

Convocation of UWA Graduates
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"Challenges for University education in the next century"

James Edelman*

Introduction

It is an honour to be invited to speak to you all tonight at the meeting of the convocation. I have taught, in one capacity or another, at various Universities for the last 20 years but it always feels like returning home when I come back to the place where University education started for me, at UWA. My ultimate message this evening concerns why this is the case.

At the inaugural meeting last year, Emeritus Professor Geoffrey Bolton spoke of the first century of the University of Western Australia since teaching began at Irwin Street in the City. I want to speak this evening on the next century and some challenges for a university such as the University of Western Australia in the next hundred years.

An apocryphal, although probably untrue, story about Bill Gates is that in the 1980's he remarked that no computer would ever need more than 640KB of memory. Many in the 1980's might have shared that sentiment. Many people now need nearly a million times that amount of memory. In a modern era which involves rapid social change, it is ambitious to try to predict challenges in the next century.

In the short time for this speech, I want to focus only on one major future challenge for Universities. It is a challenge which will resonate in the two core areas for a University of research and teaching.

* Judge of the Supreme Court of Western Australia. Adjunct Professor, University of Western Australia and Conjoint Professor, University of NSW. Formerly Professor of the Law of Obligations, University of Oxford.

It is a challenge which was noticed in 1913 by Thomas Edison when he predicted the end of learning from books. Edison saw the motion picture as the future of education. He might have been wrong to focus only on the motion picture. But I think his insight was right. New technology offers the prospect of entirely new ways of thinking about education. The challenge about which I will speak briefly this evening is the challenge of online education.

Demographic change

During our lifetimes we have seen a number of transformative changes to University education.

One change is the expansion of University education domestically and internationally. UWA has increased in size from several thousand students in 1960 to 24 thousand today. The University of Sydney has increased from several thousand in 1920 to more than 50,000 students today.

Participation rates have also increased. On one measure, participation rates in tertiary education in Australia has increased by 10% since only 1995 to around a third of the population now.

But although University education is becoming more prolific, the proportion of the population which obtains a tertiary education still varies dramatically across countries and across sectors of the community.

A child born today in Finland is 140 times more likely to obtain a tertiary degree than a child born today in Mozambique. And a study by Richard James in 2000 estimated that in Australia, a child from a lower-socio economic background has half the chance of attaining a university education than a child from a high socio economic background.

A radical educational transformation

The expansion in a tertiary educated population is, I believe, a fundamentally good thing. And technology now has the potential to affect this demographic change more dramatically than ever in history.

The change about which I am speaking is online teaching.

Online internet access, assisted by companies such as Microsoft and Google, is being rapidly expanded across the developing world.

And as the developing world comes online, numerous universities are creating free online education portals. Perhaps the pioneers of this initiative, Harvard and MIT, have recently joined with Google in their Ed X innovation to deliver free online courses. These courses are commonly described as MOOCs. Massive Open Online Courses.

Last week, the New York Times published a story of a 15 year old boy from Mongolia called Battushig, a country where a third of the population is nomadic.

The boy was fortunate to have a principal at his school who, in 2009, was the first Mongolian in history to graduate from MIT. He encouraged his students to enrol online in what is now referred to as a MOOC (Massive Open Online Course). The course is filmed and broadcast free over the internet by MIT. 150,000 students enrolled in the MIT course in Circuits and Electronics. 340 of them earned a perfect score.

Battushig, for whom English was his second language, was one of them.

There are now hundreds of universities which offer MOOCs. University of Western Australia has signed up as a partner with Coursera, the largest online course provider in the world.

Within Universities themselves, many lectures are now recorded. Students who work during the day, who have family, maternity or paternity commitments, or who otherwise have problems attending lectures are often able to access lectures online.

This online tertiary education revolution is not confined to the Universities. One example of the new advances from technology at a primary level is an application called Reading Eggs. It caters for almost infinitely variable abilities and standards. Applications such as this offer the prospect of individualised online education on a greater scale than previously thought possible.

These developments in online education are not likely to slow down. Rupert Murdoch continues to invest heavily in his Amplify business despite losses which are estimated at around \$180 million per annum because of what is no doubt expected to be a radical new digital future for education.

There are also now millions of online blogs, discussion groups, chat groups on topics as specialised as Everyday carry- which is an analysis of the things people carry in their pockets – to a blog concerned with Fermat's Last Theorem.

The challenge for Universities in the face of this significant change

With the incredible access opportunities that online education, especially free online education, has to offer, there is a huge question that must be confronted. What is the remaining role for a University?

Let me start with what I think that the answer is not. The answer is not that a University education is only about outcome. University education is not about merely providing a commodity – a degree – which is a passport to a better career.

Commoditisation of education, I believe, misunderstands the goal of a University.

Last year, 125 students in a political science class at Harvard University were accused of cheating on the final exam. Although the immediate cause and responsibility lies with the students, an editorial in the Boston Globe speculated on the wider causes and suggested that perhaps one reason is that plagiarism and cheating 'is an inevitable

result of today's educational marketplace, in which a college education has become a transaction: a means of earning a degree for your resume, rather than a place to explore the life of the mind.'

A solution

Ironically, with all the vast benefits that online education can deliver I believe that the challenge for universities, in the 21st century will be to focus also on demonstrating their expertise in matters which are not online.

The most fundamental of these is personal interchange.

One example where there is a possibility of losing sight of the need for personal interchange is in the delivery of lectures and seminars. The recording of lectures is becoming the standard.

It was reported earlier this year that the University of Melbourne was going to experiment with an 'opt out' system for lecture recording with reasons to be provided before a lecturer could opt out and the possibility of challenge to that decision.

Significant anecdotal evidence, as well as my own personal experience, has been that as soon as lectures are recorded then attendances dive.

The next question that students will begin to ask is 'why should we pay for a University education at all?' Are the recorded lectures that the student listens to in the comfort of his or her own home so much better than the free content online to justify the expense of University education?

The answer is to focus on the inter-personal experience of a University. In relation to teaching, although lectures might be recorded, this should be no substitute for Socratic exchange.

I first made this suggestion last year at a forum on the future of law schools. A senior former Faculty member, with almost a lifetime in university education and

management, remarked to me that this view of Socratic teaching was elitist and unaffordable.

I have a grave fear that if this person, for whom I have genuine respect, with his experience, his expertise and a lifetime at a University, can truly believe these remarks then there must be many others that think this way both within and without the University. Let me deal with each of those points.

First, let me say something about the objection to the view that Socratic education is elite. In my view, it is a betrayal of a fundamental goal of a University to suggest that it is objectionable to lead a person's mind to an elite level, or that it is somehow a criticism of a teacher that he or she inspires a mind to think in an elite manner – that is, to see and understand the world in a way that others have not. The etymology of the word 'education' is the Latin verb *ducere*: to lead. The metaphor is of the teacher leading the student through a journey of discovery. This is the epitome of Socratic education.

The creation an elite or superior mind should *never* be something which is feared or condemned by a University. It ought to be a goal of every teacher, every Faculty, and every University. Our University's motto is 'seek wisdom'. Wisdom is not achieved by encouraging everyone to think in the same way. It is not achieved by encouraging the acceptance of what J K Galbraith disparagingly termed 'conventional wisdom'.

Second, let me deal with the objection about cost. The view that it is too costly to deliver Socratic education simply confuses the ability of a teacher with the cost of delivering teaching.

Without doubt, Socratic teaching is harder in larger classes. One problem with any form of education - primary, secondary or tertiary- is class size. Oxford and Cambridge are almost the only examples in the world of systematic university education where the primary instruction takes place in class sizes of generally 3 or fewer students. They do so at vast cost. The cost is not merely financial. I say this as someone who has delivered the same tutorial to small groups of 3 students for up to 8 hours in a row. The tutorial system at Oxbridge survives because the majority of the

tutors truly believe in it. The reason they believe in it, and the reason that it is vastly superior to other current forms of instruction, is class size. It is far easier to lead a journey of educational discovery with 2 or 3 students than with 20 or 30 or even 200 or 300.

But, contrary to the view that was expressed to me last year at the law school forum, it is not impossible to engage in Socratic teaching even in a class which numbers 50 students.

Despite the brilliant experience of tiny Socratic tutorials, at Oxford, the most dynamic experience I had as a student was in the class of 50 run by a former mentor of mine, the late Peter Birks. Peter could comfortably teach a class of 50 students in such a Socratic style that all the students felt that he knew exactly what they were thinking. One of my colleagues described it as a giant game of chess where Peter would know the moves being made by each of the 50 members in the class. To a lesser extent, this teaching experience could be delivered by anyone. It takes only 2 minutes at the start of a class to ask students to tear out a piece of paper, to fold it in half and place it in front of them with their name written on it.

I have spoken only of personal interchange in the Socratic delivery of lectures, seminars and tutorials. But there are many other areas where Universities can emphasise the benefits of personal interchange.

Related to the Socratic style of teaching is the importance of engaged and collaborative research. The goal of University of WA is to be placed in the world's top 50. This requires academics to engage with others all over the world. An academic should never stand still. Conferences, collaboration, academic exchanges, engagement with the professions, all of these are marks of an interpersonal dynamic University model.

Nor is Socratic teaching the only example of personal interchange for students. For instance, interchange with the most elite students- and again contrary to the view expressed to me at the forum on the future of law schools, I use this word the most positive of terms- in programmes and supervisions such as Honours and Masters.

Programmes such as the outstanding BPhil innovation at UWA where the very best, of the very best, of students are brought together after school, spending time together debating, discussing, and engaging in particular advanced degrees.

Finally, at the most basic level, encouraging students to think of University as a place to be. A physical place of interchange.

Charles Darwin

Let me conclude with an explanation for why Universities should embrace the potentially radical transformative change to education that technology offers and why Universities should have nothing to fear from it.

In any study of the greatest 19th century scientific advances, Charles Darwin has a powerful claim to have advanced our knowledge more than any other. At the heart of Darwin's work was his concept of natural selection, which Herbert Spencer described, slightly inaccurately, as 'survival of the fittest'.

But in Darwin's extraordinary study of natural selection there was one huge puzzle. This was the presence of co-operation and altruism in nature.

How could he explain the behaviour of the sentry gazelle, who alerts the herd to the prowling lion by springing up again and again, saving the herd but focusing the lion's attention on itself?

Or the amoeba which builds a stalk from its own body, sacrificing itself, so that another amoeba can be carried away to food supplies by a passing insect?

Or the bird which calls to its companions to warn of the impending approach of a cat thereby attracting the cat's attention to itself?

For many years, this altruism in nature was a great puzzle of biological science. The point of my speech this evening is that the answer to this puzzle is also the answer to the future of successful delivery of University education.

In 1973, John Maynard Smith and George Price published a paper in the journal *Nature*. Their thesis considered what has become known in game theory as the Hawk-Dove game. As a mathematical theory it could explain both antagonism and co-operation.

Think of the example of the warning call by the bird who sees the cat approaching. The bird places itself at far greater risk in order to save the others. This so-called altruistic behaviour, as Smith and Price explained, is based upon repeated 'games': in other words the apparent altruism of the bird who warns the others usually has a payoff by the future altruism of a bird who is saved by the call or another bird who learns that this is ultimately the best way form of protection for them all.

In one sense, the behaviour is not truly altruistic. The bird behaves in a co-operative manner because its actions are based on a broad and far-sighted approach to life, beyond immediate gain to itself although with the knowledge of long term gain.

My primary point this evening is that the major challenges which are faced by Universities as a result of technological developments should be answered by what might appear to be an altruistic approach. Universities should have nothing to fear from the spread of massive, free, online educational resources. Instead, they can use this apparent altruism to expand and advance reputation and student interest. The way to so this is by keeping sight of the core role of a University as offering an interpersonal education experience.

I did not tell you the conclusion to the story about Battushig from Mongolia.

After achieving a perfect score in MIT's free online course he applied for admission to MIT after graduation. He was admitted. He is now studying at MIT. His facebook page shows him with the renowned physics professor, Walter Lewin. My own

facebook page features one of Walter Lewin's classes where he performs a stunt which quite literally bets his life on the principle of conservation of energy.

Universities have the potential to offer so much to so many. But the inter-personal University experience will always offer the ability to touch the minds of students in ways that technology never will. George Price himself also knew this. Towards the end of his life George Price spent more and more time helping the homeless, eventually living amongst them. At his funeral in 1975, there were only 10 people present. Two of them were the two premier evolutionary scientists in the world. The other 8 were homeless. They wore the socks George had given them; his jackets and his shoes.

Even without digesting the mathematics of George Price, I hope that we can all aspire to the co-operation, the interpersonal exchange, that will be what will make our University even greater and will, I believe, help to achieve our goal of being in the top 50 in the world. Along the way we will educate on a wide scale, from the Nobel Prize-winners to the homeless, two groups which are not mutually exclusive.