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The wisdom of the clouds
Distributed learning, MOOCs, edupunks, and the challenge to formal education

[1]Keith Kirkwood

[1]Victoria University Melbourne, Australia(keith.kirkwood@vu.edu.au)

Abstract

In a post-Web 2.0 world, education is increasingly taking forms that are beyond the grasp and scope of formal institutions. Connectedness through social learning networks such as Twitter and Delicious and resource availability through open course access and platforms such as TED Talks and iTunes U make emerging distributed learning models an attractive alternative to formal institutional education. This paper calls for further exploration of the viability of distributed learning, particularly with respect to the development of new accreditation regimes that support this approach to educational and professional development.

keywords : Distributed learning; personal learning environment; MOOC; edupunk; new media literacies

1 Introduction

The symposium participants have come from around the world. As usual, we mill around, waiting for the introductory talk and looking for people to meet and talk to. The open-air dome that forms the seating area is clustered with plush couch chairs, and the floor from which the speaker is to speak is a photorealistic world map. Each of us has marked our location on the map with a live peg, and red beams begin to crisscross around the map as we touch others' pegs and create our network connections....

If the above scenario seems somewhat strange, it is because the networking that went on here happened in a graduate "unsymposium" on Second Life. The network connections made were instantaneous, virtual, and visibly palpable. They became a part of each participant's Personal Learning Environment (PLE)—the people, tools and platforms we use for professional development. No bricks-and-mortar institution held this event; rather, those who attended learned of it through their own PLE and simply showed up on time, pinned the map, extended their network and started learning.

In a post-Web 2.0 world, education is increasingly taking forms that are beyond the grasp and scope of formal institutions. Open access to course syllabi and resources, associations via Twitter, Delicious, LinkedIn, blog post commentaries and other networking platforms give us access to a global network of virtual colleagues from whom we can learn a vast amount. Traditional lectures from the world's best lecturers are available to us through TED Talks and iTunes U. Massive open online courses (MOOCs) are starting to surface through which participants gain access to information, knowledge sharing and knowledge negotiation in learning communities of practice and engage in distributed learning, in which everyone is both a teacher and a learner and participation rates are high.

This paper examines the emerging phenomenon of distributed learning as it is expressed in the practice of active and participatory learning through PLEs, MOOCs, and the philosophy of the edupunk movement. Increasingly, formal institutions are falling behind in their ability to provide an engaging and relevant learning environment for students. The last foothold of formal education lies in the provision of accreditation, and once accreditation becomes more flexible and distributed, bricks-and-mortar institutions will need to seriously reinvent themselves in order to remain on the map.

2 The convergence of distributed learning and new media

2.1 Distributed Learning

The concept of *distributed learning* is not new; it pre-dated Web 2.0 by showing up in the discourse of educational theory around the turn of the millennium. In the early years the term was often syn-

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onymous with distance or online education [10]. However, even by the mid-90s, [19]anticipated the use of the Internet as potentially driving a needed curricular and pedagogical shift in higher education. Citing the need for changing an industrial-age-driven model of education that provided little interaction and was an inefficient learning experience, they saw that the budding Internet could "be viewed as a broad, yet relatively immature, model for the distributed learning environment concept" (p. 20). They recognized the need to shift away from the dominance of lectures, the balkanization of subjects, fact-centred curricula, print media dominance, and the insularity of the educational institution itself. In a germinal volume on the topic, [14] recognized that the opportunities of globalization extended the reach of knowledge production beyond the exclusive behest of educational institutions [9]. In the same volume, [24] identified the online opportunities for the pedagogical shift towards collaborative styles of learning through online communities of practice. This conceptualization anticipated the new media Web 2.0 developments that were about to take place across the then 'relatively immature' Internet.

2.2 Web 2.0 and new media literacies

With the advent of the read/write web, a dramatic shift occurred that allowed non-technical Internet users to write and upload content to the Web. This has turned traditional publishing on its head and has established new media giants like YouTube and Flickr, and social networking platforms like Facebook and MySpace that are as large as sovereign nations. The collaborative construction of the encyclopedic knowledge-base Wikipedia has turned to the "wisdom of the crowds" to challenge the notion that knowledge construction is the domain of a select few. And recommender and trust systems of user ratings and commentary have challenged the foundations of expert guidance with the idea that people would sooner take advice from peers and word-of-mouth recommendations than from the spin of commerce, the sensationalism of mainstream media or the propaganda of political institutions.

To participate in these new media requires *new media literacies* such as those articulated by [12]. New media literacies "constitute the core cultural competencies and social skills that young people need in our new media landscape" in order to participate in the read/write web and beyond . Table 1 lists and defines these literacies. They provide a kind of critical roadmap of skills for people who would be engaged in read/write technologies and participatory online culture. They are the learning skills one needs to develop in order to make the best use of emerging platforms for distributed education.

Table 1: Core competencies for participatory learning

Literacy	Description
Play	The capacity to experiment with one's surroundings as a form of problem-solving
Simulation	The ability to interpret and construct dynamic models of real world processes
Performance	The ability to adopt alternative identities for the purpose of improvisation and discovery
Appropriation	The ability to meaningfully sample and remix media content
Multi-tasking	The ability to scan one's environment and shift focus onto salient details on an ad hoc basis
Distributed Cognition	The ability to interact meaningfully with tools that expand our mental capacities.
Collective Intelligence	The ability to pool knowledge and compare notes with others towards a common goal
Judgment	The ability to evaluate the reliability and credibility of different information sources
Transmedia Navigation	The ability to deal with the flow of stories and information across multiple modalities
Networking	The ability to search for, synthesize, and disseminate information (e.g. RSS feeds)
Negotiation	The ability to travel across diverse communities, discerning and respecting multiple perspectives, and grasping and following alternative sets of norms

3 participatory learning and the ple

3.1 Learning to participate

In the face of this revolutionary shift, with regards to who holds the powers of agency, voice, and authority on the web, from the few to the many, traditional institutional frameworks are ceasing to make sense. Universities are no different. The millennium-old model of information-transmission by the 'sage on the stage' lecturer to his or her passive pupils is no longer relevant. The lecturer is not the only source of knowledge to which students have ample access. Mike Wesch, award-winning Lecturer of the Year yet self-confessed "anti-teacher" from the US, asserts that higher education is in a state of crisis [8]. It is a crisis of significance, precipitated by both the informational and technological changes that have transformed our society and the inability for institutions to make agile and progressive alterations to the way they operate in order to best accommodate these changes. "As most of us know from our own experience," Wesch maintains, "the best learning almost always occurs in the absence of a teacher, for it is then that learners are free to pursue with great passion the questions that are meaningful and relevant to their own lives" (n.p.).

Before students can learn in the absence of a teacher or with the teacher as guide and facilitator rather than as expert and instructor, they need to realize the potential of active and participatory learning, in which "learners come together to aggregate their ideas and experiences in a way that makes the whole ultimately greater than the sum of the parts" [3]. Davidson maintains that the hierarchical, teacher-centered, product-oriented process of academic acculturation is much to blame: "you're used to sitting in rows, looking straight ahead to the teacher, handing your work in on time, getting you're A from your teacher, a lifetime of such preparation, it's really hard to switch modes." Passivity is learned from the implicit expectation that students are to play by the rules of the academic game.

In a post-Web 2.0 world, however, the rules of the game have changed. Passivity must be unlearned. Formal education is increasingly seen as only one path along the road to acquiring the knowledge and skills needed to develop one's personal and professional potential. Lifelong and informal learning are increasingly necessary in the process of upskilling to meet new demands in the workplace and in society at large.

3.2 Moving from the LMS to the PLE

To meet these demands, new modes of education and new pedagogies have emerged. Online course delivery through Learning Management Systems (LMSs) such as Blackboard, Sakai and Moodle have met the administrative and closed system needs of an institution-centric approach to education. They have provided the repository and scaffold by which university lecturers have (mostly reluctantly) packaged their teaching resources for their students to (mostly reluctantly) download and consume. The teacher-driven approach implicit in the design of the LMS has been for the most part not much of a departure from the old pedagogical paradigm that still dominates formal higher education. Learners and learning are secondary to teachers and teaching.

Pedagogies have emerged, however, that accommodate a more student- and community- centred approach to learning. George Siemens coined the term *connectivism* as a type of pedagogy in which the learner becomes a node in a network of learners, and where knowledge sits not with any one individual but in the network itself [21]. Reference [5] extends this notion with the term *rhizomatic education*, in which "knowledge can only be negotiated, and the contextual, collaborative learning experience shared by constructivist and connectivist pedagogies is a social as well as a personal knowledge-creation process with mutable goals and constantly negotiated premises." Under the term *Pedagogy 2.0*, [17] identify the three essential ingredients of an education that explicitly employs the powers of the Internet and read/write technologies: personalization, participation, and productivity; an a variation on this trinity, [23] name them "knowing, making and playing."

Beyond the walls of formal education, and in some rare instances within them, new online learning platforms are being created that reflect these new pedagogies. The Personal Learning Environment (PLE), or Personal Learning Network (PLN), is an online learning management platform that has, at its core, an active learner engaged in the development of his/her own learning management system. This is not a cookie-cutter institutional platform: the design of the PLE and the tools incorporated in it are unique to each user's current educational needs and goals. PLEs make use of Web APIs and mashups, feed aggregators, social bookmarks, widgets and other tools to enable the learner to pull together diverse strands of information and to organize them in useful, personalized configurations [1] [16]. Whether the PLE is one platform or many may be up to the learner to decide. Reference [27]has used the aggregating platform Netvibes to pull together recent research, student blogs, YouTube videos, Twitter feeds, student

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commentary and more for his LMS – a move towards an institutional PLE. However, the power of the PLE comes from the ability of the learner to manipulate the platform, to optimize it for his/her current learning purposes.

The PLE does not place the learner in an isolated, disconnected information-scape, however. Implicit in its design is the connection to a learning community, to other learners who are also connected and with whom there is the potential for collaboration and cooperation. As [2] maintains, "[in] this environment, the combined action amongst the participants can be considered a reciprocal learning process where the learning facilitator is also benefiting from the active exchange of knowledge and reflection typical of a community of learning." It is a type of education in which, according to [17], "[t]he learning itself is the practice of participating....It is not only the act of participating that is valuable, but it is the ways that participation allows one to respond to and even construct the context in meaningful ways through the imagination. The purpose, then, is defined by the context, which is continually changing and being remade with each act of participation." The move to the PLE as a learning platform places the learner in the central position of responsibility for one's learning as well as for the potential learning of others: it is a cooperative enterprise through which we harness the input and talents of each participant for the collective effort of knowledge development and of social and cultural enrichment.

4 MOOCs in the Cloud

In an age that is seeing a proliferation of creative endeavor, strange acronyms roam the online landscape like mythical beasts. One of them is the MOOC. These *Massive Open Online Courses* are formative expressions of the will towards rhizomatic education. As [5] expresses it:

In the rhizomatic model of learning, curriculum is not driven by predefined inputs from experts; it is constructed and negotiated in real time by the contributions of those engaged in the learning process. This community acts as the curriculum, spontaneously shaping, constructing, and reconstructing itself and the subject of its learning in the same way that the rhizome responds to changing environmental conditions.

While from the perspective of the formal institution this concept may seem like educational science fiction, the MOOC has well and truly reared its head, and recently (September 12 - November 19 2010), in the form of PLENK2010 [7]—a MOOC about *Personal Learning Environments Network and Knowledge*. This course was the brainchild of PLE and connectivist educational bloggers and theorists Stephen Downes, George Siemens, David Cormier and Rita Kop, and was facilitated by them. The purpose of the course was to explore the nature of the PLE/PLN, how they differ from LMSs, how to use them, what tools they use, and whether they might be incorporated in the classroom.

The course was open for all to participate. Even at Week 8, a notice on the homepage of the website read "there's still time to register". By the first week of the class there were 1600 people enrolled in this free course.

While it is a MOOC about PLEs, the course was officially delivered in primarily three ways:

1. through a daily digest of information posted online through one of Downes' blogs and sent to subscribers as an electronic newsletter. This digest contained a synthesis by Downes as well as a selection of aggregated blog and Twitter posts from course participants;

2. through a Moodle course shell on which recommended readings, activities and presentations were organized into a syllabus and made available, and on which a weekly General Discussion forum was hosted;

3. from bi-weekly Elluminate virtual classroom sessions open to all participants, which addressed the set theme of the week.

It was apparent, as a participant in PLENK2010, that Cormier's conceptualization of rhizomatic education was in some ways occurring in this MOOC, while in other ways the course was more traditionally organized and centrally run. The traditional aspects of an intentionally-designed topic-based curriculum and set resources were used to focus the participants and to get the discussions rolling. In this way the facilitators played a teacherly role and the course sessions, held in the LMS and Elluminate, were also teacher- (or guest teacher-) driven. But what was a striking departure from tradition was the integration of the voices of the course participants into the resource pool through the aggregated blog and Twitter feeds. The visible plethora of participant activity gave one the sense of collective endeavor, of collective knowledge construction, and in this sense the MOOC was a successful illustration of the potential of a connectivist-designed course. Participating in the course, one was constantly jumping around the blogosphere, dipping in and out of Cloud-based mind-mapping applications or into YouTube or Flickr to see what people had created. One would discover another participant's blog that one resonated with or or a Twitter feed that one considered worth following.

The management of all these strands from so many directions became the critical task of the

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course. It became, in fact, a self-reflective and iterative process of learning about PLEs while widening and attempting to find ways of organizing one's PLE. But what would be most interesting to analyze and map in the course would be the *actual* rhizomatic nature of the interactions occurring amongst participants. What would be the extent of nodal, peer-to-peer distribution and interaction? How many conversations started amongst participants, and how many collegial associations formed? And to compare this with how many postings went unanswered or unread, or what percentage of the participation occurred in direct response to the centralized facilitator input as opposed to that of other participants.

5 Edupunk: learning despite the institution

PLENK2010 as an experiment in educational design was maverick in its attempt to bring into the curriculum resource mix the offerings of other learners. What would have been even more bold would have been to dispense with the syllabus altogether and let the 1600 participants attempt to steer the juggernaut "rhizomatic education"-style. Would it have worked without the central directives or without explicit facilitation?

Another step in the direction of self-styled, post-institutional education is the stance taken by the edupunk movement. The term *edupunk* was invented by Jim Groom in 2008 in a blog post in which he railed against the Blackboard LMS for repackaging the innovations of Web 2.0 for their own economic gain. He articulated an ethical stance that resonated with many and caught fire:

[E]ducation is fundamentally about the exchange of ideas and possibilities of thinking the world anew again and again, it is not about a corporate mandate to compete—however inanely or nefariously—for market share and/or power. I don't believe in technology, I believe in people. And that's why I don't think our struggle is over the future of technology, it is over the struggle for the future of our culture that is assailed from all corners by the vultures of capital. Corporations are selling us back our ideas, innovations, and visions for an exorbitant price [11].

The philosophy of edupunk has subsequently been articulated by many—among them PLENK facilitator Stephen Downes, who defines it as "student-centered, resourceful, teacher- or community- created rather than corporate-sourced, and underwritten by a progressive political stance" [6]. Downes elaborates the concept as

- A reaction against the commercialization of learning;
- A symbol of the do-it-yourself nature of educational technology;
- The desire to think and learn for yourself.

Reference [8]believes that edupunk is "a necessity for future learning" in order to overcome the pedagogical restrictions of institutional LMSs, and cites creativity, communication and collaboration and active participation as the three essential elements for optimal teaching and learning—elements that echo the Jenkins et al. new media literacies.

Edupunk seems to be as much about teachers taking a renegade and independent approach to developing their teaching resources and platforms beyond the limitations and reach of enterprise systems, such as Wesch's Netvibes site, as it is about involving students in their own education as active participants and course content creators—a very MOOCish approach. Reference [20] describes a course by Lim at State University of New York, Buffalo, in which he has his students blog and then, as facilitator, reposts the best entries for everyone to read. A more radical approach might be to let the students decide what the best entries are by rating, commentary and recommender systems.

Trawling through Twitter tweets in the PLENK daily posting, I came upon a notice for the Virtual Worlds Graduate UnSymposium to be held during the following days at EdTech Island in Second Life. This unsymposium was hosted by Center4Edupunx, whose by-line is "bootstrapping our way across the Curriculum" [4]. The first session of the unsymposium was on "Building Your Personal Learning Network". This was where this paper began, with the world map beaming our network connections, just established, in arcs across its surface. Around the area were monolithic building blocks with the logos of Web 2.0 giants: Twitter, YouTube, Facebook, Delicious. During this presentation, the convener caused an explosion that send the building blocks tumbling into disarray (see Figure 1). This seemed an appropriately symbolic gesture to begin the edupunk unsymposium: by blowing up the very tools used to establish our PLNs.

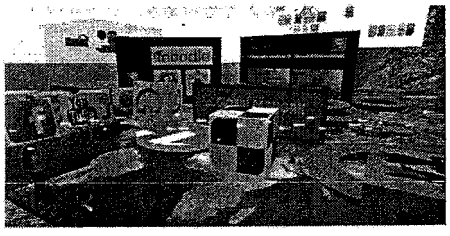

Figure 1: Blowing up the PLN: edupunks at the unsymposium

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6 Learning beyond the institution

If MOOCs and PLEs are able to provide Cloud-based learning community platforms for students with open educational resources and user-generated content as curricula, and the edupunk teachers are circumventing enterprise platforms to teach their students, then where does that leave the bricks-and-mortar institutions? What do they have at their disposal that Cloud-based education does not?

In a word: accreditation. People go to universities to earn degrees that they can in turn use to legitimize their learning to potential employers. Reference [22] glosses over this issue in his discussion of the wiki-ized university – a kind of online open access platform through which there is no formal enrollment, administrative management, or certificates granted. Given this, he poses the questions: "What might 'credentialing' look like in a wiki-ized university?...On what basis might degrees be conferred? Would participants even want degrees?" Perhaps students would not be "attending" such a university to obtain degrees. But then why call them universities at all?

Wikiversity [29] serves as Staley's example, a wiki-style site that aims to "set learning free". It is intended as a "community effort to learn and facilitate others' learning" [30]that students can learn from and teachers can use in their classrooms if they wish. In other words, it serves as an adjunct to formal education. Its lack of bureaucratic control and entrepreneurial focus make it almost antithetical to the modern bricks-and-mortar university. It may be of some use as a place to go to find some useful information on something one is studying formally, as its pages are organized into broad disciplinary portals. But as long as society—and employers—value the hard evidence of a diploma, it will not replace the need for accreditation. Nor will MOOCs—not as long as people want pieces of parchment to show for their efforts.

I may be in danger of sounding reactionary here, like [18] who warns that the enterprise-skirting edupunks may not be serving in the best interests of their students, for many of whom the traditional LMS provides privacy, simplicity and focused attention. "Not everyone is cut out to be an EduPunk," he says, and "[n]ot everyone wants to teach or learn in public mobs clamor and technology obtrudes relentlessly". Well, I am not being reactionary, nor am I suggesting that technology necessarily obtrude any less than it does already in our everyday lives. What is needed is not a return to the safe haven of closed institutional systems, but rather a freeing up of accreditation regimes to give students greater freedom and more options when it comes to earning that piece of parchment. In other words, I am recommending loosening that final keystone that keeps intact the edifice of formal education so that other mythical beasts (the MOOCs and edupunks and so forth) can prosper. There is little reason that bricks-and-mortar universities should be the sole purveyors of academic qualifications—especially when online versions can provide the learner with greater scope and flexibility in the delivery and potentially greater relevance, community and currency in the design of their curricula and degrees.

There are other examples of online "universities" that are less *wiki* and more *uni*, however, and may come closer to delivering a bankable product. Reference [28] discusses a few of these. Peer2Peer University (P2PU) is another recent innovation similar to Wikiversity. It is run by volunteers and has a peer learning focus: while it acknowledges the value of accreditation and provides 'online certificates' for the completion of courses, it is experimenting with peer feedback and review as a method of community-based assessment. It values open scholarship and open resources, and has received advice from Creative Commons. The University of California has helped with administrative and legal support. But its mission places it firmly as a "grassroots open education project that organizes learning outside of institutional walls" [25].

Western Governors University has the byline: "Online. Accelerated. Affordable. Accredited." [26]. Its website and logo look much more like a traditional university website, but it offers a competency-based approach to assessment, the knowledge and skill sets of which have been derived through direct consultation with and frequent review by industry. Its courses are accredited by the same body that accredits several top traditional universities. But it is a university without teachers: learning resources are sourced from across the Web through 100s of contracted third-party service providers. Instead of instructors, Course Mentors help students understand their curriculum requirements and ensure that they stay on track with their competency assessments. The university uses the open source platform Liferay as a 'Student Portal' and Jive social business software as a learning communities solution. But they have an in-house-produced LMS-like "Course of Study" platform that organizes student learning resources and administrative and assessment matters. Students have little control over these platforms, and managing the complexity of having to access dozens of web-based learning modules and resources—many with their own authentication regimes—is an ongoing issue for them. Many students have resorted to keeping spreadsheets of websites, users names and passwords. The university is currently working on a single-sign-on (SSO) solution to ameliorate this sit-

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uation.

So here is an online university that offers recognized accreditation. Students are sent throughout the Web to do their learning and then come back to a suite of university-based closed platforms to engage in the official business of assessment and collaboration with their peers. Interestingly, despite the need for its students to have a flexible and self-managed PLE at their disposal for organizing their learning in this complex environment, the university has not provided this kind of platform for them to use. Western Governors University is a kind of hybrid species—part-traditional, part-innovative—of which there will no doubt be other, nuanced manifestations over time as higher education is forced to enter the brave new world.

7 Conclusion

It may be time to redefine the term 'distributed education' to mean more than simply computer-assisted distance learning. The second decade of the new millennium has opened upon a learningscape already vastly different from that of ten years earlier, with the rise and prominence of social networking and social media, and the move towards open educational resources, open courses and open publishing. Constructivist, collaborative and connectivist pedagogies have found their enablers in the tools and technologies of the read/write web. Increasingly, web-savvy instructors are abandoning institutionally-sanctioned closed-access systems for the greater flexibility and facility of Cloud-based platforms. Those who are venturing into the Cloud are finding new ways to bring students and student contributions into the academic conversation and curriculum, in a renewed focus on the power of peer- and community- based learning. This new form of distributed learning signals something much more profound: it signals a reinvention of formal education, at a time when even some professors are starting to say out loud that without such changes, universities will be irrelevant in another ten years' time [13].

Is it heresy, as an academic, to anticipate the end of the university as we know it? Too many have become unresponsive, management-heavy, bottom-line-driven behemoths that perhaps deserve to suffer the fate of the ill-fit. To survive in this technology-obtruded age may require greater agility than these creatures can muster. But the new creatures need also be fit enough to serve the needs of the learner—including the ability to provide recognized accreditation. As this happens we will likely start to see some changes to the business-as-usual *modus operandi* of formal education.

But until such time there will be the edupunks.

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