of declining performance and growing costs, institutions of higher education must invest their precious resources more consciously. They need not all follow a STEM-based model, but they will need a clearer, more explicit rationale for what they deliver, beyond “We teach what our faculty think is important,” or they may not survive.

Although the specific path forward for institutions of higher education may not be obvious, humanity can take pride in the legacy of value of its colleges and universities, which have been a primary main-spring of progressive knowledge and value for at least 1,500 years. Indeed, the source of their current disruption — the Internet — would not exist without them; it began as a way to exchange data among military and academic research computers. Institutions of higher education have the ability to solve the crisis they currently face, but resolve presents the greatest impediment. Will your alma mater or local source of new graduates leverage the disruptive technology of the Internet by applying the principles of business strategy...or will it be disintermediated by new entrants offering a better value proposition? +

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