

# Class facts

**Andrew Scott** makes sense of the new technology-enhanced educational landscape

**T**he printing press, after nearly six centuries of dominating our intellectual life, is being pushed to one side due to improvements in information and communications technology (ICT). These developments potentially threaten the structure of universities, which have proved so stable and successful throughout the 20th century – and for centuries before. Many commentators argue that just as media and banking, finance and communications were transformed by the combination of technology and globalisation so, too, will higher education be. In the words of John Hennessy, Stanford President: “There’s a tsunami coming. I can’t tell you exactly how it’s going to break but my goal is to try to surf it, not to just stand there.”

The momentum of technology in higher education is feeding substantial discussion and triggering significant investment and changes in behaviour from a raft of institutions covering both incumbents and new arrivals, public universities and private sector firms. Harvard and MIT have each invested \$30m in EdX programmes providing online courses to a large number of institutions. Coursera is also providing MOOCs (massive open online courses) free of charge to millions of students, with courses provided by over 80 global academic institutions. Another provider is Udacity, which focuses more on showcasing faculty than using courses from institutions. Outside of these prominent names are numerous other firms starting up, many reaching out to business school faculty.

Technology is making an impact now as broadband capacity increases, enabling rapid and cheap provision of information. The promise of technology for education arises ultimately from two characteristics. The first is it offers a way of learning that is potentially highly bidirectional, offers

enormous group-wise simultaneity and in a format suitable for a generation that was brought up being digital. In other words, it offers the opportunity to improve the quality and effectiveness of the learning experience. The second is it offers a means to tackle the problem of the “cost disease” in higher education. Education, like many service sector activities, is very labour intensive and seemingly immune from productivity gains.

In the words of Robert Frank of Cornell: “It still takes four musicians nine minutes to perform Beethoven’s string quartet No. Four in C minor.” With no productivity gains but wage growth above inflation, the price of higher education has to rise substantially above inflation. This leads to revenue-cost pressures. Technology potentially offers a way out of this dilemma – with the possibility of increasing quality, reaching more students but at lower cost. In providing world-class content for free, enabling faculty to present material regardless of location, the disruptive potential of technology is obvious. Many argue that MOOCs represent the Napster moment for higher education.

## **In the classroom**

With most major technological changes it is not the medium’s content that matters so much as how the medium influences us. For instance, the introduction of the map and the clock developed a much greater focus on precise measurement, which shaped how we think and interact with the world. When the book replaced the spoken word as a means of communication, it brought substantial changes in how our brains worked and how we learned. Similar changes are occurring as a result of IT and will require changes in our teaching methods.

As Nicholas Carr notes in *The Shallows*, the debate triggered by the change from

oral to literary generated a discussion that has been resuscitated by Web 2.0. He quotes Plato (quoting Socrates) saying that reading “will implant forgetfulness in our souls. We will cease to exercise memory because they rely on what is written.” The written word is a “recipe not for memory but reminder and it is no true wisdom that you offer your disciples but only its semblance.” Those who rely on reading for their knowledge will “seem to know much while for the most part they know nothing”. They will be “filled not with wisdom but the conceit of wisdom.”

What happened with the development of the book over centuries was a different way of thinking. A linear narrative required single-minded concentration and focus and this way of thinking shaped our thoughts and processes. It then shaped the way we study and learn.

There is plenty of evidence that, just as the shift to books from verbal record led to changes in the way our brain works, similar changes are occurring as a result of the shift from books to ICT. “The linear mind of books that was calm, focused and undistracted is being pushed aside by a new kind of mind that wants and needs to take in and dole out information in short disjointed often overlapping bursts,” writes Carr. There is much evidence that the digital generation thinks and acts differently as a result of this. Text with hyperlinks requires a different type of reading and instantaneous decision making, all of which distracts from deep reading of a traditional linear format. Concentration and the way information is absorbed changes.

Commentators also argue that reading is no longer a solitary activity. The concept of “groupiness” refers to people who read mainly to feel they belong rather than for personal enlightenment or amusement. In the digital marketplace, publications become an ongoing process rather than >



**Any time, any  
place, anywhere...**  
MOOCS are a  
new model for  
remote learning



**Seats of learning**  
Has the traditional university lecture theatre had its day?

a discreet event and revisions can go on indefinitely. The notion of learning through an authoritative text is reduced and the importance of peer-to-peer learning, not necessarily face-to-face, is augmented.

This all suggests that, regardless of the disruptive nature of technology on business schools, we will increasingly need to change our materials and approaches to teaching for the digital generation. In particular, we need to think not just of the digital provision of existing materials but also recognise that we will be producing more interactive and bidirectional digital material.

It seems obvious that traditional three-hour lectures are unlikely to be effective for teaching the digital generation. "If all you're going to do is lecture at them, students no longer see any reason to show up," says Harvard's Harry R Lewis. People will argue that you don't get the face-to-face interaction. But students already organise themselves digitally – they have Facebook groups, meet over Google+ hangouts, Skype and occasionally meet in person. This transforms the need for face-to-face interaction.

**Flip service**

This leads to the concept of the flipped classroom, whereby basic lecture material is provided online through prerecorded video content and the classroom is used for customised mentoring and problem

solving. There is growing evidence that blended learning (using online *and* traditional methods) may outperform traditional learning. Advocates of online learning argue that as we learn more about it, further improvements will result.

MOOCs are most eye-catching in the area of online material. To date there have been two main type of players – firms such as Coursera providing free access to their courses (with sign ups of up to 250,000 per course) and private players providing their own degrees and targeting the low-priced end of the market and community colleges. There are now signs of universities and private players (such as Minerva) also entering the space at the higher value end of the market.

Coursera has nearly four million registered users for 391 courses from 83 institutions, including Stanford, Chicago Booth, Yale, NorthWestern, Columbia and Spain's IE University. Access to courses is free but a certification costs \$30-40. Additional revenue comes from some state universities buying courses for accreditation, book purchases associated with the course and employers requiring information on top performers.

With the world economy growing and growth focused among the BRICs, we are likely to see a huge increase in world demand for education. The rise of MOOCs

promises to meet this huge demand for skills and knowledge at a low cost.

**The insights premium**

Flipped classrooms and free courses provided by top universities will challenge business schools and universities. As noted by Michael Barber, Katelyn Donnelly and Saad Rizvi: "As content becomes ubiquitous and, in each area, the world's leading universities or authorities become its providers, the

content of a course will cease to be a decisive factor. Instead, it will be a matter of what a university and its faculty build around the content – for example, the quality of teaching and mentorship, the nature of facilitated dialogue between students (which could be global), or

indeed the type of assessment and the path from university into the labour market. There is tremendous room here for innovation that universities can embark on right away, with limited risk.

"Additionally, elite universities will need to ensure that they personalise students' development to prepare them for leadership and influence. They will also need a robust ecosystem of extra-curricular and incubated real-world

**"Flipped classrooms and free courses will challenge business schools"**

experiences where students can learn and demonstrate leadership. To maintain their elite status, they will need to ensure top-quality peer networking for their students by attracting the world's best and brightest candidates."

*Financial Times* columnist Gillian Tett observes that the matchmaking function of universities, particularly for the elite, will remain important even with the proliferation of online options. Mentoring will also be critical as students increasingly expect highly personalised interactions to form part of their education. This will mean a large commitment of resources, but is crucial if universities are to produce world-class graduates, maintain their relevance and remain elite.

Business schools have always focused on these characteristics, but technology is likely to shift their pace of change. If knowledge and basic technical information is readily provided in an interactive form online with short rewatchable bites, then demand in the classroom will be to learn judgement both from the faculty and from peers. Another possibility is that, with technology leading to a shift away from intense, concentrated, linear thinking, it is on these features that business schools should focus. The flipped classroom will place increasing emphasis on faculty insights on judgement and experience. The value of the class network will be critical in maintaining value added, the importance of careers support will rise, contacts with corporates and experiential material will also be important.

Business schools may emulate medical schools with an emphasis on learning through practice rather than lectures. In response to technology improvements, items are commoditised as productivity gains are realised and value add disappears. In order to remain high value added, business schools will need to shift into labour and human capital intensive activities. At the other end of the market, scale dominates and profits are made by low margins and high sales.

MOOCs are also likely to have a major impact on learning and assessment. First, online materials will lead to greater demands for online assessment. Second, with so many students taking the courses "big data" can be used to rapidly assess what teaching works and what is the best way to do assessment. This is likely to feed back swiftly into new best practice.

### **Unbundling knowledge**

Technology can be disruptive, particularly from the way in which it produces unbundling, so, if it is going to revolutionise higher education, unbundling lies at the heart of the revolution. It is now nearly

possible for a student to put together the syllabus of an MBA from Coursera. Sites such as LearnDev provide online tuition for soft skills. There is even a website (degreed.com) that monitors and pulls together your accreditation from various online courses. Many commentators paint a picture of an unbundled world where students pick and choose their own courses – a finance course from London Business School with a practitioner module from Goldman Sachs, a strategy course from Harvard with a practitioner course from McKinsey, etc. The qualification depends on the student's percentile placement among the 250,000 engaged in the course. Add to the picture applied research aimed at synthesising across disciplines and the story foretold is a bleak one for higher education institutes.

An obvious response is that partnerships are going to become more and more important to business schools and universities. Alliances will be formed that create a portfolio of choice and market power will be preserved by the quality and exclusiveness of these relationships.

One major protection against complete unbundling is that the regulatory regime based around accreditation and the awarding of degrees gives business schools substantial market power over many of the online providers. But, even here, there are concerns. If the knowledge base of an MBA degree is easily available to seven billion people worldwide then the value of the accreditation will decline. Much will depend on whether the market accepts your percentile placing in a large MOOC as relevant information. And in a world where people demand increasing education, but education leads to above inflation price increases and higher levels of student debt, governments may well alter the regulatory regime.

As one academic noted: "The current monopoly universities enjoy over degree granting will erode. We've done a good job to date of convincing governments that an unregulated sector would be dangerous to the public, and in need of oversight and strict barriers to entry. I can't see this lasting."

The problem with unbundling is that the university model is based on the notion that teaching subsidises research. This is largely irrelevant to the experience of students who have to pay for the entire cost base through their fees. Unbundling could undermine the traditional model. We are already seeing at the bottom end

of the market universities removing their research function to focus on teaching. It also seems that universities with large endowments can focus on research strength and live with an unbundled world.

The impact of technology on higher education could therefore be substantial, with activity displaced from traditional universities towards either new entrants, such as Coursera, or to universities reinventing themselves online. Technology and in particular MOOCs have the potential to be another chapter in a long

**"The current monopoly that universities enjoy over degree granting will erode"**

story of competitive markets being disrupted by innovation leading to the demise of incumbents who underestimate the potential of new entrants. Yet all is far from lost for existing institutions. The commoditisation of knowledge will pressurise places with weaker financial positions and

research reputations to focus just on teaching. With the scale that MOOCs can provide we are also likely to see prices and the number of providers fall at the bottom end of the market.

What will remain for those institutions wishing to remain elite and what will help them maintain their fees? Providing the knowledge and services that are harder to commoditise – the judgement and intuition provided in the classroom by top faculty and high-quality student peers, the contacts and networks that come from corporate contacts and a city location, the experiential content provided outside of the classroom and by experienced and knowledgeable faculty and careers support. The technology advance in education will change many things but not everything. ■

### **RESOURCES**

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