

New Challenges in Education

Online learning, knowledge networks, 'edgeless' universities

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Abstract

Online learning has been part of the provision of university education since the emergence of the internet. However, in recent years, there have been more intensive efforts to marry together traditions of university learning and academic excellence with the flexibility and creative possibilities of online delivery. This paper summarises the benefits that Internet-enabled learning has brought to distance and off-campus university education in the past decade or more, noting that Australia has a rich history of distance education. The paper also explores the way in which the so-called Web 2.0 revolution in online affairs has, to some extent, created a false sense of novelty in online learning. Nevertheless, Web 2.0, with its emphasis on social media and user-generated content, has made a difference and opens up new approaches to learning. The paper concludes by exploring some of the new challenges and opportunities for educators *and* institutions when seeking to harness technologies for online learning, especially given the growing dominance of knowledge networking in contemporary society.

Introduction

The relationship between humans, their societies, and networked computing is the most fast-paced, significant and all encompassing form of technological adoption and adaptation the world has seen and this paper reflects on the relationship between technology and human society as we consider the portents of this change, brought about not *just* by technology, but by our general social adaptation to and exploitation of computers and networks. While most closely analogous to the communications and transport revolution of the steam engine, the railroad and the telegraph, change is much faster and more extensive. We have barely introduced some new development when another is upon us.

I will be exploring in this paper a specific case of this more general activity in society: the role of the Internet in education. My underlying assumption is that 'online learning' (broadly understood) is now central to our thinking because of the more general changes in society. Where once universities and academics were innovators, pushing the boundaries of networked communications, now they are working in parallel with, or even lagging behind, social development. Furthermore, there is no open space for development: how the Internet is used generally in society, whether we like it or not, becomes a determining consideration in the reshaping university education for that society.

I pose (and try to answer) four questions that help me explore the past, present and perhaps the future of online learning. Firstly, I want to explore how the Internet significantly changes the way distance education works, focusing on the 1990s in Australia for my examples. Second, I will ask: how and why has Web 2.0 created a false sense of 'novelty' in online learning? Third, and partially in contrast to the second question, I will look at the question of what real and important

differences that Web 2.0 (including social media and user-generated content environments) *does* make. Finally, I will conclude by suggesting some answers to the question of what new challenges and opportunities are emerging for educators and institutions because of online learning.

At this point, I hope to show how emergent forms of knowledge networking in our society need to be harnessed, not because the university's physical presence will come to an end, but because the located, persistent presence of knowledgeable institutions, like universities, needs to have more permeable boundaries, perhaps even becoming 'edgeless' – both here and there, at the same time.

Benefits of the Internet for university distance education

When considering online learning and how it has and will develop, I want to focus first on what happened in Australia when the Internet met distance education. To understand the conclusions I draw, however, it is important to recognise the subtle difference in the social role of and cultural assumptions about the university in Australia and the USA.

In the USA, while I appreciate this is not universal, in the main undergraduate collegiate education is seen strongly as a process by which young people (in the main) make a particular kind of transition to adulthood and civic responsibility, pursued in many different ways and forms, but with a strong sense of 'separation' from the family (hence the importance of living at the university, at least initially), and the learning broadly of all that is needed to be literate in society. Undergraduate education for students not able or willing to attend campus in the USA has been only marginally important historically; some universities make it their mission to offer such courses but it is not central to the primary culture of the university here. Distance or correspondence education, for example, is often a separate group within the university, not mainstream within faculty life.

So the idea of education happening at a distance, with equal effectiveness as if conducted on-campus, has not been strongly part of American faculty life, despite many years of experiments (see Nasseh, 1997: <http://www.seniornet.org/edu/art/history.html>). The idea seems dubious to many Americans, not because one cannot learn alone and at distance, with appropriate materials, but rather because a university education is assumed to involve so much more than can be accomplished in this remote manner. I believe that the highly critical reaction from many American academics in the late 1990s to the emerging concepts of Internet-based learning were based in part on this historical assumption of the primacy of campus attendance (most notably, philosopher Herbert Dreyfus (*On the Internet*, 2001; see also Land, 2004 for a useful critique <http://www.ascilite.org.au/conferences/perth04/procs/land.html>). Critics feared the redundancy of faculty, the emptying out of the vibrant social life of campuses and, in some cases, the towns and cities which have grown around them. All depends on the collocation of the students and the teachers, not just for education but for other reasons.

In Australia things are somewhat different, with a more tradition of centrally organised *distance* education for students. In part this is a reflection of our different geography, and also the fact that, in a period of social democratic innovation in the 1970s, education for all became a national goal. At this time, distance education for undergraduate students became more widespread in many programs. Crucially, it was seen as a *legitimate* alternative where reasons might prevent attendance. While remoteness from campus is one reason, often distance students choose to study in that mode to enable combining work and study (night-time education is not significant in Australia now, as a result), or because home commitments prevent attendance. Notably, too, since the 1980s Australia's educational system has become deeply utilitarian – the vast majority of students seek a undergraduate university degree as a direct pathway to a job. Thus, what matters

is less the experience on campus but the final result: if that can only be achieved remotely, then that is not especially significant (though it does limit options and, of course, has other consequences). Australian students also have little tradition of residential study, preferring a commuter campus experience; they rarely attend a university away from their home city. All in all, 'presence' on campus is not quite the same vital ingredient to understanding education in Australia as it is here.

So what happened in Australia in the 1990s when distance education (well established, if not practised across all parts of the university sector) met the Internet? Five lessons can be learned from this time.

First of all, educators who had been used to traditional print and post distance education suddenly discovered that the transactional distance between teachers and students could be significantly lessened through the use of interactive communications mediated by the Internet (see Moore, 1997). This distance was not merely spatial, but psychological and included both cognitive and affective elements. While transactional distance (and how to overcome it through innovative forms of course design) had dominated distance education development until that time, now the Internet promised a whole new array of techniques; more significantly, it became immediately apparent that the basis of distance education would change and forms of learning could more nearly resembled those familiar to on-campus educators *in terms of transactional distance*.

Second, it also became clear that the Internet enabled students studying at distance to form communities of learning: social entities in which students were no longer isolated from one another. Indeed, since there was always some interaction between teachers and students, the Internet's effects in this respect were even more profound. These communities operated as analogues for the close social contact of students with one another on a campus.

Third, the importance of time (and not space) as a component in shared learning also became obvious, and distributed students previously unable to share common time through common space) now had access to asynchronous discussion and information tools such as bulletin boards and online quizzes. Indeed these are now seen as the 'norm' in online education (to the point where we should perhaps question them!).

Fourth, the fusion of distance education and the Internet improved the economics of remote education. Course materials delivered online were less costly than print; electronic handling of information exchange (assignments) could be achieved with many less staff; and retention rates for students improved. More students could also opt for this form of education: those who had chosen not to study at all, from a misplaced sense of the second-rate nature of distance education, could now be persuaded to take up this form of learning. More students meant a better amortisation of the fixed costs of course delivery.

But, most of all, we learned that 'online education' was not what we might have imagined in the 1970s and 1980s. In this earlier time, when the general lack of connectivity and newness of the concepts meant talk of online learning was largely theoretical or imaginative, people understood the new technologies as ways of bring the campus experience *to* the remote learner, by transporting a learner into a recreation of co-present learning either through audio-visual conferencing or in immersive virtual reality environments (following on, I think, from failed experiments with TV-based distance education – especially in the USA). When academics actually began doing online learning substantially, the Internet modelled a *new* form of learning. This new form actually took seriously the benefit of students *not* being co-present and strongly emphasised the role of students and learning, rather than traditional notions of teachers and teaching. The central device for education stopped being the lecture, and consequential discussion, and became the community of learners engaging with ideas, based on readings.

In short, what we got from online learning in the 1990s was, by and large, a new form of distance education that improved significantly on what came before, *but also* a new understanding of the power of distributed learning whose consequences might also be felt in the classroom. Even if understood only implicitly, educators in this field recognised that space had been used on-campus to array people in immediate common time, but that distance education proved students could also learn *without* common time so long as the interactions necessary for learning could also be distributed in time, through asynchronous communication. The Internet accelerated the cycles of correspondence and spread them among all students sufficiently to ensure that shared time developed without shared space.

Web 2.0 and false ‘novelty’ in online learning

Before discussing how some people have misunderstood the emergence of Web 2.0 and claimed from it that online learning is ‘new’ (when in fact it has been around since the 1980s at least – even before the web), let me begin by exploring what we mean by Web 2.0.

It has been at least five years since people began seriously to talk about ‘Web 2.0’ and, despite the emerging enthusiasm for Web 3.0, I suspect that Web 2.0 is still the primary reference point for understanding the Internet. Without going into detail (see Allen, 2008, 2009), Web 2.0 has been a catchphrase applied variously to the new, renewed, or rediscovered technological, business, political and cultural dimensions of the Internet. In each case Web 2.0 became popular precisely because it claimed to be a new ‘version’ of something which we had already experienced (see also Allen, 2011). This is best understood in three ways.

Web 2.0 established a connection between the world of the Internet now and the *successes* of the Web in the 1990s, prior to the dot.com crash. In simple terms Web 2.0 was the *rebirth* of the web, the phoenix rising from the ashes, stronger and more successful, more sustainable because only effective business practices survived. In other words, Web 2.0 tell us the Internet had not gone anywhere: the crash might have been a shock, but it was not the death of networked technology. The fact that Google is, in the eyes of the anti-monopoly regulators, the new Microsoft suggests the crash did indeed shake out the weak and reinforce the strong.

Web 2.0 also asserted, post dot.com crash, the primacy of code and computers over traditional media in what we used to still think of as ‘new media’: while some saw dot.com as the sign that the web was folding into the existing well-mapped media landscape of news, television, film, Web 2.0 was an argument *against* convergence of this kind. Thinking about the new corporate giants of contemporary culture such as Apple, those Tim O’Reilly who foresaw this development and promoted Web 2.0 to label it have, I think, been proven right.

Finally, Web 2.0 *was* something of a change: Web 2.0 always implies that the screen through which we engage online is *two-way* – a read-write space far distant from the non-interactive brochure-ware online that seemed to characterise websites in the 1990s. Curiously, this change which emphasised the ‘user’ creating and sharing content, forming communities through communication, and generally *making* the web (not just receiving it), harked back to the earliest days of the Internet in which there was nothing *but* this form of content. Facebook’s staggering development and cultural valence in the 2000s sums up perfectly (if also scarily) the predominance of user-dominated communication *through* web content in the Web 2.0 era.

So, if Web 2.0 is partly new, partly old, and mostly just a way of ensuring people realise the difference the web and the Internet are making, what does that say about its role within learning? Not surprisingly, in the mid-2000s there emerged a sudden flurry of activity to re-invent, or

promote from scratch the benefits of e-learning. Reports were written, hyperbole was generated, careers were made, and tentatively, research was conducted and actual changes implemented.

We can explain this (re)new(ed) enthusiasm first because, despite the hype in the 1990s, there had actually been only limited online learning development *except* within the field of distance education (as already described) or in those special cases, such as University of Phoenix who saw the benefits that a presence-like model of online learning might make for their business. Many of the much-touted developments (FT knowledge, Universitas 21 to name but two) have changed or become irrelevant. In large part the Internet in the 1990s did *not* change the institutional fundamentals of learning: universities continue to operate now much as they have, incrementally changing and by no means being replaced.

In the mid- late 2000s, two things have happened instead. Institutions broadly responding to the model of online learning emerging with distance education from the 1990s began to generalise, scale up and make demands for *all* courses to have an online presence to maximise investments in learning management systems and to try and find some way to blend into the on-campus experience some of the time-shifting dimensions of the Internet (principally lectures without being in the lecture; discussions without being in class; and materials provided without being in the library). Much of this institutional development operates at a level 'beyond' the traditional academic and is concerned with appearing to be 'online' or only vaguely grasping what is needed to make effective online learning happen. Much of it is concerned with managing resources, appearing customer-focused (as students are now largely conceived), and 'keeping up' with what appear to be sector-wide developments. Online learning of this kind probably means that students more easily and reliably access their course guides, don't need to attend lectures on campus as often, and can imagine themselves more connected to staff when they need questions answered. At least that is what the institutions think.

Second, the last ten years has seen a new wave of user-led innovation in teaching around Web 2.0. For *some* it was an extension of what had already been done. But for *most* it has been their first encounter with online learning, either through the rather staid institutional approaches or through more novel approaches which now appear possible. Thus, a lot of the research and development has simply recreated what had been done before under new labels (hearing discussion groups being described as Web 2.0 makes me weep – they predate the web completely); perhaps more worryingly, some developments tended to overlook those successes from before (so that Web 2.0 is meant to make it possible to do what we want, when before we could not); some don't grasp the nature of Web 2.0 (so Web 2.0 is proclaimed as enabling online learning because now people can interact with real-time video conferencing); and for some the institutional generalisation and this new term Web 2.0 are conflated so that Web 2.0 just means having a course website in a learning management system.

So Web 2.0 does not mark out a period of consistent, further development in online learning but a confused mix of reinvention, innovation, even remediation of the new back *into* the old as well as institutional generalisation all now being carried out with greater realisation of the gap between social practices online and those of the university. Perhaps the novelty, in the end, is the heightened sense of *urgency*, with Web 2.0 being a phrase of motivation or necessity and not of a second-generation of technique.

The real difference that Web 2.0 brings

But in all the confusion in universities about what to do now with online learning – whether it is a renewal of what has been done before, or a catch-up, or simply a systematic generalisation, there *has* been a significant change in the Internet. We can label it the 'the real difference' made by

Web 2.0. I will now present four aspects that are particularly relevant to *learning* (as opposed to institutionalised education).

The first difference is the maturation and social acceptance of the read/write web. We probably think of this most clearly in the form of blogs and wikis. More generally, there is now a cultural expectation that websites predominantly feature the opportunity to 'write' to them – sharing content, comments, creating pages and more. This changes the nature of student Internet use: creating, not just finding information, and exploring the distributed conversations to be had through the web.

The second difference is the large number of useful cognitive engines and other tools available online (mind maps, drawing applications, visualisation tools, and much more). These tools are collaborative and public. Therefore they allow new forms of content generation. In essence students can use them together or alone or both, to work *with* knowledge in an active manner.

A third major difference is social networking, particularly through Facebook, Twitter and other forms. Networking emphasise that individuals are *somewhat* connected (loosely) to others and that such networks have knowledge dimensions. Put simply, who you know helps what you know and finding out who knows what and how they can assist you becomes simpler. Specifically for students, their informal learning environment - now encompassing such networks - is more persistent, if also more diffuse. Notably, too, the information base produced within a network is more accessible outside of the real-time dynamics of conversation. Networking is semi-synchronous communication (somewhere between the previous opposites of real-time and asynchronous).

The final important difference is that, while searching for information remains important, *shared* information (along with implicit or explicit recommendations) becomes another key way of accessing information – users now consistently go to places, such as a YouTube channels or specific internet forums, in which to find things likely to be relevant.

So Web 2.0 implies, for academics and institutions, changes more generally felt in society (particularly speed and extent of access and its place in everyday life. In effect Web 2.0 positions universities, on the whole, *behind* the escalating pace of change related to constant networking, mobile computing and time-shifting, 'scheduled-less' living. To the extent that universities are, mostly, about people young enough to have grown up 'connected', universities are more likely to experience a disjuncture between the habits and behaviours of younger students and their processes, even while those students also come to university with some quite traditional (and outdated) notions of learning.

Whether academics build these technologies and approaches into their teaching or not, students are *already using them for learning*.

New challenges and opportunities for educators and institutions

Let me now conclude with some thoughts about the challenges for education: challenges which are, of course, also opportunities. These challenges stem from the fact that our most recent cultural incarnations of digital networked computing further complicate the relationship between *place* and learning. This relationship, as I alluded to above in comparing Australia and the USA, is very important in determining context within which online learning might develop.

We are starting to see that learning is often done better, or more effectively, *outside* the narrow confines of the classroom which – even with computing technologies added in to those classrooms. One of the challenges of the classroom – so long the standard device, indeed

technology for organising learning – is that it tends to suit the lone voice, listened to by many, or the conversations between groups which cannot be shared beyond the small group. Moreover, it is explicitly and cogently an ‘educational’ experience, hard to connect with the realities of professional worlds for which such education prepares students, though academics in several faculties make strong efforts to get ‘outside’ the classroom while still within the educational domain. Web 2.0 extends, expands and improves (where done properly) the educational experience so that students and teachers can work together in a more fluid way than classroom / not in classroom (while *not* meaning teachers are there online 24/7). In this new environment, the classroom becomes a secondary organising device. Its use is consequential upon the need for students to share time and space (rather than assumed, and then filled with content). Co-presence is used for what works there; and distributed network engagement, between individuals and groups, serves to extend the educationally managed learning experience beyond the class.

Web 2.0 or more properly the current wave of online developments also speak to a different phenomenon – not the separation of tasks into those that are best done ‘in place’ and those best done ‘not in place’ but the amalgamation of activities which are done online *and* in class (or, I would urge, in other places). Current mobile computing (laptops, tablets, phones) create opportunities for using apps specifically designed to enhance ‘place-based’ learning – back channels, data overlays for visual observations, on-the-fly production of shared summaries work, multi-tasking information checking and collaboration

So, combining these two points, we see that before the Internet we had little choice – work in class or work alone or work in loose intermediary forms (study groups, study buddies); now we have more options, but must think carefully about which approach works for which learning tasks (while also combining them into a coherent environment). But, as teachers, we are not fully in control of what happens: students choose, more and more, how to integrate networked engagement and classroom engagement. From my experience they often lack the skills initially to determine how best to make this mix work for them.

Indeed the biggest challenge may come about if students see online and campus blends as either/or options rather than a coherent whole. And, to be honest, institutions are at fault sometimes in encouraging this view. I will, towards the end of this lecture, conclude with a modest example from my own experience.

Recently I presented a guest lecture on the way the Internet is changing time and space (more accurately our perception and *use* of time and space), creating new senses of rhythm and place. Some 50 students were taking this particular class, an introductory course; though, of this 50, around a third were off-campus, distance students not coming to the university. Moreover, the same course is offered four times annually through Open Universities Australia to around 100 students at least at a time – so my lecture not just served the people in front of me, nor their distant comrades, but new cohorts in study periods to come. Expecting, towards the end of the semester, a small decline in lecture attendance, I imagined there would be at least 20 students here from the 35 or so officially ‘on campus’. In fact there were 3.

I began the lecture by asking them what I would do if I were to turn up and no one was there: would I feel or be compelled to speak to an empty room for 50 minutes so as to record the lecture? (using the very easy automated system at Curtin which means I virtually do nothing to create or propagate the recordings other than tell the system I am lecturing at that time). They didn’t really have an answer and nor did I.

‘Blended’ learning only works when, in fact, it is a fully blended, integrated experience which equally demands of students attention online and in class, but that the use of those classes so

clearly demonstrates their value that attendance is natural. I believe students more naturally 'get' that some things (like a lecture) are better done as a recording.

Finally, then, let me conclude by agreeing, mostly, with Bradwell in the Demos Report, the *Edgeless University* (Bradwell 2009). While cautious of hyperbole and rhetoric (common in such reports), I think the 'edgeless' quality is very important for universities to consider. Bradwell repurposes Richard Lang's insights about the edgeless city in which the functions of the city occur, but the form is now more fluid, dispersed and without the clear boundaries which have previously helped define 'the urban'. Bradwell proposes a shift in higher education analogous to that within the popular music industry: technologies will not 'do away' with universities but, to prosper, those institutions must change systematically and with a "coherent narrative" to embrace digital networks.

What does edgeless mean then? It means a more fluid relationship between place and activity, with equal or more collaboration across space and time enabled by digital networks. It means, ultimately, the end to the idea that 'online learning' is for distance students and not for on-campus students. All learning will have online components simply because all social interactions and knowledge work will involve online components. The challenge and opportunity of the 'edgeless' university is, I think, to use these new technologies to make the collocated 'on-campus' 'in-class' experience more sustainable and effective for the majority of students attending university, while also recognising that virtual presence, virtual collaboration can, for many other students, be the best (and only) way to learn.
