



THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

**King's College – Dr David Williams Lecture
Tuesday 6 August, 6.30pm
King's College**

Speech notes for Vice-Chancellor, Professor Peter Høj

Introduction

First, may I say I feel honoured to deliver the 2013 Dr David Williams Lecture, especially in light of its remarkable eponym, and the procession of distinguished speakers who have preceded me.

These are hard acts to follow.

Greg invited me to nominate a topic and I chose "*Will technology fundamentally change the way students attend university and learn?*"

You will note it is a question. I don't pretend to have the answers.

However, that should not stop me exploring opportunities that, while carrying some risk, may yield terrific benefits for our students and the communities with which we interact.

So I would like to explain some of the processes that have led us to a new education platform, known as Massive Open Online Courses, or MOOCs.

When an email from Professor Phil Long landed just before Christmas 2012, I could not ignore it.

Phil is Director of our Centre for Educational Innovation and Technology and a former Massachusetts Institute of Technology faculty member, and he was urging me to start a dialogue with his former employer about its new MOOCs consortium, called edX, which it had co-founded with Harvard.

edX is one of three main global MOOCs consortia, and it describes itself as ‘a not-for-profit enterprise that promotes the educational missions of like-minded universities, all **dedicated to improving our understanding of learning and delivering** better educational experiences both on campus and beyond”.

I'll repeat part of that: ***better educational experiences both on campus and beyond.***

How & why we joined

The MOOCs movement began in earnest barely two years ago, but has grown rapidly to have at least 5 million users, and some of the world's most esteemed universities are among its early-adopters.

By the time Phil's email arrived I had formed the view that MOOCs were influencing big changes in how people access knowledge and interact in real time, irrespective of geography.

So I wrote to the MIT Chancellor offering to meet him at his home base in January.

As you may know, most MIT students live on campus, and one of the points I raised in my email was that part of the appeal of edX to UQ was its focus on leveraging online learning to improve the campus-based student experience.

The Chancellor's response noted that *'it sounds like we share many of the same goals in using digital tools to enhance the experience of our residential students'*.

I went to MIT in late January, and by mid-May, UQ had been admitted to edX.

Our component, "UQx", will go live with four courses in May 2014.

So why were we so keen to be part of this?

Among other things, we reap the benefit of the founding investments of Harvard and MIT, which each contributed \$30 million, and a collective investment which now exceeds \$100 million.

edX currently has 28 members and is likely to expand not much beyond 35.

Although – or perhaps because – the circle is restricted, the quality is conspicuous.

Along with Harvard and MIT, our partners include University of California Berkeley, Cornell, McGill, Peking University, Australian National University, Karolinska Institutet and University of Washington. The only other Australian member is the Australian National University.

These partners will keep us on our toes ... and you might have remarked that a number of them also have strong on-campus residential traditions.

Three other Australian Group of Eight universities - Melbourne, Western Australia and University of NSW - have signed up with the other major not-for-profit MOOC group, Coursera, which has about 3 times as many members as edX.

Yet, despite the embrace of MOOCs by high-quality universities, I acknowledge that opinion about the platform remains divided.

Depending on whose blog you read, they are either the democratic future of learning, or over-hyped ephemera, or something in between.

I respect the skeptics, but I wonder how many of them pay their bills by cheque, scramble in their wallets for a postage stamp and then walk the streets hunting for a mail box.

Granted: this is not the first time we have been told technology will revolutionise education.

To some extent, it has.

But *this* time, I believe that the changes could be more dramatic and very positive.

To quote a recent article in *The Economist*. “*Why is this time different? Largely because a number of big changes are coming at the same time: high-speed mobile networks, cheap tablet devices, the ability to process huge amounts of data cheaply, sophisticated online gaming and adaptive learning software*” – and you might add: a generation of learners who were born and fed ‘digital’.

And, like so many cultural phenomena born in America, this one is establishing beach heads all over the world.

China's official press agency, Xinhua, reported in April that Chinese educators "*have credited it as the most important invention for their field since the Internet*".

Yet it need not threaten the established lions of higher education, *if used wisely*.

Harvard business professor Clayton Christensen and his co-author Henry J Eyring have said: "*Harvard and other elite universities won't be disrupted by online learning; for them, it will be a sustaining innovation, something they add to their curriculum to make it even better.*"

Sean Gallagher of Sydney University and Geoffrey Garrett of the University of NSW put it slightly differently in a paper published last week: "*The greatest value of the disruptive education revolution led by MOOCs is that it is forcing universities to focus in on their core competence for which they have long been revered and cherished.*"

As a corporate analogy, think of how electronic communication hammered **Australia Post's** traditional mail delivery, but also gave it a boom in parcel delivery courtesy of the online retail revolution.

The traditional lecture could be like 'snail mail', while high-level engagement of motivated students who have already acquired base-knowledge through MOOCs will be the express parcel with a GST-exempt and price competitive item inside.

UQx does not signal a radical shift in direction for UQ.

I will give a handful of examples of our existing activities in the technology-assisted learning space:

- 1. Shortly before I started, UQ published a strategic blueprint for e-learning that recommended exploration of MOOCs.
- 2. Teachers in areas including engineering, archaeology, literature, psychology, paediatrics and veterinary science have been using a MOOCs precursor called the **flipped classroom**.

It might sound like a clinic for teachers who have lost the plot, but in fact its name comes from the way it inverts the traditional lecture model. Instead of the sage on the stage doing all the talking, you have students coming to class, having already acquainted themselves with instructive materials. Class time can then be more interactive and immersive.

Engineering has our biggest flipped classes, with up to 1400 students, and their feedback includes positive comments about independent learning, teamwork, and a sense of educational ownership.

- 3. Our students are using technology to learn in many other ways, as well. For example, in the last 8 weeks of semester 1

this year, 27,522 students (approaching 60% of our total) watched lectures online. It's a precise number, which I will say a little more about later.

Given the need for many of our students to earn a living and run a household, it is not surprising that the 24/7 convenience of technology appeals.

- 4. Students are also receiving more timely feedback on their assignments, because teachers are electronically marking 71,760 assignments per year, and soon this will move to a new level, with a new iPad app enabling teachers to send handwritten as well as typed comments.

This is a far cry from the days when students physically submitted printed work, only for it to be collected by the school and distributed to the academic. Once marked, the student would collect – but perhaps too late for feedback to be used to improve the next assessment.

Of course, UQ is just a microcosm of what is happening in most – if not all – industries and across the world.

A table from McKinsey published in a new report by the Business Council of Australia shows a dramatic compression in the time taken for 50 million people to use new social technologies, since the introduction of the radio.

Whilst it took 38 years for 50 million people to use a radio and 13 years for them to use a TV, it was 4 years for an iPod, 3 years for Internet, 1 year for Facebook and 9 months for Twitter.

UQ could not turn back the tide, even if we wanted to – which we do not.

Being in the MOOCs game could enhance UQ's global reputation, reflecting positively on Queensland and Australia, and helping us attract greater numbers of global collaborators, students, philanthropists and investors.

Very importantly, MOOCs may bring UQ's on-campus residential tradition to the fore.

This follows because our residential services will grow in significance as a point of difference between UQ and our competitors.

Employers take it as given that university graduates should have the disciplinary knowledge to fit their industry recruitment needs.

To foster the additional skills that employers increasingly want – eg teamwork, intercultural competence, the arts of negotiation and compromise - there are few better settings than residential student communities.

Many important lessons have been learned from a shared living environment, involvement in student clubs and societies, and other aspects of the *UQ Advantage*.

I retain valuable lessons about life, leadership, administration and event organisation that I gained from living in a college at the University of Copenhagen.

I envisage that technology could both enhance the existing on-campus experience, and give us the motivation and means to offer accommodation to a wider group of students.

This helps explain why UQ recently advertised nationally for expressions of interest in the potential development of a new on-campus accommodation facility. The process confirmed there is an appetite for on-campus student accommodation, and we are now at the stage of further refining the business case to determine what sort of delivery model would best suit UQ.

MOOCs, far from threatening UQ's established strengths, could in fact invigorate them.

I would now like to outline a few propositions of MOOCs that appeal to UQ

➤ Importantly: fair access

Most MOOCs courses, including those offered by edX, are free.

Essentially, they give people anywhere in the world who have internet access and a thirst for knowledge, opportunities to study, be examined, and receive a certificate of completion from a selection of courses offered by some excellent universities.

Thomas Friedman (triple Pulitzer Prize winner) has written of MOOCs: *“Nothing has more potential to lift more people out of poverty - by providing them an affordable education to get a job or improve in the job they have.”*

In perhaps a sign of interest in this potential, the philanthropic Bill and Melinda Gates Foundation recently committed to fund research into MOOCs’ impact on post-secondary success.

I like the story of a 15 year old boy in Mongolia who aced a circuits & electronics course usually taught to MIT second-years, but used as a MOOC by 155,000 thousand people. He was one of only 320 students worldwide to attain such a high mark, and I believe he has since been offered an Ivy League scholarship.

Who knows how many students like that are out there, waiting to be identified via a MOOC and offered a scholarship to a university like UQ?

We could perhaps work with industry and philanthropists to target scholarships for MOOCs wizards.

This might reveal talent that could otherwise be overlooked – students from very remote regions and people with disabilities, for instance.

- Related to this is what UQx may offer to **SCHOOL STUDENTS**

MOOCs may enrich our relationships with high schools, and give a UQ experience to larger numbers of bright and motivated students from rural, regional and remote Queensland and other parts of Australia.

Florida in the USA has passed laws that will encourage schools to use MOOCs, and will lead to rules that allow MOOC learners to acquire credit for college.

This points to the prospect that we, at UQ, will need to be more broad-minded about entry requirements and the weight we give to prior learning.

It makes the Queensland Government's newly-announced review of senior assessment and tertiary entrance processes seem very timely indeed – and we will certainly be contributing to that exercise.

- For many, MOOCs will be **CONVENIENT**

Their 'open-all-hours' nature will give educational chances to people unable to physically attend class.

Over time, this will help address goals around university participation and contribute to national productivity.

- This meshes with **OVERALL STUDENT QUALITY**

More than ever, disciplined and driven students will thrive, as self-motivated study *before* engagement with teachers will become more meaningful.

This will help lift the overall quality of our student body.

- Another argument lies in what MOOCs may do for our role in **GLOBAL PROBLEM-SOLVING**

One reason that the "massive" in MOOCs matters is the breadth of expertise and perspectives that it can bring to an issue.

It's the wisdom of the crowd, and collaboration on scales we have never before seen.

As Thomas Friedman has said: *"Nothing has more potential to unlock a billion more brains to solve the world's biggest problems."*

A neat example from the pre-MOOCs era is how Lego went open source to turn its business around.

First **Lego** interacted individually with its products' enthusiasts worldwide to get ideas. The company realised that its enthusiasts found each other and talked among themselves to hatch new ideas and solutions - *before* the company knew anything about it.

Harnessing this human resource is behind Lego's revival and ability to have 60% of its \$5B p/a sales made up of new products.

MOOCs could be the discovery equivalent of open source Lego, on EPO and steroids.

- Our university and college **ALUMNI** may also take a piece of the action – not only as students but also as educators.

I gather that colleges already enlist alumni as tutors, to some extent, and MOOCs might take this to a new stage.

Harvard invited alumni to be mentors and discussion group managers for a course on the “the Ancient Greek Hero”. The Professor who began teaching the course there in the late 1970s has been quoted in the *New York Times* saying: “*I’m 70, and frankly, at my age, to reach more students in one course than I have in decades is astonishing, and I love it.*”

It might be too much to ask Peter Doherty to teach “how to win a Nobel Prize”, Geoffrey Rush to instruct on “how to win An Oscar” or John Buchanan to remind us how to win the Ashes - and Scott Emerson might be too busy to teach political science – but we *do have* a generous and willing resource among our 205,000-plus alumni.

- Certainly, some of our best **STAFF** have recognised early the opportunities that MOOCs afford them.

From May 2014, UQx will offer courses in hypersonics (scramjets); tropical ecosystems, biomedical imaging; and the science of everyday thinking. These take in subject areas where UQ ranks in the world's top 10, highly-cited researchers, and areas with a record for inspiring the public imagination.

This echoes the experience of early-adopter universities.

Top researchers are not threatened by the technology, instead seizing on it as a way to share their knowledge and project their global brand onto a screen previously unimagined.

As UQx blossoms, I foresee more staff of UQ's several thousand top researchers in the learning enterprise – and that will be a very good thing.

- Now, to perhaps the best of all aspects of edX: **LEARNING**
ANALYTICS

I gave a very precise figure earlier for the number of students who had viewed a lecture online in the last eight weeks of last term: 27,522. The precision is important because it hints at how technology helps us track students.

Learning analytics will employ 'big data' to identify student learning patterns and enable individualised learning. An analogy might be how big data is being used in health, to develop personalised medicine or anticipate epidemics.

This will in turn help us further develop our approaches to tuition and secure better learning outcomes for our students.

With potentially hundreds of thousands of learners enrolled in a course, logging on and off and completing online tasks, we will have a massive yet fine-grained source of knowledge about learning.

I believe that UQ is particularly well-positioned in this space. Two of our highest-ranked subjects include psychology (9th globally) and education (10th), and shortly before we were granted entry to edX, the Federal Government announced UQ would lead Australia's first **science of learning centre**. It has \$16 million in funding from the Australian Research Council.

The new centre will mesh with our endeavours in learning analytics, as well as our outreach to high schools and our ability to offer them UQx-related benefits.

Learning analytics may be the ignition key for the REAL EDUCATION REVOLUTION – stripped of the hype that surrounds MOOCs, but

delivering improvements in knowledge and creativity that will have universal applications.

Imagine the benefits that may bring – benefits that will assist us to ensure elite outcomes for our graduates without adopting elitist approaches to our sourcing and treatment of students.

Thank you for your attention tonight.

I have taken up the speaking time – but I have given you only a fraction of the possible angles on MOOCs.

For instance, there may well be implications for how Australian universities are publicly funded -- another lecture topic in itself!

I have sought to give you a sense that UQ is **not** hopping on board the MOOCs platform for the sake of it.

This is not some gratuitous frolic to show that we are up with new-season education fashion.

Far from it.

It's about giving the opportunities that they deserve to our existing and future students, to our alumni and staff, and to the borderless communities with which we engage.

That is, opportunities to learn in new ways, to take part in global problem-solving, and to benefit from new solutions.

MOOCs won't be a panacea for the world's ills.

But, as many people who love to learn have found, shared knowledge can be a potent force for mutual understanding, respect and empathy.

Thank you.