



The
Economist

Free education

Learning new lessons

Online courses are transforming higher education, creating new opportunities for the best and huge problems for the rest

Dec 22nd 2012 | CHICAGO, LONDON AND NEW YORK | from the print edition

TOP-



QUALITY teaching, stringent admissions criteria and impressive qualifications allow the world's best universities to charge mega-fees: over \$50,000 for a year of undergraduate study at Harvard. Less exalted providers have boomed too, with a similar model that sells seminars, lectures, exams and a "salad days" social life in a single bundle. Now online provision is transforming higher education, giving the best universities a chance to widen their catch, opening new opportunities for the agile, and threatening doom for the laggard and mediocre.

The roots are decades old. Britain's Open University started teaching via radio and television in 1971; the for-profit University of Phoenix has been teaching

online since 1989; MIT and others have been posting lectures on the internet for a decade. But the change in 2012 has been electrifying. Two start-ups, both spawned by Stanford University, are recruiting students at an astonishing rate for “massive open online courses” or MOOCs. In January Sebastian Thrun, a computer-science professor there, announced the launch of Udacity. It started to offer courses the next month—a nanosecond by the standards of old-style university decision making. He also gave up his Stanford tenure, saying that Udacity had “completely changed my perspective”. In October Udacity raised \$15m from investors. It has 475,000 users.

In April two of Mr Thrun’s ex-colleagues, Andrew Ng and Daphne Koller, launched a rival, Coursera, with \$16m in venture capital. At first it offered online courses from four universities. By August it had signed up 1m students, rising to over 2m now. Its most successful class, “How to reason and argue”, attracted over 180,000 students. Harvard and MIT announced they would each put up \$30m to launch edX, a non-profit venture offering courses from Ivy League universities. Other schools have joined too.

Republic of Letters

The trend stretches far beyond America. Eight among Coursera’s 33 partners are foreign, including the universities of Edinburgh, Toronto and Melbourne. On December 14th a consortium of British providers, led by the Open University and including Bristol, St Andrews and Warwick, said Futurelearn, a new platform for free courses, would soon compete with the American newcomers.

Individual academics have MOOCs too. Tyler Cowen of George Mason University has launched Marginal Revolution University, named after his own popular blog, to provide free economics education.

One spur is economic and political pressure to improve productivity in higher education. The cost per student in America has risen at almost five times the rate of inflation since 1983. For universities beset by heavy debts, smaller taxpayer subsidies and a cyclical decline in enrolment, online courses mean better tuition, higher graduation rates and lower-cost degrees. New technology also gives the innovative a chance to shine against their rivals.

MOOCs are more than good university lectures available online. The real innovation comes from integrating academics talking with interactive coursework, such as automated tests, quizzes and even games. Real-life lectures have no pause, rewind (or fast-forward) buttons; MOOCs let students learn at their own pace, typically with short, engaging videos, modelled on the

hugely successful online lecturettes pioneered by TED, a non-profit organiser of upmarket mindfests.

The cost of the courses can be spread over huge numbers of students. A Udacity course on machine learning, taught by Peter Norvig, Google's director of research, attracted 160,000 students. Ms Koller of Coursera muses that a single virtual classroom may one day seat 1.5m. Thousands of minds mingle in moderated discussion forums, where learners in Peru, Finland or Japan can speedily reply to a struggling student's question, highlight points that are unclear, and even grade each others' work.

MOOCs enrich education for rich-world students, especially the cash-strapped, and those dissatisfied with what their own colleges are offering. But for others, especially in poor countries, online education opens the door to yearned-for opportunities. One famous MOOC graduate is Khadijah Niazi, an 11-year-old girl in Lahore who completed Udacity's Physics 100 class. Of the 155,000 people from five countries who registered for MIT's prototype Circuits and Electronics course, only 45% were aged between 18 and 25. Most traffic came from five countries: America, India, Britain, Colombia and Spain. Some 7,200 students passed the course.

Spires not wires

Some of Europe's best schools are determinedly unruffled. Oxford says that MOOCs "will not prompt it to change anything", adding that it "does not see them as revolutionary in anything other than scale". Cambridge even says it is "nonsense" to see MOOCs as a rival; it is "not in the business of online education".

Such universities are likely to continue to attract the best (and richest) applicants who want personal tuition and the whiff of research in the air. They have other benefits too, including sublime architecture, better marriage partners and a huge career boost. For these places, MOOCs are chiefly a marketing opportunity: once customers taste the lectures, they may pay for the rest of the bundle.

But elsewhere change is likely to be more disruptive. Clayton Christensen, a Harvard Business School professor and author of "The Innovative University", predicts "wholesale bankruptcies" over the next decade among standard universities.

One potential casualty is the cross-subsidy between teaching and research. MOOCs will make it far harder to overcharge students, especially

undergraduates, in order to subsidise research that nobody else will pay for. Some universities will have to specialise to survive—perhaps dropping indifferent lecturing or teaching to concentrate on something else, such as brilliantly set and marked examinations. Online platforms will also allow clusters of universities to pool resources, such as providing first-year undergraduate lecture courses, suggests William Lawton, director of the Observatory on Borderless Higher Education, a think-tank in London.

To compete head-on with established providers, MOOCs must not just teach but also provide credible qualifications. The vast majority of Coursera, Udacity and edX offerings do not provide a degree. This may be one reason for MOOCs' high drop-out rates: even the most ardent knowledge-lover needs qualifications. Another worry is that online tests are open to cheating and plagiarism. Even soundly run mechanical tests are no substitute for the fuller picture provided by human examiners. Peer grading (students' assessments of their fellows), even if honest, may be flawed.

One option is non-academic testing. Google already has links with Udacity. A certificate of programming proficiency from a firm like that might impress some employers more than an old-style degree.

Elsewhere, pickings so far are slim. The American Council on Education is reviewing a handful of Coursera's classes for credit equivalency; once approved, universities can choose to grant credit for them (or not). Freiburg University in Germany gives credit for a Udacity course. North Virginia Community College has started awarding credits for introductory college courses provided for around \$100 by Straighter Line, a for-profit online-education firm. Students can transfer these to George Mason University.

Even if MOOCs can coin sound academic currency, they must also make real money. Though marginal costs are low, designing enticing online material is costly. Non-profit ventures such as edX want to break even. Others have investors to satisfy. The first way of generating revenue is a "freemium" model, in which the course is free but the graduation certificate is paid-for. Udacity, for example, charges \$89 for an exam invigilated by Pearson VUE, an electronic-testing firm; its parent company is a part-owner of this newspaper.

A second model is to charge potential employers a fee for spotting suitable recruits among the students. Coursera charges for referrals to its best students. A third option is to license online courses to universities to help them improve their offerings to students. Ms Koller foresees a blended approach, in which

universities mix MOOCs and in-house provision to expand the range of degrees they offer.

Mr Christensen predicts that most universities below the upper tier will have to integrate a “second, virtual university” into the standard one. Good online classes would reduce the need for costly campus facilities and free teachers’ time for individual tutoring. Knewton, a for-profit provider of personalised online education, calls that idea the “flipped classroom”.

Coursera and edX both want to work with standard providers. Udacity, as its name suggests, is more daring. Mr Thrun is hiring more big names from outside academia, to join Google’s Mr Norvig. Mr Thrun predicts that in 50 years there will be only ten universities left in the world.

If not quite on that scale, MOOCs clearly mean upheaval for the cosseted and incompetent. But for those who most want it, education will be transformed.

from the print edition | International