

The Virtual University: Impact on Australian Accounting and Business Education

edited by Elaine Evans, Roger Burritt and James Guthrie



Centre for
Accounting, Governance
and Sustainability



**Institute of
Chartered Accountants
Australia**

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University of
South Australia

Centre for
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Institute of
Chartered Accountants
Australia

All information is current as at June 2013

First published 2013

Published by:

Institute of Chartered Accountants Australia

33 Erskine Street, Sydney, New South Wales, 2000

Centre for Accounting, Governance and Sustainability, University of South Australia

37–44 North Terrace, Adelaide, South Australia, 5000

Academic Leadership series, volume 4:

The Virtual University: Impact on Australian Accounting and Business Education

National Library of Australia Cataloguing-in-Publication data:

Evans, Elaine.

Burritt, Roger.

Guthrie, James.

Institute of Chartered Accountants Australia.

The Virtual University: Impact on Australian Accounting and Business Education/

E. Evans, R. Burritt and J. Guthrie, editors

ISSN: 2200-2820

Accounting – Practice

Preface

Reading the articles in this latest edition of the *Academic Leadership Series* I was struck both by the range of contributors and the synergies in their work. The articles consider one of the grimmest challenges of all – the future. What makes this *Academic Leadership Series* issue so particularly compelling is that we are undergoing a period of profound change, with the potential of technology affecting everything we do.

That we attempt to confront this issue is testament to the leadership of both the Institute of Chartered Accountants Australia (the Institute) and the Centre for Accounting, Governance and Sustainability at the University of South Australia. Together we have drawn together thinkers from industry and academia to provoke thought about where we are heading and how we can best equip ourselves as business and accounting educators and professional bodies to meet the challenges of the future head on.

In February this year, these leading academics, practitioners, policymakers and leaders of the profession participated in the fourth annual Thought Leadership Forum at The University of South Australia. I was fortunate to be able to attend and the discussion was stimulating to say the least. The debate continues in this collection of articles. While all authors agree that the future holds significant changes for education, particularly higher education, each provide a different and equally fascinating perspective.

The volume features 13 articles that challenge our thinking about education, analyse the latest research in online education and provide experiences in the world of the virtual university as it develops.

The Institute's thought leadership activities are part of our strategic objective to invest in accounting education and research including: support for academics in terms of research funding, participation in wider community debates and representation at the highest levels in government. Our aim is to invest in activity that will meet the needs of our members and future members. Investment in aligning our organisation, in part, to the needs of accounting academics and transforming our links with the academic community is an important platform for continued dialogue and debate.

On behalf of the Institute I wish to acknowledge those who participated in the Forum and in this volume. The collaborative spirit in which these ventures are undertaken demonstrates that wherever the future takes us, we are in capable hands.



Tim Gullifer FCA

President
Institute of Chartered Accountants Australia

Preface

Universities throughout the world are currently strategising about the development of massive open online courses (MOOCs) distributed through virtual technologies. In this context I very much welcome the focus of the Centre for Accounting, Governance and Sustainability (CAGS) / Institute of Chartered Accountants Australia (the Institute) Forum. Through the Forum, and through this publication, the issue of the growing virtual space for accounting education can now be explored nationally and internationally.

In recent months I have regularly been asked two interrelated questions about MOOCs. First, do such technologically entwined courses mean the end of the business school, and indeed of departments of accounting, as we know them? My view is 'no', largely because universities will continue to adapt to the changing competitive environment as they have done over the years, including in the recent past. Simply, universities are business organisations and will respond to the market and the environment within which they operate – whether this be inadequate and declining government funding, the emergence of private universities or the growth of new technologies. This is not to deny that universities face, and will continue to face, serious challenges, including MOOCs. Different schools will respond differently to these challenges, and will choose to operate in different market segments. Indeed, the Forum, with its focused research–teaching–practice interchanges encouraged by our CAGS, is an indication of the market being pursued by the University of South Australia (UniSA) Business School.

The second question is how can business schools actually respond to changing technology? In brief, my answer is that we must seek to explore and to

incorporate all of the available technologies but in a way that adds value. This is the key challenge for the universities and the business schools of the future. We must package our university education experience to include technological innovations but also add much more. We cannot compete only on cost or technology. We have to sell the quality of the student experience. We will still educate students and credential them too, but we will educate in a different way while continuing to focus on aspects such as networking, linkages, lifestyle and development of lifetime friends in a package that says, 'This is the university experience'. What we must do is use all of the tools that are available to us, including technology, to make sure that the product we produce is worthy of the premium price we are going to charge. Because if we cannot convince the market to pay us that price, then we will face a bleak future. It is the things that we do as a business school, as an accounting discipline, as a profession, that add value to the experience of students that will convince them to study with us.

Finally, I note that this is the fourth volume of publications in our joint *Academic Leadership Series* and the UniSA Business School is absolutely delighted to be partnering with the Institute to open up debate about the virtual university and higher education of accountants that will lead to the profession of the future.



Professor Gerry Griffin

Pro Vice Chancellor, UniSA Business School

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Challenges for Accounting and Business Education: Blending Online and Traditional Universities in a MOOC Environment

JAMES GUTHRIE, ROGER BURRITT AND ELAINE EVANS

INTRODUCTION

Online education models have existed since the dot-com boom at the turn of the century, originating from a longer history of distance education. However, the launch of Stanford University's 'Introduction to Artificial Intelligence' in 2011 heralded a new era of massive open online courses (MOOCs). The free course attracted over 160,000 students from over 190 countries within a few weeks. Almost 20,000 students completed the course and received a 'Statement of Accomplishment'. Although the experience was not a substitute for a Stanford degree, and did not provide course credits for actual degrees, it delivered a 'prestige credential adapted to the internet' (Marginson, 2012). The paradigm shift in higher education then accelerated when Harvard University jumped on board, partnering with Massachusetts Institute of Technology (MIT) to launch edX in May 2012 (Carey, 2012). Previously, online education was provided by newer, less prestigious institutions (Norton, 2012). Now it has become mainstream; traditional universities need to develop strategies to meet the challenge.

As Marginson (2012) explains, content of MOOCs differs from the usual online offerings provided by universities by introducing online multiple-choice grading, peer-to-peer tutorial discussions and assessment mechanisms, work groups and support systems. In order to administer regular issues raised by the many thousands of course enrolments, frequently asked questions (FAQs) are used. Operating costs are low, standards are maintained and access is provided to top global experts and teachers (as opposed to local teachers and educators).

In Australia, the MOOC phenomenon is attracting a great deal of attention with the *Australian Financial Review*, *The Australian's Higher Education*, and the Australian Higher Education LinkedIn Group speculating on the future of Australian universities under a MOOC model of education. In 2012, it became apparent that the virtual university and its associated shift to online courses would threaten the traditional university business model. In consequence, the Centre for Accounting, Governance and Sustainability (CAGS) and the Institute of Chartered Accountants Australia (the Institute) decided to arrange their 4th Annual Thought Leadership Forum, held in Adelaide on 5 February 2013, around the theme of *The Virtual University: Impact on Accounting and Business Education*.

The main purpose of this *Academic Leadership Series* of publications (of which this is volume 4), is to report on the thought leadership revealed and discussed at the Forum. The focus was on contemporary challenges in the rapidly expanding relationship between technology, teaching, professional bodies and firms, research and the Australian higher education sector. In particular, the various contributions discuss the possibilities for, and challenges of, the 'virtual university' and explore the interface between the academy and professional practice in determining future directions. The volume's objective is to provide considered opinion and an academic foundation for open discussions on possible strategies, issues and changing skill sets for accounting graduates, accounting academics and higher education providers, by identifying major challenges and strategies for addressing them.

CHALLENGES FOR THE UNIVERSITY SECTOR IN GENERAL AND ACCOUNTING EDUCATION IN PARTICULAR

Each article in this volume presents a wide variety of challenges and possible solutions, including those faced by accounting researchers, policymakers and practitioners.

GENERAL CHALLENGES FOR THE UNIVERSITY SECTOR

A range of general challenges were identified:

- Competition with the proliferation of private providers in the market
- Continual provision of high-quality lecture material
- Plagiarism
- The role of lecturers
- The role of agencies such as the Tertiary Education Quality Standards Agency (TEQSA)
- Impact on the international student market
- Processes for the validation of knowledge
- The future of university credentials
- Accreditation mechanisms for recognition of single courses undertaken in a global education world
- Ability of Australian universities to compete with high-profile overseas universities
- Effective use of online networks of alumni
- Provision of complementary learning models.

SPECIFIC CHALLENGES FOR ACCOUNTING AND BUSINESS EDUCATION

Specific problems were identified in relation to the student experience and links with the profession:

- Lack of an on-campus experience for students who want to enter a profession that requires soft skills such as communication skills
- Alternate offerings to large group lectures, commonly found in undergraduate accounting education courses
- Anticipated demise of postgraduate courses, which are associated with full-fee-paying international students
- Maintaining the link between the accounting profession and accounting education and educators in universities when there may be many other providers in an online environment.

Education providers are slowly adapting to the changes brought on by evolving technologies. Educators need to concentrate on how technology can work in a business education environment (e.g., secondary, tertiary and training/professional development) and the most appropriate models of innovation to adopt.

MOOCS – BACKGROUND TO THE PAST AND THE PRESENT

In this section, we provide a brief background to, and our perspective on, the current state of play of MOOCs. MOOCs represent a new learning paradigm that is expected to revolutionise learning, similar to the unsettling impact of the Internet on existing players in the publishing, media and retail industries (Marginson, 2012). MOOCs challenge the traditional higher education model of a university, with its bricks and mortar.

The current key players in MOOCs are Coursera, edX and Udacity. Udacity founder Sebastian Thrun states: 'The idea of a degree is that you spend a fixed time right after high school to educate yourself for the rest of your career. But careers change so much over a lifetime now that this model isn't valid anymore' (Anders, 2012, p. 1). In recent times, a start-up boom has emerged in California for online higher education, with most of the current activity concentrated in North America and still largely dependent on venture capital for funding. Virtually all players prefer to enter the higher education space by partnering with existing universities to develop online content and teaching approaches, and to determine issues such as assessments, credits and qualifications (Anders, 2012).

MOOCs can technically be classified into 'cMOOCs' and 'xMOOCs', with the two groups serving different purposes and exhibiting distinct pedagogical differences (Daniel, 2012, p. 8). cMOOCs arrived earlier and refer to what is essentially 'discursive communities creating knowledge together' (Lugton, 2012). In cMOOCs, the focus is on connectivism: participants determine their own learning path and build and navigate through their own online networks (Lugton, 2012). The subjectivity and lack of standardisation renders assessment and certification difficult (Lugton, 2012). In contrast, xMOOCs, which include Coursera, edX and Udacity, are more closely aligned with the traditional teacher–learner model of imparting knowledge around set content, with online community channels available for additional support.

According to the Grattan Institute, participation by prestigious universities provides a market advantage which combined with lower costs has helped MOOCs to flourish (Dodd, 2012). Strong enrolments will continue to boost the reputation and scale of MOOCs, although high attrition is an issue (Gardner, 2012). The scale and reach of MOOCs, commonly numbering thousands of students globally per course, is unprecedented. Users' motives range from curiosity to developing special expertise and leveraging unique networking opportunities (Sadler, 2012). However, high non-completion rates suggest that many users are curious browsers, or may need academic support that MOOCs lack (Norton, 2012).

As MOOC providers have bedded down a structure for content and teaching, the focus has shifted to assessment and certification. In late 2012, Pearson VUE partnered with edX and Udacity to provide optional assessment services, as a step toward verified assessments and obtaining course credits. More third-party businesses are expected to emerge and provide complementary services, such as assessment and support, for which students can pay (Carey, 2012). In October, 2012, a MOOC review site, **Coursetalk.org**, was launched, providing a common platform for searching courses, as well as ratings and reviews.

Currently, MOOCs pose a restricted competitive threat to traditional universities, as they do not offer qualifications, course majors, or the campus experience. However, this can quickly change. The American Council on Education (ACE) has been exploring accreditation and recommended a few MOOCs for course credits in February 2013. In March 2013, a Californian Bill was introduced, proposing that 50 of the most

oversubscribed lower-division courses at California state universities and colleges be accepted for course credit when offered and where students are unable to reserve a place in the course from their institution. The online courses would be approved by a college faculty council. The Bill is designed to relieve supply bottlenecks for courses, which increase the length and cost of university studies. If enacted, the Bill may pave the way towards more mandatory course credits, which would likely accelerate the uptake of MOOCs.

Universities are generally looking to incorporate technology into teaching, typically as part of a blended learning approach using online and face-to-face teaching. Online education is growing worldwide, led by the US. A Sloan Consortium study in 2011 found six million US students were undertaking an online course, nearly one-third of all students in higher education (Banerjee, 2013). The study also reported that online students in the US grew at 10%, outpacing overall growth of 2% from 2010 to 2011. Online education has flourished in India, where many students cannot afford to stop work to attend full-time university (Banerjee, 2013). China, with its long history in distance education, has strong growth prospects, as do South Korea and Malaysia (Banerjee, 2013). The UK became serious about online education in 2011 when the government invested £100 million, partly in response to increasing tuition costs (Banerjee, 2013). In Australia, online education has grown 20% in the past five years and is estimated to be worth US\$4.68 billion in 2013 (Banerjee, 2013). MOOCs are, in effect, already big business.

MOOCs: IMPORTANT ISSUES

In this section we explore several issues including the online competition created by MOOCs, the volume issues in relation to MOOC learning, pricing issues (including the future of textbooks in the online context) and quality of learning.

ONLINE COMPETITION FOR MOOCs

The current key players in MOOCs (Coursera, edX and Udacity) have introduced a new form of competition into the higher education market from the private sector (Sadler, 2012; Barber et al., 2013), but with a private–public crossover through existing, often publicly funded universities. The mix of private and public funding is an ongoing concern for accountability in the university sector as the potential for confusing

funds provided from the public purse with private activities will continue to encourage close attention from government.

According to Palmer (2012), online companies such as Google, Apple and Microsoft are manoeuvring to keep customers within their 'ecosystem'. These companies are now also competing for the education market, and their agility (especially Google) poses a competitive threat to MOOCs. Products include Microsoft Office 365 for Education, Google Apps for Education, Apple's iTunes U and YouTube EDU. Microsoft Office 365 for Education is a cloud offering that includes free email, instant communication tools and online document viewing and editing. It was introduced in June 2012 to replace Live@edu, a free online suite used by about 10,000 educational institutions and 22 million students in 130 countries. The subscription service is available in different paid versions, although a basic version is available for free.

Also, Google Apps for Education has 20 million global users and is used by 72 US universities. Launched in 2007, it is a broad IT platform enabling communication and collaboration between teachers and students. Features include instant messaging, a shared calendar, real-time collaboration tools and video hosting. Although free to use and advertising content is excluded, universities forgo user privacy; users can be tracked, identified and targeted for marketing. In September 2012, Google released Course Builder, an open-source MOOC software that runs exclusively within the Google App ecosystem (Daniel, 2012, p. 9).

The Apple's iTunes U app, launched in 2007, is free to download and provides access to the largest online catalogue of free educational content, including courses by prestigious universities such as Stanford, Yale and Oxford, and non-universities such as the New York Public Library. Users include over 1,200 universities and 1,200 K-12 education institutions in 30 countries. Some single iTunes U courses made by leading universities have had over 100,000 students. In March 2013, iTunes U reached over one billion content downloads, of which over 60% were from outside the US.

Finally, YouTube EDU was launched in March 2009 and features over 700,000 educational videos from over 400 universities. Online discussion is enabled through comment threads.

Competition is growing owing to the 'winner takes all' effect of the Internet economy. As more user data becomes generated, these companies may begin to dispute where the data is stored: 'once you have the data you have the customer' (Palmer, 2012, quoting Dr Dror Ben-Naim¹). Education through the Internet economy is an uncharted market with many players trying to carve out their own niche. However, a dominant player is expected to materialise in the long term, with a Facebook-type player predicted to emerge in the ed-tech space in the next five years (Palmer, 2012, citing Dr Ben-Naim).

Online badge programs enable online activities that are commonly disregarded in formal education, thereby providing an alternative form of accreditation and display of capability (Mozilla, 2013). For instance, the Mozilla Open Badges Project, launched in September 2011, enables informal online activities to be linked to an online identity. Website owners are provided with building blocks to develop an online badge 'ecosystem' – badges, assessment and infrastructure, and so forth. Various types of badges can be developed, such as for learning and online peer engagement, which can be shared on resumes, personal websites or social media accounts (e.g., Facebook, LinkedIn). Benefits include capturing the learning path (e.g., able to view the badges of a prominent writer), reputation building and enhancing the motivation to learn and contribute. Other online badge providers include Remix Learning (a cloud-based social learning network for primary and secondary education) and TopCoder (an open innovation platform).

Finally, while universities are currently willing to use external MOOCs platforms, they may move courses in-house, especially if online learning becomes more important to their core business (Daniel, 2012, p. 9).

Competition for the online space being filled by a new set of providers of MOOCs is intense, as is the awakening of traditional universities, which are beginning to ask what is my core business and how does the online environment affect future strategy? The billion-dollar question for Australian universities is: how can they compete with the world's most prestigious institutions, which are establishing themselves in the MOOCs space? Sadler (2012) suggests that maybe they are not able to and, hence, niche marketing might be required.

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1. Dr Dror Ben-Naim is an Adjunct Lecturer in the School of Computer Science and Engineering, University of New South Wales.

Within the competitive milieu three important issues arise relating to the *volume* of learning and take up of courses, the *pricing* of MOOC products and return on investment, as well as the impact on *quality* of learning, which is ever diminishing in the traditional university system and being substituted with, for example, online assessment tools (Weller, 2013). These three issues are examined next.

VOLUME OF LEARNING

Another attribute of MOOCs is their openness, as anyone can take a class because there is no admissions process or tuition fees (West and Bleiberg, 2013, p. 7; Yuan and Powell, 2013). Hence, Funnell (2013) and Adams (2012) argue that what makes MOOCs special is their sheer size, with over 100,000 students registering in some courses. But the notional social attraction of providing education for all (Patton, 2013) has to be tempered with the practical reality of the need for higher education providers to make a return on investment. Coursera has only been in operation for 12 months, but it already has more than three million students, and reports that more than 1.3 million people have tried at least one of their MOOCs (Funnell, 2013).

Apart from the paternalistic notion of free education for the world, there are two other sources for expansion of volume. First is the desire of business, government and the professions to encourage staff to undertake professional development or university education. For example, Virginia Rometty, the Chief Executive of IBM, recently urged her employees to take 40 hours of continuing education in 2013, and MOOCs provide an avenue for compliance (Wallis, 2013). Second is the extension of MOOCs into secondary education.

Finally, cross-subsidisation of volume expansion is feasible only for so long before existing mainstream university business will collapse, leading to rapid transformation of the university sector in all its dimensions.

PRICE FOR LEARNING

In the US, the growth of for-profit online education stalled in the face of serious public scrutiny over student qualifications, job placement, and student loan defaults, leading to regulation and student scrutiny to ensure better selection and job placement for graduates (Moody's, 2012). Enter MOOCs. According to Lewin

(2013) Coursera has grown at warp speed to emerge as the current leader of the pack, striving to support its business by creating revenue streams through licensing, certification fees and recruitment data provided to employers, among other efforts. However, there is no guarantee that Coursera will keep its position in the exploding education technology marketplace.

The sheer size of MOOCs means that each student pays a small amount in comparison with the traditional university model where a relatively small elite group of students pays a substantial sum for enrolment (Rodriguez, 2012; West and Bleiberg, 2013). The global market created by MOOCs presents new commercial opportunities, such as employment placement, counselling and publishing (Marginson, 2012). However, a key risk is that monetisation, driven by expectations of investment returns from venture capital investors, may diminish the user experience.

There are also at least six major effects likely to emerge from the MOOC and online course movement (Moody's, 2012):

- New revenue opportunities through fees for certificates, courses, degrees, licensing, or advertisement
- Improved operating efficiencies due to the lower cost of course delivery on a per student basis
- Heightened global brand recognition, removing geographic campus-based barriers to attracting students and faculty
- Enhanced and protected core residential campus experience for students at traditional not-for-profit and public universities
- Longer-term potential to create new networks of much greater scale across the sector, allowing more colleges and universities to specialise while also reducing operating costs
- New competitive pressure on for-profit, and some not-for-profit, universities that fail to align with emerging high-reputation networks or find a viable independent niche.

In addition, the online education trend coincides with a growing uptake of mobile devices. 'm-learning', which is tailored to mobile devices (Abajian, 2012; McAndrew, 2012), thereby increasing the risks further.

MOOCs still need to work out how to make money from their high *volume*-based activities (Kolowich, 2012). However, so far the main MOOC revenue stream is from charging a fee for a certificate. Coursera says it may charge between \$30 and \$80 per certificate, depending on the course, to students who pass muster. MIT and Harvard say they will likely charge a 'modest fee' for the opportunity to earn an edX certificate (Kolowich, 2012).

Most for-profit universities are likely to move to a mixed model that will increasingly feature online course delivery (Moody's, 2012). A model closer to online distance education, where fees are higher but more effective learning outcomes are achieved, may also work (Daniel, 2012, pp. 7–8). Structure and organisation must arguably still be applied to MOOC students to enhance the learning experience. Grouping students with similar motivations would most likely improve user satisfaction, particularly where peer support is important. This may be a reason for charging fees: market segmentation to separate the serious from the merely curious (Graysmith, 2013).

The impact on students will eventually depend on how the funding aspects of the business model emerge. One area, apart from broader access to the ecosystem of higher education, in which students should benefit is from the reduced price of specific, relevant information provided. Textbooks are increasingly available online for free (Glance, 2012). For instance, OpenStax College, from Rice University in Texas, has created high-quality, peer-reviewed textbooks for five of the most popular teaching subjects in US universities. They are free to download and are estimated to save students \$90 million over five years. The aim is to capture 10% of the US textbook market. Other providers include Bookboon and Flat World Knowledge, which offer content for free if downloaded but charge for printed versions. Bookboon profits from advertising in the books, whilst Flat World Knowledge pays royalties to authors on print sales. Both Bookboon and Flat World Knowledge are strongly associated with publishers, whereas OpenStax College relies on volunteer authors. In 2012, Flat World Knowledge teamed with MIT to provide textbooks for their *OpenCourseWare* courses. Research by Indiana University of 1,700 students during 2009–11 found 87% preferred reading e-textbooks over hardcopies, and 68% read everything digitally. However, issues with uptake of e-textbooks include the current US focus on content and copyright concerns.

QUALITY OF LEARNING

The quality of learning outcomes from MOOCs remains debatable; however, differences can perhaps be reconciled through the position that MOOCs represent an alternate form of learning that may cater to some students better than others. In turn, greater choice could generally be viewed as beneficial, whatever the quality.

An edX survey on the MOOC 'Circuits and Electronics' found that 80% of respondents had previously taken a comparable course at a traditional university, and of those, almost 67% thought the MOOC version was better than the comparable course, while only 1% said it was worse (Kolowich, 2012). The course was edX's first offering, a virtual lab-based electrical engineering course. However, attrition was a problem: of the 155,000 registered students in February 2012, only 23,000 earned any points on the first problem set; 9,300 passed the mid-term; 8,200 sat the final; and 7,000 earned a final passing grade. The user profile for the course was as follows: 50% were at least 26 years old, 45% were traditional college-aged students and 5% were in high school.

A 2010 US study found students who studied online performed 'modestly better' than face-to-face learners, although this was attributable to extra time and attention dedicated to learning by online students compared with face-to-face students (Means et al., 2010). In contrast, research by the University of Western Australia (UWA) suggests skipping lectures leads to lower marks, regardless of how many times a student watches a recorded version online (Mather, 2012). The study of a large class of first-year economics students found students attending few or no lectures were at a distinct disadvantage, compared to students who attended lectures and used online recordings for revision and study. In spite of these findings, lecture participation rates at Australian universities have been falling.

Daniel (2012) argues that MOOCs lack pedagogical rigour, and this is reflected in the contrasting attitudes to course completion between MOOCs and other distance-learning providers. Daniel contends that MOOC universities are elite and derive their prestige from exclusivity, rather than teaching quality (pp. 12–13). This mindset provides little incentive to improve MOOC completion rates (pp. 12–13). Armstrong (2012) argues that the lack of university support and poor pedagogy suggest MOOCs are not a priority for some participating universities. Further, MOOCs only provide a mark and no further feedback. Bates (2012) criticises

elite universities for treating MOOCs as philanthropic ventures. The combination of little or no direct revenue from MOOCs and potential risk of cannibalisation of on-campus enrolments provides little incentive for serious investment in MOOCs. Coursera has received criticism that some of its courses are poor online versions of courses by participating universities, which joined due to fear of missing out (Armstrong, 2012; Cann, 2013). Nevertheless, the University of Pennsylvania has spent \$50,000 on each of the 16 Coursera courses it has produced, with strong hopes of mass-market appeal (Lewin, 2013).

Other criticisms levelled at MOOCs are that course improvement is driven by profit motives, rather than enhancing student learning *per se* (Daniel, 2012, pp. 4–5, citing Young, 2012). There are also concerns over the future control and privatisation of educational curricula if course credits for MOOCs become mandatory (Fain and Rivard, 2013). Blumenstyk and Carlson (2012) believe that some of the advantages of MOOCs may really be pointing to deficiencies better addressed by improving face-to-face learning, rather than replacement with online courses. Higher-level skills, such as critical thinking, creativity and judgement, which are arguably more relevant in the information age, are difficult to teach online (Bates, 2012). Soft skills and social intelligence, increasingly sought by employers, are also best learned face to face (Alexander, 2012). In addition, practical hurdles to accessing online learning also exist (McAndrew, 2012).

A blended learning solution, comprised of both online and face-to-face learning, is advocated by The Australian National University's (ANU) Professor Brian Schmidt, a Nobel laureate who will teach an ANUx course on astrophysics (Mather, 2013). This is supported by a University of Sydney survey, which found over 70% of students opposed the complete scrapping of face-to-face learning, although they favoured the flexibility enabled by online teaching (Mather, 2012).

According to Hill (2013), there are four types of MOOC users: lurkers, drop-ins, passive participants and active participants. If completion rates are measured as a proportion of active participants, they increase to about 40%, compared to 10% when measured against all students enrolled (Hill, 2013). Pricing inputs of enrolled students means that a low-charge highest-volume sector will eventuate.

THE FORUM

Over 80 people participated in the Virtual University Forum. Organisers provided participants and presenters in advance of the event a number of questions on which to focus. The big picture question of the day was what is a virtual university? Other important questions included:

- Is the current move to load courses online at no cost to the user a game changer for the higher education sector?
- How will the provision of MOOCs affect universities and the provision of professional training?
- Can Australian and New Zealand universities compete in this new technological-savvy environment?
- Will degrees orientated to particular professions have course content that is similar at different institutions?
- Will universities continue to teach what is required for admission to the Australian accounting profession?
- If core materials can be shared between institutions, and technology is available for video lectures and other media, what will be some of the challenges to higher education institutions and the profession?
- What are the challenges faced by global private providers of accounting education services?
- What are the challenges faced by the IT departments in virtual universities?
- How can teachers and lecturers adapt traditional content and delivery systems to the new environment?
- What are the legal implications of the use of social media to engage students?
- Can access to databases and online resources be provided in a more contemporary, cost-efficient form in a way that does not breach privacy issues?
- Do emerging accounting topics, like sustainability accounting, demand a more interactive and resource-intensive approach than is currently provided?

Other topics for participants to ponder included:

- The casualisation of teaching
- The possibility of complete contracting out to private higher education providers
- The removal of professional degrees from universities
- The credentials and awarding of degrees from prestigious international universities
- The lack of on-campus experience

- The disappearance of face-to-face teaching and student interaction on campus
- The disruption caused by 'open access knowledge'
- The homogenisation of knowledge, learning and culture outside national boundaries and individual professional practices.

Universities aim to attract and deliver students with the best graduate qualities and to provide education in an efficient way. Social media and online learning technology are new ways in which this can be achieved. Universities can use their website and social media presence in place of brochures, exhibitions and face-to-face teaching. Current and future students expect their information instantly, and if disciplines such as accounting do not incorporate their online presence, especially social media into their content, they will no longer be attractive options in the face of growing competition and awareness of the importance of virtual linkages. The accounting discipline is no stranger to change, but as with any great shift, many thought-provoking and pragmatic issues have to be addressed.

THE VIRTUAL UNIVERSITY: IMPACT ON AUSTRALIAN ACCOUNTING AND BUSINESS EDUCATION

The 13 articles contained in this volume present the thoughts and recommendations of a range of contributors, most of whom were presenters at the Forum. Part A features practitioner viewpoints and can be described as opinion pieces, based on their presentation at the Forum. Part B features academic research articles. Part C provides a useful background paper developed at the Institute as a knowledge resource.

PART A – PRACTITIONER VIEWPOINTS

Part A comprises nine articles from a practitioner viewpoint. In the first two articles, futurist and strategy adviser Ross Dawson (2013) and David Masters (2013), Government Business Strategist at HP Enterprise Services, provide big-picture thinking about the future prospects of the virtual university. Speculation is located within technology developments and Australasian capabilities.

Dawson (2013), in his article titled 'Global social and technology trends', highlights the major changes taking place globally in terms of technology, society and structure. He indicates that, with the world in a state

of major transition, there are implications for nearly every aspect of society, not least universities and business education.

He sees education as being so critical in this seismic shift in the world because the transitions we are experiencing are centred on one essential element – knowledge. The pace of decay of knowledge is increasing significantly and he provides several illustrations. University students a few decades ago would study for a degree, graduate, and then live off the fruits of that study for the next 10 years or more. Dawson (2013) states that today, by the time a credential is achieved, the knowledge is already out of date. The stated aim of his article is to outline key ideas about the future of work, the future of learning and the future of credentials. He focuses his discussion on the implications of developments for universities and, in particular, for accounting education. His intentions are not to provide a roadmap to the future, but rather to provoke useful thought about the quest that is ahead of us and the actions we can usefully take today.

Masters (2013), in his article titled 'Embracing the virtual university: Possibilities for the future', outlines Australia's capability when it comes to hardware and technology infrastructure; also the important issue of cloud computing is addressed. Being an IT specialist in the higher education sector for Hewlett Packard (HP), he provides interesting statistics of the current usages and the rapid transformation and take-up of these technologies.

Masters (2013, p. 30) states that 'The world is changing and it is changing rapidly. Every 60 seconds across the world there are 98,000 tweets, around 700,000 status updates and Google searches, 168 million emails and 11 million instant messages. In that same 60 seconds, there will also be 217 new mobile web users signed up. There is more information available ... and that information is more mobile'. Masters concludes that the most successful universities have always been about building a network – alumni who remain connected, protect and promote the reputation of the university and provide a conduit into opportunities for graduates and other alumni. The online environment expands the potential power and reach of this network, which is the real value of the virtual university. He comes to the stark conclusion that there is no choice as to whether the Australian education sector embraces this concept; it simply must. The decision needs to be made as

to whether the sector has the tools it requires to be successful and compete in the global market.

Simon Linacre, Head of Academic Relations with Emerald Publishing UK, in his article, 'The virtual university, academia and publishing' (2013), argues that there is going to be a more collaborative approach with regard to accounting education in universities, and that the different actors in this particular scenario will need to work more closely together. There is a great opportunity – especially for the academic accounting community – to get involved in that particular conversation in a way that their accounting professional counterparts have been for a while, and as such to create greater impact for the research they are undertaking. He concludes that collaboration is the key to the expected opportunities for accounting education to come to fruition. He argues that universities are not going to be replaced and they are not going to be completely virtual. According to Linacre, the complementarities and collaboration are the exciting prospects to flow from technological change, because people are going to be more educated than ever before.

As the CEO of Open Universities Australia, Paul Wappett (2013) has worked with university executive-level management to help them understand that involvement in online education requires commitment and resourcing – he states that replicating an on-campus environment in an online environment is simply not good enough. Open Universities Australia's experiences of change and changing markets highlight how traditional formats in education are unlikely to survive intact in light of the disruptive potential of new technologies that make possible the virtual university. This means that university management and academics need to adapt to the new environment.

The following two articles are by the Chief Executive Officers of the two largest professional accounting bodies in Australia, Lee White (2013) (Institute of Chartered Accountants Australia (the Institute)) and Alex Malley (2013) (CPA Australia).

Lee White (2013) addresses the issue of the 'Virtual university: What does it mean for the accounting profession?' As the CEO of the Institute, he states that the Forum has provided him with an opportunity for reflection. His (2013, p. 44) message is clear: 'The fact made clearer by this timely collection of thought leadership pieces is that the digital age for education is upon us and if we ignore it, it's at our peril'.

White (2013) concludes his thought-provoking piece with the observation that without doubt, we are witnessing a transformation in higher education and training and it is difficult to see the path ahead while we are travelling along it without a map or GPS. He sees the role of the professional bodies to help guide the accounting profession and accounting education on the path that is of most benefit to practitioners and society as a whole. Finally, he states that the Institute will act as interpreter, experimenter, and early adopter of educational innovation.

Alex Malley (2013), CEO of CPA Australia, provides a reflective article on the CPA Australia journey into the digital world. His article shares several of the key learning factors: the questions CPA Australia asked in order to assess where it is at now versus where it aspires to be; how CPA Australia navigated the barriers; and what it found to be necessary to effect change. On CPA Australia's digital journey six prerequisites emerged. Malley (2013, p. 53) states: 'We share them here as they provide a useful lens through which to view the operations of higher education providers'.

The final three articles provide a case study of the application of the concept of a virtual university to a global eConservatorium of Music based in Australia (Dumay et al., 2013); insights into the use of social media at the Forum (Gray and Tingey-Holyoak, 2013); and a summary of the concluding session's discussions and insights into possible impacts on business education in Australia (Winocur and Coenen, 2013).

In greater detail, the case study of the application of the concept of a virtual university to a global eConservatorium of Music based in Australia (Dumay et al., 2013) is relevant for our understanding of higher education in accounting through virtual and/or electronic means. The authors make a case that to provide a new way forward the vision for the eConservatorium is to deliver high-quality flexible programs in music, with a blend of traditional and online teaching. In conclusion, these authors indicate that wrong decisions like investing in legacy systems beyond what is necessary have the potential to stifle progress. However, whilst we have to maintain much of what is *in situ*, equally we have to manage the transition to new ways of enabling education.

The Gray and Tingey-Holyoak (2013) article provides insights into the use of social media at the 2013 Forum. This extension to the Forum to include social media, in particular Twitter, by members of the audience and those in the virtual hinterland of thought leadership and debate was a success. This article explores the reasons for success and how social media can be used by the accounting profession.

The Winocur and Coenen (2013) article provides a summary of the last session's open discussion and insights into possible impacts on business education in Australia. Their article starts with the premise that MOOCs are probably the most discussed topic in university educational circles throughout the world today. They indicate that this is understandable given the 'perfect storm' environment of global technology networking tools, especially social media, the ubiquitous presence of the Internet among developed and developing countries, the social demand for advanced education anytime and anywhere, the rising costs of providing and acquiring advanced education, and the active involvement of some of the world's most prestigious universities. Winocur and Coenen (2013, p. 74) conclude that: 'Cost-saving alone is an unsound basis as the "best method" to deliver higher education but equally, the implementation of online education may facilitate a broader spectrum of education that can be provided to anyone, at any time and in any location. It is in this area that Australia was one of the earliest pioneers'.

They observe that the Forum offered a range of insights about new models of teaching and learning. Also that academic leaders and professional bodies need to determine how to deal with these new forces, as will customers and other stakeholders.

PART B – ACADEMIC RESEARCH ARTICLES

Two academic research articles appear in Part B. These articles are scholarly in nature and peer reviewed. Lambert and Carter (2013), from CAGS, contribute an article addressing the important topic of what business models could exist for the virtual university. They start their article with a proposition that online is touted as the future of higher education. But is it? With MOOCs making headlines following the launch of Coursera and EDx by Ivy League colleges and universities in the US, the fundamental role of the university and other higher education stakeholders is being questioned.

Borrowing from mainstream ecommerce research, they propose alternative business models for the virtual university and consider what is actually changing for universities in the face of increasing global demand for online education. In their article, Lambert and Carter (2013) demonstrate how the university business model can change in response to communication and IT advances and the possible impacts of new education innovations such as MOOCs. They also highlight the significance of understanding the university in terms of its business model to ensure appropriate and adequate resourcing to deliver value to students, stakeholders and society and to explore the associated opportunities and challenges for universities, the accounting profession and students.

Freeman and Hancock (2013), in their article titled 'Milking MOOCs: Towards the right blend in accounting education' ask are MOOCs the monster they have been made out to be? Or can they be domesticated? Freeman and Hancock consider the possibilities for teaching Australian accounting students effectively in an environment characterised by ageing academics, increasing teaching costs, reduced funding and impending threats from ubiquitous MOOCs.

Also, Freeman and Hancock (2013) provide a thoughtful review of the literature, reflect on their own experiences and make observations about the implications of the rapid expansion of MOOCs for stakeholders in accounting education. They offer suggestions to accounting academics as to how they might make the most effective use of technology.

PART C – ICAA KNOWLEDGE RESOURCE

The final article is by Angela Cheung (2013) a Strategy Consultant, Strategy & Business Excellence Unit at the Institute and is titled 'MOOCs – The Australian state of play'. This article was originally commissioned by the Institute's senior management as an internal document to inform its thinking about MOOCs and the virtual university. The current form of the article provides a 'state of MOOCs' at a point in time (March, 2013) and from an Australian perspective.

SUMMARY AND CONCLUSION

Professor Ian Young (2013), Vice-Chancellor of ANU, wrote that there is a plausible future for higher education in an online world. We can only agree. The virtual university provides accounting and business educators and the accounting profession with abundant opportunities to collaborate over issues such as credentialing of future business professionals; the quality of both the online and on-campus experience for students; the production of quality, interactive resources such as case studies; opening access to education to those who are geographically, socially or economically disadvantaged, thus opening up the profession to a more diverse range of students and candidates; anywhere/anytime continuous professional development experiences; real-time dissemination of accounting research findings; the creation of a digital environment where students and candidates can engage in debate of topics that are relevant to their program; and the formation of a global business professional.

The Thought Leadership Forum conducted by CAGS and the Institute in February 2013 and the related publications contained in this *Academic Leadership Series* triggered a call for action by firms, professional bodies, publishers, academics, universities, governments, non-government organisations and all stakeholders with an interest in maintaining a vibrant and informed accounting profession.

For educators of present and future members of the profession and those who influence them from the public and private sectors, in universities, schools and professional bodies, and in transdisciplinary areas upon which accounting impinges (such as engineering, law and management), a new era is emerging where the profession of accounting needs to stimulate the education of future and present accountants with the best learning experiences.

The deserved education is one not marked solely by abstract reasoning, beloved by some accounting academics. It is not one scarred with over-emphasis on narrow operational applications and international accounting standards, the delight of instrumental practitioners. It is one that will help accounting and business professionals meet their own business challenges through strategies developed to integrate thought and progress within the broad profession,

encompassing practitioners, policymakers and academics. Such education of the future will be a blend of technology and face-to-face learning that will be for the benefit of practitioners, graduate students entering practice through critical and constructive foundations for their education, academics, and by preserving the legitimacy of accountancy as a profession in the eyes of society.

The authors are indebted to the many people who made the CAGS/Institute Forum and the series possible, especially the presenters and authors whose work appears in this series. The editors are also grateful for the number of colleagues who participated in contemporary debates about the future of accounting education in Australia. Gratitude is also expressed to the Forum participants, and sponsors: CPA Australia, Adelaide, Deakin and Flinders Universities, the Australian Business Deans Council and the Business Higher Education Round Table. All academic articles in this series were subjected to independent refereeing by two reviewers; our thanks to those reviewers. The authors are most grateful to Yasser El-Ansary, General Manager – Leadership & Quality, Institute of Chartered Accountants Australia, and to Professor Gerry Griffin, Pro-Vice Chancellor of the Division of Business, University of South Australia, whose vision and financial commitment made this project possible. Our thanks are also due to Fiona Crawford and Sara Haddad, of The Editorial Collective, for their editing and project management in bringing the book to fruition; to Joanne Kassoudakis, Research Associate at CAGS, School of Commerce, University of South Australia for her research, organisational and administrative skills, and to Julz Guthrie, Knowledge Research, for her administration and research support.

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PART A

PRACTITIONER VIEWPOINTS

The nine articles in this part of the volume are true thought leadership pieces, sometimes provocative, aimed at making the reader think. They draw on the experiences and opinions of contributors from industries ranging from IT to publishing, from the professional bodies and industry groups and from those in the higher education sector. The articles are based on the presentations made at the Centre for Accounting, Governance and Sustainability and Institute of Chartered Accountants Australia 4th Annual Thought Leadership Forum, held in Adelaide on 5 February 2013.

Global Social and Technology Trends

ROSS DAWSON

INTRODUCTION

With the world in a state of major transition there are implications for nearly every aspect of society, not least universities and business education. This article begins with a broad perspective of the changes that are taking place globally in terms of technology, society and structures, and then focuses on education, specifically business and accounting education.

Education is so critical in this seismic shift in the world because the transitions we are experiencing are centred on one essential element – knowledge. The pace of the decay of knowledge is increasing significantly. A few decades ago, university students would study for a degree, graduate, then live off the fruits of that study for the next 10 years or more. Today, by the time a credential is achieved, the knowledge gained with it is already out of date. By just about any measure then, the pace of the decay of knowledge is increasing.

One of the implications of the rising pace of knowledge decay is that we must be specialists. If we are not knowledge specialists then we are being left behind. If we do not have world-class expertise in our domain we are commodities. As we connect these pools of deep knowledge around the world, we are seeing the emergence of what can be described as a 'global brain', similar to the notion of collective intelligence. While this idea is not new, it is only in the last decade that we have become so richly connected that it is moving from a dream to reality. This is a shift in who we are, our human identity, and without question in how we learn.

Let us look at future trends by considering three major domains: technology, social change and the structure of business and society. These three domains are deeply

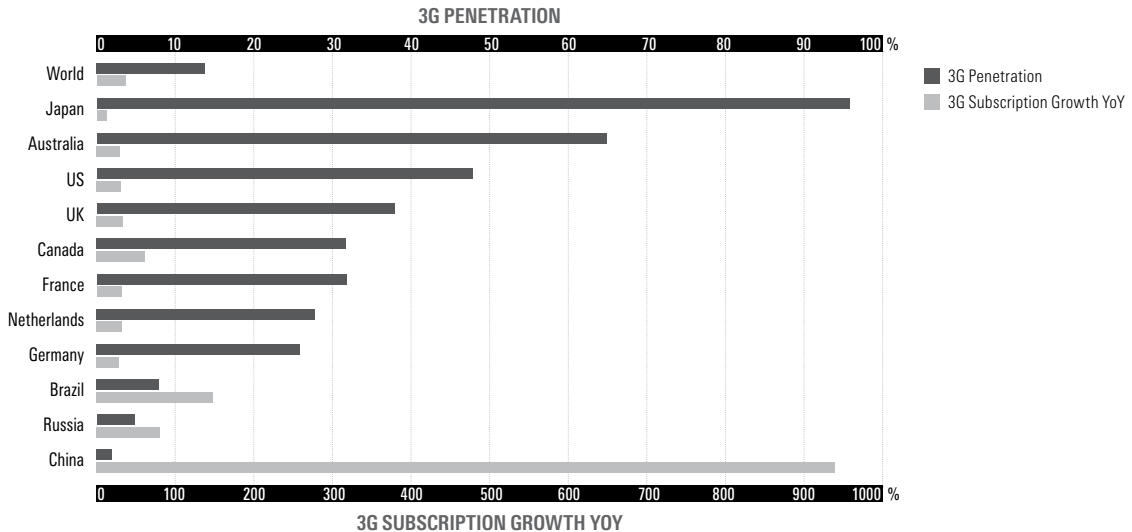
connected. Much of the social change we have seen over the last decade has been shaped by technology. The technologies of communication that bring openness and free flows of information are engendering a major shift in social attitudes. However, the influence is not just one-way. Social attitudes are also driving the technologies that we are creating. Online education is an illustration of this phenomenon.

This paper will begin by outlining key ideas about the future of work, the future of learning and the future of credentials. This will lead to the implications for universities and, in particular, for business and accounting education. The intention is not to provide a roadmap for the future, but rather to provoke useful thought about the quest that is ahead of us, and the actions we can take now.

TECHNOLOGY

The underlying information technologies that drive our age – processing power, storage and bandwidth – are increasing their capabilities at an exponential rate. However, the human brain is not well geared to understanding the power of exponential change. It was only in 1998 that the 56K modem became available, at the time giving us Internet access at unprecedented speeds. We have come a long way since then. Today a rapidly increasing proportion of our access to the Internet is via mobile devices (see Figure 1). We use tablets and smartphones to access information. This changes the nature of work. It changes the nature of how we connect. It changes the relationship between employees and companies. In fact, it changes the relationships between universities and educational institutions and their students.

FIGURE 1: MOBILE INTERNET PENETRATION AND GROWTH



SOURCE: Morgan Stanley, Informa

The continued increase in processing power shifts the relationship between humans and machines. Recently a computer won the US game show Jeopardy, a game based on wordplay, illusion and imagination, demonstrating the increasingly human-like capabilities of machines.¹ Our interface between humans and computers is also evolving rapidly. For example, the forthcoming Google Glass wearable computer will provide us with new and easier ways to access information and control our computers.

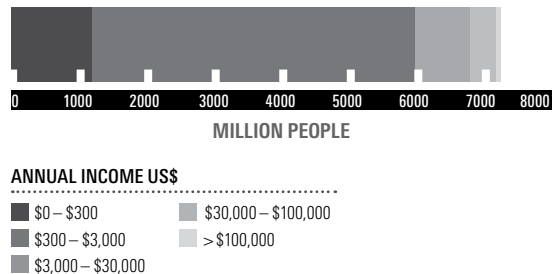
SOCIETY

One of the dominant trends in society is increasing expectations. One of those expectations is for opportunity. Figure 2 shows the distribution of annual income for the world’s population. While there are 10 million people in the world who have more than a million dollars in the bank,² there are over a billion people who earn less than \$1 a day.³ These people need the basic necessities of life, such as food, water and healthcare. However, there are billions of others who have moved beyond that level and see that there is a possibility to

create a better life for themselves and others. They expect to have the opportunity to achieve their goals.

In developed countries, we are fortunate (in most cases) to have our basic needs met. But we share this drive to better ourselves. The most important means of social mobility is education. Through technology, we have access to education in a way that we have never had before (see Figure 2).

FIGURE 2: ANNUAL INCOME OF THE WORLD’S POPULATION



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 1. www.guardian.co.uk/technology/2011/feb/17/ibm-computer-watson-wins-jeopardy
 2. www.economist.com/node/179290574
 3. www.bbc.co.uk/news/magazine-17312819

STRUCTURE

In 1937 Ronald Coase (1937) wrote a paper titled 'The nature of the firm', for which he won the Nobel Prize for Economics over 60 years later. He wrote that organisations exist because of transaction costs. As we have become connected transaction costs have fallen, creating what can be thought of as a 'modular economy', in which value is created in smaller and smaller inter-connected modules.

An illustration of the modular economy in action can be found in the city of Chongqing in western China, which has taken over from Japan as the global centre of motorcycle manufacturing. Manufacturers in Chongqing have taken a new approach, in which they relinquish control and encourage collaboration. They say to their suppliers, 'This is what we're trying to do. We're trying to

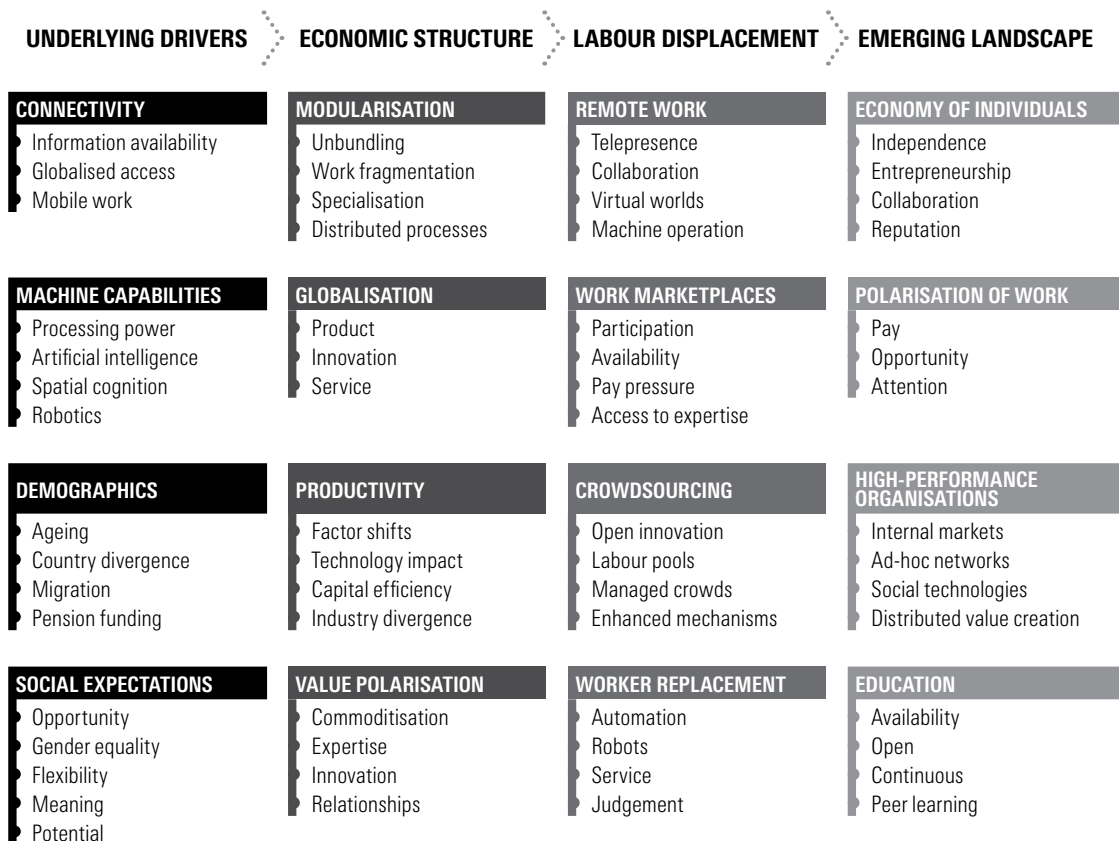
create a motorcycle with these characteristics; it goes this fast; it has these safety features; and has this kind of design sensibility. You guys go away and do it'. The various suppliers are essentially modules in the modular economy, creating things that fit together to meet the overall objective. In so doing an extraordinarily efficient motorcycle manufacturing process has been developed, with an average export price of motorbikes of just over \$100.

The unit of value creation in the economy today is not the company. Nor is it the organisation. The unit of value creation in the economy today is the individual.

THE FUTURE OF WORK

Work defines who we are as people. Figure 3 outlines future directions for work and the broader labour economy.

FIGURE 3: THE FUTURE OF WORK



The modular economy is both a consequence of, and a contributor to, the globalisation of work. Innovation, products and services, labour and productivity are all available globally. While this brave new world holds exciting possibilities for those with expertise and skills, it also reduces possibilities for those without world-class skills. There is thus a potential for the polarisation of society as an increasing proportion of work becomes commodified.

The marketplace for work operates on a global scale. Many jobs can be done anywhere. This fundamentally changes the nature of organisations. As the capabilities of computers increase, they can increasingly be substituted for human work. For routine tasks, there is substantial potential for substitution. While non-routine tasks have less potential for labour substitution, tasks that require human analytical and creative skills are often complementary to tasks that can be performed by computers. Accountants, for example, use analytical skills, but are also assisted in their work by computers.

THE FUTURE OF LEARNING

Connectivity not only changes the nature of work. It changes education. The future of education is that it is available, open and continuous, taking place through peer learning.

These particular points are fundamental to the future of universities. What is the purpose of a university education? We must understand that there is an essential distinction between information and knowledge. Knowledge is the capacity to act effectively. Information provided on its own does not necessarily give people knowledge.

In the past people went to university, studied until they had a degree, then went to work and applied that knowledge. In the future learning will be modular, contextual and 'just in time'.

Modular knowledge provides resources in a specific context, in which a question is asked, and a problem is confronted. When an obstacle is encountered the solution is sought in the form of a specific module of learning needed to solve that particular problem. This context-specific module is acquired just as we need it, just in time.

Jay Cross,⁴ one of the leaders in informal learning, describes this as 'workflow learning', or learning that is embedded in the flow of work. When you reach a particular activity where you need to know something, you reach out to find what you need to know. The 'learning module' may take any number of forms: a video, an article, or an individual who knows what you need to know or who has experienced what you are experiencing. This kind of learning is about networks, access, critical thinking and problem solving. Such learning is different from being in a lecture theatre or classroom; because it is contextual it is more meaningful and more useful.

In this way learning is personalised and tailored. Every person has a different learning style. A fundamental shift required across education is that learning must become personal, must become suited to our experience, to our style of thinking, to the context in which we are working. Different and new modes of delivery make this increasingly possible, whether it is online or in a university.

THE FUTURE OF CERTIFICATION

Certification or credentials are fundamental elements provided by a university. Central to certification is the power of the institution. Yet if we look at the big trends discussed earlier – technology, social expectations and structure – these all point to the erosion of the power of institutions. This does not mean that institutions will disappear, but their power will certainly diminish.

As institutions become less powerful, we are seeing a rise in the reputation economy, in which individuals' and organisations' reputations become visible. People get jobs and succeed in them because of the esteem in which they are held by their peers. In many respects society at large operates on a peer review system, similar to that of the scholarly community.

Peer review is at the centre of the viability of massive open online courses (MOOCs). If 100,000 students are undertaking a course of study there is no way that any team of teachers can provide meaningful individual assessments. Peer review is the only practicable way to be able to address the scale of this problem. It is likely that peer review systems, if appropriately designed, can give similar results to those provided by an expert reviewer.

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4. www.jaycross.com

A shift in thinking is required about what certification and credentials offer as traditionally provided by institutions. A degree or certificate is just one dimension of learning. It provides an assessment of whether a student is good at passing exams, writing essays and so on, but does it reveal a person's ability to function in the workplace? Organisations certainly do not think so because they employ a wide range of other tests before they hire graduates. There is much greater value in an institution providing a credential that is based on an individual's capabilities, not simply their academic ability. That is an opportunity for institutions to provide more value to employers.

THE FUTURE FOR BUSINESS AND ACCOUNTING EDUCATION

In all of these shifts global competition is a fundamental aspect of the emerging landscape, in every domain including business and accounting education. While there are different accounting regulations across countries that effectively protect practitioners from competition, these regulations will vary less in the future. This global future is both inbound and outbound, with corporations and individuals from around the world operating in Australia and New Zealand, and Australian and New Zealand organisations having the capacity to become global in a way that geography has prevented in the past. In years to come, all kinds of organisations, including professional bodies and business educators, will face more competition, but also more opportunity.

There are several domains in which it is useful to 'unbundle' the different functions of today's universities that are usually considered together. The first domain is that linking research and education. Whereas in the past academics and their funding bundled research and education together, these are increasingly being treated separately. Education could be unbundled into teaching and certification. Some institutions could focus on teaching students, with different institutions offering credentials about people's knowledge and capabilities.

Within the process of educating, there is further unbundling possible in which the delivery of education can be provided in a wide variety of ways, through different platforms and media. In our networked world there is a massive shift from an emphasis on the expert

towards peer learning. Appropriately designed peer learning exploits both the possibilities of connectivity and the unmatched value that can be created in a face-to-face teaching environment.

We are at the dawn of a new era for education and the accounting profession. I invite you to create the future of business and accounting education.

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Embracing the Virtual University: Possibilities for the Future

DAVID MASTERS

The world is changing and it is changing rapidly. Every 60 seconds across the world there are 98,000 tweets, around 700,000 status updates and Google searches, 168 million emails and 11 million instant messages. In that same 60 seconds, there will also be 217 new mobile web users signed up.¹ There is more information available to us, in a wide range of media, and that information is more mobile.

That provides the opportunity for learning to occur everywhere. It's not that learning hasn't occurred everywhere before – we've had interactions with people, conversations or a talk at a conference that have caused us to go away and research an issue – however, the speed has increased exponentially. Take social media. Someone might tweet something really interesting. It links to an article. You go to the link, read the article and then do some more research. Suddenly you've learnt something you didn't know about 60 seconds ago. So the concepts of mobility, infrastructure everywhere, applications anywhere and information anywhere means that learning can occur almost anywhere.

What is enabling this is cloud computing. The 'cloud' is one of those terms from the IT world that is horribly misused and abused. In essence, cloud is a computing platform available over the Internet. It allows access to services and software, pure processing – either storage or compute – or to develop platforms, services and software. These platforms are making the world a much smaller place. When you access a cloud service you

may not know where in the world that information is being stored. Similarly, if you were developing a service or software, you can put it in a cloud environment and it's potentially available to anyone with an Internet connection. The speed to a mass market for applications and services is greater than ever before.

THE MOOC

It is in this context that we are starting to see the rise of the massive open online course (MOOC). MOOCs are part of a bigger trend. In fact the MOOC borrows from a business model in place in the IT industry for about three decades – in the pre-Internet days it was known as 'shareware', but is now increasingly referred to as 'freemium' services and apps.

Within this model, you get some of the program for free, and then there's a premium service with additional features, for which you pay. So you get a taste, you get a teaser for free, but if you want the whole functionality you need to pay.

It's interactive marketing. If you like what you're accessing, then you want to access more, and you've got to pay for it. LinkedIn and Spotify are good examples of this type of service. Basic access to LinkedIn is free. You sign up, you can do certain things, but if you want to send a message to a potential contact or if you want to see people's contact details, then you must pay for the premium service. Similarly with Spotify – if you want to listen to a large percentage of the music for free,

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1. HP internal research, 2012.

that's fine. If you want to get rid of the annoying ads and access all of the music, then you've got to pay for it.

So looking at MOOC platforms like Udacity, edX and Coursera through this prism, various universities are using these platforms to market their brand and courses in a more interactive way, to a larger audience. You can try the free course and if you enjoy it, then you can apply to study at the university.

AUSTRALIA'S CAPACITY TO ADOPT THE VIRTUAL UNIVERSITY

Let's look at the capacity of Australia to adopt the concept of the virtual university. What are the basic essential requirements for a virtual university? The first and foremost is connectivity, either wireless or fixed line. Computing and processing are also essential, so servers and storage in data centres or on a university campus are required. A platform to share information is necessary to enable collaboration and interactive learning. Increasingly that platform needs to be provided across multiple devices, because people will want to access information, access platforms, access services on a tablet, on a smartphone, as well as on a traditional PC or laptop. Finally, an appropriate and supportive legal framework is of critical importance.

In Australia, we are making significant progress on infrastructure. At the end of 2012 the NBN had passed around 758,000 homes and connected about 50,000. There are two LTE or 4G networks – the fastest mobile networks available – in Australia, and there's a third one from Vodafone on the way. So some of the best mobile connectivity anywhere in the world is already available in Australia.

There's an interim satellite service available in regional areas from NBN. It's rolling out a premium satellite service and also a wireless service, which will give everyone a minimum level of connectivity, at about 12 megabits per second, which is roughly equivalent to what people get in metropolitan areas at the moment through ADSL2+. So on the connectivity side progress is being made.

On the infrastructure side of things, there's about \$5 billion worth of data centre investment in the pipeline according to ICT analyst firm Buddecom.²

So the compute environment or cloud infrastructure is being rapidly deployed in Australia. HP alone spent about \$200 million on Australia's most advanced data centre in Eastern Creek in western Sydney. In offering our services to overseas students, international bandwidth comes into play, and that is still a bit of a bottleneck for Australia.

In the legal environment, the Australian Law Reform Commission has been reviewing copyright legislation for the last couple of years. There were two submissions from Open Universities and the University of Sydney that raised issues around copyright legislation and fair use in the MOOC environment. This creates challenges for Australian Universities competing with their US counterparts, which operate in an environment that has open and extensive fair use provisions under their copyright law. The biggest barrier is that content can only be provided online if it hasn't been already provided elsewhere.

The platform is critical. Pick the wrong platform, and you lose out on the largest possible user base. It's like picking between MySpace or Facebook. MySpace was the pre-eminent social networking platform going back 10 years but now has very few active users. Facebook has over 1 billion users now, most of whom are active to some degree.³

It's not as straightforward in the emerging world of MOOCs. For instance, the University of Melbourne has gone with Coursera, which has more than 2.5 million Courserians or users. The University of Western Australia has chosen Stanford University's open source platform called *Class2Go*. Stanford is well known in the MOOC environment, particularly for its robotics course, so I suspect *Class2Go* will grow fairly rapidly. The University of New South Wales has taken another approach and has established its own open source platform called OpenLearning.

The platform choice and the business model associated with that platform will be a critical factor in the success of a university's foray into the virtual world. The MOOC business model hasn't been around long enough to know what the future holds. It's in the early days, but it's following a well-trodden path in the online world – get the user community first and then work out the business

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2. www.budde.com.au/Research/Australia-Data-Centres.html

3. Facebook press release, 4 October 2012. Accessed at: <http://newsroom.fb.com/News/457/One-Billion-People-on-Facebook>

and monetisation model later. Get it wrong and your lifespan is fairly short. Get it right however and the results speak for themselves.

Google is probably the best example of getting it very right. Google rapidly became the world's most popular search engine, but it took the company several years to effectively monetise their search platform, get the advertising model right and diversify their services. Google generated \$50 billion in revenue in 2012.⁴

OLD MODELS DON'T DIE

The challenge, though, is that old models don't die; they just change. Everyone is predicting the death of email, for example. I don't think email will die, but its use will change and is already changing. When email first came into being, people sent short, sharp emails as opposed to longer, formal letters. Now that the letter is rarely used, an email is a much longer construct. It's almost like writing a memo or a document. Instant messaging, microblogging and social media platforms have replaced it for the provision of shorter forms of communication.

Television was supposed to kill radio and the cinema. Both business models are still in existence. But they've changed and adapted. Radio is now readily available online or through apps. Television is changing as well. Smart TV and IPTV platforms allow you to watch both traditional television, but also access content online.

Similar changes have been occurring in computing. The mainframe was supposed to have faded into history years ago, but it hasn't disappeared. The ICT industry still makes many billions on mainframes. Similarly the PC and the laptop are now being talked about as 'dying' business models with the increasing power of smartphones and tablet computers.

There's no question that those traditional ways of operating are under threat, but they won't necessarily go away. The challenge for anyone operating in this environment is to operate successfully across multiple platforms, operate across various business models and different ways of working, because people like to do traditional things as well as doing new things.

A survey into retail customer preferences was undertaken by the Australian Information Industry Association and Fujitsu in 2012.¹⁰ The survey categorised the respondents into 11 categories from young affluent, to disadvantaged fringe, rural family through to wealthy seniors. What it shows is a very complex story of consumer preference. The young affluent is very much an online citizen. If you don't provide a service online, then they won't be using your services. However, a similar age group who are struggling financially in an urban setting much prefer a face-to-face interaction. Similarly, high-income-earning professionals who are very time poor want online self service. However, if they're in a family environment the preferences seem to change.

The challenge is that no longer does one size fit all. Different services need to be tailored to different markets. The educator operating in this environment really needs to understand the demographics of their potential students and how they like to operate. What does their day look like? When do they have time to study? What are their life circumstances? How do they like to learn?

This is where analytics, or what some refer to as 'big data', become important, because the more you can learn about your demographics and the people you're providing services to, the more you can tailor those services.

Some will be happy to do everything online because that's the way they like to learn or the only learning that their schedule affords them. But for many others the face-to-face engagement will still be preferred. For a lot of people the hybrid experience is going to be the best one, where they have a bit of face-to-face, a bit of online.

The challenge then is doing that cost effectively, because in this environment of diverse customer preferences you can't simply drop other channels. You can't stop teaching face-to-face classes if there's still a demand for it.

To make this work a cost effective, well-managed environment is key and reuse fits this model. If they aren't managed effectively, talented teaching resources will be pushed to their limits. It's essential to plan ways to help academics to deliver what is needed, potentially across multiple platforms and environments, without turning their working day into a 15-hour day.

4. Google Financial Year 2012 Results, 22 January 2013, http://investor.google.com/earnings/2012/Q4_google_earnings.html

5. The challenging and changing world of retail customer preferences, Fujitsu and AIIA, 2012. Accessed at: http://c.yimcdn.com/sites/www.aiaa.com.au/resource/collection/0AEA625A-7A21-4911-811A-DE9A4598EC72/Fujitsu_AIIA_Paper_on_Retail_FS_Customer_Channel_Preferences.pdf

CROWDED MARKET FOR EDUCATION

In this environment, HP is actually a rather large provider of education. We have accreditation programs around our software, around our networking, around our storage and servers. The challenge for the traditional education sector is that online learning is making education an increasingly crowded space, particularly if free online education is motivated by branding and marketing.

With this in mind, HP has partnered with the UN Industrial Development Organisation and a few other NGOs to assist entrepreneurs in developing countries. This program is called the HP Learning Initiative for Entrepreneurs, or HP LIFE. Over the five years that it has been operating, it has already reached out to about 1.2 million potential entrepreneurs and social innovators across 49 countries.

There are about 340 partner organisations on the ground providing services. People engaged in this program have created 43,000 jobs in 20,000 start-up companies.

What's really powerful about this is not necessarily the education; it's the network. This initiative provides the ability for people in developing nations to access and reach out to entrepreneurs in Silicon Valley, in China, wherever they might be, and then to use those business connections to grow their business, enter new markets or access manufacturing facilities in another country.

Similarly, the most successful universities have always been about building a network – alumni who remain connected, protect and promote the reputation of the university and provide a conduit into opportunities for graduates and other alumni.

The online environment expands the potential power and reach of this network. That is the real value of the virtual university.

There isn't a choice as to whether the Australian education sector embraces this concept, because it must. The decisions need to be made into whether the sector has the tools it needs to be successful and compete in the global market effectively.

The Virtual University, Academia and Publishing

SIMON LINACRE

VIRTUAL CONVERSATIONS

As a publisher, my perspective on the virtual university will focus particularly on what I sometimes call ‘the academic conversation’, that is, academic publications, conference presentations, discussions amongst academics at conferences and presentations and so on. Just as technology has an impact on the academic conversations, which now take place through a range of digital media, so too does it change the nature of the university. With the advent of elearning and massive open online courses (MOOCs), how will technology change the university and, in particular, business education?

It is my opinion that the new forms of conversations and learning will require a more collaborative approach with regard to business education in universities, and that the different actors in this particular scenario will need to work together a lot more closely. There is a huge opportunity for the academic accounting community to get involved and create greater impact for the research they are undertaking.

IMPACT

Business, management and economics research, in terms of the publishing environment, is quite insulated when compared to some initiatives that are happening in other areas of academia. This means that in some respects, for business disciplines, there is a good deal of catching up to do. Online journal access, online commentary, conversations in social media, and links to further information that are now the standard fare of academic publishers leave the traditional hard copy journal issue light years behind. Hard copies are still in demand – editors and editorial board members get them – but they are used less frequently, except in Japan, which somewhat surprisingly is the country with the strongest demand for hard copy journal issues.

These changes in conversations are happening at a time when, globally, there is significant pressure on the MBA, the cash cow of the business school. In the UK, MBA student numbers are falling. For example, The University of Bradford Management School, one of the top UK programs, has seen its number of full-time MBA students decline from over 100 to 20 in two years (*Financial Times*, 2013). In the US the numbers of graduates have fallen but the cost of tuition has gone up. The sustainability of MBAs in the US is being questioned, and this has come at just the time when MOOCs have started to develop. This has important implications for business schools relying on MBA income.

Business schools are unique, not least because, as previously mentioned, they are insulated. Some of the harsh realities of what is happening to universities may not affect business schools immediately because they are not as dependent on funding as other areas in universities, with much more diversified revenues. This is particularly so in the US, where business schools are the beneficiaries of philanthropy. In the short term then, business schools are protected from the 'heat'. But is this good for them? While it gives business schools time to prepare for the changes ahead, they are not immune from these changes. They must be proactive in confronting change and learn from the experiences of those areas of universities that have had to confront change more rapidly.

One such learning experience is around the notion of 'control'. At the moment, control of MOOCs is in the hands of a small number of institutions, like Stanford and Harvard Universities and the Massachusetts Institute of Technology, which can afford to give away content because of the strength of their brand. An oft-cited example about the MOOCs revolution is that of Stanford. A course that was available to 200 students face to face, was made available online with the aim of providing it to a further 2,000 students. In fact, more than 160,000 people signed up (*New York Times*, 2012). What does this mean for Stanford? It will always get 200 students willing to pay to be in the room for face-to-face teaching. It's not the Stanfords of the world's universities that need to worry. Other universities further down the chain are facing a far greater threat. These are the universities that need to examine the structural changes required to confront the challenges of the virtual university. Three elements of structural change are explored below.

THE ELEMENTS OF STRUCTURAL CHANGE

Shirky (2012), a well-known thought leader in the virtual university, compares MOOCs to Napster. The similarity lies in the potential for markets to be disrupted. Napster took advantage of the move to digital formats (MP3) for music to combine with another technological development – file sharing – to make music available anytime, anywhere. Another example of this kind of disruption is digital photography and Kodak. Kodak failed to respond to the disruption of its market.

These are examples of disruptive innovation. Harvard Professor, Clayton Christensen, adopts this term in his seminal book *The Innovator's Dilemma* (Christensen, 2011).

Universities then are similarly subject to market disruption, where suddenly a product previously available in a closed market, is made available for free.

The most prominent organisation that has established itself in the MOOC environment is Coursera. Of the 213 courses that it offered in January 2013, only 15 were in business and management, only two were in finance and there were none in accounting. Other actors in online provision of higher education, such as Udacity and edX do not offer accounting courses. Possibly, this is because change is taking place faster in science and maths-related fields, when compared to business, finance and accounting. In particular, accreditation is more straightforward in these areas, where testing for maths courses would be less nuanced than, for example, human resource management.

This brings us to the second element – accreditation. In accounting, professional and academic accreditation is difficult to obtain outside the established accreditation procedures, and course completion is of little value without the possibility of some form of accreditation.

However, I see some trends developing that are similar to the changes in academic journal publishing. Courses are becoming much more specific. Instead of a kind of Maths 101, there are much more specific courses being offered. This is analogous to changes in journal publishing when online publishing meant that it was easier to create new journals, so consequently a large number of new journals, with specific focuses, were created.

Journals have also been able to become much more interdisciplinary, and reflect the increasing interdisciplinary nature of academic research. This is also happening with the online courses. Crucially, though, students can make the interdisciplinary choices themselves, blending courses from a range of disciplines to suit their interests. One can choose both philosophy and economics; there won't be a clash of time or location.

The final element is granularity. This is a very modish term in publishing and in the media and, perhaps worryingly, outside of those particular areas it is not really understood. By 'granularity' we mean, for example, tweets. Twenty years ago there was the printed journal, 100 pages, five articles. Now it can be broken down to individual thoughts in a tweet of 140 characters. Similarly, there is much more granularity in the way courses can now be delivered. They can be small, just a few weeks, or bigger, as long as a year.

CASE STUDY

What do MOOCs actually look like? Have any business and management academics actually done a course? One example of such a course is 'Grow to Greatness' on Coursera, which looks at 'Smart Growth for Private Businesses' in two parts. It is run by a professor at Darden Business School (number 2-ranked business school in the world) and the course is basically for students, observers or executives involved with small to medium-sized enterprises.

When students 'go to class', they turn on their laptop or tablet computer and realise that the user interface is very good and an improvement on some virtual learning environments offered by universities. Aside from YouTube lectures and case studies to explain the points being made, when users dig down then they can engage and read forum activity. This takes us back to the notion of virtual conversations, because unlike 'real' universities, the conversation is not in the lecture hall. It's amongst the 70,000 students on this course. After one week of the course there were 132,000 viewings of videos of the first week's lectures – each week has about half a dozen lectures between 10 and 15 minutes apiece – and there were 169,000 views of the discussion forums.

The detractors of MOOCs claim that 'it's not the same as actually being in the same room as people', 'you don't have that face-to-face conversation', 'there are people in business who are worried at how the conversation and managing skills will be developed by students'. However, from observing discussion forums in MOOCs, I would argue that most of the students engaging with MOOCs have been or will go to university, but they have an opportunity to have a much wider, a much greater breadth in education than just doing the Finance 101 course where they skip lectures and scrape through with a pass.

There is much greater granularity in what people are talking about on these new courses. They also have a much more international focus, so there is a Nigeria perspective, a China perspective. Students range from 20 years old (or less) to 60 years old (or more), with a range of life experiences, so it is a much broader church than a traditional university.

NEW DEVELOPMENTS

With the opportunities and challenges that have developed in this nascent market, there are a number of different organisations that seek to take an early lead in a new product or service arena. For example, to overcome the accreditation issue there is a start-up called Degreed, based in San Francisco. It is seeking to develop an institution to accredit all MOOCs. Another new entrant is Canvas Network, which acts as a kind of aggregator of universities, and other organisations can use it to offer courses.

Inevitably, monetisation is much discussed. Where is the money on the MOOCs agenda? Established operators such as the Open University in the UK, which has created a conglomerate of universities to offer new elearning opportunities, or Phoenix University in the US, seem likely to lead the way in this area. Another model can be seen with the publisher Pearson, which recently set up private universities in the UK, adopting a complete vertical strategy. Pearson owns *The Financial Times*. Pearson does accredited training. Pearson owns an accreditation body. Creating their own university is the next logical step.

It is important to bear in mind that the MOOCs environment is a very immature marketplace. Thinking about it in terms of Michael Porter's Five Forces framework (Porter, 1980), new entrants and substitutes have some activity but it is still embryonic. There is very little bargaining power, and few rivals. This suggests that there is a lot of opportunity for developing quick market share, and revenue-generating activity may happen in the future.

ACCOUNTING FOR TASTE

Accounting education is very well placed in this scenario because it is one of the few areas where there is both a very strong vocational teaching element and an academic teaching element. Because MOOCs are platform-neutral these two elements can be combined, whereas in the past they would not work together. For example, a qualified accountant could explore auditing or keep up to date with what is going on in terms of the vocational element. They can use the same platform, with both interacting around different areas of interest.

ACTION

Adapting a forces framework, there are many opportunities around new entrants to the MOOCs market, particularly on the supply side; there is an opportunity for collaboration between business schools, accounting bodies and publishers. Potential action can be summarised as impact, sustainability and relevance. In order to have impact, actors need better relationships and communication. In terms of sustainability, accreditation is critical. In terms of relevance, nothing is more relevant than accounting bodies, because of their role in accrediting vocational courses.

CONCLUSION

The reason that collaboration is key for accounting education in the virtual environment is that 'the future of education is re-education' (US News, 2012). This encapsulates what is happening in universities. Universities are not going to be replaced. They are not going to be completely virtual. It is all about complementarity and collaboration, because people are going to be more educated than ever before. For accounting and accounting educators, the opportunities are significant. Through the education and re-education of accounting people, the benefit and impact of accounting on society will be increased.

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Open Universities Australia: Experiences

PAUL WAPPETT

We are facing a period of change – rapid change – and we must confront it realistically. While universities have been in existence in their present form for more or less 1,000 years, this is no reason to imagine that they will continue in the same way for another 1,000. Consider longstanding industries that no longer exist. Blacksmiths and tanners seem positively ancient; even companies like Kodak that once seemed invincible are gone.

Markets change, consumers change, and they are changing faster than they have ever changed before. We are currently in the midst of a period of great upheaval, largely because of innovation in technology, the most widespread of which is the Internet. An important characteristic of the Internet, and one of the reasons why its impact is so great, is that it does not respect national borders but instead affirms the notion of global markets. And in virtually every Internet market to date, over time one dominant player emerges with other members of that market segment taking the remaining 4–5% of market share. Based on this experience, then, it is likely that education provided via the Internet will follow a similar course.

Every January IBISWorld¹ produces an annual list of industries (see Figure 1) likely to take off in the forthcoming year, and its 2013 list highlights that online education is predicted to grow at about 10.5%. The list also predicts those industries likely to fall and at the top are three being decimated by the Internet: wired telecommunications carriers, newspaper printing and

publishing, and recorded media manufacturing and publishing. Different models for these industries are causing a disruptive innovation, similar to that we are seeing in education and training.

These experiences of change and changing markets show us that traditional formats in education are unlikely to survive intact as a result of the disruptive potential of new technologies that make the virtual university possible. This means that university management and academics need to adapt. As CEO of Open Universities Australia, I work with university executive-level management to help them understand that involvement in online education requires commitment and resourcing – replicating an on-campus environment in an online environment is simply not good enough. Open Universities Australia is the national leader in providing open and flexible access to quality tertiary education, enrolling more than 250,000 students since 1993. It provides access to over 1,700 units and 180 qualifications taught by more than 20 of Australia's leading universities and higher education providers.

HOW DOES ONLINE EDUCATION DIFFER FROM FACE-TO-FACE TEACHING?

For some time, there has been enormous variability in the 'online-ness' of courses and programs being delivered online. At one end of the spectrum, some institutions merely publish text and PowerPoint slides via a content management system and allow students

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1. www.ibisworld.com.au/about/media/pressrelease/release.aspx?id=304

FIGURE 1: THE DIGITAL WORLD IS HERE TO STAY

INDUSTRIES TO FLY	REVENUE 2012 (\$MILLION)	REVENUE 2013 (\$MILLION)	GROWTH (%)
Oil and Gas Production	38,314.1	44,422.9	15.9
Organic Farming	548.8	617.1	12.5
Online Education	5,048.5	5,577.6	10.5
Online Shopping	10,790.2	11,771.7	9.1
Multi-Unit Apartment and Townhouse Construction	15,225.0	16,600.0	9.0
INDUSTRIES TO FALL			
Gaming and Vending Machines Manufacturing	434.5	406.5	-6.4
Wired Telecommunications Carriers	10,215.5	9,655.0	-5.5
Mineral Exploration	3,936.4	3,736.7	-5.1
Newspaper Printing or Publishing	6,673.9	6,407.0	-4.0
Recorded Media Manufacturing and Publishing	888.9	863.9	-2.8

SOURCE: IBISWORLD press release 8 January 2013.

to access that material in a static manner. At the other end of the spectrum, teachers are using multiple learning technologies to deliver compelling and engaging content, social media to foster a sense of community and enable peer-to-peer learning amongst students, and experimenting with different pedagogical models, learning design and assessment techniques.

Towards the latter end of that spectrum, we are now seeing a disruptive (and I use that term in a positive, rather than pejorative, sense) model of providing open courses to large cohorts of students. These massive open online courses (MOOCs) are a relatively recent development in education and have gathered significant momentum in a short time. For example, two million people have signed up with Coursera, suggesting that students and prospective students are attracted by different models, not least because the education provided is free.

The real revolution is not that these courses are free but in their use as an R&D experimentation lab. Because the environment in which MOOCs exist is low-risk (i.e., there is no charge to students nor is any accreditation offered),

the online environment is a fertile ground for trialling different pedagogical models, learning technologies and the use of learning analytics and big data analysis. So, while the stated motivation for prestigious international universities like Harvard, Stanford and the Massachusetts Institute of Technology to engage in MOOCs is with a concern for equity and access to high-quality education, it may also have a lot to do with experimenting via online formats to improve their paid offerings.

The rapid uptake of MOOCs means that in most universities there is discussion about how to make use of online education and this raises a range of questions. The first of these is: what structural changes do universities need to undertake to make course material available online? Figure 2 outlines the traditional linear model of university education.

In order for existing course content to work effectively online it needs to be completely redesigned. At a time of cuts to university funding and ever-increasing demands on resources, how will this redesign be funded? Because online delivery requires new ways

FIGURE 2: LINEAR MODEL — DEFAULT SETTING IN MANY LECTURE HALLS

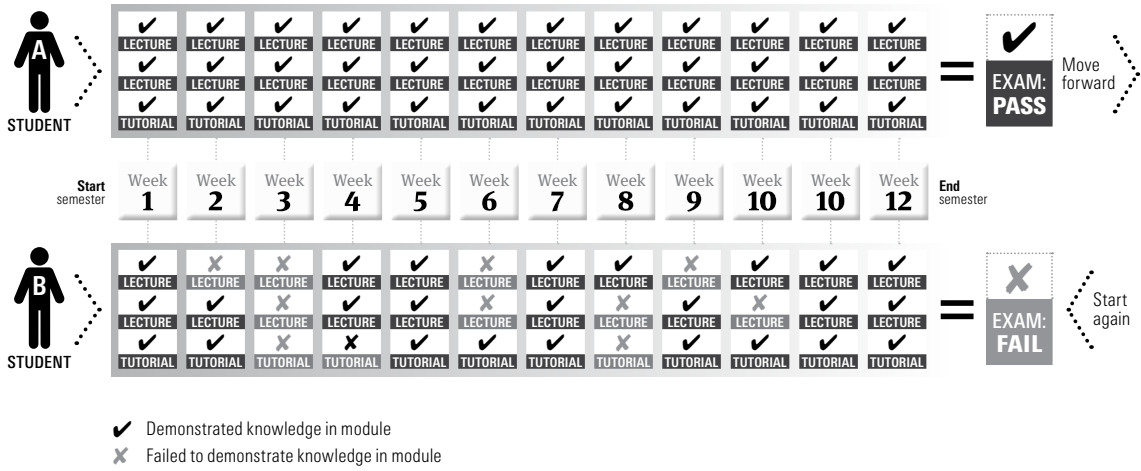
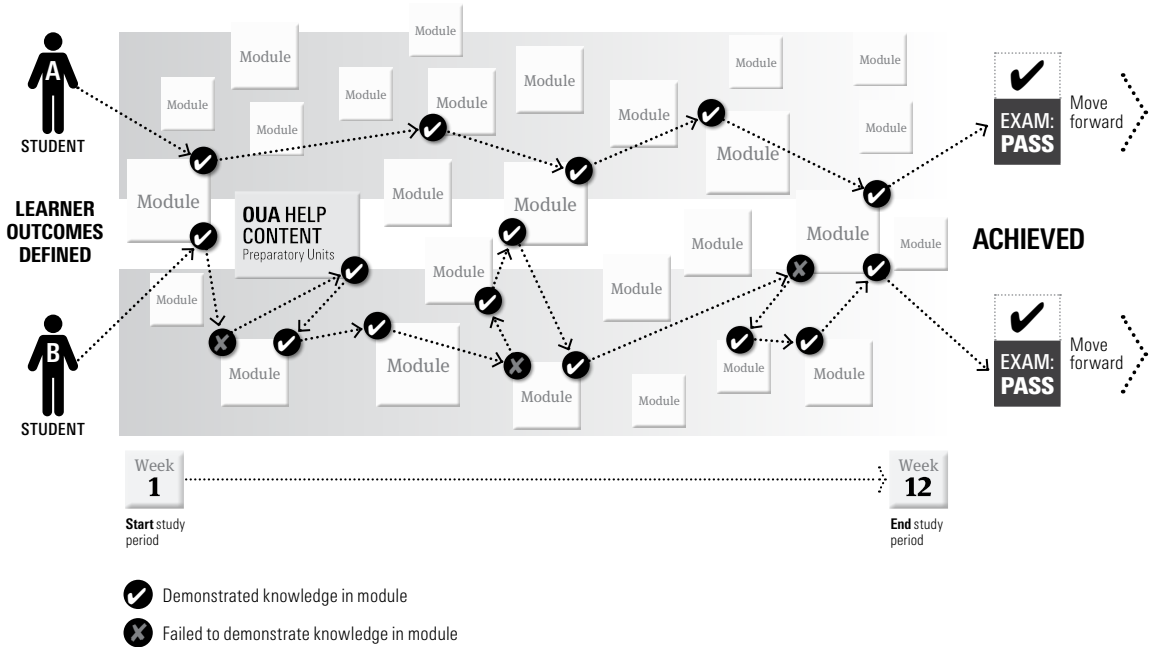


FIGURE 3: DYNAMIC MODEL, PERFECTLY SUITED TO ONLINE



of thinking about providing course content, the change for academics is both time-consuming and resource-demanding. Figure 3 outlines a more dynamic model under online learning.

In addition, individual academics are unlikely to receive much recognition for this work. Yet, making online content work is critical to the success of MOOCs.

Another question relates to entry requirements. At a more macro level this questions the very purpose of education. Is the ultimate objective of education to provide open access, so that a lot more people can undertake education? While some students will succeed regardless, they are in the minority. So is the aim of education to support those who fall into the majority? If so, do we accept that some of them will not be able to complete their study? And how do entry requirements support this? Rather than simply enrolling students in courses, Open Universities Australia's approach is to provide students with the best possible chance to successfully achieve their tertiary education goals.

Because not every student comes to a course with the same level of experience, the same commitment, the same amount of time to devote to study and the same learning ability, the optimal on-campus efficiency model that requires all material to be provided to each student in the same way, at the same pace and in the same sequence leads to variable learning outcomes for students (see Figure 4). How then to tailor this to make it possible for most students to succeed? A one-size-fits-all model, following in most cases a linear model, does not allow for a more nuanced approach that is likely to maximise success for the greatest number of

students' success. This linear model, where each week a concept is taught and understanding of that concept is required to move to the next concept, has no signposts that reveal where students may be struggling. In this kind of approach students' mastery or otherwise of the course content is not discovered until the exam. That is far too late. And the experience across the sector is that if students fail one or more exams in their first year, they are unlikely to continue.

Unlike a linear model, a dynamic model has advantages for online learning. In this approach, material is divided into smaller, more manageable chunks, with comprehension of each chunk tested. Generally, people lose attention in the online environment more quickly and therefore 60-minute lectures are less successful in this format. Instead, Open Universities Australia believe that 350–400 eight-minute modules with multiple options for continuing are likely to be more engaging. These multiple options mean that those who are mastering the content can move ahead while those who are not can easily and quickly revise. An algorithm can manage the assessments so that students are directed into the path most suitable for them. In this way, those who understand the coursework quickly can move ahead, those who are working more slowly can progress more slowly and those who do not understand can be directed to foundation-level knowledge before attempting to continue.

The next question for universities is how to make online education a human experience (see Figure 5). People want to feel part of something. Imagine, for example, you are a student struggling with aspects of your course, whether that is English proficiency or the subject matter,

FIGURE 4: DYNAMIC MODEL, PERFECTLY SUITED TO ONLINE

If I'm a student that is not **all that confident** in my abilities... or **not really understanding** the material in the course... or am **juggling my studies** with a full-time job, or parenthood, or aged care... then the **view from here is difficult enough**...



you are juggling a whole range of things in your personal life and so on. This is confronting enough when you are in a lecture theatre. Now imagine that you are learning online. This is a very isolating experience. Simply filming a lecture and providing it online does not make students feel that they are part of a cohort. It is the least effective way of providing meaningful online education. Similarly, providing PDFs of teaching materials online is not effective.

Well-designed online courses will offer a personalised adaptive mode of study that feels to the student as if the course has been individually designed. Effective online learning design incorporates peer learning, which evidence suggests is very effective. In peer-learning networks students provide support to each other. After all, no one knows what it feels like to be a student better than another student.

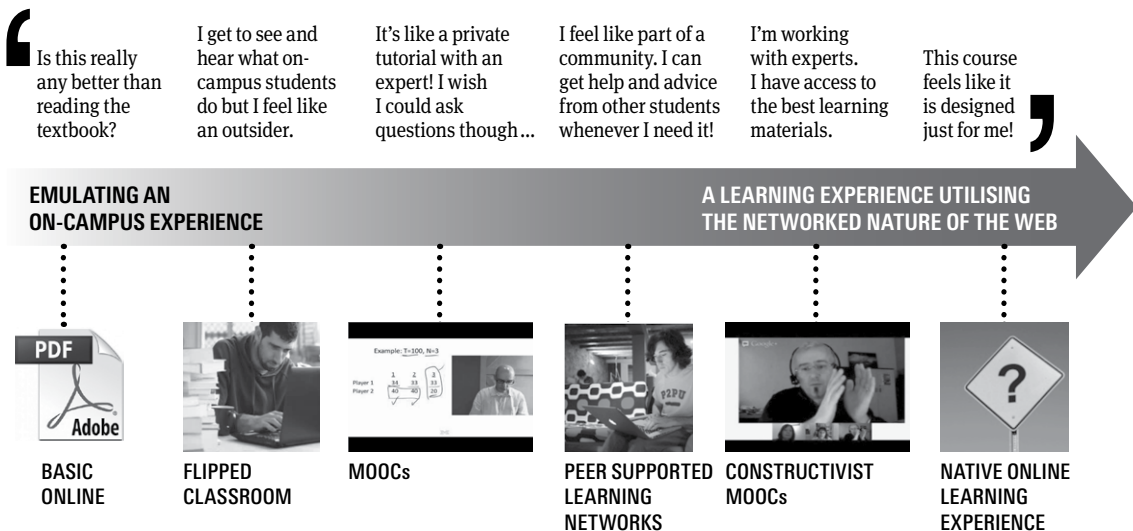
Equally as important in engaging the learner and delivering a great learning experience is applying high production values to the content that we deliver. All too often, teachers believe that the subject matter of the content is all that matters. Yet, we will all be familiar with the experience of going to a movie based on a book that we have loved, only to be disappointed

because the acting, the lighting, the sound, the cinematography and/or the editing has been poor. The same goes for education; while the basic content is a necessary foundation for a good experience, students subconsciously expect production values that enhance the experience rather than detract from it.

The following are some examples of how Open Universities Australia is using high production values to foster student engagement in the online environment:

- We use multiple camera angles to avoid the inevitable boredom of watching one fixed camera for a length of time
- Rather than have a lecturer turn away from the student to write on a blackboard/whiteboard, we use perspex so that while the lecturer is writing they are still speaking to the audience. It doesn't mean the lecturer has to write backwards; we merely reverse the image
- We always use two cameras, one with a tight shot and one with a wide shot so that the material can be edited to vary the static nature of a single camera
- We use animation to make the content more compelling. A wonderful example of this can be seen in a speech on YouTube by Sir Ken Robinson, an English expert in education²

FIGURE 5: THE ONLINE EXPERIENCE

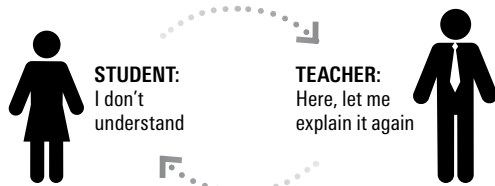


2. www.youtube.com/watch?v=zDFcDGpL4U

- We use simulation technology as a very effective tool for an immersive and engaging experience for a student. For example, if a student is studying Ancient Pompeii, rather than read about it in a textbook, the student can use this technology to walk the streets of Pompeii and see what was happening at the time.

As mentioned earlier, online education provides opportunities for analysing learning in a way that is not possible with face-to-face teaching (see Figure 6). Data can drive the way courses are designed and developed, so the more students are involved in a learning platform, the more times they leave a digital thumbprint about the way they behave, what sorts of behaviours lead to success, etc., and this provides insights into how different learners learn rather than relying on intuition and anecdotal evidence. For example, if for one particular eight-minute module 65% of students are getting the answer wrong, then this signals that there is something wrong with the module. Intervention can be immediate because the data are available in real time.

FIGURE 6: SOUND FAMILIAR?



- Q. How many repeats of this cycle can occur in an **on-campus** mode before violence ensues?
 A: Maybe 2–3?

The learning analytics available mean that the types of behaviours that lead to the best outcomes can be established. Different learning technologies can be compared and course material adapted as the course is being undertaken. This should have a significant impact on how many students continue in the course because, as noted earlier, those that fail are unlikely to continue (see Figure 7). By adapting the course material during the course to suit the individual learners undertaking it at that time, those students who are more likely to drop out or fail can be assisted. Access to data also enables the lecturer to see where students may not understand the material in real time and eliminate common errors. It eliminates guesswork on the part of academics and provides the opportunity to fix problems in real time (see Figure 8).

FIGURE 7: DATA SHOULD DRIVE THE WAY THAT WE DESIGN, DEVELOP AND DELIVER COURSES

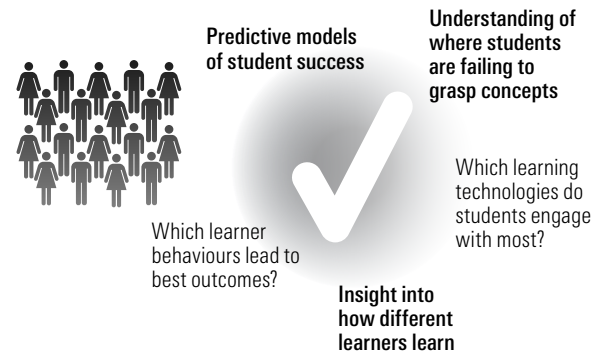
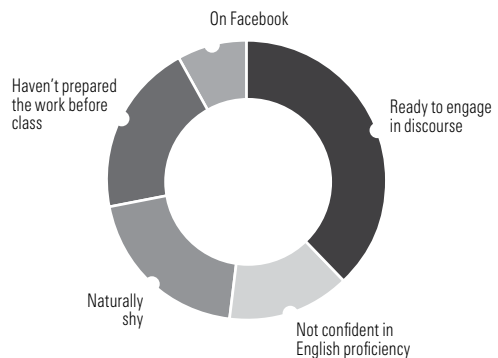


FIGURE 8: DOES DISCOURSE REALLY HAPPEN CONSISTENTLY ON-CAMPUS



CONCLUSION

The experience of Open Universities Australia is that if course content is designed well and delivered well, then online education is likely to have at least the same level of academic quality as that in an on-campus environment. It will be at least as compelling for most of the students and much more compelling for many others. It means that more students are likely to achieve better learning outcomes because more people have access to education, and ultimately that leads to better completion rates, without quality being compromised.

The Virtual University: What Does it Mean for the Accounting Profession?

LEE WHITE

INTRODUCTION

The articles in this volume prompt reflection at the significance of engaging with virtual forms of education. The fact made clearer by this timely collection of thought leadership pieces is that the digital age for education is upon us and if we ignore it, it's at our peril.

Papers in this collection by Ross Dawson (Dawson, 2013) and David Masters (Masters, 2013) give some idea of the future of accounting education, engaging with developments in technology-based products and models. They pose several questions about Australia's capacity to position itself to take advantage of the opportunities presented by new technologies and how it may respond to the potential challenges of online education and training models.

Simon Linacre provides a broad overview of where online education is having most impact internationally (Linacre, 2013). To date, these changes have been most keenly felt in the sciences and medical disciplines. The impact on business and accounting education has not been so significant. But for the publishing industry, the technology revolution has had major ramifications and, given that research and publishing are inextricably linked, there will be a major impact on business and accounting academia.

The different online models and teaching strategies required to embrace the wide range of approaches required for online delivery are outlined in the paper by Paul Wappett from Open Universities Australia (Wappett, 2013). New modes of delivery require new ways of thinking about delivering accounting education and training within the global and national context. Experiences of the digital environment are also shared by Alex Malley of CPA Australia (Malley, 2013).

From each of these articles, key themes have been identified, and are explored next: the globalisation of the business of higher education; the transformation of education; responses to massive open online course (MOOC) education; and the benefits and challenges of these MOOCs.

GLOBALISATION OF THE BUSINESS OF HIGHER EDUCATION

There is no denying that more than at any other time in history we live in a global environment, as enabled by technology. We see businesses today operate in a truly global market, both in terms of sales and supply. Such businesses operate in markets without borders.

Universities operate in this global market, and are subject to the same pressures from market forces as other organisations. Indeed, they have become more like big business over the past decade, both in their market approach to education and in their global reach.

With nearly double the number of students involved in higher education globally, during this period there has also been a significant increase in the movement of students across jurisdictions. Both trends appear to be growing, with China alone contributing to significant growth in international and local student numbers throughout the world. Chinese universities have also improved the quality of their education, recruited lecturers from other countries and have thus become more attractive in recent years. It seems likely that more Chinese students will be educated in China in the medium-term but students from other countries will also target China as part of their educational experience. This is a novel take on globalisation.

According to the United Nations Organization for Education, Science and Culture (UNESCO) Institute for Statistics (2012), there were at least 3.6 million international students enrolled in overseas tertiary education in 2010, an increase of 78% from two million in 2000. East Asia and the Pacific region accounted for the largest share, 28% of international students. China, India and South Korea provided the largest supply of international students. China alone accounted for 17% of international students globally, with the US, Australia and Japan the main destinations. North America and Western Europe accounted for 15% of international students. The top destinations for international students globally were the US (19%), the UK (11%), Australia (8%), France (7%), Germany (6%) and Japan (4%) (UNESCO Institute for Statistics, 2012). Further, the UNESCO World Conference on Higher Education report estimated that there were 150.6 million tertiary education students globally, an increase of 53% since 2000 (UNESCO Institute for Statistics, 2012).

Australia's experience provides an illustration of the marketisation and globalisation of the wider higher education system (see Scott, 1998; Parker, 2011; Parker and Guthrie, 2013), in particular that of accounting education. In the Australian higher education sector the result is commercialised services with academics becoming commoditised inputs to the process (Parker, 2012). Accounting education continues to be a marketable process-delivered and homogeneous product.

But what of the future? The advent of online education and new forms of digital delivery means significant changes for the current model of higher education.

Will national borders disappear as we become even more global? Will higher education students stay at home and study education delivered via new technologies? Who will have the authority to accredit the credentials that come with a university education? Are standardised and government-approved credentials important to maintain quality?

These are some of the important questions facing universities, accounting practice and the professional bodies. It is too early yet to know the answers or to get a sense of the direction in which the profession might travel. The Institute's responsibility to its members and the public interest is to equip its members well for the future. That is why thought leadership, such as that undertaken by the Institute and the Centre for Accounting, Governance and Sustainability at the University of South Australia, is so important. There are great opportunities for those willing to embrace change. That change is upon us, it is impossible to deny and therefore we must embrace it.

TRANSFORMATION IN EDUCATION: THE IMPACT ON PROFESSIONAL BODIES

In many respects, universities have existed in much the same way for centuries. However, this is not an argument to support the misguided belief that they will continue to do so for centuries to come.

The challenge for educators is to understand how to maximise the potential benefits and avoid the pitfalls that may lie on the pathway to educational transformation. It is on this journey that the professional bodies must take a leadership role, to lead the conversation on virtuality. It is my view that there are significant benefits for education in general, not just accounting education, provided that the educational content and pedagogy is constructed and delivered effectively.

The particular challenges that exist involve the use of technology to its best advantage. In grappling with technological change we must remind ourselves that it is a means to an end, that our aim is education, and in the case of the professional bodies, education that benefits our members. How can we most effectively deliver education that benefits our members and prospective candidates? Given our long commitment to the role of practitioners in the education of the next generation of

members, how does this aspect fit with new education models and is it sustainable? The following four issues need to be addressed:

1. What technologies will we use to deliver education and training to our members while making sure we are using robust and sustainable IT platforms?
2. Who will be our collaborating partners? To deliver education effectively, professional bodies must collaborate with educational institutions and training providers. The opportunities for collaboration are wide open – this is one of the most exciting aspects of the digital revolution in education. There are a number of universities, higher education providers and global commercial enterprises that offer services in content, creation and dissemination; testing and certifying learning; coaching and performance feedback. However, these do not have the power to provide accreditation.
3. What is the governance framework around online delivery? How can students be assessed and how do they gain accreditation? Who is a credible accreditor?
4. What is the role of professional bodies in providing education and training to their members? Is this an activity in which we should be involved? In asking this question, consider the case of the College of Law in the UK, a private education provider with charitable status and a Royal Charter. The College's work is similar to those of the professional bodies and it has the power to award degrees. Recently the College was sold to a private equity firm.¹ This has implications for the way education providers attract investment and the assessing of quality, particularly in relation to degree-awarding powers.

I highlight these issues not because I have the answers, but because they focus on what is important in the current debate.

RESPONSES TO THE EMERGENCE OF MASSIVE OPEN ONLINE COURSES

The advent of MOOCs is potentially a disruptive change to education that could have as big an impact as Gutenberg's invention of the printing press in the 1430s. The phenomenon of the printing revolution can be approached from a quantitative perspective, which has its focus on the printing output and the spread of the related technology. It can also be analysed in terms of how the wide circulation of information and ideas acted as an 'agent of change' in Europe and global society in general. The impact of printing technology has the potential to be analogous to the impact of digital technology on higher education sector and training.

When thinking about online education, what we are mostly considering is MOOCs. One reason some universities have been quick to embrace MOOCs is that they provide the opportunity to experiment in alternative pedagogies and to consider innovation in teaching. Resources can be customised or tailored, targeted to a small specialist audience or more broadly, with little change to required infrastructure and cost. Macquarie University Provost, Judyth Sachs, was recently quoted in the *Australian Financial Review* as saying she views Macquarie University's participation in the Open Universities Australia MOOCs platform as an opportunity to 'showcase the university and give valuable experience in creating online courses'. She continues: 'It's making us confront the question what does it mean to learn in a technological age' (*Australian Financial Review*, 25 March 2013, p. 25).

Similarly, edX, a consortium of universities providing MOOCs, set up by Harvard University and the Massachusetts Institute of Technology (MIT), states that its aim is, in addition to offering online courses, to use 'edX to research how students learn and how technology can transform learning – both on-campus and worldwide'.² One could take a cynical view of this approach, where the universities figure out effective online delivery as they go, and this suggests compromise on a quality approach to learning.

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1. www.timeshighereducation.co.uk/419753.article

2. www.edx.org/about

This university response is being received with cautious optimism. It is a micro approach to MOOCs, when what is required is a macro approach. At this early stage in transformation the focus needs to be on the high-level objectives of what we are trying to achieve. From the Institute's perspective, the high-level approach must incorporate consideration of the undoubted benefits of MOOCs – elimination of geographic disadvantage to education, democratisation of education, social equity, overcoming of barriers to education in terms of cost both of courses and of textbooks. Potentially MOOCs make it possible for future generations to be better educated than previous generations but the models are not yet fully tested, especially in terms of attrition rates, effective learning models, commerciality, independent assessment, accreditation and articulation to awarded degrees.

The disruptive potential of MOOCs applies equally to professional associations as it does to higher education and training more widely because: MOOCs promote the quality of knowledge as a public good (i.e., non-rivalrous and non-excludable); MOOCs create a winner-takes-all education market that favours prestigious institutions in competing for free public hits; MOOCs create a global marketplace and a global public; MOOCs providers can charge a small access fee and remain cheaper than traditional higher education; employer acceptance of MOOCs qualifications could see them compete with degrees in terms of graduate attractiveness; and MOOCs offer parents, particularly parents of international students, an education alternative without a heavy debt burden. However, parents want a prestigious degree that leads to a high-earning career and that linkage is not yet evident.

The traditional university model, which sees students pay a large upfront cost for a bundle of services they do not necessarily need, will face increased pressure. Institutions will be forced to rethink their value proposition to students.

In Australia and New Zealand, different universities have taken different approaches and this is summarised by Cheung (2013). For example, the Australian National University's (ANU) has joined the edX consortium. Tertiary education sector researchers Sean Gallagher and Geoffrey Garrett believe that the establishment of edX by Harvard and MIT shows that these institutions

do not view online presence as a threat. Again one may take a cynical stance when considering Gallagher and Garret's (2012) view on the matter.

So why are Harvard and MIT willing to risk their priceless reputations by educating students they do not admit through traditional quality channels? The simple answer is that they do not see it as a risk. Rather than potentially undermining their brands, the intent of edX is to globalise them. And in time, Harvard and MIT probably think they will be able to make money from edX in the same way *The New York Times* now profits from online content it used to give away. Certainly the edX website places considerable emphasis on its mission to improve teaching on campus by experimenting with different models of delivery.³

Universities see the value of MOOCs to their brand. An Internet presence helps build universities' brands and can enhance the value of their degrees. MOOCs represent an exclusive collaboration between elite institutions for brand positioning and shared development. They therefore present a greater threat to less prestigious institutions, which are faced with the dual challenges of losing students to MOOCs and exclusion from current MOOCs networks. Elite universities with a strong brand stand to gain – at least in terms of profile and number of students enrolled in their MOOCs. But free courses and accessibility mean that students can also express their dissatisfaction in the simplest way – they can leave. So with brand opportunities also come brand costs. Universities are still expected to deliver quality, and to deliver it at no cost.

Finally, what do MOOCs mean for research? Simon Linacre discussed the impact of technology on research and is certainly grappling with a similar revolution in the publishing industry (Linacre, 2013). Will MOOCs see a division in the university sector around teaching and research, in which some universities become research specialists and others become teaching specialists? How will research be funded? And how will it relate to practice and policy? It is very important for countries like Australia and New Zealand, of modest size and global impact, to consider the capabilities and outcomes that can be delivered by their universities in terms of research. In particular, how do we continue to maintain and sustain adequate investment in research?

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3. www.edx.org/faq

BENEFITS AND CHALLENGES OF MOOCS

BENEFITS

The benefits of MOOCs are widely acknowledged, not least by those universities that provide them. Accessibility is one of the great advantages of MOOCs, providing educational opportunities to those previously disadvantaged by geography and economics. They create equity where previously there has been elitism.

The way online courses are structured means that students can progress at their own pace and engage in collaboration with other students. It is also possible to track student progress and data analytics to identify where students tend to struggle. Paul Wappett (2013) outlines the use of these forms of innovation in pedagogy.

The content of MOOCs can be tailored to meet particular needs. These may include the needs of the community, for example, training for dementia care. There are significant opportunities in vocational education and training for industry needs. It is claimed that MOOCs enable democratic access to education and provide new opportunities for improving learning effectiveness and addressing community needs.

Access to education MOOCs have been described as 'democratising' higher education (Lewin, 2012). They give students in developing countries or impoverished circumstances an opportunity to learn from leading academics and institutions. The marginal cost of servicing an extra student is virtually zero (Carey, 2012).

Personalised study and intervention MOOCs enable a personalised learning experience to be delivered on a large-scale, cost-effective basis (Austrade, 2013, p. 10). Students are able to progress at their own pace (Wappett, 2012). The tracking of student progress also enables more effective intervention, as well as the development of predictive models of success. For example, Open Universities Australia has identified that students who fail to complete a component by the end of Week 3 are 65% more likely to fail than their peers (Wappett, 2012). Under traditional teaching models, there were more limited opportunities for teachers to identify struggling students and intervene before they fail the exam. Data analytics also enable adaptive learning, where the learning path revolves around the individual student's needs, so that more time is spent on areas that require more development (Austrade, 2013, p. 11).

Yet, Bates (2012) downplays the potential for such data analytics, arguing that many discoveries have already been learned from studying online distance learning models, or are simply detections of latent errors in course design.

Pedagogical studies The data that can be collected from MOOCs provide enormous potential for pedagogical studies (Dodd, 2013). Trends that would have gone unnoticed in a physical classroom can be detected, such as common mistakes and areas of learning difficulty. Experiments of large student samples are enabled. Insights drawn from such data can enable MOOCs to quickly improve their teaching effectiveness, and MOOCs providers may come to capitalise on such intellectual property (Dodd, 2013). In February 2013, Open Universities Australia announced it would reformat its courses into a MOOC style, with more modules, shorter intervals and an online quiz after each section. This could be viewed as a reflection of the pedagogical effectiveness of the MOOCs format.

Community needs MOOCs can further be used to raise community awareness (e.g., dementia) or address industry skills shortages (Sadler, 2012). For instance, Coursera is offering two courses on the Obama healthcare law and rationing of scarce medical resources (Lewin, 2013). Dr Ezekiel Emanuel, a former health advisor to the Obama administration, teaches the courses, and the main objective is to increase community awareness of health issues.

In October 2012, Udacity also announced that several large software companies, including Google and Microsoft, were sponsoring courses in areas of skills shortage, such as HTML5, game development and 3D graphics programming (Anders, 2012).

CHALLENGES

The accessibility and equity issues outlined above are indeed benefits but they also create challenges. For instance, not everybody has equal access to the technology required. The UNESCO (2009) *World Conference on Higher Education Report* (p. xvi) outlines the challenges of technology in many developing countries:

'... there are enormous costs and difficulties embedded in the reliance on ICTs in terms of hardware, software, technical support, training and continual upgrades. Some parts of the world, particularly Africa, remain

relatively underserved by high-speed Internet access. The world's poorest countries are increasingly left behind as information production and dissemination move down technological pathways to which they have limited or no access.'

With its focus on English as the language of teaching and a Eurocentric approach to content, online education has been accused by some as taking a 'neo-colonialist' approach to education (Daniel, 2012).

In addition, MOOCs providers assume students are self-regulated learners who already have academic, as well as information and communications technology skills. Many students who undertake MOOCs may struggle in the online environment without the support of peers and face-to-face teaching experiences (Dawson and Nelson, 2012). In addition, the on-campus study experience provides informal learning opportunities that can be career defining.

Beyond these are several particular challenges for MOOCs. The biggest challenges for online education are completion, certification and cheating (Landry, 2012). Uptake by Australian universities is also hindered by regulation and a lack of a sense of urgency.

Completion MOOCs have attrition rates of up to 80–90%, and a key problem is keeping students engaged and learning through the MOOCs experience (Dawson and Nelson, 2012; Gardner, 2012). MOOCs-assumed student attributes and skills mean they may be unsuitable for the average person, as the lack of measures of progress or feedback makes completion difficult to achieve. A group class may be more suitable for beginners by stimulating motivation and commitment. Many commentators believe completion rates could be improved if faculty or teaching assistants were available to provide support; however, universities would need to be able to recoup their costs (Lewin, 2013). Although 'gamification' would improve user experience, it requires greater investment in MOOCs development, and therefore greater student numbers to make it worthwhile (Gardner, 2012).

Assessment Acceptance of MOOCs qualifications, particularly by governments and employers, is critical to their future development (Gardner, 2012). Yet, scepticism over accreditation is a key impediment to acceptance. Challenges include incentives for sharing answers, timing differences in access to exams, plagiarism, use

of multiple pseudo accounts to test content, and game playing in peer assessment (Anders, 2012; Cann, 2013; Lederman, 2013). In addition, MOOCs assessments are limited to onsite examinations or online-proctored exams, which cannot provide the learning opportunities available through good-quality assessment methods (Gardner, 2012).

Regulatory hurdles Although technology enables flexibility in the delivery of courses, quality control regulations over education and accreditation may stifle innovation, due to assumptions about the quality of education provided online versus on-campus (Palmer, 2012). The Tertiary Education Quality and Standards Agency's (TEQSA) Australian Qualifications Framework (AQF) sets out the amount of learning and time required to receive a qualification, which may not suit online self-paced learning (Den Hollander, 2012). Reliance on MOOCs lectures from quality offshore universities can also be considered as significant reliance on third-party providers in the delivery of courses, which is a risk indicator under the AQF (Dodd, 2012).

According to Palmer (2013), Australian copyright law also restricts the development of MOOCs, as 'fair dealing' provisions are more restrictive than they are in the US. This handicaps Australian universities, as they are forced to develop MOOCs based on course materials developed within the university. 'Tragedy of the anti-commons' arises when any one of various copyright owners involved can restrict the ability of other owners to deal with the intellectual property, resulting in underuse (Thampapillai, 2013).

Development According to Den Hollander (2012), lack of venture capital funding and risk aversion to innovation restrict the development of MOOCs in Australia. Coursera and edX only allow prestigious universities to join, thus restricting participation to a few Australian universities. This exclusive club means outsiders need to develop their own MOOCs platforms. In addition, university staff find the task of migrating online daunting, and combined with inadequate incentives, this inhibits greater uptake of MOOCs (Wappett, 2012). Australian institutions face a real risk of adapting too slowly and thereby missing out on significant first mover advantages, as they do not face the same 'crisis factors' that are driving the current revolution in US higher education (Austrade, 2012, p. 19).

Social mobility Blumenstyk and Carlson (2012) argue that if MOOCs emerge as a real alternative to on-campus study, on-campus study will likely become a 'luxury' available to affluent students, who are generally better prepared for studies. Yet, it is students from lower socio-economic backgrounds who would be more likely to be in greater need of face-to-face learning. Touve (2012) argues that the rise of MOOCs will lead to a situation where the only determinant of whether a degree is obtained is admission into university, rather than course mastery.

The Grattan Institute has previously recommended that Australian higher education fees be increased and subsidies cut, as substantial benefits derived from attending university would still see many choose to attend (Mather, 2012a; 2012b). However, this was largely criticised on the basis that education is a public good that provides social benefits (Mather, 2012a; 2012b). The question then, is whether MOOCs provide sufficient social benefits to justify a change in higher education funding policy. In addition, issues to be addressed include whether unequal access to on-campus study would create future hurdles to social mobility, especially if on-campus study remains the preferred choice of employers.

Finally, Pitman (2012) argues that access to technology resources (such as the Internet, hardware and software) may become a source of 'education inequality', similar to private schooling. Pitman argues that society must determine whether access to quality online learning should be a privilege or a fundamental right.

CONCLUSION

Because the context of education in the online environment is changing so rapidly it is important to focus on the important issues. At the Institute we believe that whatever model is adopted, the focus should be on developing the best possible content, providing a quality learning experience, and then ultimately testing students' understanding. By focusing on these important basic elements in education we will provide the right level of candidates and develop them within our profession. We do know that students want to engage in lifelong learning that is accessible, real-time and collaborative. The needs of the profession will, without doubt, be at the forefront of informing developments in any Institute policy on education.

In conclusion, we are witnessing a transformation in higher education and training. It is difficult to see the path ahead while we are travelling along it and there is no map. But it is also important to acknowledge that we can choose the path on which we travel. I see this as the role of the professional bodies: to help guide the accounting profession on the path that is of most benefit to us as practitioners and to society as a whole. Organisations like the Institute will act as interpreters, experimenters and early adopters of educational innovation, but we are fully aware of our responsibility to ensure professional excellence in the public interest, so our approach will be a balanced one.

ACKNOWLEDGEMENTS

Many thanks to Professor James Guthrie, Allen Blewitt and Barbara Bell from the Institute of Chartered Accountants Australia (the Institute) for their comments as well as the Institute's Strategy and Business Excellence team for researching many of the ideas contained in the paper.

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The Accounting Profession's Support for a Digital Environment

ALEX MALLEY

INTRODUCTION

Effective engagement through the digital environment has become central to any competitive strategy. CPA Australia is on a journey into the digital world, and along the way has learnt a great deal. This paper shares some of our key learning – the questions we asked in order to assess where we are at now versus where we aspire to be; how we navigated the barriers; and what we found to be necessary to effect change.

Engagement is the essence of life: to learn enough to influence, and to communicate with clarity. This is the value of the digital environment. It is not about the technology; it is about using technology effectively to influence and communicate. CPA Australia is on a journey deeper into the digital world. This article discusses the biggest barriers encountered along the way. The rewards from seeing this journey through are great. A short section of this article touches on why it is important to succeed. The final section captures CPA Australia's learnings about what is necessary to effect change.

THE DIGITAL ENVIRONMENT

The digital environment is many things to many people. For CPA Australia it is a tool that we can *use* to deliver our *objectives* using mobile, social, traditional web and secure portals.

While this definition references the technology, the emphasis lies elsewhere. Technology is a tool that can be leveraged to deliver objectives. Too often the digital energy starts before organisations have agreed on what the key objectives are. The heart of what CPA Australia aims to achieve is provision of a world-class service. The digital environment is a key tool towards that end.

Many have sought to leverage the digital environment by using it to convey information. That was the dominant paradigm in CPA Australia three years ago. This paradigm unnecessarily undermines the potential of technology, as it is only one-way. The greatest potential is two-way in an exchange and in the interaction of people. The digital environment is an important (but not the only) means CPA Australia uses to strengthen our engagement with students, members and the wider community.

The breakthrough for CPA Australia came when we realised that we cannot own information or knowledge. The world does not respect ownership anymore; there is a revolution taking place. The revolution is similarly challenging higher education providers' treatment of the research work of their academics.

At CPA Australia we came to the conclusion that no single entity or person has a monopoly on all the answers. It is our view that we seek to be the first mover in asking the right questions and influencing the right debates, facilitating cutting-edge discussion.

CPA AUSTRALIA'S JOURNEY

To provide direction to CPA Australia's digital journey we examined our operations and those of others. Six preconditions emerged. We share them here as they provide a useful lens through which to view the operations of higher education providers (see Table 1).

Self-analysis against these preconditions has given CPA Australia a realistic sense of our challenges. To inform our thinking regarding our desired destination we distilled five themes common amongst organisations that are leading the digital way. The first focuses on the way that mobile is fast becoming the new desktop, with BlackBerries, iPhones and android devices becoming the primary means of digital connection. The second is the key role of digital as an essential element to delivering an optimal learning experience. It provides the opportunity to blend learning experiences that integrate multiple media. The third encompasses the ways that personalising content for mass consumption can be achieved. The digital environment enables self-paced

learning. Customisation allows the learning experience to cater to users' strengths and difficulties. The fourth focuses on how users expect self-serve transaction-oriented activities. They expect direct, easy-to-use, safe transaction options. The fifth centres on the importance of organising for digital success. The place to start is to build a culture of digital thinking.

In working through where we want to be, CPA Australia considered three questions. They are relevant to developing the digital strategies of all higher education providers. The first is how ambitious does the leap into the digital environment need to be? Should it be *partial*, that is a part of how business is conducted; *middling*, that is critical to delivering on objectives; or *substantive*, that is a prominent feature of how business is conducted and essential to advancing objectives. At CPA Australia our ambition is to achieve the *substantive* status. Our strategy is to take a measured approach to achieve significant change. Digital will become a prominent feature of much of what we do.

TABLE 1: PRECONDITIONS TO THE DIGITAL JOURNEY

<p>Is there a solid foundation to build from? Is there the brand significance, technology enablers, reach and ambition necessary to become more digitally mature?</p>	<p>Brand and ambition were critical considerations for CPA Australia – to be relevant in the digital sector, it is essential to be relevant as a brand. Our digital strategy is a means to both test and grow the brand.</p>
<p>Clarity around ambition is vital.</p>	<p>Brand was a critical consideration for CPA Australia – to be relevant in the digital sector, it is essential to be relevant as a brand. Our digital strategy is a means to both test and grow the brand.</p>
<p>Is existing information put to best use?</p>	<p>There is a wealth of information within CPA Australia, much of which is embedded and hidden. Our digital strategy aims to manage, integrate, tailor and make best use of our information.</p>
<p>Is website functionality aligned with expectations?</p>	<p>CPA Australia's website functionality was not where it needed to be in order to achieve our digital vision. We are in the process of addressing this.</p>
<p>Can desired end user groups be targeted in the manner desired?</p>	<p>At CPA Australia we found that we could target groups, but not as well as we would like. Our ambition is to have seamless, relevant and timely bi-directional digital communication.</p>
<p>How technologically advanced is the organisation?</p>	<p>CPA Australia identified a number of opportunities to upgrade our capabilities.</p>
<p>Is digital operated as an integrated channel across all organisational activities?</p>	<p>Like many organisations, CPA Australia is challenged as much by culture as it is by structure.</p>

Second, which organisational priorities must the digital strategy address most critically? For CPA Australia it is our vision to be known for being the world's best member service organisation. Our digital strategy is critical to advancing our vision.

Third, how urgently does the desired degree of change need to occur? At CPA Australia we are working to realise our digital vision and advance our organisational objectives within a two-year timeframe.

BARRIERS AND WHY IT IS IMPORTANT TO SUCCEED

The discussion above provides a broad framework for organisations to consider that informs their digital journey and strategy. The biggest barriers that may be encountered along the way can be the minds of the people and the cultures of organisations.

As a somewhat relevant generalisation, there are two generations – those who grew up in the digital environment and those who did not. The former understand the value of the digital environment, but lack influence. The latter are influential, but may lack an appreciation of the value potential. The digital world is not organic to that demographic. For some, the fast-paced 24/7 consumerism of the digital environment where anything goes, is at odds with what matters to academic success – authoritative evidence-based research. For others, the technology can be confusing and elicit fear.

However, the fact is that we are dealing with a generation that has grown up with this digital revolution. Leading the way in the digital environment does not require an intimate understanding of the technology. It is not necessary to understand how a telephone works to appreciate its value. The digital environment is no different. Leaders have to work hard to overcome any cultural resistance. The shock and resistance will be greater still in more culturally conservative bureaucracies.

There are at least two reasons why it is important to succeed in the digital environment. The first arises from the reality that social, political and economic dynamics, such as the international student revolution, are contributing to the pressures faced by higher education providers. The same pressures are felt by CPA Australia, but not with the same intensity. Academics have had to

adapt, but with very little institutional support. Engaging with students through the digital environment, if done well, can relieve some of the pressures.

The second is that effective engagement should be key to any competitive strategy. US President Barack Obama provided a compelling illustration of this point when he used a sophisticated social media campaign as a key element of his two presidential election campaigns. He defied the pessimism in the traditional media and personally engaged with voters through Twitter, Facebook, Reddit and other platforms. Within minutes of claiming victory he tweeted his 22 million followers thanking them for their support.

This, and the many other examples that could be cited, show the power of the digital environment as a means to the ends of recruiting significant numbers, marketing and distributing to the masses, and harvesting honest and prolific feedback.

EFFECTING CHANGE

In conclusion, from CPA Australia's journey, six lessons have emerged as being vital to effecting change. The first is that the revolution needs to start from within. To effect a digital revolution it needs to be championed from the top. If the board and management do not appreciate the value that can be created through the digital environment, then they need to be helped to understand. Outsiders should be used to challenge the status quo and to effect change on the inside. The skill mix needs to change. At CPA Australia we look past seniority and form committees comprising people drawn from across the organisation who are experts in this area, and/or who have a passion for its possibilities. While it takes courage to break with traditions and workplace norms, the rewards make it well worth the effort. Silos need to be shaken up. Integrated governance arrangements need to be put in place to ensure the IT experts are communicating with those who are developing the strategy.

Second, we must provide entertainment value. To make the best use of the digital medium a different approach is necessary. It requires a focus on providing entertainment value – combining the activities of teachers with the digital platform in ways that entertain and, thereby, hold the attentions of students. *The Naked CEO* is CPA Australia's web-based 24/7, 365 day a year mentoring offer, that, through the power of the digital

medium, gives us reach to well over 220,000 students. With interviews and information that inspire the next generation of leaders and provide practical advice on jobseeking, career building and study, *The Naked CEO* also shares with its audience the insights of some of the world's most significant business leaders. There are a number of sections that deliver significant engagement and the most interactive element is the 'Ask Alex' section, which currently has 26,000 interactive hits.

Third, we must remember that it's all about the students. The focus should be on topics that engage the minds of students. They are the future and their interests can vary from those of academics. There should be less content and more opportunity for students to raise and debate topics of interest that are relevant to them and their respective programs. The digital environment provides detailed metrics in real time about who is interacting and on what basis. This provides CPA Australia with the opportunity to tailor information and advice to best meet the needs of students in the learning process.

Fourth, we must continue to engage with students face to face. It is important to inform students about what is available in the digital space. We should not assume that if we build an online capacity that students will simply engage. I regularly visit university classes to inform students about *The Naked CEO* and its relevance to their needs. It is essential that such a product is complemented wherever possible by physical visits and communication.

Fifth, we must be realistic and strategic. It is important to be clear about fit and where the greatest return is to be gained from using the digital platform. Engagement should be the driver not the technology. The question that should always be asked is 'why digital and not alternative media?'

Sixth, we must take a risk and not be afraid to fail. The final lesson is to be brave, not afraid to try different approaches. Leadership requires people to seek to achieve a vision no matter how difficult or complex. It is unrealistic to expect that projects will achieve desired outcomes without ongoing effort, persistence and self-belief.

The Case for a Global eConservatorium of Music Based in Australia¹

JOHN DUMAY, RALPH EVANS, KIM WALKER AND OLGA BODROVA

INTRODUCTION

This article outlines the case for the foundation of an Australian eConservatorium of music, offering aspiring musicians in Australia and around the world access to performers and scholars of international stature for online teaching, research and accreditation. In the present context the case outlined is designed to assist with the parallel understanding of business education through virtual and/or electronic means.

Currently, accounting education is under the spotlight because it suffers 'from the combined pressure of a large international student enrolment, high student-to-staff ratios, an inadequate funding model, and an ageing academic staff profile' (de Lange and Watty, 2011, p. 625). Music education suffers from similar ailments, and hence the quest to provide a new way forward.

The vision for the eConservatorium is to deliver high-quality flexible programs in music, with a blend of traditional and online teaching. Through strategic partnerships with key industry players, the eConservatorium targets market opportunities among Australian students of all ages, professional musicians and music retail consumers. The eConservatorium also supports existing national conservatoria by offering complementary specialist courses to incorporate into their music faculties.

We argue that the eConservatorium is a timely initiative supporting the Australian Government's drive to grow the nation's digital economy and increase the utility of the National Broadband Network (NBN). This is because it provides an opportunity to improve the delivery of regional music education, lead innovation in the fast expanding field of technology-based distance learning and enhance the global presence and marketing of Australia's current music programs while mitigating the impact of underfunding identified in the 2011 Higher Education Base Funding Review (Lomax-Smith et al., 2011). In addition to its own exciting potential, the eConservatorium will be a beacon for similar initiatives across a wide range of advanced education disciplines, in Australia and beyond.

Excellence in music is central to Australia's cultural identity and international status. It also represents a valuable sector of the economy, generating over \$6.8 billion in gross value, according to the most conservative estimates (Evans and Bodrova, 2011, p. 11). In addition to the performing arts, music education develops skills used in a wide range of other creative industries including film, web development and computer games (Hannan, 2003).

We see that with the emergence of new technologies and implementation of the NBN, Australia now has the perfect opportunity to develop a new model for music

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1. This article is based on the confidential report by Global Access Partners Pty Ltd, *The Case for a Global e-Conservatorium of Music Based in Australia*.

education and capture both economic opportunities for Australian students and Australian education exports. But unless we act urgently, we risk losing this opportunity because the current talent pool will diminish, and other countries will capture the opportunity.

The proposed eConservatorium will first focus on Music Education professional certificates, undergraduate and postgraduate teaching, expanding over time to offer solutions for the pre-tertiary sector, which remains a real challenge in Australia. Also, it has the potential to support the Australian Music Examination Board as a certified examination and training platform. The success of the new institution will be measured by the number of student enrolments over its first four years of operation, its international affiliations, diversity of faculty, philanthropic and industry contributions, quality of education and curricula innovations.

Seed funding is fundamental to the success of this venture. A strong capital base will allow the eConservatorium to concentrate on providing its core teaching services, invest in technological innovation and fulfil its potential to become the pre-eminent provider of world-class online music training and research.

BACKGROUND TO THE ECONSERVATORIUM

In early 2011, public policy think tank, Global Access Partners (GAP), invited senior representatives from academia, the arts, government, business and not-for-profit organisations to examine tertiary music education in Australia. The Tertiary Music Education Taskforce assessed the impact of the amalgamation of music conservatoria with universities in the 1990s as part of the Dawkins reforms, reviewed new reform proposals placed before the Australian Government and addressed specific challenges facing the sector in order to provide a meaningful and informed contribution to policy development (Evans and Bodrova, 2011, p. 8).

The taskforce report also outlined a low-cost plan to reform tertiary music education and offered a number of comprehensive recommendations for further development. It called on Australia to acknowledge the talent and economic potential of its musicians and stressed the importance of music education to the nation's cultural identity. The taskforce argued that equality of access to tertiary music education depended upon greater equality of access to pre-tertiary

music education, and recommended that pre-tertiary music education become a priority on the National Cultural Policy agenda. It suggested existing Australian conservatoria strengthen their relationships with each other and develop a framework to drive collaboration. Finally, it requested government action to rectify the funding model's inefficiencies and introduce incentives to encourage music teaching institutions to share talent.

Above all, the taskforce advocated the foundation of a specialist virtual music Conservatorium at the national level, to take advantage of the NBN, the Internet's fast-expanding cloud computing capacity and the latest developments in high-definition video technology. It saw an eConservatorium as a cost effective and sustainable complement to more traditional methods, which would reduce overheads, increase funding per student, and eliminate the problem of defining music research and performances in traditional academic terms. Additionally, it would help leverage regional educational opportunities for all students; generate international educational opportunities to meet niche interests with global expertise; and provide international visibility and participation in esteemed academic circles.

The taskforce saw the need for music institutions to develop specific methodologies for online music teaching and distance learning, and to conduct research into the impact of such online teaching on the quality of education.

In the wake of these recommendations, GAP brought together a Working Group of leading academic, government and business representatives in 2012 to oversee the development of a scoping study for the proposed eConservatorium, analyse market opportunities and outline governance and funding models, technical framework, mode of operation and reach. The Group was supported by three Federal Government Departments – the Department of Industry, Innovation, Science, Research and Tertiary Education; the Department of Regional Australia, Local Government, Arts and Sport; and the Department of Broadband, Communications and the Digital Economy. Interest from leading national and international companies included Telstra and Google.

The Working Group conducted a series of meetings in Sydney between May and July 2012 under the chairmanship of Mr Ralph Evans. The meetings were documented under the Chatham House rule of non-

attribution.² Participants attended in a personal capacity, rather than as official representatives of their respective organisations, while international observers offered their feedback by correspondence. The conclusions of the Working Group regarding the feasibility of the eConservatorium as a new model of tertiary music education were summarised in a confidential proposal submitted to the Australian Government in August 2012.

What the Working Group realised was that the world has changed. During this time, the Australian Government released the Gonski report into school education funding (Gonski et al., 2011), the principal recommendation of which was to increase funding by about \$5 billion per year. We see the Gonski report as an appropriate and thought-provoking document – if it had been written in 1980, not 2011. The focus of the Gonski report is propping up our legacy educational systems. Of course, most people are interested in propping up legacy systems because that's where they are comfortable. Legacy systems are solid, we know them well, and we have invested a lot of money in them. We have the infrastructure, so it is hard to throw it away. However, as can be seen by the response to the Gonski report, the Federal Government has not yet convinced all the states that they must bear some of the cost of propping up our legacy educational system (Blake, 2013).

The key to any business is customers. If you bring customers, you have a business. The key customers in the education system are the students (Dumay et al., 2008). The academic world invested extremely heavily in legacy institutions like buildings that need to be maintained and have done so sometimes at the expense of teachers and teaching. For example, in 2012, the University of Sydney faced a downturn in income and as part of cutting costs to fund works to legacy infrastructure enacted a redundancy of up to 100 academic staff and offering teaching-only roles to others (Metherell, 2012). Is this a customer-focused strategy? Is it forward looking?

The Working Group concluded that in setting up an elearning institution, the investment would be modest compared to setting up, for example, a new university. The eConservatorium could potentially be funded through sponsorship. Research shows that over 1.3 million Australians, young and old, are actively involved in music (Evans and Bodrova, 2011). It is a large market. Businesses can sell music to Australians, and they could pay the eConservatorium for the opportunity.

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2. See www.chathamhouse.org/about-us/chathamhouserule

WHAT IS DRIVING THIS PROJECT?

Proposals for the eConservatorium derive from addressing the recommendations of the Australian Government Higher Education Base Funding Review (Lomax-Smith et al., 2011) and the GAP Taskforce on Tertiary Music Education (Evans and Bodrova, 2011). As a result, the Working Group identified the following national, global and technology drivers (GAP, 2012, pp.10–11).

NATIONAL DRIVERS

- The tertiary music sector is unsustainable in its current form. It lacks adequate funding and is failing to deliver the breadth and quality of instruction that Australia's talented young musicians deserve
- Additional revenue streams must be developed to support music learning in both regional and metropolitan Australia
- Musicians require an avenue to complete degree courses while remaining active performers
- New accreditation programs with flexible learning technologies are required to increase the number and skills of Australian music teachers
- There are severe shortages of Australian teachers of certain musical instruments, forcing talented students to study abroad
- Students in regional Australia have limited opportunities to study music or increase uptake due to the shortage of available teachers
- Teaching models need to be redesigned to allow talented teachers to reach the greatest number of students while also improving provision of intensive one-on-one tuition
- There is both inequity and general inadequacy in the provision of music education to students in Australian schools. Individual talent remains unidentified while appreciation for classical music is underdeveloped
- Australian music education will substantially benefit from cost-effective avenues to develop joint ventures and partnerships of international scope and, as a result, increase its quality and market opportunities
- Australia will gain critical advantage by building a central repository of knowledge and music research available to teachers to share and encourage best practice.

GLOBAL DRIVERS

- Growing demand from Asia and elsewhere and fast-developing technology is encouraging the emergence of a plethora of online education schemes worldwide. What was once considered a niche channel for the delivery of educational content has rapidly become mainstream, offering wider access, new markets for content and expanded revenue opportunities for academic institutions
- Distance education allows domestic institutions to extend their reach across the globe. Universities in the US, Asia, Middle East and elsewhere, are already leveraging advanced technologies to put their services within the reach of students around the world
- Fast-developing economies in Asia, South America and elsewhere have large middle classes with the desire and ability to pay for high-quality cultural education
- A new generation of students are 'digital natives', who live much of their personal and professional lives online. They expect more convenient, diverse and flexible methods of education, using mobile, digital and Internet technology, in keeping with every other aspect of their lives
- The specialisation, customisation and convenience offered by distance education makes it an attractive proposition for working professionals and employers
- Music eConservatoria will inevitably arise, and Australian students will take advantage of them. The only question is whether the profits, prestige and capabilities will flow to Australia or elsewhere.

TECHNOLOGY DRIVERS

- The development of the NBN and the adoption of cloud computing will transform Australia's economy and society. Education cannot afford to be left behind as more modern and productive methods of delivery in all sectors overwhelm legacy providers who refuse to change
- The Internet and Australia's incipient NBN can now satisfy the heavy bandwidth demands required for real-time audio and video transfers. Technology and infrastructure continue to improve, and current constraints may erode over the next two or three years in Australia, given the implementation of the NBN, development of cloud computing and a new generation of video-streaming solutions

- Information technology will allow students in the regions to access teaching talent based in metropolitan areas. It will also create the ability to generate new income streams for Australian education by exporting services to the rest of the world. This, in turn, may allow talented Australian musicians, teachers and academics to stay in the country, instead of being forced to further their careers abroad
- Online connectivity is set to transform the delivery of higher education just as it has revolutionised retail, publishing, media and social networking. Imaginative companies are already profiting from services provided to the 'iPad Generation'.

HOW IS THE ECONSERVATORIUM DIFFERENT?

The proposed eConservatorium will comprise a new style of institution, based in Australia and complementing the services of existing domestic tertiary and pre-tertiary institutions, as well as building fresh affiliations across the world. Ideally, it will involve all of Australia's current conservatoria in time. In doing so, the lack of equity in the existing provision of music education for people living in remote and rural areas can finally be addressed. A national eConservatorium, networking a national and international pool of first-rate music teachers, would particularly benefit talented students living outside the major cities who are currently denied access to many instrumental specialists. The highest quality of learning will no longer be restricted to a privileged few favoured by geography. It will be possible for almost anyone, almost anywhere to study any musical instrument with expert instruction in their own home or community centre via television, tablet device or computer. Potentially, the opportunity to locate loan instruments for students will be significantly enhanced.

Students previously unable to attend a major conservatorium program, for reasons of finance, prior commitments or geography, will be engaged, while those who plan to attend institutions under threat or extinction will have a viable alternative. The eConservatorium will also offer employment opportunities to the skilled and experienced staff being shed from traditional institutions due to financial pressures. Thus, it is imagined that existing national students will continue to take their undergraduate degrees through the existing institutions, where

they pay a top-up on the Commonwealth supported place (CSP) allocation.³ However, some rare courses can be offered through the eConservatorium allowing the current institutions to rotate or reduce costly offerings. International and diverse niche market students, who are less mobile, will find this an attractive alternative.

The creation of the NBN should be seized upon to transform Australian tertiary music institutions by linking, consolidating and coordinating their teaching and resources to eliminate duplication, increase efficiency and maximise their potential to service Australia's music education needs. As a new business model, the eConservatorium will reduce costs and overheads associated with traditional models of music education delivery while increasing the number of students able and willing to study music.

Distance learning programs using modular systems in combination with short residencies for higher degree courses have been successfully implemented around the world. Examples include RDAM, the Manhattan School of Music Distance Learning, Walden University (using personnel from Harvard, Yale, Stanford and Indiana Universities and the Sorbonne), Boston University and the University of Phoenix, Arizona. Although radical in its conception and groundbreaking in its implementation, the eConservatorium will be seen in time to represent a natural progression in Australia's education system and the global classroom.

Moreover, the eConservatorium will both embody and symbolise the continuing importance and relevance of classical music today, not only in the lives of music-loving individuals, but also at the national and global level. By building an extensive archive of video learning materials, the eConservatorium will secure the rich legacy of the arts for a new generation through the application of modern science and technology. Just as sound recording made music permanently accessible to everyone at the start of the 20th century, online technologies can play a similar role in helping preserve the best of music teaching in the early years of the 21st century.

THE ECONSERVATORIUM'S VALUE PROPOSITION

The eConservatorium will be established as a separate entity utilising a virtual network of existing facilities. Modern technology will bring together the most talented students and most capable teachers to deliver both virtual classrooms of infinite size but the effective one-on-one instruction required through face-to-face and online methods. Also, beyond major world centres, there can be a shortage of properly qualified elite teachers. The eConservatorium's unique 'selling point' will be the quality of its professorial talent, while alliances with prestigious international partners will help establish the eConservatorium as an attractive brand in global music circles.

The eConservatorium will meet the emergent needs and demands of a diversified domestic market.

- Traditional undergraduate and postgraduate students will benefit from the application of technologies to support and accelerate their learning and performance capabilities. Concurrently, the eConservatorium will expand the potential student body from metropolitan Australia to much broader national and global audiences and will potentially result in higher completion rates
- Professional musicians who seek opportunities to expand their skill sets will be attracted by master classes with expert musicians, both over the Internet and face to face
- Music teachers seeking accreditation will be able to raise their competencies and professional standing
- K–12 students undergoing private music tuition will have an opportunity to join structured learning programs, while those previously unable to learn music due to the lack of opportunity, resources or geographic considerations will be able to access music tuition. The eConservatorium can also serve as an AMEB-certified examination and training platform
- Music lovers of all ages in the community will be able to access non-award courses and benefit from the rich informational resources the eConservatorium will build over time
- The eConservatorium will provide immediate access to emerging research and global innovation.

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3. A Commonwealth supported place (CSP) is a higher education place for which the Commonwealth makes a contribution towards the cost of a student's education. The student also pays a contribution amount, which varies depending on courses undertaken, at rates approved by the university within ranges set by the Commonwealth and indexed annually.

The eConservatorium is proposed as a device-independent, universally accessible platform, combining new and established technologies. Access will require only a browser interface and broadband connection. With most of the innovative technology to be utilised by the eConservatorium's providers, rather than its consumers, there will be few entry barriers to anyone wanting to take advantage of the program.

Income will be generated under the current structures for Australian enrolments, including both the current undergraduate base funding and postgraduate completions. The eConservatorium's new model of governance and provision will ensure the continuity and sustainability of programs currently struggling under current Australian university funding and administrative arrangements.

ANTICIPATED OUTCOMES AND BENEFITS

A national eConservatorium, catering to students of all ages and backgrounds, no matter how remote their location or underprivileged their circumstances, will not only ameliorate many of the existing pressures in Australian music education, but support the Federal Government's wider agenda of social inclusion, increased opportunity and technological advance for all. Through online connectivity, the rapid development of information and communication technologies and changing needs and expectations of modern students are driving the emergence of new business models and fresh methodological approaches and the eConservatorium, as a 'centre of excellence', will form the frontline for such developments in music education.

Through the smart use of technology, the eConservatorium can improve the economic efficiency of music teaching and learning, unlock new revenue streams and expand current educational offerings to new and increasingly global markets. It will also build Australian expertise and know-how in innovative uses of teaching and learning technologies and tools, which can then be leveraged elsewhere. Additionally, the eConservatorium will foster cooperation within the Australian tertiary music sector, create improved and collective resources and enhance current programs by supplying performers and scholars to complement existing faculty and student profiles, particularly in terms of rare instruments and specialty scholars.

It will lead a new generation of interactive online degrees in which contextual education is combined with practical, tactile, creative and analytical skills, in contrast to earlier distance learning programs forced by the limits of their technology and vision to restrict themselves to dry theory and mass-produced content. The syllabus will be modelled upon those of contemporary universities in North America and Europe, which have already embarked on the elearning revolution. Students will enrol in a certain number of modules to suit their interests and abilities with rigorous minimum requirements required to complete their chosen, individually tailored, course.

The broader benefits to be realised through the eConservatorium project include:

- Sustainability of the sector within government provision of existing services by increasing external revenues
- Increasing community participation and access by raising the profile, standing and accessibility of music programs in Australia
- Developing teaching and learning experiences for academics and students
- Optimising the productivity and documentation of teaching time
- Supporting teaching excellence and improving the quality of Australian music graduates
- Developing courses involving world-class international contributors
- Controlling costs and better utilising existing facilities and resources
- Meeting increasing demand from domestic and international markets
- Supporting Australia's national and international education and arts strategies
- Pre-empting international competition through building alliances in Asia, Europe and the Americas
- Broadening educational opportunities through online study of traditional music and specific discipline areas such as indigenous studies and 'world' music
- Mitigating the duplication of resources
- Generating revenue for the current institutions
- Effective international marketing for the Australian music education sector
- Elevating the status of the music teaching profession in Australia.

RESEARCH IMPACT

While the eConservatorium is focused on delivering a dynamic learning experience tailored to its students' specialised interests, the eConservatorium will also undertake research projects to advance the profession. It will encourage a diverse set of options, from PhD projects to broad interdisciplinary ventures. Importantly, credit for work with primary sources of people and places around the world will be recognised and made accessible through telepresence, independent study and travel.

Through innovative technologies, global library connections and research affiliations, students will enter a new domain of learning and enquiry. The eConservatorium's discovery portals will offer a range of learning and research opportunities, from archival material to live virtual retreats and seminars and such opportunities will expand as the technology develops. Expert supervision and external assessment from eminent faculty, from within Australia and abroad, will be enhanced.

ORGANISATIONAL AND INDUSTRY IMPACT

Just as Internet services such as Amazon have come to dominate the retail market by flattening supply chains, reducing traditional overheads and offering quick, convenient and above all highly tailored personal service, so the eConservatorium has the potential to revolutionise the structure of high-level tertiary music education. The eConservatorium will lead this much-needed change by example in the traditionally conservative education sector. Music departments are currently bound by the enormous overheads incurred and charged for by the main university administration. These rates can reach as high as 72%, as currently at The University of Sydney, and the ongoing costs and provision of performance facilities and highly expensive musical instruments and equipment further burden already constrained and compromised budgets. By contrast, the eConservatorium will allow students to study with the best teachers in the world while practising on their own instruments in their own homes or schools. Just as the outsourcing of computer or administrative services allows businesses to save money and concentrate on their core activities, so the eConservatorium will prosper by selectively outsourcing its teaching and supervision of research.

Alliances and partnerships will become the norm, rather than the exception in enabling a demand-driven business in a revitalised education sector. In meeting the demands of under-served domestic and fast developing international markets, the eConservatorium will create joint ventures and partnerships with individuals, other institutions and public and private sector organisations to provide a model for developments throughout the sector. The successful implementation of the eConservatorium will encourage Australian entrepreneurs and other educational institutions to replicate its impact in other subject areas, including business and medicine.

The eConservatorium will also prompt the re-design of teaching methodologies for the modern age. 'Sitting at the feet of the master' has long been regarded as the optimal teaching model and a substantial proportion of existing teachers tend to resist even looking at how technology can support alternative, technology assisted pedagogies. However, the world is increasingly going digital, and change is inevitable. Teachers will need to embrace a significantly different approach to teaching, and experience gained through the eConservatorium will help prompt wider cultural change.

Just as film and television are increasingly 'time shifted' and distributed online direct to people's homes or mobile devices, so the eConservatorium will drag education into the modern, distributed, on-demand age. Given the large and currently untapped markets it will enter, and its much lower cost base, the eConservatorium will be able to reinvest its returns by continually updating and expanding its technology and lead innovation into the future.

The eConservatorium can also play a key role in pre-empting the creation of inferior projects by individual operators by offering a high-quality, consolidated product tied into Australia's existing tertiary provision. To be globally significant, it has to be the best that Australia and our affiliates can provide.

CONCLUSION

The teaching of music performance is a niche within higher education. It is expensive under the current legacy university structures, being time-intensive and requiring specialists in up to 50 areas to provide a base curriculum. This is challenging for the largest nations but especially so for Australia, with its small population grouped mainly in a few large cities located well apart from each other.

At the same time, a global revolution is underway in the delivery of education. Many of the world's leading universities are now offering online degrees or course modules. As such, this paper proposes a solution to many of the problems of Australian music teaching using the technology of the education revolution. It proposes an Australian eConservatorium of Music for aspiring musicians at tertiary and pre-tertiary levels, which will also offer community courses for people who live away from the main centres. The eConservatorium will provide unparalleled access to performers and scholars of international stature to help improve outcome for music education, research and the industry and it will do so at lower cost. In addition, it will be a pilot to test and demonstrate teaching approaches that can later be applied in larger education sectors, such as medicine, law and business.

Wrong decisions like investing in legacy systems beyond what is necessary have the potential to stifle progress while at the same time represent an inefficient use of resources. While we have to maintain much of what we have, equally we have to manage the transition to new ways of enabling education. As such, new initiatives such as the eConservatorium have to be started on new foundations.

While this paper does not directly address accounting and business education, it is useful because it can help encourage dialogue regarding current and future curriculum design (Evans et al., 2010, p. 11). Using the eConservatorium as an example it shows how academic educators need to open their mind to utilising technology to deliver quality-focused accounting and business education. As at 2012, there was still a shortage of accountants although the gap between market demand and supply was narrowing (Lloyd Morgan, 2012). However, there is an ongoing trend for accountants to specialise in areas such as superannuation, sustainability and strategy thus opening opportunities for accounting education providers to deliver ongoing skills training to aspiring accountants and those already in the workforce. For the former, it will allow greater access to accounting education external to the university, which could possibly free up some time so they can gain some work experience and position themselves better against other graduates following the traditional accounting education pathways. For the latter, these accountants are less likely to be able to attend traditional university classes based in legacy university campuses. What they desire is a more flexible and timely education, that gives them these skills and accreditation today in specific accounting subjects rather than over the course of two or more years of study.

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Social Media and Thought Leadership

NATHAN GRAY AND JOANNE TINGEY-HOLYOAK

The Centre for Accounting, Governance and Sustainability (CAGS), University of South Australia and the Institute of Chartered Accountants Australia (the Institute), each February for the past four years, have been involved in a successful annual thought leadership activity (Evans et al., 2010; 2011; 2012). The activity involves three key elements: (i) a face-to-face meeting at a forum for one day of approximately 80 selected local, national and international thought leaders on critical issues associated with the accounting profession and its future; (ii) the recording (audio and visual) of presentations from selected presenters and questions from participating members and subsequent transcription, which forms a foundation for an annual publication of key matters raised and possible solutions; and (iii) the extension in 2012 and 2013 of the Forum to include social media, in particular, the utilisation of Twitter by members of the audience and those in the virtual hinterland of thought leadership and debate.

At the commencement of the Forum, the Twitter feed began with a variety of tweets including:

@CAGSUNISA The forum is about to kick off, and we will be live tweeting and microblogging the event. Join the discussion. #virtacctg@Chartered_Accts

@NathanHGray @CAGSUNISA @Chartered_Accts @JamesGuthrieCA @RogerBurritt looking forward to the forum today on the virtual university#virtacctg

@JamesGuthrieCA Our forum on virtual unis in business edu will soon kick off with@cagsunisa. Follow us #virtacctg; we'll be posting highlights all day.

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A thought leadership forum can be assessed by several measures. First, does it receive sufficient sponsorship and funding to cover its costs? Interest in the fora has been growing over the years. In 2013, in-kind support was provided through logistical management by CAGS and the Institute and cash sponsorships/support from CPA Australia, Adelaide, Deakin and Flinders Universities, the Australian Business Deans Council and the Business Higher Education Round Table. Participation was free to people invited to present/attend.

Second, does the Forum present a strong message to the stakeholders of the parties involved – practitioners, policymakers, academics, students as potential graduate entrants? One of the key intentions of the fora is to engage academics, practitioners and policymakers in debate and discussion with a view to developing contemporary pathways towards solutions to emerging challenges. For example, in a face-to-face mode, academics and practitioners can engage in verbal jousting about the issues at hand, but the audience is limited to the number of people present – a situation resembling classic university education through a tutorial, lecture or seminar. Another intention of the fora is to publish proceedings, and the fora achieve this through the publication of an annual *Academic Leadership Series* of a journal containing a number of articles relating to presentations made (Evans et al., 2010; 2011; 2012). In essence, the publication is rolled out and launched in July at the *Accounting and Finance Association of Australia and New Zealand* annual conference and other events during the year. The publications are available as ejournals on the CAGS and Institute websites. But the target audience remains quite small, with only 500 hard copy publications being printed and an unquantified number of downloads occurring. Here the analogy is to readings in class or an online course being offered as part of the education of a graduate. Finally, there is the presence of new social media, in this case Twitter. Development of this recent addition to the forum communication arsenal in the context of the 2013 Forum is examined briefly next.

Social media are often discussed in terms of Facebook and Twitter usage, yet many people within the accounting and academic communities are less than aware of the full capabilities of social media for propagating ideas, encouraging and fostering debate, or engaging with a broad audience. Accounting has been critiqued for merely using social media as a way to distribute monthly newsletters while academics are called to account over their fear of loss of control of their intellectual property (King, 2012; Warwick, 2013). Accountants do now recognise that the social media space is much more than Facebook and Twitter, with new platforms emerging in recent years. These satisfy the self-publicising, discussion-engaging, and personal

vanity of Internet participants. Many around the world use platforms such as LinkedIn (primarily a business networking community), Instagram, Tumblr and Pinterest (photo and micro-blogging templates), and YouTube and Vimeo (video sharing platforms) – some of the many emergent social media platforms commonly available through the Internet. Diversity of these social media platforms indicates that each has a unique value proposition to which the broader online community can subscribe, which correspondingly demonstrates the importance of engaging with the target audience on the most appropriate platform.

The accounting profession has conventionally been viewed as conservative and careful in their attitudes. As a consequence, engagement through social media may seem less than a natural fit. However, the next generation of accounting graduates, clients and students are discussing ideas, engaging with, and broadcasting, using this medium. As a consequence, accounting firms, practitioners, academics and education providers are increasingly developing engagement strategies for social media. For academics, currently, there are no reliable statistics about the use of Twitter and its value for academic communication, which is a critical area for future research (Weller et al., 2011). However, many academics and accounting professional bodies such as the Institute, CPA Australia, and Tier 1 accounting firms such as KPMG and Ernst and Young, all have a variety of social media platforms enabled, including LinkedIn groups, blogs and Twitter feeds.

In Australia, there has been a slower uptake of social media engagement in the accounting and academic communities, which can be demonstrated through the number of followers of KPMG US compared with KPMG Australia. The US LinkedIn page has over 215,000 followers, who receive daily and weekly updates and news links, while the Australian KPMG LinkedIn site has only 3,000 followers. Despite the obvious differences in the populations of the two countries, the latest global research shows that Australia is the top social media user in the world; however, the significant gap in social media use between the Australian and US accounting professions is indicative of the slower uptake within this subset of the Australian community (Nielsen, 2012). This

comparative engagement with social media amongst Australian institutions and US institutions is reflected across the accounting and academic community in early 2013. These different levels of engagement do, however, point to the emergent demand for better engagement through social media in Australia. As a consequence, in line with social media trends in the US, it can be predicted that the use and application of social media platforms such as Twitter and LinkedIn to engage with stakeholders in Australia will continue to grow.

The use of Twitter to engage in thought and discussion has increasingly been adopted by television-based fora such as the Australian Insight and Q&A programs, where an online audience is encouraged to participate in the debate through the use of a common hashtag. The audience can thus actively participate and be engaged. Increasingly politicians are turning to Twitter to comment on the proceedings of Parliament, to further engage with constituents and other stakeholders. During the Forum, there was live 'tweeting' and micro-blogging of the presentations on the Twitter platform. Micro-blogging comprised a succinct description or discussion point raised during presentations in less than 140 characters. Examples of this micro-blogging of the live presentations from the Forum included:

@CAGSUNISA @rossdawson #virtacctg modular just-in-time learning this is the future of education. comes up when it is needed. Maximum adaptability

@PaulWappett @rossdawson #virtacctg likens knowledge to the ability to surf, whereas information is just a book on how to surf...

@yasser_elansary 'Knowledge not information'. Modules of learning delivered JIT to assist with workflow. Thoughts from @rossdawson at #virtacctgtoday.

These tweets used the #virtacctg to catalogue and link the discussion to other commentators who might want to engage in the discussion. The combination of micro-blogging and the hashtag indicator allowed a discussion to emerge from both within the room during the Forum and from outside, where comments and questions could be raised, re-tweeted (where a Twitter user forwards the comment onto their followers), or questions answered. The Twitter feed was displayed on a screen near the speaker, so the attendees could follow and actively participate in the discussion. Many of the presenters to the Forum were actively tweeting their involvement and participating in debate, with examples such as:

@rossdawson Virtual Universities: Impact on Accounting Education conference#virtacctg in Adelaide starting now – my keynote in a minute, will blog later

@JamesGuthrieCA I've just opened the forum with @rogerburritt @cagsunisa. Looking fwd to a great day of discussion about the future of eLearning#virtacctg

The virtual debate was stimulating. Watching live Twitter engagement from internal and external participants unfold on a big screen is something for holders of thought leadership critical academic and professional event managers to consider. This occurs on multiple levels – not just internal stakeholder engagement and entertainment, but external stakeholder engagement and seduction. An example of this debate on Twitter amongst attendees at the Forum included:

@CAGSUNISA #virtacctg if staff don't change and adapt then there may be limited opportunities in the future ... Strong words.

@mastersofdavid Susan Lambert – the hybrid university (trad vs virtual) is not a happy place, too resource intensive, doing too much #virtacctg

@Scott__Copeland @CAGSUNISA @mastersofdavid as an educator we need to be clear who the value add is beneficial to. Students? Employers? Community? #virtacctg

The depth of the discussion on Twitter extended to a diverse range of contributors, including some from the US:

@jdumay Peter Fritz, the most relevant and entertaining presentation today. Education driven by intangibles not legacy infrastructure. #virtacctg

@EmeraldAcademic You might be interested in the following challenge to Clay Shirky: <http://followersoftheapocalyp.se/shirkymooc/> Good debate #virtacctg

@JimSpohrer @LouisSoares “@rossdawson: universities being disrupted by MOOCs like music industry was by MP3s <http://bit.ly/UCFO14> #virtacctg” from South Coastside, CA

.....

At the conclusion of the Forum, the discussion on Twitter had become the second most discussed topic, and was comprised of more than 375 unique tweets about the event, and another 300 re-tweets. The success of the micro-blogging and Twitter discussion is a good demonstration of the ability for social media platforms such as Twitter to broadcast messages, ideas and concepts to a much wider audience that might normally be expected with traditional accounting conference audiences or academic publishing in journals and books. The success of this live tweeting and micro-blogging of the Forum was celebrated on Twitter with the following tweets:

@stevenwoolhouse An outstanding group of presenters today. Well done to all involved.#virtacctg

@LeeWhite_ICAA Interesting discussion today at #virtacctg. Technological advances will definitely impact accounting education and training@chartered_accts

.....

Ultimately, the interactive discussion between people in the Forum during presentations, and input from people outside following the feed in the Twittersphere demonstrates the potential for the profession, including educators, to become more conversant on social media platforms, and more effectively engaged with policymakers, students and practitioners alike.

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The Virtual University: Where to from Here?

SHARON WINOCUR AND LOU COENEN

INTRODUCTION

One objective of the recent Virtual University Forum was to contribute to the emerging task that virtually every business school and educational provider now faces – the re-evaluation of their value proposition in the current high-tech, international educational landscape. This task has become more complex because, over the last five years, this landscape has changed dramatically, especially in light of increasing competition for students and research grants, coupled with decreasing government funding.

The competitive scale has grown from the traditional local university to worldwide, on-demand delivery by online educational providers. The playing field and number of competitors have been dramatically widened – even the characteristics of the individual student have changed. Professional accreditation bodies obviously have an active interest in this process and have already signalled their willingness to be a part of the process.

The message from the representatives of the Australian accounting profession, Alex Malley (Malley, 2013) and Lee White (White, 2013), is that the educational model is changing and so must the thinking around it. Malley (2013) refers to the need to be at the forefront to influence the importance and relevance of the profession. White (2013) emphasises how the profession needs to show good leadership about engagement with future generations. The professional bodies want to contribute to the discussion of how they can operate most effectively in this new global environment with technology at the centre.

This paper will cover several of the major educational issues emerging from the Forum, their implications especially for the accounting profession, and provide some constructive suggestions as to how to deal with them effectively.

MASSIVE OPEN ONLINE COURSES AS PART OF THE EDUCATIONAL LANDSCAPE

Massive open online courses (MOOCs) are currently probably the most discussed topic in university educational circles today. This is understandable given the 'perfect storm' environment of global technology networking tools, especially social media, the ubiquitous presence of the Internet among developed and developing countries, the social demand for advanced education anytime, anywhere, the rising costs of providing and acquiring advanced education, and the active involvement with some of the world's most prestigious universities. As a result, a great number of the issues surrounding MOOCs are documented and were addressed throughout the Forum.

THE ONLINE EDUCATIONAL PROCESS – DISRUPTIVE OR ENABLING – AND FOR WHOM?

One transformative effect of the Internet is what has been termed the 'democratisation of knowledge' (i.e., information/knowledge is available to anyone at any time, and in any location) as long as they have Internet access. This is not really new to universities as open access and the publication of data are fundamental features of the academic model. However, the Internet

removes the ability for any organisation to control the dissemination of information. Knowledge dissemination is basically unfettered and available to all, as WikiLeaks has demonstrated.

Just as information/knowledge is now readily accessible, so is its transmission by anyone with the necessary platforms interested in delivery. As Tom Friedman pointed out, the world is flat (Friedman, 2007). Perhaps one of the most significant changes in educational provision is that traditional providers such as universities have instant, global reach; the higher education sector is no longer reliant on a particular location with the attendant costs of bricks and mortar. It is just as easy for a Melbourne-based university to have a 'live presence' in Boston as it is for a Boston-based university to have a live presence in Melbourne.

Possibly of even greater importance is that universities have now been joined in the marketplace by a wide array of non-traditional education players with quality, specialist knowledge and capabilities that range from research, teaching, coaching, assessment and accreditation, which historically were exclusively provided by universities. The list of both national and international profit and not-for-profit specialist providers expands daily.

This 'unbundling' of long-established activities formerly conducted within the confines of traditional universities may be seen as 'disruptive' to higher education institutions. But they can also be viewed as enabling to the many new worldwide market entrants providing services and the many new registrants using them.

THE IMPACT ON TEACHING APPROACHES

Another effect of this technological knowledge explosion is the impact on the *modus operandi* of university teaching. The practice of knowledge transfer has historically been confined to a physical lecture/tutorial format, emanating from the experts to the students, followed by further student individual or small group research and discussion. This format has been 'flipped' by the resources now available through MOOCs. Rather than waiting to receive the information, the material is available immediately online, and students are expected to be familiar with the content in order to use the online 'class time' to consolidate and enhance their collective understanding.

Several MOOCs emphasise the value of interaction through a range of social media tools such as Facebook, Twitter and Skype during 'class time', despite the reality that thousands of students may be participating simultaneously throughout the world. Other MOOCs are primarily lecture-based with group interaction provided through mentored projects and workshops that are driven through social media.

Teaching represents the most concentrated focus of MOOCs, but several benefits are beginning to emerge in the research domain. The ease of access to data allows more immediate and rigorous interactions among researchers, global research collaboration, and better use of resources by both academics and students alike. Online publication reduces delays, which in turn fosters more efficient progress of research activities. Publishers are starting to make ebook versions of course materials at substantially lower prices because they have lower costs. All of this is viewed as 'enabling' and supportive of research.

There is no doubt that the verdict on the educational experience and quality of learning using the MOOCs model is not yet in and that educational challenges are being addressed daily. However, the higher education environment in 2013 is now much more diverse than it has ever been before. Also, as demonstrated by the exponential growth in active participants, many welcome the MOOC revolution as an innovation in teaching and learning. The rapid growth of Coursera's registrants to over three million students indicates that there is a demand. It should also be noted that many of these registrants may or may not be as concerned about certification as the traditional university student.

THE DIFFERENT TYPES OF LEARNERS IN 2013 AND THE FUTURE

It is important to examine the various types of learners that the wide array of online educational material targets. These materials are presented in such diverse formats as blogs, journal and news articles, videos, webinars, as well as full MOOC courses. Some are of a high standard while others are not. However, they each target one of two primary demographics. The first demographic encompasses those who require certification of their knowledge acquisition, usually for their future or current employment. This first group includes the traditional university student who needs the diploma, as well as the professional who must similarly demonstrate

their continuous learning through assessment and certification. Such individuals include accountants, doctors and other medical practitioners, commercial pilots and IT technologists, among others. The second demographic encompasses the life-long learner who wants to gain knowledge, but does not require any form of certification or even completion of the course.

THE POTENTIAL OF THE WIDER DEMOGRAPHIC

The traditional student will typically complete their active university involvement in their mid- to late twenties. They have acquired specific knowledge, as well as assessment and certification of that knowledge, for employment purposes. In the emerging educational landscape, many of these new, non-traditional educational formats target not only this basic assessment/certification demographic, but also target the far larger demographic of those who are interested in their own development. This group may well have a more ambivalent view on needing or even wanting formal assessment and certification. This represents a much larger potential opportunity for all involved as it covers those who have left the traditional academic environment but want to keep 'learning' for the rest of their lives. It may well represent a 'blue ocean' opportunity.

COMMUNICATION IS A KEY REQUIREMENT

There are vast differences in the experiences of the global university student population as well as common experiences, regardless of location. Crucial to effective learning at every level – whether in a university or 'independent' environment – is interpersonal communications with others who are sharing the same learning experience. This is where social media tools mentioned earlier expand on the non-class-time discussions of the past. Ross Dawson, at the Forum, remarked: 'As we connect these pools of deep knowledge around the world, we are seeing the emergence of what can be described as a "global brain", similar to the notion of collective intelligence. It does not really matter whether technology is changing behaviour or vice versa; whatever is the causal relationship, the outcome is that information or knowledge, communication and technology are indivisible component parts'.

HAVE THINGS REALLY CHANGED?

The revolution surrounding MOOCs, according to Paul Wappett (Wappett, 2013), is all about what educators are learning about today's learner who may or may not be technically savvy but who also could be anywhere in the world and wanting to participate as they have time available. The size of MOOC classes (some in excess of 150,000 registrants) is providing massive amounts of data, which, once analysed, promise valuable insights into the way today's students learn. Anecdotal evidence indicates that there are possible differences from the way that other generations or cultures learned in the past. It may be necessary to review some fundamental principles as well as reinforce conventional wisdom by utilising new tools in the process. All these are possible as a direct result of the introduction of MOOCs and other online educational assessable programs.

WHY MOOCs ARE DIFFERENT

The first difference of MOOCs is their open access – they are available to anybody, anywhere, anytime. Open access is a hallmark of MOOCs and contrasts with university offerings, because MOOCs do not present any barriers to participation.

Potentially more crucial, MOOCs distinguish educational process from outcomes; studying and graduating are obviously related but comfortably exist as separate entities run by different organisations. This means that everyone with Internet access is a potential learner, whatever their geographic location, whatever their demographic characteristics and whenever they have time. The opportunity to improve the teaching and learning experiences of this vast global population of learners is almost beyond comprehension. The decision to pursue a credential (or a 'badge' in MOOC parlance) is separate from the study process and becomes the domain of another entity created for this purpose.

A second difference is that the learning model no longer relies on the subject/unit as the learning unit, but instead uses smaller chunks of information as learning tools for comprehension. The individual learner manages his or her advancement. The dynamic is to learn, comprehend and then progress from one information chunk to another – however long it may take. The pace has been designed to integrate both the learning and the technology. It can be 'personalised' and, depending on the provider, may offer opportunities for feedback

and support. This model is already in place for classes numbering in the tens of thousands of students. This is only one example of how MOOCs operate differently from current online teaching options commonly offered by universities.

Third, the principle of interaction that is central to good learning should not be dismissed in a MOOC environment. The customisation of the learning process is being studied closely and there will be empirical data to identify any benefits and flaws arising from the dynamic feedback loops operating. Both learning and accommodating the individual learner are central elements to the model. The collection and analyses of so much data will contribute a great deal to the knowledge store about the learning process. The evaluation of this new learning methodology is a work in progress that will include metrics dealing with quality and competency. For these reasons, it is important that professional bodies such as those in accounting are active participants in this new learning model so that quality is not compromised.

WHAT ARE THE RAMIFICATIONS FOR THE STUDENT-CENTRIC UNIVERSITY?

It is evident from the speakers of the Forum who attempted to focus on the teaching of business-related subjects and the impact on the accounting profession, that the topic of MOOCs is much bigger. The issues really are about how technology is transforming all levels of education and is driving a review of what the university offers and how it delivers.

Historically, knowledge and expertise have resided in universities because they were established as a place for experts and learners to gather. Selected students traditionally travelled to the universities to be educated. It is only within the last few decades that this tradition has changed with universities setting up multiple campuses to accommodate student locations both nationally and internationally.

The Internet has done away with such a limited perspective of the university with a physical campus, by enabling both the physical and virtual models to operate simultaneously. The teaching process and subject matter content are centralised, but the access to this teaching and content knowledge is accessible to any student, anywhere and at any time. The virtual university aspires to offer an alternative methodology and deliver the

same outcomes – education, the exchange of ideas/knowledge, research – as the traditional university. These approaches are no more mutually exclusive than is the traditional lecture to a tutorial. Each has their own situational advantages but while they are substantially different, the intended outcome of quality knowledge transfer is identical.

THE BUSINESS OF EDUCATION

Universities are more than educational institutions. They are communities, and they are also businesses. These businesses employ large numbers of staff, offer a range of facilities and deliver services to customers (i.e., students as well as other related stakeholders). Traditionally, all of this has been managed from the geographic location that is the university or the campus. The virtual university challenges this operating paradigm, including how qualifications are granted. It is not the university, but the traditional university-operating model, however, that is under scrutiny. Universities have always had a near monopoly on the granting of qualifications. Alongside the professional association, they occupied an important place as gatekeepers for the professions. Now organisations, other than traditional physical universities, may be able to become licensed as providers, with educational services available at any time and in any place. Also, there is a very large demographic who do not care about receiving a qualification – they just want the knowledge for their own growth and development. The competition in the market amongst suppliers is now becoming unlimited.

WHY ARE MOOCs SO ... MASSIVE?

As discussed earlier, there is no shortage of learners who have many different reasons to study. Most younger students seek accreditation or qualification that offers competitive advantage when entering the labour market. However, since there are few degrees currently available through virtual study, what is attracting the hundreds of thousands of people signing up? There are a variety of reasons for MOOCs' popularity: convenience, brand recognition of the initiating universities, novelty, no requirement to commit to complete, and the fact that they are free means that MOOCs are easy options for study. The analysts will tell us that there are a variety of cohorts choosing MOOCs: tertiary students who want different perspectives than those being presented in their classes, professionals wanting to build on their

existing knowledge, retirees with time and newfound interests, any individual who has time or is restricted by geographic location, among others. In every case, whatever their demographic, MOOC students are comfortable using the Internet and are willing to try a new approach to learning. The exponential growth in enrolment numbers is interesting because it shows that there are so many people who are willing participants in this different style of education and learning. This high level of activity is also contributing to the constant improvements that are facilitating the communication and teaching process.

CONCLUSION

In conclusion, there is no immediate threat to bricks and mortar universities; higher education will adapt to the new environment. As Susan Lambert noted at the Forum: 'the university has to decide what business it is in. What value is it adding that can perhaps give it a competitive advantage? For any business we've got to work out do we offer a product, a service, a combination of those things, or basic information. Once we've established the thing we can supply in the value network, we've got to work out who we are going to offer it to. We need a customer of some sort. If no one is going to be interested in it, well we are going to go out of business before we even start'.

This is the task at hand, and it should be undertaken carefully and thoughtfully, and as soon as possible. The risk is that if Australian universities progress too slowly, subjects such as those in business may be left behind by students enrolling in increasingly sophisticated MOOCs from other universities in other countries. This is especially true for international students who have access to MOOCs that are available in their native language.

Another risk is that government intervention may overtake university initiatives. The Coalition's Online Higher Education Working Group is already reviewing how universities can capitalise on the potential of online learning. In a paper just released by the Go8, MOOCs are referred to as having the 'potential to increase both the efficiency and effectiveness of teaching by making information available easily, widely and for free' (Go8, 2013, p. 10).

Cost-saving alone is an unsound basis as the 'best method' to deliver higher education but equally, the implementation of online education may facilitate a broader spectrum of education that can be provided to anyone, at any time and in any location. It is in this area that Australia was one of the earliest pioneers.

The pace of change is accelerating as the Internet, its users, university customers and competitors are all changing as the world around us transforms. The content of the study of accounting in the 21st century is vastly different than it was 20–30 years ago. Also, the process of teaching is vastly different. This Forum has offered a range of insights into new models of teaching and learning. Academic leaders and professional bodies need to determine how to deal with these new forces, as will our 'customers' and other stakeholders. Different universities will adopt different strategies but the principal message from the Forum discussions is that choices will need to be made.

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PART B

ACADEMIC RESEARCH

The articles in this part of the volume are scholarly in nature and peer reviewed. They contain cutting-edge thought leadership research on the subject of the virtual university, a field that is very new in the research literature.

Business Models for the Virtual University

SUSAN LAMBERT AND AMANDA CARTER

INTRODUCTION

The current trend towards the digitisation of tertiary education (Weller and Dalziel, 2007) and the virtual university (Vignare, 2009; West and Daniel, 2009; Razavi et al., 2011) raises questions about the ongoing quality of accounting education and the potential benefits that might arise from enhanced education delivery (Kohlmeyer et al., 2011). University-based accounting education is one of the pathways for entry into the accounting profession in Australia and New Zealand, and develops a range of generic skills and basic technical knowledge required for graduate recruitment and further education through the professional programs. Increasing online delivery can cause significant additional costs and act as a barrier to more traditional educational activities that enhance learning. Exactly how the digitisation of education might affect university business models is largely unknown. However, in this paper we propose that, with the use of a basic business model framework, the implications of digitisation for universities and other stakeholders in the tertiary education sector can be modelled.

A business model explains how an enterprise creates and transfers value to its customers and what it receives in return, what information technology, human and physical resources and competencies are required and how the enterprise interacts with other stakeholders in the value network (Al-Debei and Avison, 2010; Baden-Fuller and Morgan, 2010). An articulation of the business model, both pre- and post-change allows us to see the implications of the change on an organisation and the rest of the value network.

The focus of this paper is on the repercussions for the university business model and other stakeholders in the tertiary education network that might arise from the digitisation of education. The tertiary education sector can draw on lessons from other industries that offer intangible products and services, which can be easily digitised. New opportunities and threats may arise that can impact on a university's ability to compete in the digital environment along with other entities that operate in the tertiary sector including policymakers and the professional bodies. One of the things learnt from other industries such as the music industry and newspapers, is that it is not just one entity that is affected by the Internet; rather the whole value network changes and in ways that we are unable to imagine at the time.

This paper proceeds as follows. In the next section the university is considered in terms of traditional (on-campus, face-to-face delivery), 'hybrid' (combining face-to-face/on-campus delivery with online resources), and virtual (online delivery only). The business model of both hybrid and virtual universities is then discussed.

Attention is then turned to the tertiary education sector at large, the business models of other enterprises in the sector and their impact on university business models. Finally, the relevance of virtual universities for the accounting profession, and the accounting profession's role in the evolution of the tertiary education sector are explored.

UNIVERSITIES IN AN INCREASINGLY VIRTUAL ENVIRONMENT

The university has a long and distinguished history as a centre of higher education and learning. The model for delivering education has, until recently, remained largely unchanged: face-to-face classes, diligent out-of-class study by students, and regular assessment of learning. However, with the development of new technologies, particularly the Internet, the accessibility of university education has broadened, allowing students who might normally be unable to attend a campus, to engage in learning (Collins and Halverson, 2010). In addition, the Internet has allowed for the more efficient distribution of course materials to on- and off-campus students, as well as new fora for discussion and interaction. This Internet-based potential is now being revealed in the launch of massive open online courses (MOOCs) throughout the world. Anyone can now attend Harvard University, so does this mean that the traditional university model is dead?

With education delivered face-to-face at one end of a continuum and online at the other, universities can be categorised as traditional, hybrid and virtual (online). Traditional institutions make little or no use of the Internet to deliver their products and services, while virtual organisations make exclusive use of the Internet, and 'hybrid' enterprises operate in both the physical and digital worlds. Traditional universities are completely reliant on a bricks and mortar existence with classes being delivered by academics face-to-face, in classrooms, to students who physically attend the campus. The traditional university is, in fact, a thing of the past. In the 21st century, universities must offer at least part of their services and products online, commonly referred to as 'online-supported' or 'web-supported' teaching and learning. The business model of these universities may be referred to as hybrids: providing teaching and learning options to students across multiple physical and virtual channels with a view to improving the student experience and thereby delivering a better service.

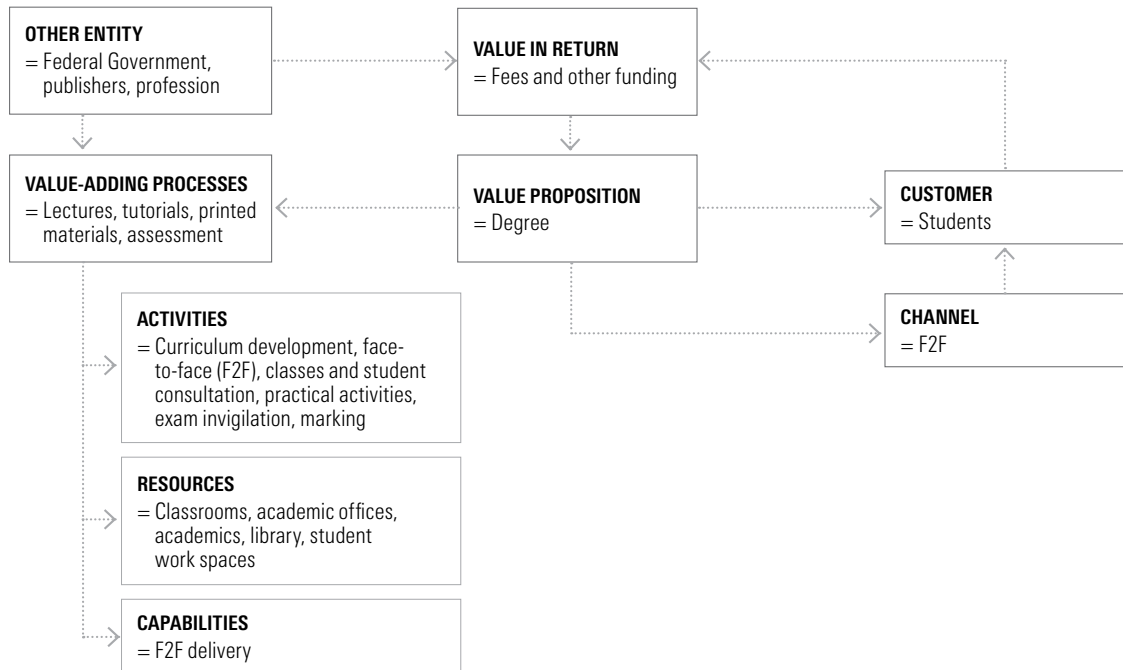
In a 'pure' virtual university there is no physical interaction between university staff and the student. Indeed, there is little to indicate that university staff would physically interact, creating something of an institutional diaspora. All teaching and administrative materials would be digitised and accessed online, all classes would be offered via the Internet, and the physical location of academics and students would be of no consequence to the delivery of programs.

THE TRADITIONAL UNIVERSITY BUSINESS MODEL

In order to understand the impact of digitisation of tertiary education on the university we must firstly understand the current university business model. Figure 1 depicts the basic business model of a traditional university. The university's value proposition is a degree program that includes services in the form of education and certification in the form of a graduation certificate. The degree programs are offered to students, through face-to-face channels, in return for fees, paid by the students and funding from the Federal Government. The Federal Government is a tertiary education stakeholder that has regulatory control over the university and provides funding to the university. Book publishers provide printed and online resources that supplement the materials provided by universities to students. Some of these resources are directed to students (e.g., textbooks and online learning resources) and some of the resources are directed to teaching staff (e.g., teaching notes, course plans, test banks and lectures slides). Professional bodies such as the professional accounting bodies, accredit the degree programs, provide input to the design of the curriculum and provide employment markets for the graduates of the university. In order to attract students, the university must be able to demonstrate that their degrees satisfy the requirements of the profession and that graduates are successful in gaining employment within the profession.

The value-adding processes required to produce and deliver the degree programs are lectures, tutorials and assessment. Activities include curriculum development, creation and compilation of printed materials, face-to-face interaction with students, assessment design and implementation and marking. Academic staff must be competent in face-to-face communication, interacting with students in ways that might inspire them to become engaged with the course.

FIGURE 1: TRADITIONAL UNIVERSITY BUSINESS MODEL



The resources and infrastructure required to deliver or to carry out those activities include classrooms, academic offices, physical libraries and student workspaces. The bricks and mortar are essential, and of course geographic location is important.

In the traditional university business model, the delivery channel is face-to-face. In the virtual university business model the delivery channel is online. This one change has far reaching implications for the value-adding processes of the university. To accommodate purely online delivery channels, different activities, resources and capabilities are required. For example, asynchronous and synchronous online communication must be undertaken, virtual classrooms hosted, remote exam invigilation organised, online materials must be uploaded and maintained, online assessment submission and marking carried out. These activities imply a range of different resources and capabilities. The university must invest heavily in information technology and support systems for both staff and students. Online delivery of education, assessment and associated communication requires staff to have information systems and technology capabilities for which they had no requirement under the

traditional university business model. Academics need to rethink and then retrain in online delivery. What was an hour or longer face-to-face lecture cannot be delivered effectively online (some would argue that in many instances the face-to-face delivery was not effective either). In an online environment the time constraints of the physical world no longer exist. Students can consume small chunks of lectures whenever it suits them and they can stop the recording when they become distracted. This is not possible during a face-to-face lecture. It is impossible to have multiple, 10-minute lectures in the physical world but in the virtual world it is easy. However, the benefits associated with the flexibility of the online classroom can only be achieved if the delivery style and format are modified to suit the media.

On the other hand, the virtual university has little requirement for bricks and mortar resources, and the education delivery skills needed for face-to-face lecture and tutorial delivery is no longer required. In order to carry out online teaching and assessment activities, academic staff require new competencies, and so too do the administrators. Whole administrative support systems are required to deal with online students.

Table 1 provides further details regarding the differences between the three basic university business models, specifically activities, resources and competencies. The list of each is not exhaustive but indicative of some of the major items in each. The hybrid university

business model engages with all items included in the list, and the competencies required by the institution to successfully deliver the value proposition 'degree' are significantly larger than they are for traditional or virtual universities.

TABLE 1: DIFFERENCES IN ACTIVITIES, RESOURCES AND CAPABILITIES ASSOCIATED WITH VALUE-ADDING PROCESSES

	TRADITIONAL	HYBRID	VIRTUAL
ACTIVITIES			
Curriculum development	X	X	X
Preparation & maintenance of materials	X	X	X
Asynchronous consultation with students	X	X	X
Synchronous consultation with students	X	X	X
Conduct F2F classes	X	X	
Conduct F2F assessment	X	X	
Marking	X	X	X
Conduct virtual classes		X	X
Conduct virtual assessment		X	X
RESOURCES			
Classrooms (physical)	X	X	
Offices (physical)	X	X	
Academics and other staff	X	X	X
Classrooms (virtual)		X	X
Physical library	X	X	
eLibrary		X	X
Student workspaces	X	X	
IT infrastructure		X	X
24/7 online support for students & academics		X	X
CAPABILITIES			
F2F communication	X	X	
Administration and management of remote students	X	X	X
IT management		X	X
Multimedia authoring		X	X

At the moment, the typical university is neither traditional nor virtual, but sits somewhere along that continuum. Some universities offer programs remotely; originally these were called 'distance education' and were paper-based systems. The paper-based systems are migrating to online delivery, and universities that have no history of distance education are now entering that sphere for the first time. The hybrid university provides both face-to-face and online channels to deliver its degree programs and consequently it needs to deliver face-to-face classes and online classes, printed and online materials, face-to-face and online assessment requiring close to twice the number of activities, resources and capabilities. The strain that this puts on the human resources of the university is likely to be reflected in the quality of service delivery through both channels. It is not as though the university can simply employ additional staff to provide the additional capabilities: universities are entrenched in quality standards and culture that have evolved over hundreds of years.

In other industries that face the disruption of the Internet, following the initial impact on incumbents and their inability to completely absorb the impact, the whole value network adjusts. New players enter the network and existing participants modify their roles. Disintermediation and re-intermediation of the supply networks occur with content suppliers, aggregators, collaborative ventures between otherwise fierce competitors, supply chain integrators and other previously impossible configurations emerging (see e.g., Weill and Vitale, 2001). Industries that offer easily digitised value propositions have been struck hard by the pervasiveness of Internet-based commerce. The music and newspaper industries are two examples of where incumbents have been forced to radically change their business models to remain relevant in industries that they previously dominated. Education is an intangible product (or service) that can be digitised and then commoditised to an extent yet to be tested, presenting universities with challenges from each other and from other education sector participants, both existing and potential.

Keeping in mind the impact of the Internet on the activities, resources and capability requirements of universities, we now turn our attention to the facet of the business model that draws the most attention: the relationship between the university and its students.

INTRODUCING INTERMEDIARIES

OPEN UNIVERSITIES AUSTRALIA

Typically, universities deliver their degree programs directly to students, and the university issues the certification (graduation certificate) to students with the university and the students dealing directly with each other. A variation on this arrangement is provided by Open Universities Australia (OUA) whereby OUA acts as a service/product aggregator, representing degrees from multiple universities to students who use their website as a one stop shop for tertiary education. OUA has the primary relationship with the student although OUA itself does not create degree programs and it does not offer certification. OUA's role is to manage several universities that offer online degree programs through OUA, and that also offer OUA students smaller units of education in the form of a single unit of study that can be taken in isolation or be counted towards degrees in the future.

For OUA to be successful it must provide universities with value that the universities cannot effectively provide themselves. Each university can offer a range, but probably not the full range, of programs and courses. The marketing and much of the administration is undertaken by OUA and these are valuable services for universities – and the participating universities are given access to a large body of students to whom they might not otherwise have access. OUA is able to invest heavily in advertising and in online systems since this is the only form of delivery it offers. Even though teaching takes place by the original universities, OUA knows more about the students than anyone else in that value network. Interestingly, OUA also knows more about all of the universities and their programs than anyone else in the sector.

In summary, OUA has two significant impacts on the sector. First, it presents as an intermediary between the university and the student. Second, it offers, through the universities, a new value proposition in addition to existing degree programs with certification; a single unit of study with certification.

MASSIVE OPEN ONLINE COURSES

The most radical development in higher education in the last five years has been the development of massive open online courses (MOOCs). Most MOOCs offer a 'tasting plate', little bits of the most popular courses available from institutions that have high-quality reputations – Harvard University, the Massachusetts Institute of Technology (MIT), and now in Australia, the Australian National University, amongst others.

The characteristics of MOOCs are evolving and the business models associated with MOOCs are in their infancy. Fundamentally, the MOOC is equivalent to a single unit of study that traditionally makes up degree programs offered as 'stand-alone' products and it is offered free of charge. The basic, free MOOC does not include assessment and therefore does not include certification. Students can sign up to a MOOC, receive online delivery of the course, mostly through lecture-type podcasts and at most, receive a certificate of completion. Variations on the 'for-free' value proposition include a 'for-fee'-based option to complete assessment and receive certification in relation to performance in the assessment. For many students MOOCs provide an otherwise unavailable opportunity to study at some of the most prestigious universities in the world for a fraction of the cost even though, at the moment, they do not receive degree certification.

Although it is possible for universities to offer MOOCs through their own infrastructure, this is not the preferred business model. In reality, a new form of aggregator has recently emerged in the tertiary sector and this aggregator is providing a one-stop shop for MOOCs with the universities acting as content providers. MOOC providers are being heralded as a threat to universities that are entrenched in existing delivery and content to be widely accessible. MOOCs, however, do not offer one of the most fundamental value propositions of universities – a qualification, so in their current form, MOOCs are not a substitute for university degrees that provide qualifications and entry into various professions.

The business model of the MOOC provider is quite different to the business model of the university. As an aggregator, the MOOC provider must offer universities some value that they cannot achieve alone. This value is the information technology infrastructure and competency to allow virtually unlimited students to

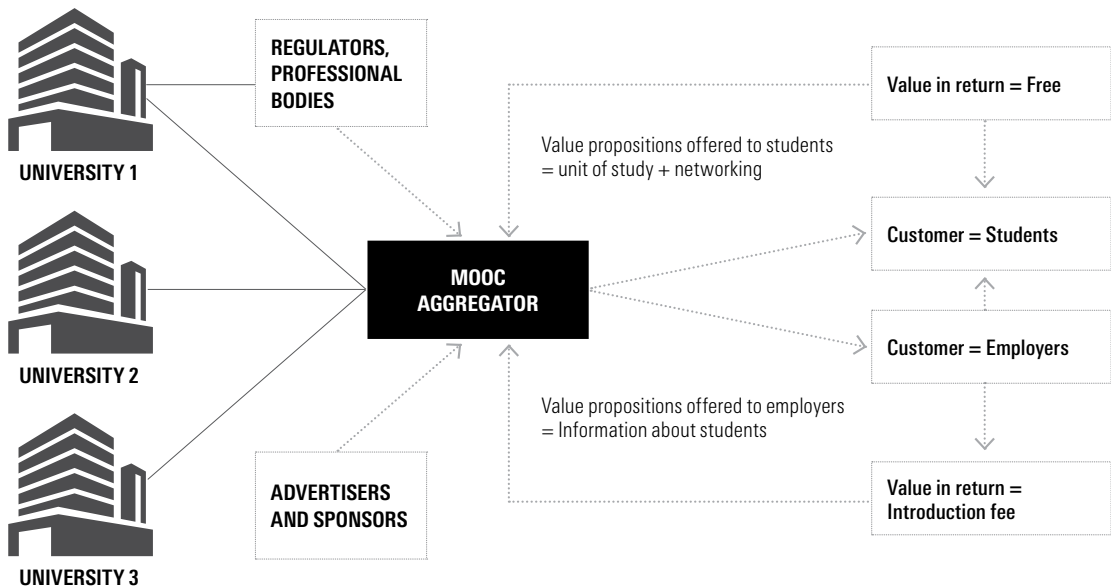
access MOOCs and the potential to earn revenue and other benefits from offering MOOCs. Some universities see the potential to promote their traditional university degrees through the exposure offered by the MOOC provider and the association with the elite group of universities selected for participation by the MOOC provider as benefit enough. On the demand side, MOOC providers offer students a one-stop shop of reputable university-sourced MOOCs.

The question that remains unanswered (because it is still evolving) is: how does the MOOC provider make money? It is true that some MOOCs have options, such as assessment, that attract fees, and the provider shares this with the university. Like other for-free operators, advertising revenue plays a part in their business model. More recently a novel value proposition and revenue source has emerged in the form of recruitment services.

MOOCs aggregators such as Coursera, edX and Udacity require students to register with them, and as aggregators, they can learn more about the students than any other entity in the value network. Data are captured from the online activities that students undertake on the MOOC site then they are analysed and interpreted to assess the 'soft skills' that employers, including accounting professionals, demand of graduates. Evidence of the graduate qualities and skills that employers want and that are so loosely, if at all, associated with student academic performance as signified on their academic transcript, is gathered from the MOOC providers' websites, analysed and interpreted by the MOOC aggregator. The MOOC aggregator can then recommend students for positions at partner firms or they can sell the data to the firms. The revenue is shared with the participating universities. It has been reported that Udacity has 350 employers of graduates as partners in their recruitment service (EvoLLLution NewsWire, 2012).

Figure 2 shows how the MOOC aggregator is positioned between the university and the student, and how the new recruitment service value proposition is offered to employer-partners. The revenue received from the employers, in the form of introduction fees, is shared with the universities. Little is known at this time about the revenue models of MOOC providers and their profit or revenue sharing arrangements.

FIGURE 2: MOOC AGGREGATOR IN THE VALUE NETWORK



Looking more closely at the value-adding processes of the university and the MOOC providers, it becomes evident that the university requires a virtual university business model that includes software compatibility with the MOOC provider. The university must adapt its courses to include activities that permit student skills to be assessed by the MOOC providers. The MOOC providers require data analysis capabilities and associated information technology resources. Furthermore, the MOOC providers must possess the industry knowledge, on the university side and on the student and employer side, to attract partners that have reputations that will sustain the business model. These capabilities are not traditionally found in universities, and the university pool of students and employer groups is likely to be too small to justify the cost of the added resources and capabilities. The MOOC providers, because they are aggregators of university services, can operate in much larger markets, thus making the business model viable.

THE RELEVANCE OF VIRTUAL UNIVERSITIES' BUSINESS MODELS TO THE ACCOUNTING PROFESSION

The accounting profession serves an important role in the development of university business models. They have considerable influence over the curricula that is offered in the universities and their power comes from the fact that they are the major employers of accounting graduates. A university's success as a provider of accounting education is measured to a large extent by the demand for the graduates of the university. Research shows (Law, 2010; Jackling et al., 2012) that students enrol in accounting degrees because they believe that it will provide them with career opportunities. A student's choice of university depends at least in part on the reputation of the university in terms of graduate employment.

The accounting profession has a long history of working with universities to ensure curricula meet the profession's requirements. To what extent the business models of Australian and New Zealand universities will change as a result of the digitisation of education is yet to be seen but, based on the experiences of other industries, there will be substantial changes in the value network, and universities will have to adapt to the new environment in one way or another. Together with the Tertiary Education Quality and Standards Agency (TEQSA), employer groups will continue to have a substantial influence on the outcome. If the professional accreditation privileges remain with the universities then this will afford them some protection in the tertiary education marketplace. However, if the professions embrace the MOOC career recruitment services at the expense of degree certification, then the universities will be forced to move into the online space to remain competitive and, given the constraints of TEQSA quality standards' (TEQSA, 2011) resource constraints, it may be at the expense of traditional educational activities.

If an aggregator, existing or otherwise, sees an opportunity to adopt the MOOC aggregator business model and invest heavily in the resources and capabilities to do so, then the Australian tertiary education sector could be transformed. The accounting profession has, over a long period of time, requested that graduates demonstrate better 'soft skills' and this has proved difficult for accounting educators to provide (Morgan, 1997; Leveson, 2000; Kavanagh and Drennan, 2008; Kavanagh et al., 2010; Evans et al., 2012). The difficulty lies in the universities being able to assess students in relation to these skills. Technology can provide evidence of student behaviour but interpreting the behaviour and providing assurance that the student in question is actually the source of that behaviour remains problematic.

One potential business model configuration in the tertiary education follows. Universities and other private providers such as Saylor.org create MOOCs and offer them to an unlimited number of students free of charge through MOOC aggregators, thus avoiding the resource and capability requirements associated with this service. Universities could continue to take advantage of their

existing ability to provide certification (based on their accreditation with professional bodies such as the accounting profession) by offering assessment services to any candidates who wish to take the exams or other assessment tasks. The education activities could be undertaken through MOOCs free of charge or through the traditional university education services that are fee-paying. The MOOC providers could provide partner firms with student evaluations in relation to 'soft skills' or this could be a fee-for-service value proposition for the student.

The accounting profession must remain engaged with accounting education to ensure that future accounting professionals obtain an education that prepares them for their next level of professional development. Digitisation of tertiary education has the potential not only to transform university business models but also to transform the whole tertiary education sector, thus enabling alliances between incumbents and new entrants into the sector. Digitisation of education creates an opportunity to develop and evaluate soft skills, something that employer groups have wanted but which has proved too difficult in the past.

To what extent universities will continue to create and deliver education, assessment and certification and how much is devolved to other specialist enterprises depends in part on their own resource constraints, in part on the initiatives of other enterprises and in part on the expectations and requirements of the professions. The needs of the accounting profession remain important decision-making constraints on business schools because the viability of a business school depends on the demand for its graduates both in Australia and overseas. The form that a virtual university might take depends on many factors, all of which are interrelated and made comprehensible through the business models of entities in the tertiary education sector.

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Milking MOOCs: Towards the Right Blend in Accounting Education

MARK FREEMAN AND PHIL HANCOCK

INTRODUCTION

Are massive open online courses (MOOCs) the monster they have been made out to be? Or can they be domesticated? In this paper we consider the possibilities for teaching Australian accounting students effectively in an environment characterised by ageing academics, increasing teaching costs, reduced funding and impending threats from ubiquitous MOOCs.

Based on a review of the literature and reflections on our own experiences, we make observations about the implications of the rapid expansion of MOOCs for stakeholders in accounting education, and we offer suggestions to accounting academics as to how they might make the most effective use of technology. The rationale for this paper stems from the massive media attention given to MOOCs during the past year, much of which was somewhat alarmist (Dodd, 2013). Triggered by technological advances, 'the collapse of higher education as we know it' was purported to arise from the extreme competition meted out by MOOCs offered by prestigious brand-name universities, and new consortia with MOOC platforms (Sams, 2012).

In the paper, we argue that the scenario is not quite so threatening. MOOCs are the latest in a long line of

technologies to support distance education that started with books and proceeded through television, the first wave of computers and the Internet – all of which were predicted to result in organisational failure and even formal learning.¹ But MOOCs are more than just another technology tool. We endeavour to provide an even-handed evaluation of the potential impact of MOOCs for accounting education.

The paper is structured as follows. Section 2 provides a brief review of the literature relating to MOOCs and other forms of technology-enhanced learning. Section 3 considers some possible effects of MOOCs on stakeholders in Australian accounting higher education. Section 4 details technology-enhanced strategies as examples that accounting academics can adopt to enhance student learning in this context. Section 5 contains some concluding remarks and thoughts about future research.

LITERATURE REVIEW

The driving question in this paper is: how, as accounting academics, can we best respond to MOOCs? In this section we confine ourselves to literature that addresses two subsidiary questions: 1) What are MOOCs and how do they matter?; and 2) What is the potential for online teaching in accounting education?

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1. In the 1950s, television network CBS, in partnership with New York University, broadcast full college courses at 6 am. In addition to the 177 for-credit students who took the first course, another 120,000 people took it without credit (Green, 2013).

WHAT ARE MOOCS AND HOW DO THEY MATTER?

The term 'massive open online course' was coined by Dave Cormier and Bryan Alexander in 2008 (Daniel, 2012) when commenting on an experiment at the University of Manitoba (Daniel, 2012) where an online course was provided as academic credit to 25 paying students, and then opened up free to all comers. The response was overwhelming, attracting a further 2,300 students. As it happened, this original MOOC was designed to allow self-motivated distance learners to collaboratively explore uncertain areas of knowledge in a fully online environment (Fini, 2009); retrospectively, this has been categorised as a connectivist MOOC (cMOOC) to distinguish it from the more straightforward MOOC (xMOOC) that is designed for the learning of existing knowledge; the latter is typically centrally dispensed from a recognised expert on one platform, with media-rich explanations that are short and punctuated with opportunities for learners to practise learned concepts with computer-corrected quizzes (Daniel, 2012). Our focus in this paper is xMOOCs, since they are receiving all the attention in the media.

Just as there are good and bad textbooks, videos, etc., so it is with MOOCs. As mentioned in the introduction, a MOOC is another form of distance education, albeit online; and whereas the MOOC can be programmed to provide learners with an adaptive or customised pathway, learners' needs are not personally addressed by the instructor. However, the instructional material may be supplemented by discussion board feedback from peers, and some platforms prioritise highly rated peer responses to make it easier for learners to find answers. Some MOOCs require that learners provide peer feedback (via rubrics) to written assessments.

Converting some courses of an accounting degree to a MOOC is one solution to teaching more students with less money.² MOOCs can leverage certain modes of teaching, such as transmitting information, and automating feedback to common errors. However, although the MOOC phenomena may trigger important

changes, MOOCs are not a panacea for the woes of higher education. On the positive side, MOOCs have opened access to brand name courses for thousands of students who otherwise did not have access to such courses, including those at a distance in third world countries.³ Furthermore, some MOOCs have been recognised to earn academic credit (Fain and Rivard, 2013). On the other hand, there have been massive attrition rates,⁴ cheating, criticisms of outdated pedagogies (Bates, 2012) and some spectacular failures. For example, in January 2013, after one week into a six-week course (run by Coursera) to learn the fundamentals of teaching online, everything went horribly wrong and the MOOC was cancelled (Kolowich, 2013a).

Now we present some recent trends and developments in MOOCs. First, the headline proponents of MOOCs are typically prestigious, brand-name universities (such as Stanford and Harvard) who have not previously majored in online learning. Their strong support for distance education, albeit digital, is adding overdue legitimacy to online learning.

Second, some of these brand-name universities are taking a more scholarly approach to MOOC design to unpack what works best online and can be incorporated in hybrid contexts.⁵ John Mitchell, the Vice Provost of online learning at Stanford University, recently commented:

'There's really no substitute for being in the same place with someone else to really talk directly and communicate most effectively. We're not trying to use online tools to replace a residential Stanford education. We're trying to supplement and extend our set of activities on campus to make being a Stanford student an even richer educational experience.'
(Reiss, 2013)

A notable approach is the flipped classroom, that is, the traditional one-way lecture is flipped to make room for active learning opportunities (e.g., knowledge application, problem solving and collaborative exercises that develop critical thinking and soft skills like oral

2. In May 2012, the Massachusetts Institute of Technology (MIT) and Harvard University announced that they had each contributed US\$30 million to a not-for-profit joint venture called edX to support breakthrough learning models.

3. Interestingly, typical MOOC registrants are competent learners with the overwhelming majority already holding a degree (Waldrop, 2013).

4. Using data from 24 MOOCs, Jordan (2013) shows that most MOOCs have completion rates less than 10% although one had almost 20%. However, Fain and Rivard (2013) observe that lower attrition rates arise when intentions to complete are registered.

5. MIT and others in the edX joint venture.

presentation and teamwork). Instead of doing problems for homework, students use self-study time to engage with basic material; with improved bandwidth (Shirky, 2013), students can access shorter, media-rich videos that transmit core concepts, punctuated with auto-graded practice opportunities to make learning more active and lasting. MOOCs are one way universities can explore what works best online and adapt those aspects into their blended environment. As opposed to traditional face-to-face lectures, which can only be delivered in one sequence and speed, MOOC-developed resources can allow customised pathways for learning basic material as well as opportunities to review material (rewind and replay) anytime and anywhere.

Third, a related reason for experimenting with MOOCs is the need to arrest the ballooning costs of higher education.⁶ The search is on to find out what aspects of the learning, teaching and administrative cycle can be more effectively provided at a distance online, with minimal or no human interaction. Large sample data analytics, possible with MOOCs, accelerate this research.

Fourth, there has been a resurgence of interest in open educational resources (OERs) – profiled notably in 2002 when MIT committed to publish the resources and (longer) videos of their academics, which had been previously firewalled.

Fifth, brand-name universities are using MOOCs for marketing in an attempt to lock in future revenue, and expand to new educational markets.

Finally, new alliances are being formed to exploit market opportunities highlighted by MOOC activity. Some alliances are between universities (e.g., edX), and others go beyond (e.g., Udacity). Some aim to leverage organisational expertise in online distance education (e.g., academic partnerships), and others focus on national responses (e.g., the UK's *Futurelearn*) or even individual stars and experts (e.g., Udacity). Some follow the synchronous campus model with fixed-course schedules (e.g., Coursera) while others allow students to start and learn at their own pace (e.g., Udacity). Some limit access for use by other teachers (e.g., Udacity), and others do not, or selectively use creative commons (e.g., edX). Some alliances address specific

distance learning barriers, such as Coursera's agreement to use Pearson's testing centres to deal with cheating.

It is time to shift to a broader consideration of online learning opportunities beyond MOOCs.

WHAT IS THE POTENTIAL FOR LEARNING ONLINE?

In considering the potential for online learning, including MOOCs, we need to first distinguish between those things we can influence and those we cannot. For several decades we have known that capable students entering higher education will succeed in it and beyond – better learning gains, grades and retention while studying as well as better employability outcomes. In fact, before a student even starts learning in a particular university context, there are a number of variables that exist to impact educational outcomes (Gibbs, 2010). These 'presage' variables frame and enable (and constrain) the form education may take. Good educational outcomes are associated with more resources, high-quality staff and high-quality students.

It is too soon for us to review literature about the characteristics of successful MOOC students, but we can look for clues in the literature of adaptability to online learning. In a study tracking 51,017 students from 34 institutions over five years who chose between face-to-face, online and hybrid courses, Xu and Jaggars (2013) found that all students performed worse in courses that were purely online, and this was particularly the case for students who were less academically prepared, younger and male. After controlling for these effects, Xu and Jaggars found that business was among the disciplines in which students performed worse online than their fellow business students who did hybrid or face-to-face courses. These, of course, are fairly crude indicators, but they do sound a warning bell for an over reliance on MOOCs.

We now turn our focus to the use of online technology by accounting department heads and academics. Arguably, technology is just a tool. Russell (1999) examined 355 studies relating to student outcomes and alternate modes of education delivery, finding that overwhelmingly learning technology in and of itself was neutral in regard to its effect on learning. It is how technology is used that matters. More recently Means et al. (2010) undertook a meta review of 99 experimental

6. First identified by Baumol (1966), education has experienced a 'cost disease'. Whereas in many products and services technology has enabled improved worker productivity and reduced costs of production, education has traditionally relied on significant human interaction.

or quasi-experimental studies comparing learning outcomes of online, face-to-face or blended contexts. They found that the blended approach yielded significant advantages relative to purely face-to-face or purely online instruction. Furthermore, the effect sizes were larger when the purely online approach was directed by a teacher (+0.39) or when peers collaborated (+0.25) than when online learners worked independently (+0.05).

Since MOOCs involve scaling (increasing the capacity of delivery) to masses using technology-enhanced distance education, we now consider the viability of three of the essential components of teaching – transmitting, assessing and intervening – as they relate to scaling for automated online distance education.

Transmitting Transmitting information can be scaled for masses to engage with and learn, if the instruction is well designed. Examples of good design are:

- Engaging, media-rich explanations (e.g., games, humour, realism, stories)
- Wisely selected and engaging associated reading materials that link to open OERs like web pages, websites or PDFs
- Multiple learning pathways to cater for individual differences in learning styles and learning speeds
- Active discussions, with algorithms to transmit better peer information
- Quick responses given to course deficiencies that arise.

However, transmission does not work well with the following poor design features:

- Student interactions limited to electronic page turning
- Students having long explanations to read or listen to
- Learners required to follow a linear path
- Resources restricted by firewalls, bandwidth or cost.

In closing this subsection, it should be noted that a potential benefit of asynchronous online transmissions is the provision for the learner to slow the transmission down, take a longer path, or rewind and replay. In a synchronous situation the lecturer can be sensitive and react to students' learning; however, inevitably the same information is transmitted to students in the same sequence and at the same pace.

Assessing If it is rules-based knowledge being assessed, student achievement of learning outcomes can be scaled. But there is a problem with auto-graded online assessment of learning outcomes that involve judgement and other higher order skills. Perelman (2013) is particularly critical of pronouncements about the accuracy of machine graders.⁷ We will return to this and other assessment issues in the next section.

Intervening around teachable moments As content experts, academics are the most capable and efficient agents to recognise teachable moments – those moments when their students face learning problems or difficulties they have seen before and they can intervene with person-specific advice. Even if these face-to-face moments are replaced by person-specific advice synchronously online there is no cost saving (and teachers may miss body language cues if visuals are inadequate). Feedback that is not immediate or targeted is less useful for learning. Where there are established and predictable patterns in the ways students learn or miss fundamental concepts, formative feedback can be automated. But it takes research and fine-tuning to establish the right conditions for applying such machine feedback, especially in asynchronous contexts. Common or easy-to-identify intervention moments, for example, reminders of impending deadlines, may be automated and yield cost savings. However, it is expensive (and impossible) to program all teachable moments that might arise in distance contexts. So are there other options for these teachable moments?

One possibility is for more senior students to be trained to monitor discussion boards to recognise common barriers and provide advice to peers. We have noted in our teaching that peers in the same cohort can effectively intervene in some contexts to provide social support – for instance, when they spot a colleague's motivation slipping. Peers can also diagnose a fellow student's learning problems or difficulties and provide the appropriate advice. Although timely advice is less likely in purely asynchronous contexts, platforms that allow student responses to be rated and prioritised can reduce this limitation for learners that monitor discussion boards. Whereas there is evidence to support peer-assisted learning schemes (Ashwin, 2003), they almost exclusively function in synchronous face-to-

7. He illustrates this by submitting a nonsense essay to one automatic grading artificial intelligence system, for which he receives the highest possible grade. See <http://bltnotjustasandwich.com/2012/06/10/les-perelmans-robo-graded-essay>

face contexts and require extensive training for student facilitators, which is costly.⁸ Therefore, serendipitous peer feedback is likely to be limited in asynchronous online contexts.

To conclude this section, we suggest that it is highly unlikely, if not impossible at this time, that all accounting students can develop all graduate capabilities completely in purely asynchronous online contexts devoid of expert intervention, especially those threshold learning outcomes requiring substantial intervention and targeted, timely feedback such as teamwork and communication (Hancock et al., 2010). What is more likely to happen is academics will judiciously incorporate technology-enabled learning into a blended or hybrid learning environment. We posit that pursuing the right blend will not only help improve student learning gains but make for more enjoyable teaching.

POSSIBLE RAMIFICATIONS OF MOOCs FOR ACCOUNTING HIGHER EDUCATION

We turn now to a consideration of the consequences of MOOCs for accounting higher education stakeholders in Australia and New Zealand. We begin a detailed sketch of what might happen to accounting degree providers and then take a rather speculative look at accounting employers and professional accounting bodies.

DEGREE PROVIDERS

Our focus here is on entire degree programs because that is the main area of immediate concern. The first ramification for degree providers relates to competitive position. Universities with a strong brand could enhance their competitive position by producing a MOOC as an alternative to simply marketing their brand directly.⁹ As MOOCs have drawn headlines in the press in the last two years this has very effectively promoted a small number of institutions across the globe. Success can be further leveraged if an accounting department has a strong reputation in a particular field, if a star performer (e.g., a Nobel prize winner) or outstanding teacher is available, or if institutional online learning expertise can ensure the production of a high-quality MOOC. Stronger brand universities have a further competitive advantage

insofar as they are the only ones with enough money to develop a MOOC¹⁰ or to pay licensing fees to access a reputable MOOC alliance and platform (e.g., Coursera). Universities and accounting departments at the lower end of the brand scale will find it harder to enter into partnerships to use a prestigious MOOC platform and thereby exploit this opportunity to promote themselves to attract better quality students (Moody's, 2013) or charge higher prices for their for-credit courses.

Second, universities can generate revenue from fee-paying students by developing 'try-before-you-buy' MOOCs. From the student's point of view, it makes some sense to try such a MOOC; enrolling in a for-credit degree is much harder and more expensive to reverse, especially if it involves moving to a campus in another city or country. On the other hand, given that MOOC attrition rates are typically high, to ensure that would-be on-campus students are not easily discouraged by the fully online, asynchronous, automated experience, accounting departments may need to provide some level of intervention and remedial support. It might be sensible to trial such efforts in the introductory Master of Professional Accounting subjects, in which largely rules-based knowledge dominates (and which can be more easily automated) and where intended learners have more of the attributes of successful MOOC completers, namely maturity, academic learning experience (through a prior degree) and a stronger priority to persist by enrolling in a career-change degree. Given also that online adaptability affects success it may be sensible to include a readiness filter to assist in setting realistic expectations for students and to justify attrition to key stakeholders. It may also be useful to market MOOCs as a taster and prelude to companies or individuals investing in university executive education courses.

Third, there are questions about whether or when to recognise MOOC completions. There is no doubt that MOOCs can satisfy professional development or hobby interests, but caution needs to be exercised when relying on MOOC completion-based admissions decisions because the latter usually entail non-invigilated assessment and there is the related possibility of

8. The exception is when senior peers provide such services because their efforts relate to earning academic credit in another course.

9. After all, a MOOC is only a single course, sometimes a cut-down version of an existing for-credit course and other times completely different. Entire degrees from these universities via MOOCs are not an option.

10. There are instances of academics doing their own development themselves, including video recording and editing (e.g., Werbach, 2013), but these appear to be the exception.

cheating. Some universities grant credit for their own MOOCs (e.g., Penn State), some grant credit for others' where the course has been vetted (e.g., San Jose State University credits one of Penn State's MOOCs), and some universities do not even recognise completion of their own MOOCs (e.g., Duke) (Korn, 2013). Providing 'challenge' opportunities may work, or collaborating with third parties to invigilate MOOC assessments would help authenticate achievement;¹¹ however, thus far few credits have been granted towards recognised degrees.

It should be noted that resistance to granting students credit for MOOC completion goes beyond the plagiarism issue to concerns about revenue. This concern is illustrated in the following quote:

'For example, what happens when one or more of the MOOC providers begin to serve as a clearinghouse for core (typically large enrolment) undergraduate courses in introductory accounting, biology, economics, sociology, or other disciplines? What if, for example, Princeton University professor, Nobel economics laureate, New York Times columnist, and textbook author Paul Krugman were to offer an introductory economics MOOC hosted by Coursera? Let's assume that Krugman's MOOC included reasonably rigorous assessments leading to a certificate of completion that was affirmed by Krugman. Would or could Acme College deny its students an opportunity to enrol in Krugman's MOOC in lieu of the introductory economics course offered by its own faculty?' (Green, 2013)

Arguably, if a university were to grant credit for such a MOOC, it would be pulling the rug out from under itself – sacrificing the revenue from its high-profit first year course. One way to reduce this risk is to enter an alliance with like-minded peers to share development costs, risks and revenues and allow each other's MOOCs to gain credit towards a degree.¹²

Fourth, MOOCs and similar products are placing pressure on universities to reduce their costs. As outlined above, one avenue to decreasing costs might be to licence a well-designed MOOC to support information transmission and formative assessment where rules-based learning is involved. According to one report, Harvard has trialled this approach to its entry-level accounting course.¹³ Although MOOCs can be used to scaffold a blended environment, costs arise because human intervention and exam invigilation are still required.¹⁴ If productivity gains are possible from licensed MOOCs, there may be some opportunity for cost savings in teacher time. In strapped-cash US state universities this unfettered motive might receive academic push back.¹⁵ Another variant to reduce costs might be to use volunteers for the supporting interventions around teachable moments, an option Harvard recently pursued with their alumni. However, it is easier for universities to reduce costs by incorporating existing OERs since such objects are available under a creative commons licence and not restricted behind a login as with MOOCs. One consortium of universities, which includes an Australian university, has banded together to cross-credit eligible open online courses; some of these courses are offered with volunteer online support, but there are tuition fees tied to cost recovery for the assessments.¹⁶ Figure 1 demonstrates that business courses have been a small focus to date – only 13% of MOOC activity worldwide.

Fifth, to maintain a competitive edge for their students' on-campus experience, universities will need to do more than reduce costs. As part of the flipped classroom blended-learning approach, accounting academics will need to be deployed where they can add the most value: designing and performing assessments; assessing higher-order cognitive learning outcomes and those involving soft skills since they rely on summative and

11. For example, Pearson have a worldwide network of testing centres. For US\$299 they also offer self-paced online courses for several core accounting courses and students can get up to 10 hours of online tutoring.

12. For example, MOOC2degree.com, an alliance powered through Academic Partnerships that grants credit towards specific degrees offered by 40 collaborating US universities.

13. For example, 'Harvard Business School doesn't teach entry-level accounting anymore, because there is a professor out at Brigham Young University whose online accounting course "is just so good" that Harvard students use that instead': www.nytimes.com/2013/03/06/opinion/friedman-the-professors-big-stage.html?_r=0

14. Two US colleges are using an existing edX MOOC with funding from the Gates Foundation (edX, 2012).

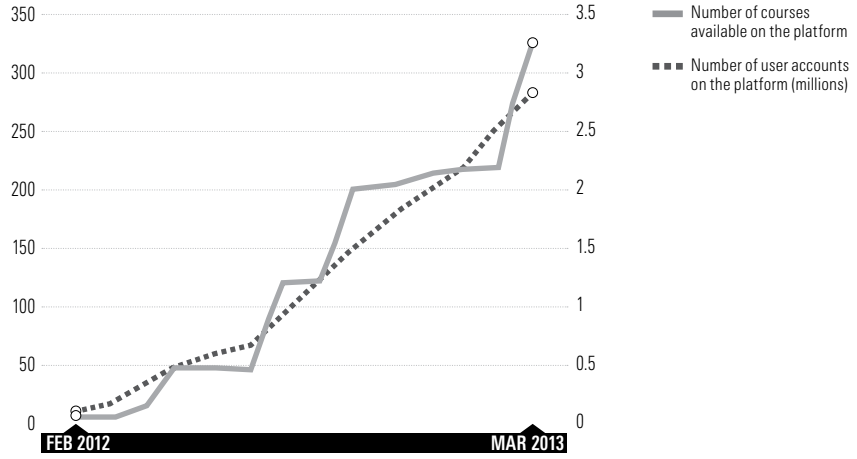
15. San Jose State University's philosophy department recently wrote an open letter to clarify their refusal to cooperate with their management, to the Harvard professor who developed the licensed MOOC intended for use in their blended context.

16. The University of Southern Queensland is a member of OER University.

FIGURE 1: MOOCS RISING

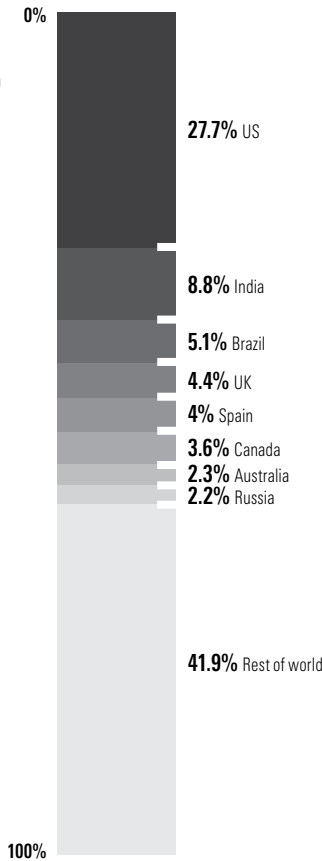
SUPPLY AND DEMAND

Over little more than a year, Coursera in Mountain View, California – the largest of three companies developing and hosting massive open online courses (MOOCs) – introduced 328 different courses from 62 universities in 17 countries.



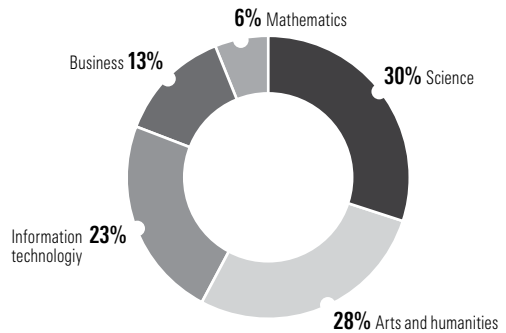
STUDENT ORIGINS

The platform's 2.9 million registered users come from more than 220 countries.



COURSES OFFERED

Courses span subjects as diverse as pre-calculus, equine nutrition and introductory jazz improvisation.



SOURCE: Adapted by permission from Macmillan Publishers Ltd: *Nature* (Waldrop, M.M., 'Online Learning: Campus 2.0', 13 March, 2013).

high-risk judgements; and designing and supporting teachable moments, including those leveraging effective student–student interaction. Foreshadowing further expansions, Kolowich (2013b) reports a higher pass rate for students using a licensed edX MOOC in a first year engineering context at San Jose State University. One Vice-Chancellor recently observed:

‘I can see a situation where big lectures to 200 or 300 students will progressively become a thing of the past, and the value-add comes from much more interactive forms of teaching and learning where students get higher value from their contact time with staff.’
(Lane, 2013, p. 31)

The sixth ramification of MOOCs is the need for scholarly approaches to researching and using what works in and outside the formal curriculum. We have already noted that flipping the classroom is a major strategy to improve learning gains. Another is to minimise the use of hyperlinks when constructing written explanations, since they cause cognitive overload (Vohs et al., 2008). Accounting academics can also improve their students’ experience by researching the benefits of different combinations of (synchronous and asynchronous) online and face-to-face (on-campus and work-based) learning activities. This research requires data analytics, funding and expertise. In addition, research is needed of on-campus informal learning and networking opportunities; alumni of brand-name universities get more from their on-campus experience than the intended learning outcomes of their accounting degrees (Light, 2001).

The seventh ramification of MOOCs relates to incentivising and supporting change. To ensure learning gains are identified and the students’ learning experiences in and out of class is optimised, accounting department heads’ (and universities’) incentives and support structures are required to encourage academics to take a degree-wide approach to program design and delivery. Without such incentives and support structures, academics and program directors will do little on the OER or flipping front; at this juncture few academics have experience in evaluating and adapting OERs (including MOOCs). At present the main incentive

for accounting academics in Australian and New Zealand universities is to engage in research and spend less time on their teaching. However, given adequate support and incentives, research on less costly but effective teaching can be a win–win for all concerned.

Finally, MOOCs have rejuvenated the importance of a team-based approach to program design and implementation. Cohon (2012) notes this critical component in the Carnegie Mellon University’s success with the Open Learning Initiative (OLI), which includes accelerating achievement of learning outcomes in half the normal time (Lovett et al., 2008).¹⁷

PROFESSIONAL BODIES

The first ramification for accounting professional bodies is that MOOCs may be employed in systems to smooth credit pathways for new members. For example, accountants with learning outcomes supported by MOOC-based learning may be encouraged to submit to challenge exams. A second possibility is that some professional bodies or international alliances may choose to collaborate in developing their own MOOCs for modules in a professional program. This is particularly pertinent for those aspects that are essentially rules-based learning outcomes. Finally, these bodies will be able to retain and promote membership by developing, or sponsoring the development of, branded OERs that universities can use in their own courses. Professional bodies may also develop an OER (or MOOC) for the secondary school curriculum to attract secondary school students to a possible career in accounting.

EMPLOYERS

The first ramification of MOOCs for accounting employers is that they may be able to recruit employees who have acquired sought-after knowledge and, to a lesser extent, skills from MOOCs. One new company, Udacity, is already focusing on employers like Google and their specific needs in computer science. Second, and related to the first point, MOOCs can in future be a source of cheap professional development for employers to provide to their staff. Basic financial accounting for new non-accounting staff fits the conditions of rules-

17. Meyer paired a group of Carnegie Mellon University students taking OLI statistics with a control group taking the same course the traditional way. Students did twice as many topics per week but in the same number of hours face to face and outside class as the traditional face-to-face class. There was no lecturing, just tutoring. The academic spent all face-to-face class time in the OLI class focusing on learning problems/issues, some of which were identified in a report generated from students’ prior completion of the online modules. The OLI statistics course has since been used in randomised trials in six public US universities showing no difference between the treatment group, which had one hour a week with an academic, versus the control group in the traditional three contact hours format; see Bowen (2012).

based knowledge that does not change. Third, larger employers like the Big 4 may advertise their services and/or enhance their reputation by sponsoring the production of a high-interest MOOC that is offered to the public. Likewise, following the innovation of brand-name US universities, and some publishing organisations, employers can offer via short MOOCs freemium (i.e., free) services as tasters to garner interest in the company's premium accounting services (for which clients will then have to pay). Anderson (2009) has noted that freemium goods and services can be extremely profitable.

As the reader can see, MOOCs may be tamer than first thought, but they have already triggered a profound review of the potential for online education, including accounting education. In the next section we aim to provide accounting academics with some resources for succeeding in the current MOOC-hyped higher education climate.

TECHNOLOGY-ENHANCED LEARNING STRATEGIES AND RESOURCES

In this section we review some technology-enhanced strategies and resources that may aid accounting academics in their teaching. We begin by describing low threshold applications (LTAs), then we present strategies and OERs, including MOOCs, displaying them under the same three categories of teaching used in section 2: 1) transmitting information; 2) assessing; and 3) intervening.

LOW THRESHOLD APPLICATIONS

Gilbert (2002) defines LTAs as those technology-enhanced activities, actions and applications with which academics can easily engage. These have low-entry costs; are not intimidating and are easy to learn because they are based on widely used and known technologies; and are reliable because they work now and there is a strong likelihood they will be around for a while. Gilbert puts LTAs into three categories:

- Almost ubiquitous technology: these LTAs take advantage of 'sunk costs' because they are technology applications that are readily available in most higher education institutions (e.g., the quiz feature within Blackboard or Moodle learning management systems)
- Commercial products: many of these are cheap or freemium for institutions, academics and students and require little or no additional training or support (e.g., smartphones interacting with websites like PollEverywhere as an audience response system; smartphone apps, such as one that randomly selects which student group in class will provide a response to the teacher's question at the end of a peer discussion period)
- OERs: these can sometimes be found in collections (e.g., multimedia educational resources for learning and online teaching like Jorum (www.jorum.ac.uk) maintained by the Higher Education Academy)¹⁸ or stand-alone sites (e.g., Khan Academy).

STRATEGIES AND OERS

Transmitting In addition to the firewalled learning objects in some MOOCs, there is a wide variety of OERs available under creative commons licence that academics can use to assist them in their transmission of information outside the classroom. Khan Academy is one such resource.¹⁹ The Khan Academy's lessons in accounting and finance can be used to assist students who have difficulty in understanding basic concepts like accrual accounting.²⁰

There are several resources to assist with instruction on accounting concepts, ranging from basic accounting through to more advanced topics.²¹ Another portal offers many free resources, including videos on graduate capabilities such as working in teams, resolving team conflicts and written communication skills, which are important for accounting graduates now and into the future.²²

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18. At the time of writing there are 731 accounting learning objects available to download and use.

19. www.khanacademy.org

20. www.khanacademy.org/science/core-finance/accounting-and-financial-stateme/cash-accrual-accounting/v/cash-accounting

21. www.oercommons.org

22. <http://education-portal.com>

Assessing As mentioned in other sections, assessment can be successfully outsourced to a computer when it relates to rules-based knowledge, like calculating ratios or recording appropriate transactions. Providing students with access to auto-corrected quizzes within an LMS or on the Khan Academy website is a great way for students to practise their competence with rules-based knowledge. These quizzes can be more effective than answers, or even annotated answers, at the back of a textbook. After submitting an incorrect answer, students are given targeted and immediate feedback and model answers, which the students can use to interrogate their own performance. Summative assessment, even of rules-based accounting knowledge, cannot be outsourced fully to an uninvigilated computer. Online identity authentication processes are becoming more sophisticated, with biometric analysis (e.g., digital fingerprinting) and live web invigilation; however, face-to-face invigilation of identity and effort is still the most effective approach to summative assessment (even if outsourced to a reputable agent like Pearson). Any assessment of learning requiring an expert judgement around student advice to complex problems or assessing achievement of soft skills like teamwork, communication and self-management, at this juncture, is probably best undertaken *in situ* by the academic.

Intervening Perhaps the most important role of the teacher, and the hardest to replace with a computer, is intervening to assist students when they are facing learning problems or difficulties. These ‘teachable moments’ are where such students are best helped by those who can recognise the nature and patterns of student learning. In the case of lower order problems, such as comprehension or understanding a fundamental accounting concept, intervention could be provided by a fellow student.²³

We review five examples of technology-enhanced strategies that strongly support self and peer learning around teachable moments. These strategies and resources are best suited for accounting academics to use in blended contexts, especially in a situation where they have flipped the typical monologue lecture to make time and space for students’ active learning.

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²³ Sometimes this formative feedback is appropriately labelled ‘assessment for learning’. As previously noted, such interventions may go beyond learning and simply relate to motivating persistence or the exploration of alternative paths or sources.

²⁴ www.teambasedlearning.org

I) IMMEDIATE FEEDBACK ASSESSMENT TEST (IFAT) SUPPORTED PEER LEARNING

IFAT is a device used in Team Based Learning (TBL).²⁴ In TBL students are put into teams to engage in a series of learning activities. Students are expected to have completed the pre-class work, which comprises reading and viewing of pre-recorded material before they complete the same multiple-choice-question test individually in class and then in teams using the IFAT. IFAT is a ‘scratch and win’ answer card with four or five multiple-choice questions. Teams discuss each question and arrive at a team answer; they then scratch their choice on the IFAT ‘scratch and win’ answer card to see if a star (denoting the correct answer) appears. Teams score points based on the number of scratches they make before finding the correct answer and, like the game of golf, the fewer points the better. Overall the activity involves students discussing potential answers in teams, ensuring that valuable peer-to-peer learning occurs. This is an excellent example of peers intervening around a teachable moment; in this case it is active face-to-face team learning, facilitated by a teacher. Class results on IFATs provide teachers with useful diagnostic information about concepts/ideas that students are having problems with – thus allowing academics to intervene and follow-up. We have tagged IFAT as a technology-enhanced strategy for achieving knowledge learning outcomes, but it also enables (or should we say requires) students to practise teamwork skills.

II) SELF AND PEER ASSESSMENT RESOURCE KIT PLUS (SPARK^{PLUS}) SUPPORTED PEER LEARNING

It is not uncommon for academics to offer students opportunities to answer multiple-choice questions prior to class. If SPARK^{PLUS} is used, students can provide reasons for their answers and rather than auto-grading them, it can collate and anonymously publish all student responses for students to interrogate prior to coming to class. In contrast to rewarding guessing, this allows students to see how their peers responded to the various questions and learn from the reasons given to justify their responses. This process also then enables the teacher to develop follow-up learning activities to target problematic areas/concepts.

III) SPARK^{PLUS} SUPPORTED PEER LEARNING AROUND TEAMWORK

An important learning outcome for all accounting graduates is the ability to work collaboratively. SPARK^{PLUS} is a tool used to assess a student's contribution to a team project (Freeman and McKenzie, 2002). It involves students recording a self-assessment of their contribution to a team based on criteria developed by the teacher, preferably with input from students. Once a self-assessment is completed, SPARK^{PLUS} asks students to rate each of their team members using the same criteria, and facilitates students' provision of qualitative feedback to clarify teachable moments for team members.

SPARK^{PLUS} then automatically aggregates the ratings to produce two weighting factors, namely the Self and Peer Assessment (SPA) and Self Assessment to Peer Assessment (SAPA) factors. The SPA factor is an aggregate measure of how the team overall viewed the contribution of each member to the team. Whereas this factor may be used to convert team marks into individual marks for assessment purposes, it provides valuable information for learning. The SAPA factor is the ratio of a student's self-assessment rating compared to the average rating of their contribution made by their peers. It provides a student with feedback about how the rest of the team perceives his/her contribution, which is valuable information for student learning about teamwork skills, as demonstrated in the following student quote:

'A quiet achiever, but expressed her opinion when opportunity presented and confident of being correct. Could help facilitate further discussion by asking clarifying questions or stating her opinion even when not confident that she is correct.'

Academics can assist students to further develop their team skills by facilitating a classroom discussion among team members using aggregate ratings and de-identified comments. Students can be guided to provide positive feedback to team peers and then for each to confess her/his weaknesses that she/he intends to address in the future. Following these steps, team members can be given opportunities to provide peers with suggestions for future behaviours if they have not already emerged.

To sum up: this is a simple system for collecting and efficiently aggregating ratings and de-identified peer comments to support multiple opportunities for peer learning soft skills.

IV) AUTO-GRADED SPREADSHEETS SUPPORTING SELF-PACED REFLECTIVE LEARNING

Blayney and Freeman (2008) offer a 10-step Excel-based template²⁵ to generate individual questions and answers for students to drill and practice rules-based accounting knowledge. Academics can use the template to develop basic management and financial questions built around rules-based knowledge, with data individualised for each student, and which include feedback for both correct and incorrect student answers. Used in a management accounting context, students can get immediate feedback on demand that helps them learn at their own pace and in their own time (Blayney and Freeman, 2004).

V) KHAN ACADEMY TOOLKIT SUPPORTING TARGETED TIMELY TEACHER FEEDBACK

Khan Academy resources include 4,000 short videos about many different disciplines; students can view, replay and read the transcript for each video. The Academy also has a Teacher Toolkit section, with learning analytics that allow teachers to monitor students' use of the videos (in real time) and identify areas where students are having difficulty, which videos they have viewed, and even where they paused in their use of the videos. This provides teachers with valuable information about the performance of the whole classroom as well as of individual students and their learning needs. Whereas The Khan Academy's accounting material was not extensive at the time of writing, this is likely to be rectified in the future because of significant donations to the Khan Academy from Bill Gates.²⁶

25. Available on request from Paul Blayney (paul.blayney@sydney.edu.au).

26. www.forbes.com/sites/michaelnoer/2012/11/02/one-man-one-computer-10-million-students-how-khan-academy-is-reinventing-education

CONCLUSION

In this paper we have argued that MOOCs are the latest in a long line of technologies to support distance education and are triggering various types of higher education responses. MOOCs that are well made can leverage certain aspects of teaching, such as transmitting information, assessing rules-based knowledge, automating feedback to common errors and directing students individually to appropriate adaptive learning objects and paths. And they can be an effective device for promoting a university's or company's or professional organisation's wares, or for providing a 'taster' that will attract learners to subsequent programs. However, while MOOCs deserve to be taken seriously and examined closely, they are neither a monster nor a silver bullet for the woes of higher education.

How accounting higher education stakeholders might respond to a future characterised by MOOCs has been the focus of much speculation in this paper. In the short term, we believe, MOOCs will have only a limited impact on the traditional undergraduate accounting market in Australia and New Zealand, because the current on-campus experience provides students with services, resources and experiences that are effective and cheaper than what is available from other means. After all, a MOOC is a single course and not an entire degree. Moreover, the current undergraduate program provides a pathway to a career in accounting, a pathway that is well established and recognised by employers of accounting graduates. As mature learners typically have more success in self-directed learning contexts, there may be scope for MOOCs influencing the career-changing postgraduate coursework degree, especially if credit becomes a serious option. And while there is increasing pressure to decouple learning from credentialing, Tertiary Education Quality Standards Agency-registered Australian higher education providers still have a monopoly on awarding degrees.

However, MOOCs are opening up new markets of learners: the working professional, the career changers, the knowledge-hungry and resourceful (and probably frugal) learners who are on the lookout for valuable professional learning opportunities. Of those who

seek such learning opportunities, it is the more motivated, more capable and more experienced learners who are most likely to complete them. But very few accounting departments have the people, technological infrastructure and available cash to invest in launching their own MOOCs; this is why department-wide approaches are important, and alliances, consortia, and partnerships with others with expertise will become increasingly important.

MOOCs have triggered a rethinking around what is right in the long term. They will put pressure on academics to use their class time better by incorporating excellent OERs that learners can access outside class and at a customised pace and pathway. And this pressure will increase. Core content is now effectively accessible for free. As the most expensive component in the cost of teaching, academics need to be used where greatest learning gains arise. Importantly, new research by MOOC providers like edX are joining with open learning initiatives like that from Carnegie Mellon University to investigate how and when online can best blend with human resources to accelerate learning. We predict that one possible outcome of such research will be xMOOCs taking on some of the interactive and collaborative characteristics of the original cMOOCs.

In closing our consideration of the impact of MOOCs on Australian accounting education, we make the following observations. First, the concept of MOOCs is proving to be 'slippery'. The cMOOC is a connectivist learning program for participants and the more recent xMOOC is more straightforward, designed for the learning of existing knowledge typically centrally dispensed from a recognised expert on one platform. And, whereas 'openness' (in terms of being 'free to air') was a defining characteristic, the cost of developing a MOOC needs to be recovered. Various monetisation and revenue-generating strategies are being considered. Options include competitive branding, tasters and as a freemium service. Short, online, private professional development courses are another (Dodd, 2013). Brand name institutions have the greatest capacity to experiment along these lines.

Second, computers can effectively replace some elements of students' learning experience. If academics can pursue knowledge about effective, efficient teaching and learning through their research and engagement with peers and practitioners, they will be able to make effective use of MOOCs and other OERs, which are becoming increasingly available. However, there is still a shortage and need for accounting academics who can perform the essential roles of intervening with students' learning problems/difficulties and assessing students' judgement-based knowledge.

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PART C

INSTITUTE OF CHARTERED ACCOUNTANTS AUSTRALIA KNOWLEDGE RESOURCE

The article in Part C of the volume provides a wealth of background information on MOOCs, collecting and synthesising a wide range of reading in the area. It was produced by the Institute of Chartered Accountants Australia's Strategy and Business Excellence Unit, from June 2012 to March 2013.

MOOCs – The Australian State of Play¹

ANGELA CHEUNG

INTRODUCTION

Massive open online courses (MOOCs) have emerged as one of the top megatrends in higher education. In 2012, enrolments in the new wave of MOOCs (known as xMOOCs, see Freeman and Hancock, 2013) exploded from zero to millions of students globally. The disruptive potential MOOCs pose to universities and the breakneck speed of developments has generated both excitement and apprehension in academic circles. Many academics are energised by the prospect of teaching masses of students globally, and by the level of engagement and diversity of the online community (Friedman, 2013; Belanger and Thornton, 2013). Students are attracted by the opportunity to learn from leading academics and engage in a global classroom. This article discusses the development of MOOCs internationally and the benefits, issues and challenges they pose for Australian higher education.

MAJOR PLAYERS

Coursera, edX and Udacity are emerging as the main players in MOOCs for higher education. All are based in the US. In December 2012, a UK-based MOOC platform emerged, *Futurelearn*. Some of the characteristics of each of these players and the issues they face, focusing on accreditation, monetisation, plagiarism and job placement services, are outlined below.

COURSERA

Coursera was founded in 2011 by Stanford University computer scientists, Professor Daphne Koller and Professor Andrew Ng. In April 2012, it launched courses from five top US universities² on subjects ranging from sciences to business, economics and humanities, with each course lasting from four weeks to 12 weeks. Non-US universities, such as the University of Melbourne, University of Edinburgh, University of Toronto and Hong Kong University of Science and Technology, have joined Coursera since July 2012. As at March 2013, Coursera has over 2.8 million users, and features over 300 courses from over 60 university partners.³

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1. Many thanks to Professor James Guthrie, Professor Mark Freeman, Allen Blewitt and Barbara Bell for their comments and helpful resources for this paper, as well as the Institute of Chartered Accountants Australia's Strategy and Business Excellence team for their support.

2. Stanford University, Princeton University, University of California Berkeley, University of Pennsylvania, and University of Michigan.

3. www.coursera.org

In August 2012, Coursera reportedly experienced multiple cases of student plagiarism, despite courses carrying no academic credit (Young, 2012a). Students in peer-assessed courses complained of plagiarised assignments, even though students agree to a code of honour when registering for courses. Students who complete a course receive a Statement of Accomplishment from Coursera and the participating university.

In October 2012, Antioch University became the first US university to offer course credits for Coursera MOOCs, in a bid to lower tuition costs. Bachelor of Arts students will be able to enrol in MOOCs developed by the University of Pennsylvania, with a faculty member simultaneously enrolled to provide supplementary guidance and additional exercises.

In November 2012, a milestone was reached for all MOOCs when the leading body for US higher education institutions, ACE, announced it would evaluate selected Coursera courses for academic credit and make recommendations. Although institutions retain ultimate discretion over whether to grant academic credits, ACE credit recommendations are generally accepted by over 2,000 US higher education institutions. In February 2013, five Coursera courses in maths and science were recommended for course credit, with reviews for other courses ongoing.

In December 2012, Coursera Career Services was launched as a job placement service that uses data analytics to match students and companies, initially in software engineering. As explained by Young (2012b), students can opt to use the service, allowing prospective employers to view their resume and course results. The employer pays a flat fee per introduction, of which Coursera passes on 6–15% to the university that developed the course. Universities may opt out of the service, in which case all of its courses become ineligible for the service. Employer partners include Facebook, Twitter, AppDirect and TrialPlay.

In January 2013, a new 'Signature Track' feature was launched, which enables a verified certificate of completion to be received, rather than the usual (unverified) Statement of Accomplishment, for a fee. Students create an online biometric profile – using a

webcam, photo identification and typing patterns – which enables submitted coursework to be linked to their profile. Students can only elect to use the Signature Track version of a course within the first few weeks of the course. Fees vary between courses and cost up to US\$200, although financial aid is available. The Signature Track is expected to become Coursera's largest revenue stream in 2013 (Dodd, 2013). However, it is only available if the participating university allows for the feature to be used. Coursera has been working on introducing supervised exams conducted via webcam with third-party provider ProctorU.

The apparent business model thus emerging is for students to undertake a course using the Signature Track feature, followed by an online proctored exam (for an additional fee), in order to gain an ACE course credit recommendation. Coursera is also exploring content licensing and subscriptions fees for access to the online community, paid follow-up courses and advertising sponsorship. Modest revenues are currently derived as an Amazon affiliate (when students click-through to buy Amazon products, such as textbooks).

EDX

edX is a joint venture between Harvard University and the Massachusetts Institute of Technology (MIT), launched in May 2012. In July 2012, the University of California Berkeley joined edX, followed by three other US institutions in late 2012.⁴ In February 2013, edX expanded globally, adding six university partners, including the Australian National University (ANU). edX now has 12 university members in its 'X University' consortium, however, it has been approached by over 200 universities since its launch. Harvard and MIT have committed US\$30 million each to the venture, and other consortium members are estimated to have invested about US\$70–80 million in cash, in addition to in-kind contributions (Mather, 2013). edX currently offers about 20 courses, predominantly in computer- and science-related fields. In February 2013, it had registered over 900,000 course enrolments from 700,000 users.⁵

There are no current plans for an edX degree, however consortium members are contemplating whether to allow course credits. Students receive a certificate of completion at the participating university's discretion,

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4. These were Georgetown University, The University of Texas System and Wellesley College.

5. www.edx.org/faq

and edX may charge a nominal fee for the certificates in future. In September 2012, edX announced a partnership with Pearson VUE, a third-party assessment provider, to provide supervised test centres for online courses and to authenticate learners' identities. Students would have to pay for the service.

UDACITY

Udacity was founded in 2011 by three roboticists, Sebastian Thrun, David Stavens and Mike Sokolsky. A few weeks after launching its first course in February 2012, 'Introduction to Artificial Intelligence', it had over 160,000 students enrolled from over 190 countries. By October 2012, Udacity reached 800,000 registered users. As at March 2013, Udacity has over 20 courses on offer.⁶

As Anders (2012) explains, Udacity's teaching mode includes continual quizzes every few minutes, promoting problem solving as a way of learning and to determine when students can progress. Many students are mid-career professionals seeking to improve specific skills. The proliferation of social media has meant students are more comfortable with online study groups involving unfamiliar peers. According to Anders, Udacity plans to offer free education but to eventually charge for certificates or enhanced features, such as chat.

Udacity has about 30 staff, most of whom work on video, graphics or software to improve the interactive quality of its courses (Anders, 2012; Sloan, 2012). In January 2013, Udacity unveiled a redesigned website and launched a bill of rights for online learning. Course instructors include academics (from universities including Rutgers, Virginia and Utah) and industry practitioners, who are paid US\$5,000–US\$10,000 per course (Anders, 2012). In dealing directly with professors rather than taking on a university partner, Udacity differs from Coursera and edX.

In June 2012, Udacity announced a partnership with Pearson VUE to allow students the option of sitting exams to receive an official credential, for a fee of US\$89. In September 2012, Udacity reached a milestone when Colorado State University – Global Campus, allowed full course credit for students who complete Udacity's free introductory computer science course, subject to assessment at a Pearson VUE centre.

In January 2013, Udacity announced a partnership with San Jose State University (SJSU) to develop *San Jose University Plus*, a pilot program offering course credits to students. Three courses would be offered for US\$150 and limited to 100 students each, with exams delivered online. The courses, all in maths and statistics, are critical, entry-level courses applicable to most university degrees but experience high failure rates. The target market includes high school students, wait-list students and army personnel. SJSU stated its aim is to make university affordable and accessible. Further, in January 2013, ACE announced it would evaluate four Udacity courses for course credit recommendations.

Udacity has been exploring monetisation from placing students in jobs since 2011. Employer partners can access about 3,000 resumes and pay a fee when they recruit a candidate (Sloan, 2012). Students create a profile and can choose which employers can view their resume. Thrun describes the service as 'more like a headhunter', screening its database for potential matches at openings of about 350 employer partners, including Google, Amazon and Facebook (Young, 2012b). In October 2012, Udacity announced several large software companies, including Google and Microsoft, were sponsoring courses in areas of skills shortage, such as HTML5, game development and 3D graphics programming (Sloan, 2012).

FUTURELEARN

Futurelearn is the first UK-based MOOC platform and was launched in December 2012. It is a private company owned by the UK's Open University, a distance education provider. A consortium of partners includes 17 top UK universities, the British Library and the British Council. *Futurelearn* aims to differentiate itself as a British MOOC platform and will focus on the quality of experience, rather than global reach or quantity. It is currently only considering UK-based partners, although global partners may be accepted in future. *Futurelearn* is set to introduce its first free courses in 2013 and is led by Simon Nelson, who worked on the development of *BBC Online*. Access to pedagogical data collected from the Open University and iTunes U will be used to develop the offering.

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6. www.udacity.com/us

IMPACT ON UNIVERSITIES

The following section will discuss the possible disruptive influence by MOOCs on Australian higher education.

BUSINESS MODEL

The traditional university model, which sees students pay a large upfront cost for a bundle of services they do not entirely need, will face increased pressure (Carey, 2012). MOOCs offer parents an education alternative without a heavy debt burden (Carey, 2012). In the US, the increasing reluctance to incur large student debts following the global financial crisis is one factor driving the MOOC revolution (Austrade, 2013). Institutions will therefore be forced to rethink their value proposition to students.

According to Gallagher and Garrett (2012), the establishment of edX by Harvard and MIT shows that these institutions do not view online presence as a threat. Instead, an Internet presence helps build universities' brands and can enhance the value of their degrees (Marginson, 2012). MOOCs represent an exclusive collaboration between elite universities for brand positioning and shared development (Sadler, 2012). They therefore pose a greater threat to less prestigious universities, which are faced with the dual challenges of losing students to MOOCs and exclusion from current MOOC platforms.

However, Daniel (2012) argues that elite universities derive their prestige from research rather than teaching, and some less prestigious universities may be better at teaching. League tables of MOOCs may eventually emerge and expose elite universities to questions over the quality of their programs (Daniel, 2012). This may place a renewed focus on pedagogy and a new hierarchy may emerge.

It may eventually be the case that on-campus study is for affluent students and MOOCs for those who cannot afford it (Blumenstyk and Carlson, 2012). In the US, higher education costs have increased 360% above inflation since 1986, and student debt has reached US\$1 trillion (Davidson, 2013). This is occurring at a time of education spending cuts in the US and UK, which are forcing students to shoulder more of their tuition costs. Yet, ANU Vice-Chancellor Ian Young also believes the provision of free online courses may create a reluctance to pay for courses in future (Dodd, 2012a).

DEMAND FOR COURSES

MOOCs can become both a substitute for, and a supplement to, traditional courses in the following ways: as prerequisites to on-campus programs; displacing other pre-admission criteria (Gallagher and Garrett, 2012); incorporated into on-campus programs (e.g., replacing first year courses) (Gallagher and Garrett, 2012); providing 'prior learning credits' toward a formally recognised qualification, similar to work, training and volunteer activities (Gregory, 2012); and providing course credits toward traditional degrees, as a way for universities to build enrolments (Carey, 2012).

Marginson (2012) predicts demand for first degrees will remain relatively unaffected by MOOCs, as Australia's higher education funding scheme lowers the cost of an on-campus degree, and the on-campus experience, which enables students to physically interact, is valued by new students. Rather, the greater impact will be in demand from lifelong learners and those undertaking further education. This is consistent with the University of New England (UNE) Vice-Chancellor John Barber's view that the on-campus experience will be mainly for school leavers, and the larger market will be in mobile online learning (Armitage, 2012). Critically, if employers accept MOOC credentials, more students may come to prefer MOOCs over traditional higher education (Marginson, 2012).

Gardner (2012) predicts that MOOCs are more likely to disrupt the following three market segments, rather than traditional university degrees. First, they may affect short vocational qualifications, where demand is for the accredited qualification (and it is less about the learning experience), especially where participants must demonstrate mastery for compliance purposes. Second, short postgraduate qualifications (e.g., one year), as students are often time-poor and have additional work and family responsibilities. Third, there may be an impact on taster/short courses that enable people to 'dabble' in fields, which is where MOOC enrolments are focused, as reflected in the high attrition rates.

Even if universities incorporated MOOCs into first year courses, they would arguably still be able to differentiate their graduates through higher-level courses, effectively enabling easier entry into programs but graduation with a degree to be harder.⁷ For example, Harvard Business School no longer teaches introductory accounting, because a quality online course by a professor at

7. Similar to the UK Open University's system, see Daniel, 2012, p. 12.

Brigham Young University is available to students (Friedman, 2013). A strategy of building enrolments and lowering tuitions via MOOCs may thus be feasible. Commentators predict that most MOOC revenues will come from licensing remedial courses and introductory courses that are common to many degree programs, such as economics and statistics (Lewin, 2013).

INTERNATIONAL STUDENTS

According to Marginson (2012), Asia's emerging middle class will ensure continued foreign demand for educational services. However, cheaper MOOCs offered by more prestigious US universities pose a threat to Australian institutions. Marginson argues that Australian universities cannot compete effectively against their US counterparts, but may have an edge if they are Asia-focused.

According to the International Education Advisory Council (2013), post-study options, such as work and migration, influence international student demand for education in Australia. Birtchnell (2012) argues that MOOCs will not change international demand for on-campus study, as it is frequently viewed as a path to Australian residency. MOOCs may therefore cater to a different market, namely students who would not otherwise attend university in Australia. Moreover, international students seek global prestige and accreditations, networking and internship opportunities that are unavailable in their home countries, as well as the opportunity to immerse in a different culture and language. These factors should mitigate some of the impact on international student demand. UNE's new MOOCs in 2013 are expected to attract international students, as they can commence studies prior to arrival and reduce onshore costs.⁸

COMPETITION FOR GRADUATE JOBS

MOOCs threaten the 'monopoly' on college credits that universities hold, which are currently the only credits accepted in the labour market (Carey, 2012). Employers may come to prefer a student who performs well in a MOOC over a pass-grade student from a traditional bricks-and-mortar university. MOOC qualifications from globally prestigious universities could become as acceptable as degrees from lesser-known institutions (Gallagher and Garrett, 2012). Nevertheless, the disruptive potential MOOCs pose for job competition

is still questionable. For instance, would a client be willing to pay expensive charge-out rates for a consultant who does not hold traditional university qualifications? This question is particularly relevant to industries where high client fees are justified on the basis of skilled staff hired from top universities. Ultimately, degrees from renowned universities are expected to continue to hold their prestige and provide career-forming opportunities (Marginson, 2012). The greater challenge will be for less prestigious universities.

Accounts by MOOC students undergoing job interviews suggest employers are still keen to test candidates on their skills, and are more interested in 'provable experience', rather than a degree (Udacity, 2012). This may be particular to computer science, where MOOC job placement activity has so far been concentrated. It may also reflect employer scepticism of MOOC learning outcomes and qualifications, at least until issues of credible assessment and certification are resolved.

COURSE CONTENT AND STRUCTURE

Marginson (2012) foresees that course content will be a mix of local and global, with an increasing focus on global content. Further, he argues that there is a risk of knowledge, content, learning and culture becoming homogenised (Americanised).

Course structures are revolutionised by online technology. As Wappett (2013) explains, the traditional on-campus experience requires academics to prepare 24 one-hour lectures for a 12-week semester. In comparison, online lecturers must prepare about 400 sessions lasting 8–10 minutes and a short quiz, which determines whether or what modules students progress to. This likely entails significant time and effort, as well as further work on updating content (see Belanger and Thornton, 2013).

ACADEMICS

According to Gregory (2012), the large scale of MOOCs is likely to mean fewer teaching academics are required, especially when online content is freely available from prestigious institutions. Gregory argues that the shift in higher education models toward project-based learning, encompassing workshops and online forums and meetings, has already altered academics' teaching roles to become 'akin to course coordinators'.

8. University of New England (2013), 'UNE Open takes online courseware to a new level', weblog, 20 February, available at: <http://blog.une.edu.au/news/2013/02>, accessed 12 March 2013.

Several universities already identify 'research only' and 'teaching only' academics. The number of teaching-only academics has increased over the past decade, and these roles are at risk due to MOOCs: active MOOC participants can be promoted to online teaching assistants and the assessment function can be outsourced to external low-cost examination centres (Gregory, 2012). According to Marginson (2012), more research-only positions may be created and staff cuts focused on teaching academics, as research strength is still required by universities to maintain global prestige.

A counterintuitive view is that the academic's role may simply change rather than diminish: effective distance learning still requires good support (Daniel, 2012). MOOCs pose a higher threat to the academic's role if knowledge is all that is taught, but higher-level learning outcomes, such as critical thinking, are more difficult to teach online – Socratic teaching is interactive and therefore difficult to replicate through a MOOC. Nevertheless, in March 2013, edX launched the famed *Justice: What's the Right Thing to Do?* course by Harvard political philosopher Michael Sandel. The course, available on YouTube since 2009, uses Socratic dialogue on a live audience.

Google's chief technology advocate Michael Jones predicts that the proliferation of MOOCs will see global leading professors treated as 'rockstars' (Armitage, 2012). Such professors will develop the best online courses and sell them to universities, which will tweak the content and charge students for the courses. Further, Jones predicts mobile devices will become the interface for students and teachers to connect. Hence, further investment in bricks-and-mortar universities may be short-sighted (Armitage, 2012).

AUSTRALIAN UPTAKE OF MOOCs

Australian universities are beginning to embrace the MOOC trend, although in early 2013 uptake appears to be in an experimental stage. The following reviews several developments by a number of Australian universities.

AUSTRALIAN NATIONAL UNIVERSITY

In February 2013, the ANU joined edX. ANUx will initially introduce two courses, on astrophysics and engaging India. The courses are expected to be beta-tested in 2013 and fully operational in 2014. Nominations for future ANUx lectures and courses will be sought from staff and students.

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9. <http://ceit.uq.edu.au/content/uq-elearning-strategic-plan>

UNIVERSITY OF MELBOURNE

In September 2012, the University of Melbourne became the first Australian university to join Coursera, and is expected to make 10 subjects available by the end of 2013, on topics ranging from macroeconomics to animal behaviour. In December 2012, University of Melbourne provost Professor Margaret Sheil was appointed to the inaugural advisory board of Coursera. The nine members of the board represent a Coursera university partner, and three board members will rotate annually.

UNIVERSITY OF NEW SOUTH WALES

In October 2012, the University of New South Wales became the first Australian university to introduce a MOOC. The free online course on computer programming is aimed at stimulating interest in computer science among high school students and is offered at first year university level, but does not provide course credits. It is delivered by the start-up Open Learning, and is available at its website (www.openlearning.com).

UNIVERSITY OF NEW ENGLAND

In February 2013, UNE announced it would offer MOOCs in some mainstream undergraduate and postgraduate degrees in business, law, computer science and social sciences from the second trimester of 2013. The courses will be provided through a platform, *UNE Open*, which will also offer additional paid services such as tutoring, exams and recognition for course credit.

UNIVERSITY OF QUEENSLAND

In September 2012, the University of Queensland (UQ) announced it would create one to two courses from each of its six faculties in MOOC format over the coming two years. UQ is primarily interested in exploring opportunities to enhance the on-campus experience and has enlisted MIT to assist in developing a model for online courses. UQ has also released its *Strategic Blueprint for Support of Technology-enhanced Learning for 2012*.⁹

UNIVERSITY OF WESTERN AUSTRALIA

In October 2012, the University of Western Australia (UWA) announced a collaboration with Stanford University to offer free online courses in early 2013. At least three MOOCs will be offered, in sociology, anthropology, engineering, and possibly a fourth in science. Participants in the online-only versions of UWA's courses will be able to access the course

content over a shortened semester of 8–10 weeks, with interactive quizzes and tutorials available. On-campus students can also access the content, enabling more face-to-face time to be spent on interactive learning with academics. All participants will receive certificates of completion. The partnership between UWA and Stanford will also see the universities collaborate on developing versions of *Class2Go* for mobile devices. *Class2Go* is an open-source software that can host free online courses, and was launched by Stanford in 2012.

DEAKIN UNIVERSITY

In June 2012, Deakin University launched its new strategic plan, *Live the Future: Agenda 2020*.¹⁰ Deakin plans to make the majority of its content accessible on tablets and mobile phones, and to train staff to adopt technology in their teaching. The goal is to make education user friendly, self-service and always accessible, similar to banking and shopping. Approximately 28% of Deakin University's 42,000 students do not attend campus.

AUSTRALIAN UNIVERSITY RESPONSES

Strategies available to Australian universities in response to MOOCs are essentially focused on two central themes. First, attracting student demand, through enhancing the value proposition and leveraging new opportunities. Second, enhancing effectiveness in the supply of educational services, through efficiency and specialisation.

STUDENT 'DEMAND'

If online study will emerge as a real contender to on-campus study, the value proposition for on-campus study should be made clearer, especially if learning outcomes are similar. Australian universities could therefore respond to MOOCs in the following ways (Marginson, 2012):

- Become more active in 'brokering' work experience during degrees
- Become more active in career counselling and/or employer placements
- Increase support services and provision of extracurricular activities to campus students
- Increase emphasis on graduate research programs, where intensive teaching is still required
- Use MOOCs to lower tuition fees and/or cut staff costs.

According to social media entrepreneur Michael Staton, higher education is a vertically integrated series of core functions – content, skills, access to opportunities and so forth – and institutions both compete and collaborate with all forms of providers across the spectrum (Austrade, 2013). The technological disruption to higher education may therefore see universities unbundle these core functions and specialise in a few of them, or alternatively rebundle some functions, so as to target particular student segments (Austrade, 2013).

Strengthening partnerships with industry would support the growing trend and popularity of work integrated learning, where industry placements and/or real-world projects are incorporated into university course programs (Callaghan, 2012). Work-integrated learning provides work experience and networking opportunities, which enhance employment prospects. They are popular with international students wanting Australian workplace experience. According to the Australian Collaborative Education Network, almost all universities offer work integrated learning, although statistics are unavailable (Callaghan, 2012).

MOOCs present an opportunity for universities to further expand into the international student market; universities can sell an Australian experience, provide online education, showcase courses or allow 'try before buy' (Austrade, 2013). 'Freemium', where a basic offering is free but additional premium services are paid for, can be used to build enrolments at universities. Universities can also target lifelong learners. However, key challenges include increased global competition and responding too slowly to the disruptive technological force MOOCs represent.

EFFECTIVE 'SUPPLY'

MOOCs represent an opportunity to improve resource-allocative efficiency and realign value proposition with market incentives (Coenen and Goldsworthy, 2013). They are emerging at a time when higher education in Australia is shifting towards increased market competition, due to the deregulation of government-funded student places in 2012. Ernst & Young Australia (2012) argue that the dominant university model in Australia, namely a diverse teaching and research institution, with a heavy asset base and back office, will be unsustainable in the coming 10–15 years.

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10. www.deakin.edu.au/about-deakin/strategic-direction/our-strategic-plan

For instance, online education models enable lower cost structures, such as volunteer translators, peer support and peer assessment, which can provide a significant competitive advantage over traditional universities.¹¹

Accordingly, Ernst & Young Australia (2012) propose that universities streamline costs, specialise in particular student segments and/or focus on areas of relative strength. For instance, working with innovation and venture capital players to capitalise on universities' research strengths, or partnering with information, media and technology players to target new markets. Further, collaboration to scale up, both locally and internationally, can help universities better position themselves in what is becoming an increasingly global higher education market (Coenen and Goldsworthy, 2013).

O'Brien (2012) argues that universities should focus on their online research presence. If done well, this can improve the links between universities, regulators, industry and other stakeholders. There is some speculation that teaching-only institutions will become an inevitable part of the Australian higher education landscape (Ernst & Young Australia, 2012). Although research is central to Australian universities, it will likely be concentrated in top research institutions, or universities may specialise in selected research fields.

Universities will also need to change their performance measures to adjust to the online environment (O'Brien, 2012). Students will increasingly base their choices on the performance of academics and be attracted to those with standout professors. Further, university campuses will need to adapt to the online trend by providing 'learning commons', referring to collaborative learning spaces that are more suited to online and student-centric learning (Lamond, 2012). Investment should be diverted from lecture theatres to broadcasting studios to provide recordings for virtual classrooms.

AUSTRALIAN GOVERNMENT STANCE

The Federal Government has participated in industry events exploring the impact of the Internet and technology on higher education. Issues of key importance are regulation and higher education funding policy.

On 22 October 2012, The Conversation and the Office for Learning and Teaching organised a symposium on MOOCs, hosted by the then Minister for Higher Education, Skills, Science and Research, Chris Evans. Senator Evans expressed the view that MOOCs were

part of a trend towards greater choice and competition for students in higher education, both locally and abroad, and presented an opportunity (Creagh, 2012). Although he thought higher education institutions had to adapt to respond to students' needs, he also stated: 'I am not sure I see [MOOCs] as such a game changer' (Creagh, 2012).

Previously, on 3 October 2012, at a Sydney industry skills conference, Senator Evans questioned the implication MOOCs had for universities, such as whether funding traditional campuses was worthwhile if the learning environment had changed, and implications for staff if students had access to quality content online (Dodd, 2012b). Senator Evans stated he saw online technology, such as websites, and online course materials replacing textbooks, as parallel sources of change.

Earlier, on 27–28 September 2012, at a high-speed broadband and higher education seminar, the Minister for Broadband, Communications and the Digital Economy, Stephen Conroy, stated universities must change or risk being left behind (Palmer, 2012). Senator Conroy called for more rapid change, stating: 'It's only taken us 112 years to get a national curriculum, I don't think we've got 112 years to work out what we want to provide in the globalised digital education world... What is a lecture worth if the best lecturer in the world at MIT is online for free for all to access?' (Gregory, 2012).

In February 2013, Federal opposition leader Tony Abbott announced a Coalition Online Higher Education Working Group, to be led by Alan Tudge MP, a member of the House of Representatives Education and Employment Committee. The Working Group will investigate online education, including access, international expansion, quality and government policy. Previously, Tudge (2012) has argued that government policy must change to accommodate the Internet-led higher education revolution and suggested the following measures:

- TEQSA requirements must allow for online learning
- Regulatory barriers to overseas universities entering Australia must fall (such as requiring universities to perform research and teach in every field)
- Universities should be allowed to price differentially based on learning mode and costs involved (even within the same degree), to allow for online learning
- Student funding should be based on learning outcomes rather than the institution or course structure
- Learning costs should fall.

11. For example, MIT's OpenCourseWare has been able to provide 178 courses in Mandarin with the help of thousands of voluntary translators (Austrade, 2013).

CONCLUSION

MOOCs represent a disruptive force to higher education. Although the extent of their potential is yet to be determined, as well as the direction of change, MOOCs will likely remain a permanent fixture in higher education. Ongoing progress on assessment and certification should be conducive to greater employer acceptance in time. Longer-term issues to be resolved are the development of viable business models and implications for higher education funding policy. In turn, looming broader questions are the future role of government in education, what education means for society and what types of educational pathways will be acceptable to society in future.

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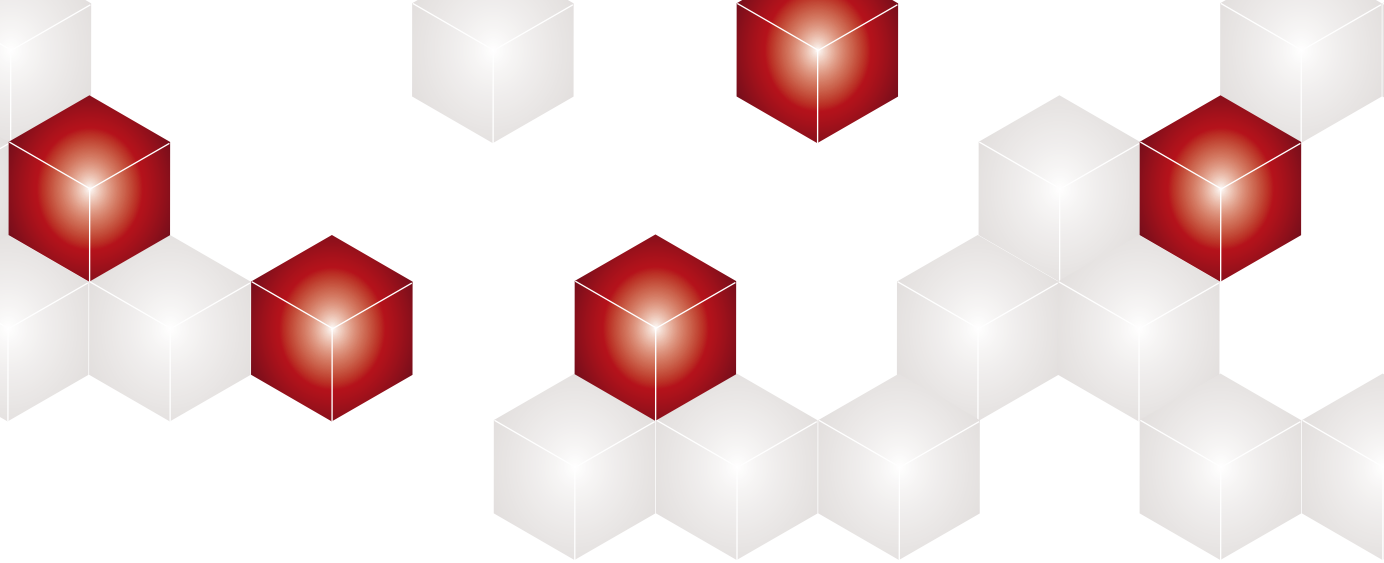
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