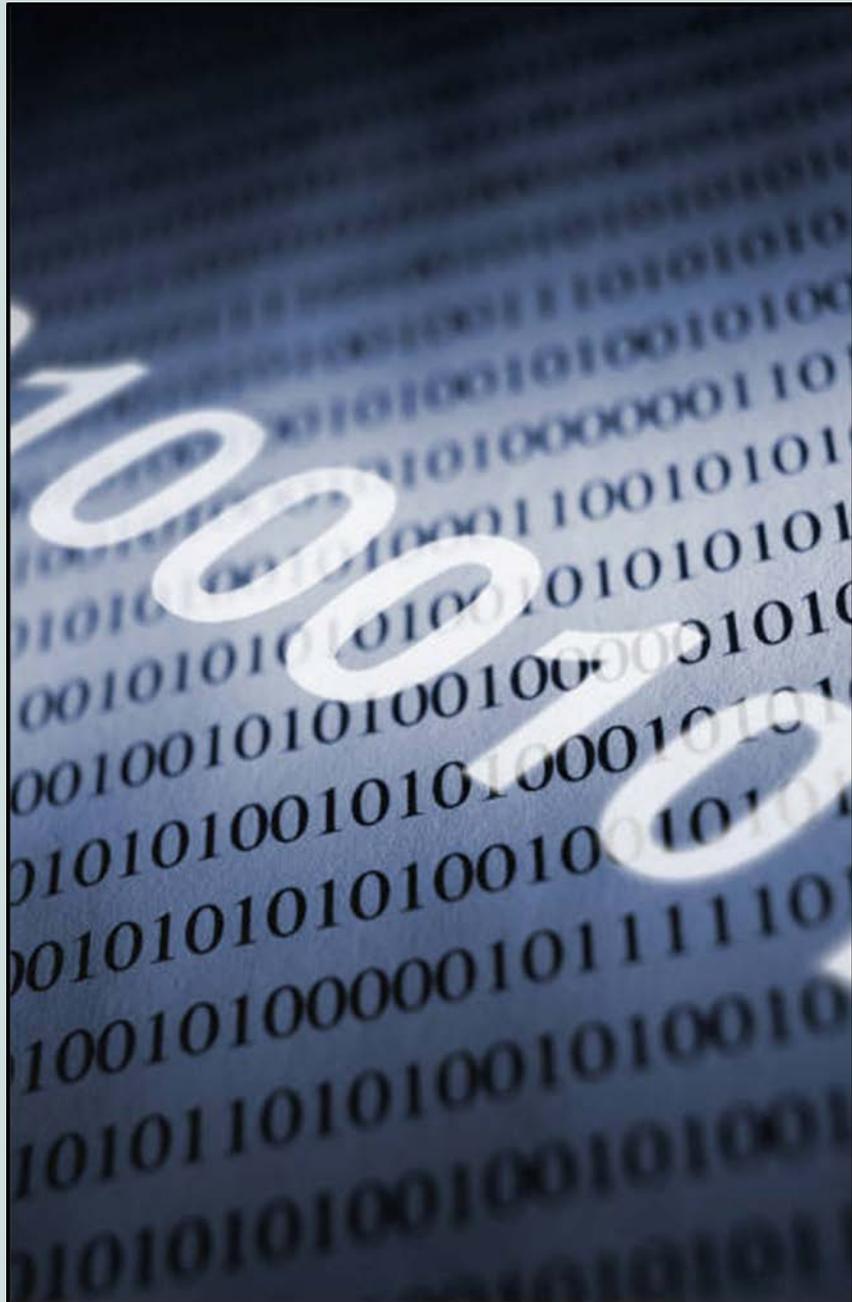




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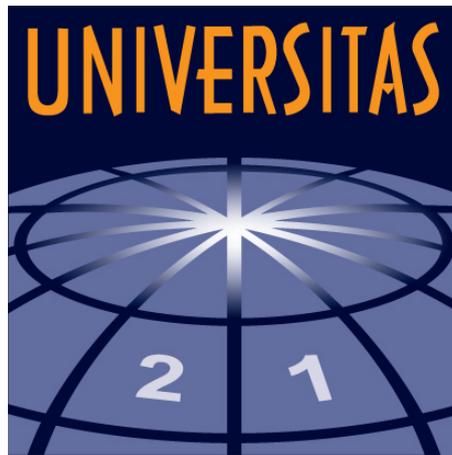
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# **Universities Challenged: The Impact of Digital Technology on Teaching and Learning**

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Professor John Morgan



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# Universities Challenged: The Impact of Digital Technology on Teaching and Learning

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## Executive Summary

At the present time, there is much talk about the potential of digital technologies to bring about significant changes in models of teaching and learning in universities. Most notably, the advent of MOOCs (Massive Open Online Courses) has aroused much interest, with influential commentators suggesting that this represents a 'killer app' or 'game-changer'.

Technological innovations should be understood as only one part of broader moves to 'reimagine' the role of universities in a fast-changing economic and cultural environment. Examples of influential accounts of these changes are found in two recent reports:

1. Bokor, Justin (2012). Ernst and Young Australia. *University of the Future*.
2. Barber, Michael & Donnelly, Katelyn & Rizvi, Saad (11 March 2013). Institute for Public Policy Research. *An Avalanche is Coming: Higher Education and the Revolution Ahead*.

Both of these reports assume that the 'traditional' public university, which emerged in the aftermath of World War II, is now in terminal decline, and are concerned with 'what comes next'. In both accounts, technology plays a potentially disruptive role because it undermines the monopoly on knowledge and content traditionally held by universities.

Whilst digital technology is a central feature of university life, the role that it plays is contested. For some commentators, digital technology has the potential to contribute to solving the long-term 'cost-crisis' faced by universities in providing teaching courses. For others, digital technologies are transforming the everyday life of consumers, academics and students, and are ushering in new sets of relations based on sharing, collaboration and creativity. Still others express concern about the ways

in which innovations that have their origins in commercial environments, are set to undermine the slower, more deliberative processes of learning in universities. The important point is that technological developments are unavoidably linked to broader social imaginaries: our ideas about the role of technology in education are shaped and reshaped by our ideas about what constitutes the 'good society'. In this case, it is incumbent on university administrators and academics to openly discuss the opportunities and costs of these developments.

## Here Come the MOOCs

In August 2012, the respected expert on the study of higher education, Professor Simon Marginson, wrote an article in *University World News* entitled 'Yes, MOOC is the global higher education game changer'.<sup>i</sup> MOOC stands for Massive Open Online Course. MOOCs combine internet-based courses (itself nothing new), online grading, and allow students to gain certification at the end of the programme. Two companies, Udacity and Coursera, were busy building MOOCs in collaboration with leading US universities and Harvard and MIT formed a partnership under the name edX. Professor Marginson argued that the MOOC is a disruptive concept for higher education, the result of the economics of the internet. Open access knowledge is freely available to all, but in the case of 'market leading' universities there is the potential to capture the market as a whole, since customers will choose the most prestigious courses in elite universities associated with named and 'star' professors. Whatever the validity of these claims, there is no doubt that this type of technological optimism, driven by the search for the 'killer app' that will significantly reshape the educational landscape, is reflective of broader concern to 'reimagine' the role of universities in the 21<sup>st</sup> century. Technology plays a central role in this reimagining. A recent edition of *The Economist* carried a briefing on Educational Technology entitled 'Catching on at last', which documented a variety of ways in which 'data-driven technology' has the potential to 'flip the classroom', and remarks (a little prematurely) that higher education is 'a field that is being revolutionised thanks to online courses known as MOOCs'. *The Economist* shares Marginson's view that these changes are both qualitative and quantitative, explaining this in the global language of economics:

Education has proved stubbornly resistant to the improvements in productivity that technology has brought to other jobs. This wave of edtech promises to change that. Technology has supposedly been on the verge of transforming education for over a century. This time it looks as though it will.<sup>ii</sup>

It is important to avoid the trap of seeing technological developments as the single factor shaping the future of universities. Technology is simply part of the mix. The discussion in this paper is framed by the publication, in 2012, of two reports which raise important questions about the future shape of universities. The first, authored by the Australian arm of the global management consultants, Ernst and Young, was

entitled *University of the Future* and had as its tagline 'A thousand year old industry on the cusp of profound change'. It stated that:

Over the next 10-15 years, the current public university model in Australia will prove unviable in all but a few cases.<sup>iii</sup>

The report's Executive Summary stated that, 'the higher education sector is undergoing a fundamental transformation in terms of its role in society, mode of operation, and economic structure and value'. In light of this, universities will need to 'significantly streamline their operations and asset base, at the same time as incorporating new teaching and learning delivery mechanisms, a diffusion of channels to market, and stakeholder expectations for increased impact'.

The report is clear that these are exciting and challenging times for universities, and, in line with the genre of futures studies, outlines what it sees as the five 'drivers of change':

1. Democratisation of knowledge and access
2. Contestability of markets and funding
3. Digital technologies
4. Global mobility
5. Integration with industry

The second report - *An Avalanche is Coming: Higher Education and the Revolution Ahead*<sup>iv</sup> – was published by the UK-based think tank, IPPR (Institute for Public Policy Research). Its principal author is Sir Michael Barber who has taken up the role of educational advisor for Pearson Education. Its foreword was written by Lawrence Summers, a former Chairman of the World Bank:

Just as we've seen the forces of technology and globalisation transform sectors such as media and communications or banking and finance over the last two decades, these forces may now transform higher education. The classical buildings of great universities may look permanent but the storms of change now threaten them.

The idea of the avalanche is a clever metaphor, since it suggests that although on the surface all may appear calm, beneath are tensions, fractures and forces which may build to create a radical change in the landscape. As principal author Sir Michael Barber put it in a YouTube clip, in the face of an avalanche, the one thing that you cannot afford to do is stay where you are.<sup>v</sup> The 'underlying forces' that threaten to reshape the landscape of higher education include a changing global economy in which the centre of gravity is shifting towards the Asia-Pacific region; a global economy which is struggling to recover from the Global Financial Crash of 2007-08; the changing economics of higher education in which costs are increasing and yet the relative value of a degree is declining; a technological shift in which content is ubiquitous; universities no longer hold a monopoly over knowledge production and distribution.

So how should we to interpret all this talk of avalanches, profound change, game-changing, transformation and revolution in universities? The first thing to note is that that arguments about disruptive technologies and reports about the coming revolution in higher education can be seen as reflective of a growing 'epochalism' in advanced Western societies<sup>vi</sup>. Epochalist accounts 'are those which seek to encapsulate the *Zeitgeist* in some kind of overarching societal designation'.<sup>vii</sup> Such accounts suggest that we are coming to the end of one way of organizing economic and social activity, and that we are in a state of becoming. The important thing about this is that there are a number of driving forces that effectively provide the context and limits for the future development of society. There is no way out of their terms of reference. This is the case in terms of the drivers of change or the underlying forces that are shaping the higher education landscape; they set the parameters for creative responses. More specifically, these reports can be seen as part of a broader literature which sees a shift in the underlying logic of how universities operate.<sup>viii</sup> The broad narrative is one of a shift from the expansive and state-funded university systems that emerged in the decades after World War II. The expansion of universities in this period was predicated on the need to improve access for wider groups of students and, at the same time, produce the human capital required for economic growth and development. Under the auspices of various social democratic settlements, this expansion was subsidised through a system of tax-funded grants. The tensions in this arrangement eventually led to the breakdown in this system and the increased role of markets into education from the late 1970s and early 1980s. This was associated with a broader political shift in ideas that favoured enterprise and the reduction of direct state

expenditure. Universities were to become more entrepreneurial and to raise a greater proportion of their incomes through private sector borrowing and the introduction of tuition fees for students, as well as marketing themselves internationally and developing distinctive brands. Whereas 'traditional' university norms had insulated faculty from markets, an emerging brand of academic capitalism involved institutional and professorial markets, or market-like efforts, to secure external money. This is part of a broader set of trends associated with corporatization.<sup>ix</sup>

For some commentators, this amounts to the 'unmaking of the public university'<sup>x</sup> or the 'university in ruins'<sup>xi</sup>, as the practices and values of the market and corporation come to suffuse the daily activity of faculty and students. Both *University of the Future* and *An Avalanche is Coming* take as read the assumption that the post-war education system is no longer viable. Indeed, these reports look forward to the 'next stage' of development, one in which the last vestiges of the public university system are removed. Part of the way they construct their argument is to see these changes as the inevitable consequences of a deep-rooted set of forces that require a re-imagining of the university, and they draw upon the notions of disruptive innovation associated with business analysts such as Clay Christenson.<sup>xii</sup> The key to this is the sense that disruptive innovation occurs when previously unknown players (in this case, private sector enterprises) begin to offer what older institutions are no longer able to provide.

This concern with disruptive innovation is itself embedded within a broader economic crisis, which is seen to provide an opportunity to take on new forms of activity which 'unbundle' particular functions of the university. It is significant then that the Ernst and Young report notes that, "Whilst online education has been around since the 1990s, it has been in the last 2-3 years where the pace and disruptiveness of change has really accelerated".

These reports are both in line with wider arguments about the role of innovation in bringing about a decisive shift in the nature of advanced capitalist economies as the productive and innovative capacities of the emergent knowledge-based creative economics come up against the out-moded institutions, economic and social structures and geographic forms of the old industrial age.<sup>xiii</sup>

In summary, these reports are part and parcel of a wider re-imagining of the role of universities in the future. Their importance lies less in whether they represent reality and more to the extent that they mobilise resources – people, ideas, technologies – to bring about new practices in universities. They are, we should note, highly influential. Whereas academic arguments and debates have a relatively long gestation period, appearing in books and peer-reviewed journals, the ‘grey’ literature of policy texts are often written in stark and engaging terms, and circulate through the cultural circuits of the web. The main body of this position paper provides a discussion on a number of takes in relation to the role that technology plays in discussions about the university. These represent broad positions that may be taken in relation to these.

## It's Economic Reality, Stupid

In these discussions about the future of the university, technological developments loom large. A common, but ultimately limiting, response to the argument that advances in technology are set to transform the work of universities is to point out that such predictions have been made before and have not come to pass. Educational practices tend to endure. However, there is an important sense in which, this time it is different, which is related to the underlying financial situation in many universities. Thus, the cultural commentator Clay Shirky (of *Here Comes Everybody* fame), 'blogging' in *The Chronicle of Higher Education* points out the economic truth that "institutions that don't keep expenses below revenues eventually collapse".<sup>xiv</sup> Universities have three financial levers: they can raise revenue from students or parents; they can raise revenue from grants, gifts and endowments; and they can limit their spending. Shirky argues that in the golden years of university expansion, this was not a problem. Universities generated surpluses and this allowed them to avoid the tension between the notion of universities as places of authority (the holders of sacred tradition), and the more pragmatic concerns of students geared towards realising the economic benefits of study. However, this tension is becoming increasingly hard to ignore, as it is strained by continual growth in student debt and by a decline in the return on education as an investment. The financial adjustments that universities made in that past 40 years - increasing tuition fees, class sizes and non-tenured faculty – are no longer enough to keep cost and revenue in equilibrium. This is the economic context in which MOOCs and associated technological fixes have appeared, and the context in which they challenge traditional education.

A recent discussion of the implications of these developments for universities can be found in William Bowen's *Higher Education in the Digital Age*.<sup>xv</sup> Bowen is an educational economist who, in the mid-1960s, undertook research which revealed the "seemingly inexorable tendency for institutional cost per student to rise faster than costs in general over the long term". This is a result of the fact that whilst in labour-intensive industries, such as education, there is less opportunity than in other sectors to increase productivity by substituting capital for labour, markets dictate that over time wages for comparably qualified individuals increase at roughly the same rate in all industries. The result, for Bowen, is a 'cost-crisis' for universities, and in the long term, the only solution is to raise the productivity of labour.

Bowen notes that productivity can be raised in two ways. The first is to increase outputs (e.g. raise class sizes, reduce drop-out rates, reduce completion times for Masters and doctoral students, etc.). The second is to decrease inputs. Bowen notes that in universities much information technology has had an effect on increasing productivity in research outputs, but little has had the effect on learning outcomes for students – he argues that recent developments in technology have the potential to realise these reductions in input. In other words, the amount of academic labour required in teaching can be substituted by educational technology. This is a *volte face* for Bowen, who, just over a decade ago concluded that he saw little potential in educational technology to contribute to solving the ‘cost crisis’. Now, he suggests that:

Far greater access to internet improvements in internet speed, reductions in storage costs, increasingly sophisticated mobile devices suggest that online learning can lead to at least comparable learning outcomes relative to face-to-face instruction at lower cost.

There are a number of barriers to this. The first is the lack of hard evidence about both learning outcomes and savings cost. Bowen notes that despite the thousands of studies of online learning, there is no real or conclusive evidence that it leads to better learning outcomes for students. However, Bowen takes heart from the fact that there appear to be ‘no statistically significant differences’ in measures of learning outcomes between students enrolled in traditional classes and students enrolled in hybrid-online format classes, and that this was true across campuses and across subgroups. This suggests that, in the face of the continuing ‘cost-crisis’, universities should proceed to experiment with technological innovation in teaching and learning. Part of the challenge, according to Bowen, is the need for new ‘mind sets’ amongst academics and administrators so as to challenge existing assumptions and allow for experimentation.

Bowen’s argument is an important one. As an economist of education, his mind is firmly focused on the ‘cost-crisis’ in universities. Indeed, his argument that universities should seek to innovate is explicitly because “if higher education does not begin to slow the rate of increase in college costs, our nation’s higher education system will lose the public support on which it so heavily depends”.

## The Demotic Turn

A key element in recent discussions of the implication of digital technology for educational institutions is the notion that universities no longer hold a monopoly over knowledge. The impact of technologies has been to make accessible such knowledge to all and that this has profound implications for learning. As the authors of *The Future of Learning Institutions in the Digital Age*<sup>xvi</sup> state:

The single most important characteristic of the internet is its capacity to allow for a worldwide community and its endlessly myriad subsets to exchange ideas, to learn from one another in a way not previously available. We contend that the future of learning institutions *demands* a deep, epistemological appreciation of the profundity of what the internet offers humanity as a model of a learning institution.

Although such authors stress that it is not technology in itself that produces these shifts, there remains a strong element of technological optimism in these accounts, which means that those individuals and institutions that fail to 'seize the day' risk being left behind:

The digital revolution, promised for so long, is now finally upon us. Much of this digital change has happened at a dazzling pace, especially over the past decade, that many governments, regulators and traditional media businesses are struggling to keep up. This is not surprising when you consider that the media has changed faster over the past decade than at any other time in history.<sup>xvii</sup>

The argument goes that technological innovations have been powered by ubiquitous connectivity and consumers have constantly increased their dependence on it. Understandably, universities are keen to promote themselves as institutions that reflect the modernising tendencies of contemporary society, and seek to learn from and draw upon important insights into the role that communication systems play in everyday life. The massive uptake of digital technologies is seen as indicative of how everyday life has become mediated, and the rise of these ubiquitous technologies is reflected in educational spaces such as schools and universities. In other words, since students habitually use and build their social relations around these technologies, universities must find ways to acknowledge and incorporate them. Thus we see the

rise of educational uses of Facebook, YouTube and mobile technologies. Much of this is acknowledged and accepted as 'a good thing' and sources of justification are found in the writings of a group of 'peer-progressives'<sup>xviii</sup> who include, for example, Howard Rheingold, who has consistently argued for the benefits associated with on-line technologies. His latest book, *Net Smart: how to thrive online*<sup>xix</sup> is aware of the challenges of digital technologies, but argues that the new digital divide will be between those who can use social media and those who cannot. A similar argument is made by Marc Prensky with his notion of 'digital wisdom', based on the idea that technology allows for the enhancement of human intelligence or what he terms 'Brain Gain'.<sup>xx</sup>

The important aspect of this work is that it suggests that the new digital technologies allow for the development of new forms of competence and social relations that build upon the creative potential of 'ordinary people' – or what has been called the 'demotic turn'.<sup>xxi</sup> Thus British media sociologist David Gauntlett argues that, 'The everyday creativity of users disrupts the traditional professional media ecosystem'.<sup>xxii</sup> The idea of the media as an ecosystem derives from the work of Neil Postman, and suggests notions of balance, equilibrium and niches, as well as flows of energy and material. The arrival of widely available internet access has numerous direct and indirect impacts on the other inhabitants of the complex ecosystem, including those that think they have nothing to do with the internet. In this sense the internet is a disruptive technology that has all sorts of impacts on taken for granted ways of doing things. Gauntlett identifies three impacts of digital technologies that have implications for learning in universities. First, there is the effect on how people spend their necessary limited amounts of media-consumption time – increasingly, more and more of us spend larger amounts of time 'online', whether at work, school or play. Second, there is an important shift in people's psychological orientation to media material. The notion of DIY or DIWO (Do it With Others) means that the role of traditional elites (media producers, academic experts) is challenged as 'ordinary people' have the potential to publish and disseminate ideas. For Gauntlett, "Everyday users are elevated, and professional media are brought down a few pegs in a way which is healthy for creativity and self-esteem in the general population." Third, internet provides the potential for new forms of connection and collaboration, which provide opportunities for social learning.

Applied to an educational context, the implications of these developments are profound, and this goes some way to explaining an important element of both the reports discussed at the start of this paper: that the advent of ubiquitous information ecologies threatens to undermine the monopoly over content and knowledge that has been a central feature of the 'traditional' university. Where knowledge and information are increasingly available at free or low cost, the space is opened for more democratic or user-generated forms of knowledge. Effectively, the barriers to knowledge are lowered. Thus, influential academic commentator John Hartley argues:

The fact is that, not only as a resource for social learning but also as a competitive provider of learner-oriented teaching, the internet is already giving the most prestigious of all learning institutions, universities, a run for their money.<sup>xxiii</sup>

Here we see the notion of media convergence, wherein information is increasingly available on a single platform, taken to its 'logical' extreme, where the boundaries between education and entertainment are blurred. Hartley continues:

Look to the commercial internet – not the public education system – for radical advances in digital literacy, distributed expertise, consumer productivity, and networked learning...It is already the case that, anything universities can do, the internet can do better.

Hartley provides a table which shows how the traditional functions of the university are replicated and advanced by forms of distributed learning associated with digital technologies:

Inlearning (institutional)	Outlearning (distributed)
The university as teaching system	Web 2.0
The university as research organisation	Crowdsourcing, open-source movement
The university as searchable	Google
The university as archive	Google Books, Project Gutenberg, YouTube
The university as realist documentary	BBC Online
The university as knowledge transfer	Fan sites, Wikipedia
The university as game	Movies, serious games
The university as coffee shop	The blogosphere, Twitter
The university as audition	The dance-off, the X-Factor franchise
The university as festival	Awards, online forums, TED.com

## The University of Google?

Although it may seem that universities cannot exist apart from the influence of a consumer culture that celebrates and accepts digital technology as part of everyday lives, there remain important arguments about the extent to which these developments should be embraced. For Gauntlett, “New technologies also open a fissure between those academics who are able to comprehend the potential of online technologies and those who cannot”. Gauntlett is dismissive of ‘critical’ academics who raise questions about the ownership and control of digital media. Such critical work questions the extent to which new digital technologies constitute a new departure; points to the fact that issues of power and control still exist within these developments; and suggest that much of the content tends to conform with the requirements of celebrity and consumer culture. These remain important perspectives and are particularly useful when reports such as *Universities of the Future* and *An Avalanche is Coming* enlist technology as one of the drivers of change.

Perhaps the key text for those seeking to engage with the challenges of university teaching in ‘the age of Google’ is Tara Brabazon’s *The University of Google: education in the (post) information age*.<sup>xxiv</sup> Brabazon describes what she sees as a growing problem in her classes:

As each semester progresses, a greater proportion of my students [are] reading less, referencing less and writing with less clarity and boldness. There will always be the top 25 per cent of the class who are rigorous and committed scholars in the making. They require little overt assistance, but can operate in the models of student-centred learning. Increasingly the middle fifty per cent, who require greater guidance, attention and commitment from teaching staff to pass a course, is producing inadequate work. This group invariably writes assignments in the days before they are due, runs a spelling checker through the document rather than drafts it, and relies on the internet for research material rather than refereed course readings. These problems are not caused by Google. Instead, the popularity of Google is facilitating laziness, poor scholarship and compliant thinking.

It is tempting to dismiss this as the common complaint frequently made by academics about the failings of ‘today’s students’. However, Brabazon provides many examples

from her own teaching experiences about the ways in which the technological 'mind set' that has insinuated universities impinges on educational practices, and at the same time manages to link these to the broader imperatives of universities working within the 'cost-crisis' identified by William Bowen and the individualised market culture that sees technology as a solution to educational problems (large class size teaching? 'There's an app for that').

It may seem unfair to pick on Google, and that is not Brabazon's point. Instead, she is arguing that in times when universities are facing stringent financial constraints, it is all too easy to assume that the answer lies in mimicking the business practices of successful corporations. It is all too easy to adopt the view of the demotic turn and to argue that experts are everywhere and everyone is online. As she concludes:

Education matters. Expertise matters. Reading and thinking matters.

Scholarship matters. Google has provided an infrastructure. We now need a social system to give it a context and meaning.

Google was also the target in Nicholas Carr's *Atlantic Monthly* article 'Is Google making us stupid?' which later formed the basis of his book *The Shallows*.<sup>xxv</sup> Carr is a former editor of the *Harvard Business Review*, and as the dot-com bubble of the late 1990s began to inflate, became increasingly critical of the effects of the new economy on the inner lives of individuals and companies. He explored, for example, the destabilising potential of email for organisations, and the corrosive effects of changing employment processes on individuals' characters. The central point of *The Shallows* is its use of the theory of neuroplasticity which suggests that human brains are plastic in nature, constantly in a process of adjustment as they reshape themselves in response to experience. Carr points to the ways in which changes in what and how we read shape our mental structures. Rather than immersing ourselves in the depths of a book culture, a new intellectual ethic is being shaped as texts are accessed, read and distributed by electronic means. Increasingly we paddle in the intellectual shallows of information overload and distraction. As critics have pointed out, Carr's descriptions of this new state of intellectual affairs are based on the romantic figure of the literate subject – immersed in the book – and cannot explain how the experience of chronic distraction came about.<sup>xxvi</sup> Without this, it becomes difficult to imagine how society and its institutions (such as universities) might seek (if we decide that is what we want) to challenge the culture of the 'shallows'.

Robert Hassan in *The Age of Distraction: Reading, writing and politics in a high-speed networked economy*, does attempt such an explanation with reference to what he terms the 'political economy of time'.<sup>xxvii</sup> He notes that time is not an objective quantity, but is socially produced. Starting from the old adage that 'time is money', he indicates that labour power is codified by and paid for in time. It is the surplus value that is produced in the hours that the worker is occupied that allows profits to accumulate. Different ways of organizing the process of accumulation lead to different uses of time. The post-war period was characterised by particular sets of ideas about time and space organization. However, the failure of this economic solution in the late 1960s and 1970s led to an intensification of time and space so as to transcend the limits to capital. Whilst one solution was the geographical spread of economic activity, another was the intensification of time use, so that goods and services were consumed and replaced at a greater rate. The fashion industry and advertising represent part of this process, but so too did the development of consumer technology. Together these led to the development of what Hassan calls 'network time':

The more we inhabit the network – on a PC at work or at home, on a PDA on the train, or in the street with a mobile phone clamped to the ear – the more we inhabit its temporally accelerated domain, with its potentially disorienting and frenetic pace.

For Hassan, network time has its effects in what he calls 'chronic distraction'. Hassan's account is valuable because he insists that this is to do with the re-ordering of educational institutions in line with the logic of networks – the more that corporate language and practices are insinuated into the everyday life worlds of the university, the less space is available for the types of conservationist and conservative practices necessarily associated with the learning of the canon. Viewed from Hassan's perspective, it is possible to argue that the notion that an avalanche is coming is part of the problem: the one thing we cannot do in an avalanche is stay where we are and gather the resources to think and discuss how to proceed. However, it may be argued that this is precisely what is required in relation to the role of digital technologies in university curricula.

## Conclusion

In this paper, I have argued that there are currently moves to re-imagine the nature of universities. Universities are required to respond to rapid economic, social and cultural change. An important aspect of these changes is the advent of emerging forms of digital technology, which bring with them radical shifts in student identities and expectations, as well as challenging the traditional role of universities in creating and distributing knowledge. The paper provided brief accounts of three responses to these developments. The first was concerned with the economic aspects of technology and its potential in resolving the ever-deepening 'cost-crisis' faced by universities. The second response focuses on the transformative shifts that are inaugurated by technologies that allow for different practices of everyday life as ordinary people become generators and collaborators of knowledge. The third response was concerned to understand and challenge the inevitable 'speed up' of social life and educational relations that accompanies the new technologies. It suggests the need to preserve the space of education as separate from the demands and operations of 'the market'.

The important point about these positions is that they are underpinned by distinctive 'social imaginaries'. As authors such as Patrice Flichy<sup>xxviii</sup>, Fred Turner<sup>xxix</sup>, Robin Mansell<sup>xxx</sup> and Thomas Streeter<sup>xxxi</sup> have convincingly demonstrated, digital technologies are surrounded with images and ideas about the types of society in which they exist. This suggests that those of us in universities have an important role to play in understanding, arguing about and deciding exactly what role digital technologies should play in our institutions.

The three perspectives discussed in this paper are clearly 'ideal-types'. In reality, arguments about the appropriate role of digital technologies in university curricula will make use of a mixture of ideas and images about its purpose. Different individuals and groups will make use of a variety of 'internet imaginaries'. Part of the challenge for university administrators and academics is to be clear about the imaginaries that inform decisions about the future. For instance, if it is the 'cost-crisis' that provides the impetus for the adoption of new forms of hybrid or blended learning, then it may be better to acknowledge this than conflate it with rhetoric about the emergence of 'digital lives'. The opportunities and costs for universities associated with the culture of speed should be fully explored. This paper has sought to illustrate that the

arguments about digital technology cannot be separated from wider questions about the type of societies we inhabit. Universities have an important role in that conversation.

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- <sup>ix</sup> Eric Gould provides a list which usefully represents the nature of corporatization: "quality management criteria and strategies drawn from the world of business; an emphasis on marketing, visibility, and public image promotion; accounting concern for contribution margins and the perennial cost effectiveness of learning; decentralized power structures with incentives for growth and gain-share revenues; the redistribution of labour – in this case away from tenured to part-time adjunct faculty; the development of sophisticated ancillary products, patents and services; a vague rhetoric of excellence that replaces specific details of what an education is about, and, of course, research and other financial collaborations with the corporate world". Gould, E. (2003) *The University in a Corporate Culture*. New Haven: Yale University Press.
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