The future is here

Way, way back at the beginning of this century, in 2001, management guru the late Peter Drucker, predicted that the next society of the 21st century would be a knowledge society, with knowledge as the key resource. Drucker predicted that a knowledge society would be borderless (because knowledge travels more effortlessly than money) and that education would be available to everyone who wanted it.

Today, global connectivity, smart machines, and new media has changed forever the way we interact, engage and communicate with each other: our thumbs are stronger, our attention span infinitely shorter and we can always be mentally and digitally someplace other than where we are.

The adoption of smart phones and tablets is almost universal. Their allure is irresistible, their use is utterly convenient and they are seriously addictive. We live in a bring-your-own-device, DIY-learning, there-is-an-app-for-that world. Advances in wearable computing has brought technology to places where in the past, safety, logistics and even etiquette, prohibited its use – hands free technology is reshaping how we work, where we work and how we make decisions.

A March 2015 report of internet usage by Australians found that of the 92% of Australians who use the internet, 10.7 million are online more than once a day, 70% access the internet on their smart phone and 50% on a tablet. There was a 97% growth in the volume of mobile data downloaded in the 12 months June 2013-2014. Almost 11 million made an e-commerce transaction and 54% were engaged in blogs and online communities. These are Australian figures but the same trends are true globally, and most particularly, in our region.

Digital change has revolutionised the role of knowledge in our society

Universities are no longer the originators and keepers of knowledge: the internet is now the primary platform for information exchange and students are no longer passive observers but active contributors who co-create knowledge, disrupt the time honoured approaches and hence evolve markets and create new ones.

Just as the Oxford dons of the middle ages had to rethink their role when the invention of the printing press gave easy access to the printed word, digital technologies have transformed the way education is delivered, supported, accessed, assessed and perceived.

Just as iTunes has unbundled songs from a CD (or LP in the old language!), the digital revolution has enabled a university degree to be disaggregated into its component parts of i) vocational knowledge, ii) generic professional skills, iii) deep discipline knowledge, iv) practical training, v) evidence of achievement, vi) networking opportunities and vii) student lifestyle.
But we know our students no longer need to turn up for much at all. Lectures? No, they can dial in, listen or watch later or do the work themselves and not attend at all. All they must do is ATTEND for assessment which in most places is still a proctored or supervised examination.

The opportunities of digital change have already begun to deliver students agility, flexibility, and personalization and there is much more to come yet. It is a world where pathways replace gatekeeping and education is truly lifelong.

Deakin has partnered with cognitive computer IBM Watson in a world first initiative that will enable us to personalise the student experience in ways previously unimaginable ... students will receive personalised and seemingly prescient answers to their questions 24/7 for 365 days a year on phone, tablet or computer ... just in time just for me and just how I want it.

In my view MOOCs have been the disrupter that have accelerated us to this point. I know many believe they have not lived up to their promise but for my part the world sat up and took note and we are now in a sea of disruption.

MOOCs offer free tuition for all, have enrolments counted in the millions and are mostly run by the world’s uber elite institutions. In the blink of one year online education went from poor relation to leading edge.

MOOCs have freed us from fixed concepts of meritocratic selection and from preconceived notions of who should go to university and when that might happen. They have irresistible appeal and they have the potential to truly democratise education.

MOOCs have given us a whole new perspective on international education. Today they give us global cloud classrooms unencumbered by the timetable of a western ecclesiastical calendar.

The sheer numbers participating in MOOCs mean that we have access to large data sets which can inform curriculum design ... we can get a daily report on which students are participating, what questions they are asking, what the hot topics and problem areas are and what we, their teachers, should be doing to optimise their learning.

Will they replace place-based universities? I don’t think so, MOOCs are just one pathway. Stanford professor Susan Holmes has a point when she said: “I don’t think you can get a Stanford education online, just as I don’t think Facebook gives you a social life.” I am sure we all agree with that view. In the developing world, where significantly large numbers of people live in rural areas and cannot afford higher education, MOOCs have the potential, still, to be a game changer.

**New technologies have changed how we think about learning**

Few university students today are solely ‘on-campus’ with no access to the cloud or ‘off-campus’ simply receiving and absorbing learning resources digitally. When students travel to a university site, they expect technology-rich learning spaces with ubiquitous Wi-Fi.

Technology has allowed us to think differently about teaching. In a flipped class room, students take more responsibility for their learning and study core content individually or in groups before coming to class, either in person or through the cloud, where the focus is on higher order thinking and applied knowledge. For older students who are juggling work and family with study – this flexibility matters.
Technology also enables us to think differently about assessment and link it more closely to the skills we know employers want. Technology provides opportunities for real world experiences using simulations, virtual environments and gaming, for example in marine science including citizen science like Turtle SAT which monitors turtles in local waterways.

**We are preparing students for lives and careers in the second machine age**

As I outlined in my chapter for the CEDA 2015 report *Australia’s Future Workforce*, Australia’s future workforce needs are complex and unpredictable. The United States Department of Labour predicts that 65% of primary-school aged children in America will end up in jobs that have yet to be invented. A report by UK researchers Frey and Osborne suggests that almost 47% of jobs will be computerised within one or two decades. And the jobs of a lifetime will no longer last a lifetime, Deloitte’s 2014 report on global human capital trends suggests skills will have a half-life of only 2.5 – 5 years – workers will need to upskill multiple times in their lifetime. Not everyone will need a four year degree, but in an era when knowledge is the key to the future, many many more will need to be educated to a higher standard.

The McKinsey Global report tells us the world faces a potential shortage of 38-40 million high skill workers (13% of demand) and a potential surplus of 90-95 million low skill workers (10% of supply). India for example will need four million engineering graduates per year but is only producing 500,000.

Many of the jobs universities prepare graduates for today were unheard of a few years ago – app developers, data scientists and social media managers … five years ago we didn’t even know what an app was. And in five years’ time? Chief Algorithm Officers, Machine Communications specialists, Robotics Lifestyle Integration Consultants and Ethicists. We must begin thinking about preparing students to work with machines and in the spaces between machines.

**The challenges for our region are compelling**

According to the OECD, of the 204 million 25-34 year olds with a tertiary education in the world by 2020 –over 55% will be from Asia. While tertiary education in Asia has been surging and has more than doubled since 2000, Asia’s tertiary enrolment ratio still lags behind the world average of 32%. The US may be the world’s education technology leader, but Asia is fast becoming its most critical testing ground – Asia has the world’s largest pool of K-12 and college enrolments and deep internet and social media penetration ... 46% of the world’s internet users are in Asia (35% of the population).

The digital divide has been turned on its head, with most internet access via mobile and becoming truly universally available and affordable. Many millions in Asia and Africa will never use a land based telephone having leapfrogged a hugely expensive and now stranded almost ancient technology. Nearly 2.5 billion of the world’s 4.3 billion mobile phone users are in the Asia-Pacific – a share that’s expected to increase. Worldwide penetration of mobile phones has now passed 50% and over 3 billion people now use the internet.

**Change Ahead**

Our education policy and systems are struggling to keep pace with the lightning fast speed of technological change that it is hard to imagine here, today in beautiful Kuala Lumpur.

Some questions we must begin to ponder...
• How do you assess the quality of online learning in the age of MOOCs or similar cloud based training? The Quality of content? The Quality of the design? The instructional delivery? All of this matters but ultimately of course its quality of outcomes? And outcomes from higher education usually mean jobs, even for free open access MOOCs which often are of variable quality.

• What are the implications for IP? And who owns what?

• Will we still need to run multiple lectures in semesters and stop for Easter or Ramadan? What is the role of the academic? Facilitator, coach, personal trainer in intellectual fitness? Or will machines assume much of this role as cognitive learning accelerates to ensure machines have their place in the world.

• What are the implications for how we select staff and for the ongoing professional development we provide them?

• Will employers continue to value university degrees over a digital badge from edX or Coursera? Could “graduates” entice employers with half a dozen prestige MOOCs on their CVs, in place of a three-year degree in business or computing?

The late Steve Jobs’ take on quality was that “people don’t know what they want until they see it” ... so what do students today expect from their university education?

• A well paid job? Better understanding of the world? An exciting lifestyle?

• Far more jobs will mean working intimately with digitally coded machines and intelligent systems. What are the skills our graduates will need to work with machines and in the spaces between machines? We need to get it right, else we, the universities and educators may become stranded.

And of course the billion dollar question – how will we keep pace with technological infrastructure and remain competitive in an increasingly complex global market?

In conclusion

We ask a great deal of our universities: to prepare future leaders, train employees, provide the creative base for scientific discovery, transmit culture, create new knowledge – to nurture and fulfil the deep human desire to understand ourselves and the world we inhabit and inherit.

We know knowledge is replacing other resources as the main driver of economic growth, and education has increasingly become the foundation for individual prosperity and social mobility and importantly for national well-being, regional power and advantage.

Ladies and gentleman, as Robert Kennedy once famously said – we live in interesting times – times of opportunity and huge advances if we pay attention and take a few risks.

Are we up to it?

Endnotes


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UNESCO Institute for Statistics 2014