

Digital Learning Communities (DLC): Investigating the Application of Social Software to Support Networked Learning (CG6-36)

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Digital Learning Communities

Investigating the Application of Social Software to Support Networked Learning
(CG6-36)

Robert Fitzgerald and James Steele

COMPETITIVE GRANTS PROJECT FINAL REPORT

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Executive Summary

Universities are in the business of preparing students for their professional, social and intellectual lives: as such they are also about producing the leaders and innovators for a rapidly changing technological world. It is not entirely clear how well universities are responding to these objectives particularly when it comes to embracing new technologies such as social software.

University students face many challenges to their effective participation in and engagement with the university environment. Competing study, work and social demands (Krause et al, 2005) fragment their lives and reduce their time on campus, reducing their opportunities to engage with their peers in the discourse that explores, interrogates and provides a supplementary social ground for their in-class learning.

Social interaction is fundamental to the pursuit of high quality thinking and learning outcomes (cf Vygotsky, 1978) and simple and robust information and communications technologies (ICT) give us new opportunities to promote social interaction, build social networks and enhance students' university presence.

The Digital Learning Communities (DLC) Project considered the potential of social software to support peer engagement and group learning in higher education. The project established a series of pilots that examined ways in which social software could provide students with opportunities to engage with their peers to supplement the more formal aspects of their education. It spoke with teaching and support staff about the use of social software to support learning, and to students about how they saw social software being used in their university lives. It established a wiki-based cookbook that provides ideas and suggestions for the use of social software, and conducted surveys of staff and students' use of new social technologies.

Major Findings

There are indeed opportunities for social software to be used to promote learning among students.

University students need to learn new network and software literacies to become digital citizens, and learn how to better collaborate with each other and the wider community.

University ICT professionals need to examine ways to support, not hinder, lecturers' experimentation, development and wider introduction of new software and network services to support student learning.

University administrators, ICT professionals and lecturers need to understand that while at the present time most students *browse* the internet rather than actively *contribute* through producing and sharing content, there are strong indications that this is changing particularly with respect to social networking applications.

Recommendations

Recommendations to:

Lecturers

- *We recommend to lecturers that they persist with experiments with social software.*
- *Lecturers should consider providing students with opportunities to interact informally through existing learning management systems or other forums as a supplement to other learning and teaching opportunities provided in their teaching.*

Universities

- *Senior university leaders must actively support interconnections between their university systems and outside services.*
- *We recommend institutions develop workable plans to transition innovative learning and teaching practices from experimental to mainstream services.*
- *We recommend that institutions actively engage with their students to negotiate mutually acceptable protocols covering academic, administrative and community communications with social software.*

Generally

- *We recommend that academics and institutions explore the opportunities provided by social software and Web 2.0 services to provide their students with alternative and/or additional opportunities for learning, teaching and assessment that are compatible with the changing needs and demands of students*

Future project or projects:

- *We recommend that the sector support the continued availability and further development of resources such as the manifesto and cookbook.*
- *We recommend ongoing investigation of students' ICT skills, knowledge and experience, and the mapping of these to desired graduate attributes.*
- *We recommend periodic surveying of pre-tertiary and tertiary students in Australia to build an evidence-base of students' competence with emerging online services and technologies.*
- *We recommend the development and implementation of a range of network literacy programs for university staff and students.*
- *While it is important to consider the risks associated with online communication, institutions should explore ways to manage the risks rather than use the spectre of defamation or vandalism to deny the use of collaborative or contributory online services.*
- *We recommend further work be done on the role of cultural difference in the use social software, and from this develop recommendations for lecturers and software developers.*

What the project set out to achieve

The Digital Learning Communities (DLC) project sought to apply an evidenced-based approach to increasing undergraduate and postgraduate student engagement, especially peer-to-peer interaction and communal learning, through innovative applications of social software in university teaching. This entailed:

- surveying students on their use social software
- conducting focus group discussions with students about the use of social software in their university lives
- enhancing student community and peer engagement through socially mediated content creation, classification, aggregation and sharing
- applying existing free services and applications to maximise accessibility
- documenting and disseminating the results in a way that allowed immediate and sustainable take-up of these techniques by Australian university lecturers.

Our approach and methodology

We undertook to do the following:

1. Scope the social software territory to identify and test the utility, simplicity and robustness of the available social technologies for their application to learning and teaching.
2. Conduct a survey of the communication channels students use in a range of institutional settings by applying a combination of focus group interviews and web-based surveys in order to characterise students' present and emerging use of technology for study, work, and play. In particular we sought to examine the quantity and quality of the data channels used by students.
3. Develop of a series of projects across the three universities. These projects focused on the identification, development and evaluation of a range of pilot studies that sought to engage learners with emerging social technologies.

Social software

The use of open source (and free) social software in the so-called Web 2.0 design (Alexander, 2006) underpinned our work. Web 2.0 refers to an emerging group of web-based services that allow users to publish, communicate, and engage in social networking anywhere, anytime and, often, on any device. The term Web 2.0 has a built-in use by date, although when (if ever) there are Web 3.0 services, the lessons learned using the existing services should provide solid foundations for moving to new ones.

Web 2.0 services

There is a multitude of Web 2.0 services that are readily available to students and lecturers such as blogs (e.g. Edublogs), wikis (e.g. Wikispaces), collaborative word processors (e.g. Google Docs), syndication and aggregation services using RSS (Really Simple Syndication: e.g. Bloglines, PageFlakes and iGoogle), social bookmarking (e.g. del.icio.us), shared calendars (e.g. Google Calendar and 30 Boxes) and creative content exchange (e.g. Flickr

for images and now video, ccMixer for audio, MyToons for animation and YouTube for video). These services are mostly free.

Drupal

While we were inspired by the loosely connected nature of Web 2.0 services, we also saw the need to experiment with approaches that offered academics and institutions more 'managed' social networking. In this regard we have been working with OpenAcademic (<http://openacademic.org/>) to build out the content management system, Drupal (<http://drupal.org/>), as a functional social networking environment that had, among other things, additional controls to support authorisation of access and management of content. Some of this work and feedback has contributed to the GPL release of the Drupaled codebase (<http://www.drupaled.org/>): an example of how the outcomes of the DLC Project have been shared internationally.

Pilots

Our pilots adopted an evidence-based approach and considered:

- reflective journals and portfolios, the public sharing of work in progress, and peer feedback and critique by learners for learners
- study groups, the formation, support and leveraging of the potential of social software to improve learning experiences
- collaborative development and publication of growing knowledge bases and the collaborative drafting of articles
- collaborative compilation of industry-standard information directories
- creative content exchange sites for the iterative development of student art and design works in a modern intellectual property framework (e.g. Creative Commons).

Evaluation

We were originally inspired by design-based research approaches (Dede, 2005; Design-Based Research Collective, 2003) as a process for advancing innovation and change with technology. However, given the short time frame of our project, the pilots were not able to benefit from the design-test-redesign cycle. We did however use the notion of communities of practice (Wenger, 1999) as a lens for understanding the activities arising from each pilot. The key areas of interest were:

- Domain – what is the shared domain of scholarly interest? What is the unique problem and/or context of the group/community?
- Community – how do you (and others) use social software to engage in joint activities and discussions, help each other, and share information?
- Practice – how do you develop a shared scholarly practice? What are the project's most significant experiences and ways of meeting the group's scholarly learning needs?

Deliverables

The project aimed to produce:

- A set of pilot reports and practical guides to the application of social software techniques in Australian university teaching. It was anticipated that these resources would maximise accessibility and applicability, using existing, free services, and/or show how social software techniques can be applied in other e-learning systems.
- A set of exemplars, demonstrating strategies for engaging students in pervasive modes of learning and teaching using socially-oriented technologies. These exemplars would show the application of these techniques to a variety of teaching models and formats.
- A final project evaluation and report that synthesises the Project's key findings and makes recommendations on the application of social software in higher education.

As our project sought a more nuanced and complex understanding of the rapidly changing medium of media and technology in higher education we were reminded that "Control over change would seem to consist in moving not with it but ahead of it. Anticipation gives the power to deflect and control force." (McLuhan, 1964). In the spirit of anticipating shaping a strong future for learning and teaching in higher education we distilled a number of 'messages' from our work. These key messages form a significant part of this report.

Reports on deliverables

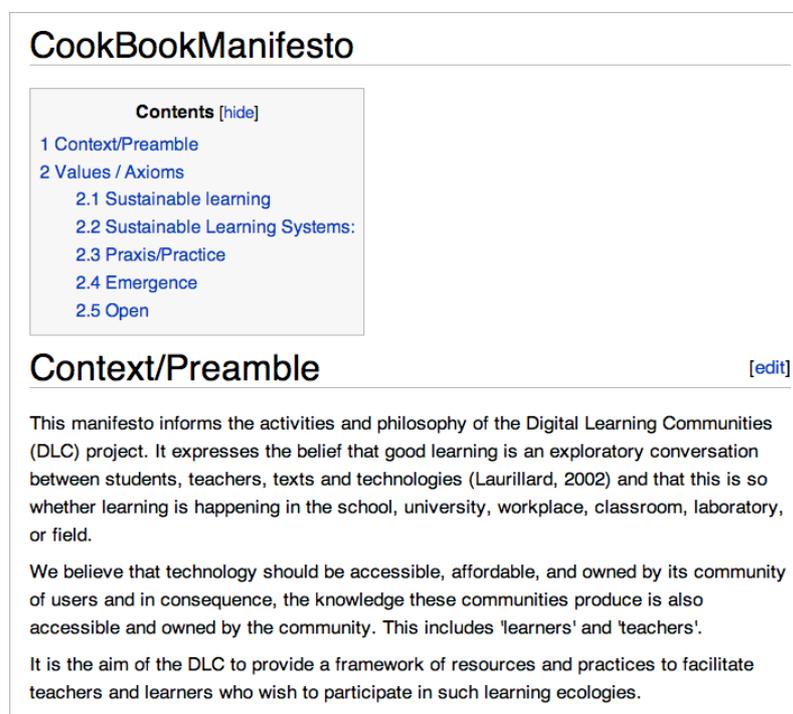
Our key deliverables are:

- A six-monthly and one-year report on the progress of the project.
 - Completed and submitted
- First social software survey across three universities in November 2007
 - Completed
 - Reported in year 1 report
- Second social software survey across three universities in May 2008
 - Completed
 - Reported here
- A set of pilot reports and practical guides to the application of social software techniques in Australian university teaching
 - Pilots undertaken
 - Outcomes assessed in January 2008
 - Pilots refined and tested in Semester 1 2008
 - Pilots reported in this report, and through various conference presentations and publications
- A set of exemplars, demonstrating strategies for engaging students in pervasive modes of learning and teaching using socially-oriented technologies.
 - a learning manifesto available online at <http://wiki.mashedlc.edu.au/index.php/cookbookmanifesto>
 - a cookbook available at <http://wiki.mashedlc.edu.au/index.php/cookbook>
- This final project evaluation and report on an analysis and assessment of the communication and information processes preferred by university students and an identification of the ways in which learning and teaching can integrate with those

processes. The report synthesises the Projects' key findings and makes recommendations on the application of social software in higher education.

Manifesto

The project developed a manifesto (<http://wiki.mashedlc.edu.au/index.php/CookBookManifesto>) that recognised students and lecturers will increasingly move towards a model of co-production and produsage (Bruns, 2008), where education and its institutions will need to become more open and porous to the outside world. The manifesto informed our activities and embodied underlying philosophy of the Digital Learning Communities (DLC) project. It expressed the belief that good learning is an exploratory conversation between students, lecturers, texts and technologies (cf Laurillard, 2002) and that this is so whether learning is occurring in the school, university, workplace, classroom, laboratory, or field.



CookBookManifesto

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[\[edit\]](#)

Context/Preamble

This manifesto informs the activities and philosophy of the Digital Learning Communities (DLC) project. It expresses the belief that good learning is an exploratory conversation between students, teachers, texts and technologies (Laurillard, 2002) and that this is so whether learning is happening in the school, university, workplace, classroom, laboratory, or field.

We believe that technology should be accessible, affordable, and owned by its community of users and in consequence, the knowledge these communities produce is also accessible and owned by the community. This includes 'learners' and 'teachers'.

It is the aim of the DLC to provide a framework of resources and practices to facilitate teachers and learners who wish to participate in such learning ecologies.

Figure 1: manifesto: <http://wiki.mashedlc.edu.au/index.php/cookbookmanifesto>

We believe that technology should be accessible, affordable, and owned by its community of users and in consequence, the knowledge these communities produce should also be accessible and owned by the community – this includes learners and lecturers. It was and remains the aim of the DLC project to provide a framework of resources and practices to facilitate lecturers and learners who wish to participate in such learning ecologies.

The manifesto enumerates five key values or axioms around:

1. **Sustainable learning** - for students it is learning that provides them with the methodologies and resources to be active learners throughout their education and enables them to continue to be productive, active learners post graduation. For staff it is the development and adoption of teaching approaches that do not increase their

assessment or administrative burdens, and that align learning and assessment outcomes with learning styles and assessment activities.

2. **Sustainable learning systems** – the defining feature of these systems is that they are open and accessible to participants and the network at large.
3. **The role of praxis/practice** – in which digital communication technologies afford new ways of learning and new network literacies.
4. **Emergence** - learning is an emergent activity that arises from the complex interaction between people and digital tools.
5. **Openness** - we value 'open' as a quality and apply this to use of open software systems and the sharing of all knowledge produced.

The manifesto offers a beginning that has the potential to be developed further into a more substantial statement to guide lecturers and administrators across the higher education sector into a more open and porous future.

Cookbook

The social software cookbook (<http://wiki.mashedlc.edu.au/index.php/CookBook>) is a work-in-progress. It contains a collection of recipes to help users understand social software, Web 2.0 services, and educational practice as a 'thick description' (Geertz, 1973) of various teaching practices that use network literacies in situ. It is designed to help lecturers determine why they might use things like blogs, wikis and third party sites in teaching: what works, what does not work, and how this might be different (or the same) as what they already do. The cookbook offers a model of practice, a way of doing, and this is just as important as the recipes. We have included a glossary of social software terms, a very plain listing of all recipes, larger sections devoted to blogs and wikis in education, RSS and aggregation, social sharing, networking and bookmarking. The cookbook will be expanded in the future: as a work in progress it will benefit from further structuring and contextualising.

The cookbook is a resource, not a definitive report on Web 2.0 projects. It is a biographically contextualised history of ideas: we have written out what we have been doing as a resource for ourselves and for others who may have an interest in applying Web 2.0 services in their own teaching practice. It is an ethnographic, rather than an educational, method, designed to help other teachers. A lot of detail has been included in the cookbook because we cannot know in advance what is going to be important in the future, either to ourselves or to other readers. We are not taking for granted whether we will remember, or others will know, how a particular exercise was assessed or a particular environment installed. We do not know how other people may use our experiences, so we describe as much as we can, in as much detail as possible. We believe this approach to be of value to other lecturers, because they will want to read something that is concrete, or grounded in reality. There are other sources where they could find more traditional experimental data on comparisons between different approaches to using Web 2.0 services though our team probably would still question the educational value of control-treatment designs in highly dynamic and changing settings.

In some respects the term cookbook may be a misnomer for what is being done here. A cookbook suggests a collection of recipes, whereas our cookbook is much more than that. It might be more useful to consider the cookbook as 'patterns' (in the sense developed by Christopher Alexander, 1977): solutions to particular situations encountered in learning and teaching.

CookBook

Introduction [edit]

Welcome to the social software cook book. Like all good cook books this is a collection of recipes to help get your head around social software, Web 2.0 (a term with a built-in use by date) and educational practice. Hopefully this will help you work out why you might use things like blogs, wikis and third party sites in teaching, what works, what doesn't, and how this might be different (or the same) as what we already do.

Like all good cook books (I'm thinking of Alexander's "The Cooks Companion" as a suitable exemplar) it is of course much more than just a collection of recipes. It is a model of practice, a way of doing, and this is as important as the recipes - after all Jamie Oliver's success is only partially based on his recipes!

What's Here [edit]

There is a [glossary](#) of social software terms, a very plain listing of all [recipes](#), and larger sections devoted to [blogs and education](#), [wikis and education](#), [RSS and aggregation](#), [social sharing](#), [networking and bookmarking](#), and in the future other things.

The project has a [manifesto](#), and recognises that students and teachers will move towards a model of produsage where education and its institutions will need to become more [porous](#).

- [Malleability of these technologies - encourage exploration and experimentation.](#)
- [Why do all this stuff?](#)
- [Communities of Practice](#)
- [Evaluation](#)
- [Workshop Ideas](#)
- [Wish list of things to go in the wiki](#)
- [Working in a networked world - Scenarios](#)
- [Pilot Project Template](#)
- [Teaching Evaluation Questions](#)

Figure 2: Social Software cookbook: <http://wiki.mashedlc.edu.au/index.php/cookbook>

The cookbook and the manifesto have even further potential and could be taken up as living resources useful beyond the life of the DLC Project, although doing so involves further work and overheads after the project is officially completed.

We recommend that the sector support the continued availability and further development of resources such as the manifesto and cookbook.

Social software surveys

Over the period of the project we conducted two online surveys of social software use by students and staff across the three universities. Following a careful evaluation of a number of open source and commercial web-based survey platforms, we selected a commercial product from QuestionPro (<http://www.questionpro.com>) for its superior support for online survey design, implementation and analysis.

The first survey was conducted in August 2007 and encountered a number of barriers to its effective dissemination that resulted in very low response rates. In total we had 853 respondents (41 percent male and 59 percent female) who completed the survey, 63 percent undergraduates, 16 percent postgraduates and 21 percent university staff.

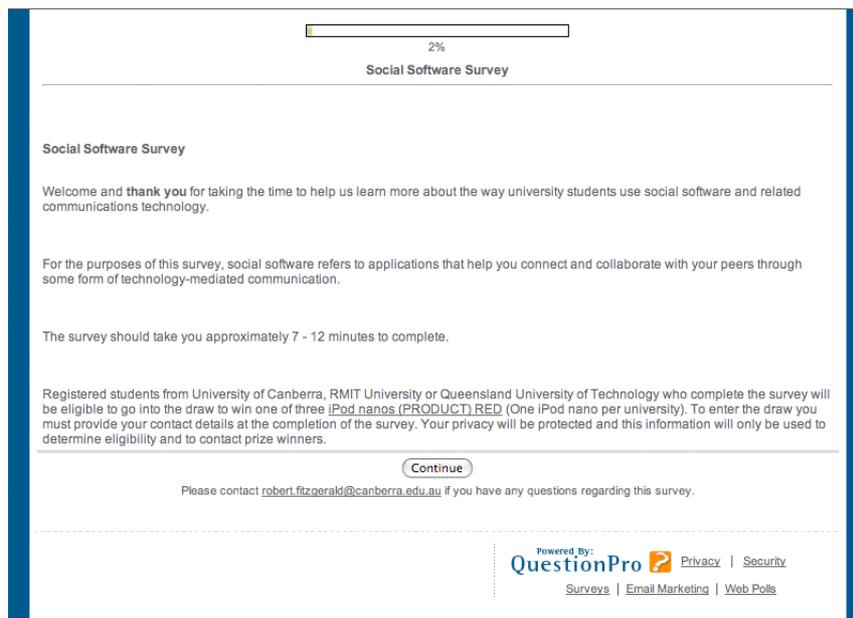


Figure 3: Social Software Survey – 2008 edition

Initial Survey (August 2007)	N	%
Undergraduate	539	63%
Postgraduate	137	16%
Academic	108	13%
Other (e.g. admin, library)	68	8%

Table 1: Initial Survey (August 2007)

We did discuss these results in our Year 1 report however given the small sample size we saw this data as preliminary only and have chosen to focus our attention on the second survey, which had a much better response rate. The original rationale for conducting two surveys was to be able to generate time-series data and explore changes over the project timeframe. When we submitted our original project we specified a 24 month timeframe but changed this to 18 months in light of the reduced funding we were allocated. This combined with the fact the first survey did not take place until August 2007 (rather than February 2007) worked against the validity of attempting to measure changes over time. The second survey has given us a rich source of data that can be analysed in much greater depth than we have been able to accomplish at the time of writing this final report. Summary conclusions are included here.

Main survey results

Difficulties with getting information to potential respondents to the first survey in 2007 meant we had to improve the methods we used to notifying students about the survey. The survey was run again in May 2008 (with minor revisions) and eligible students were to be offered a prize (one student in each institution would win an Apple iPod) as an incentive to complete the survey. The second anonymous web-based survey of students and staff across three Australian universities was run using the same QuestionPro platform that was used in the first survey.

Survey demographics

In total 2717 students responded to the survey with 954 from the University of Canberra, 458 from Queensland University of Technology and 1305 from RMIT University. Percentage breakdowns by institution, gender, enrolment and age are provided in Table 2.

Institution	%
University of Canberra	34.5
Queensland University of Technology	16.5
RMIT University	48.4
Other	0.6
Gender	
Female	40.7
Male	59.3
Enrolment	
Undergraduate	78.0
Postgraduate	17.4
Age	
18-25	74
26-35	16
36-45	6
46-55	3
56-65+	1

Table 2: 2008 Survey demographics

Time on campus

Students were asked to estimate the amount time they spend on campus attending classes, studying and socialising. Table 3 shows that on average students spend about 21 hours per week on campus with about half of that engaged in formal classes (46.9%) and 37.2 percent spent studying. Surprisingly students spend less than 3.5 hours per week socialising with friends and peers on campus.

Campus activities	hrs pw	%
Attending classes	9.7	46.9
Doing individual study	5.2	25.1
Doing group study	2.3	11.1
Socialising	3.5	16.9
	20.7	100

Table 3: Campus activities

Devices owned or regularly used

The mobile phone is the most pervasive device for this group of students followed by the laptop, digital camera, desktop computer and iPod.

Devices	%
Mobile Phone	88.6
Notebook/Laptop Computer	72.9
Digital Still Camera	68.5
Personal Desktop Computer	66.6
iPod/MP3 Player	64.7
Video Camera	17.1
Blackberry, Palm or PDA	7.9

Table 4: Devices owned or regularly used

Internet services

Over ninety percent of students have access to a home broadband connection with each student spending about 3.6 hours day accessing the internet. Their top four uses of the internet are email (10%), university research (9.5%), banking (7.8%), social networking (7.0%) and receiving news (6.7%). They each have 2.8 email accounts and their three main news services are Google (33%), MSN (20%) and ABCOnline (20%). On the surface they appear quite a connected group however when you explore their web presence (Table 4) more fully you find the vast majority do not have a website (78%) or blog (72%). However sixty-four percent of those required to use a blog as part of their coursework requirements stated they would still keep working on the blog after the unit is complete.

Web presence	Yes	No
Do you have a website	22.3	77.7
Do you have a blog	28.0	72.0
Do you keep a blog for uni work	20.3	79.7
Will you keep it after your unit	64.1	35.9

Table 5: Web presence

Peer communication

To get a sense of the ways respondents connected with their peers we asked them to identify the three main ways they choose to communicate (Table 5). Face-to-face meetings and email were most popular followed by text messaging and phone calls. The importance of text messaging relative to phone calls perhaps points to the potential of texting to deliver a cost effective, reliable messaging platform with minimal disruption for both sender and receiver. Instant messaging (IM), blogs and discussion lists/forums did not figure much at all. One should not read too much into this result as on many university campuses, blogs and IM are not well-supported.

What are the main ways you communicate with your peers	%
Face to face meetings	26.5
Email	23.5
Text messaging	20.0
Phone calls	17.2
Instant messaging	6.6
Social networking site	4.7
Listserv or group emails	1.1

Table 6: Connecting with peers

Social software: Browse, participate and contribute

To examine the use of popular social software applications, we asked each respondent to indicate what type of applications they use and then to self-assess their style of use. Based on our experience working with university students, we developed a basic typology based on three categories that we contend represented an increasingly level of engagement with the application. We suggest that each of these characterisations could be defined by the following activities:

1. **Browse:** Read, surf or watch existing content
2. **Participate:** Browse and, make comments, suggestions and offer critiques
3. **Contribute:** Browse, Participate and, contribute by creating and uploading content.

Social Software	Browse %	Participate %	Contribute %
1. Social networking	32.4	32.4	32.4
2. Wikis	82.5	11.8	5.6
3. Video sharing	70.5	18.5	11.0
4. Photo sharing	51.5	20.5	28.0
5. Blogs	56.2	23.5	20.3
6. Music networking	68.3	21.0	10.7
7. Social bookmarking	70.0	19.4	10.7
	61.6	21.0	17.0

Table 7: Browse; participate; contribute

The first point to note is that social networking applications such as Facebook and MySpace are the most popular application of social software for these university students (26%), well ahead of any other application. Social networking is followed by wikis (16.3%; e.g. Wikipedia), video sharing (15.8%; e.g. YouTube) and photo sharing (13.9%; e.g. Flickr) – these account for over 70% of all social software used by students.

When we look more closely at students' self-assessment of their use of each application we see that students are primarily browsers (61.6%) tending to surf, read or watch existing internet content. There are two striking departures from this general observation. First, students were much more likely to **participate** or **contribute** with social networking software

(64.8%), followed by photo sharing (48.5%) and blogs (43.8%). In fact, this cohort of students was evenly distributed across the three categories for social networking with 32.4% of students indicating they were active contributors. Having said that it is our view that much of the content on, for example, Facebook appears to be directed towards more recreational than educational applications. The second departure from the general trend was evident with wikis. Nearly 82% of students said they only browsed and read wiki content with a very small number (5.6%) actually creating wiki pages. While wikis are often held up as the archetypal application for collaboration and content creation, it is quite clear university students use them mainly as an information resource. Given the success of wiki projects such as Wikipedia (<http://wikipedia.org/>) and the developing Citizendium (<http://citizendium.org/>), Knol (<http://knol.google.com/>) and Medpedia (<http://www.medpedia.com>) projects, it is our view that this result may be more a reflection of users' limited understanding of how wikis work than a specific weakness of the application.

Pilots

The pilots we established included the application of wikis, blogs and related social networking software to learning and teaching. In one project a lecturer used the online social network for animators, MyToons, to support the teaching of animation in a New Media course. Another New Media lecturer user Flickr to provide his students with a forum for critiquing each other's work. In a first year Information Systems course, another lecturer supplemented her WebCT site with a corporate implementation of the wiki application, Confluence (<http://www.atlassian.com/software/confluence/>), to build an Information Systems Jobs Registry. In a first year Applied Ecology course, another lecturer gave each of her students a blog through a Drupal-based application (<http://community.mashedlc.edu.au>) to encourage students to record and share their field notes and laboratory reports. A faculty-based resource centre developed a project to help preservice teachers share online resources. In two similar projects based in two different universities, lecturers tested a whole of program approach to the use of blogs in Media programs. Recently one of these DLC team members, Adrian Miles, used a staff retreat as an opportunity to use a wiki to engage in a curriculum re-design process by getting his teaching staff to work face-to-face undertaking joint curriculum writing, documentation and reflection activities around embedding network literacy within a university Media curriculum (<http://media.rmit.edu.au/projects/pim>). This post industrial media wiki is an outcome and local extension of our Digital Learning Communities project.

Blogs, wikis, social bookmarking and social media

Axel Bruns (QUT)

Ideas developed by the project team were used to develop and enhance learning and teaching approaches in the units KCB202 New Media Technologies (2/2007, 2/2008) and KCB201 Virtual Cultures (1/2008) at the Queensland University of Technology. Both units combine to form a learning sequence related to new media, covering fundamental characteristics and key technologies as well as further applications and implications; as part of this, they also aim to showcase authentic individual and collaborative working practices in new media environments.

Both units are second-year offerings into a number of degree options in the Creative Industries Faculty; mainly, they would be taken by students in the Bachelor of Creative

Industries (Media & Communication), the Bachelor of Mass Communication, and the Bachelor of Creative Industries (M&C) / Bachelor of Business double degree. Significant other student cohorts would also enrol from aligned fields such as Journalism and Communication Design, while other students from across the Creative Industries and beyond may also be present (where the units are taken as electives, students may also enrol during their third year of studies). This means that the overall student cohort is usually diverse in background and interests, and new media skills and literacies are unevenly distributed – even though on average, the group would mainly consist of relatively recent school leavers. Enrolment in the units is usually around 100 (Virtual Cultures) to 150 (New Media Technologies), though due to external factors these numbers have been substantially higher during the DLC project period.

At present, there is no strongly prescribed order for taking both units, and before Semester 1, 2008, Virtual Cultures had been taught by a number of sessional staff; this has caused problems in developing a clear and minimally overlapping content, learning, and assessment structure for both units. With Axel Bruns taking on coordination of KCB201 for 1/2008, a reorganisation of content, learning, and assessment in both units for 2008, and a name change scheduled for 2009 (to KCB201 New Media 1: Information and Knowledge and KCB202 New Media 2: Applications and Implications), it is hoped that students will increasingly see both units as a one-year sequence of study. This is also aided by the adoption of a unified set of textbooks across both units (*New Media: An Introduction*, 3rd ed., by Terry Flew, and *Blogs, Wikipedia, Second Life, and Beyond: From Production to Produsage* by Axel Bruns).

Overall, then, the DLC project has contributed to the (still ongoing) reorganisation of learning and teaching approaches across both units, with the aim of developing a year-long learning sequence that enables students to proceed from the very fundamentals of new media practice and research through to advanced application and enquiry.

How did the project address peer learning?

Among the fundamental tenets of both units is that in the field of new media, there is a significant and continuing shift towards collaborative user-led content creation, or produsage, and that this shift offers a fundamental challenge to established forms of information and knowledge creation, management, and usage. Both units need to address this development both from a scholarly point of view, by engaging with relevant ideas in the literature, and from a practical perspective by providing students with a direct experience of working, individually and collaboratively, in current and emerging new media environments.

For some years before the start of the DLC project, New Media Technologies had already explored the use of wikis (initially using MediaWiki, more recently Confluence); students collaborated in developing an encyclopaedic knowledge base of new media terms and concepts that will eventually be published publicly. The redevelopment of both units now provides a stronger scaffolding for this approach; students are gradually gaining familiarity with the opportunities and difficulties in participating in social network and collaboration environments, and in the process develop skills in engaging with, responding to, and critiquing the work of their peers.

In their practical work, steps along this pathway now include:

<i>Unit</i>	<i>Activity</i>	<i>Description</i>	<i>Key Practices</i>	<i>Peer Skills</i>
Virtual Cultures	Social bookmarking using <i>del.icio.us</i>	Working individually throughout the first half of semester 1, students bookmark online resources relevant to current unit content, paying special attention also to their bookmark descriptions and tags. Additionally, they explore the <i>del.icio.us</i> environment to identify further useful resources as well as other <i>del.icio.us</i> users with similar scholarly interests. At the end of this phase, they submit a portfolio of their best bookmarks and contacts, with further reflection on the process, as their first assignment.	Finding – evaluating – sharing	Identifying relevant peers
	Blogging using <i>Blogger</i>	Working individually throughout weeks 4-10 of semester, students maintain a scholarly blog with reflections on unit materials and other relevant concepts related to new media in general and their own scholarly and professional interests in particular. They also read and comment on other students' blog entries. At the end of this phase, they submit a portfolio of their best posts and comments, with further reflection on the process, as their second assignment.	Finding – evaluating – sharing	Reflecting and commenting on peer contributions
	Wiki evaluation using Confluence	Working individually throughout the last third of semester, students explore the content of the existing New Media wiki produced by students in New Media Technologies during previous years. They identify and evaluate a topical area related to their own interests, analyse the strengths and weaknesses of its current coverage, and propose to update an existing or add a new entry on a topic relevant to this area. This proposal is submitted as their third assignment.	Finding – evaluating – sharing	Analysing and critiquing the work of past peers
New Media Technologies	Wiki gardening using Confluence	Working in a team of 3 students throughout the first third of semester, students act on the proposals for further development as submitted by students in Virtual Cultures at the end of the previous semester, by updating an existing or adding a new entry to the wiki space. They document their contributions to the team, and reflect on their experience of working in a collaborative environment. Both these reflections and the wiki entry itself are assessed as the first assignment.	Planning – building – maintaining	Communication, coordination, and collaboration in a small team
	Development of social networking space using <i>Ning</i>	During the second half of semester, each class of 20-25 students in the unit collaborates on building a social networking space on <i>Ning.com</i> that is related to a set topic or field of relevance to new media. They are responsible for planning, building, and maintaining this space, and this work includes developing the structure of the space, establishing	Planning – building – maintaining	Communication and coordination in a large team

		its visual and informational design, and populating it with content. In the first phase of this work, the groups establish their overall approach to this project, and distribute roles and tasks to their members according to existing interests and skills. During this phase, and building on the group's discussions, students submit individual proposals for their specific contribution to the project, which form assignment two.		
	Development and maintenance of social networking space using <i>Ning</i>	During the second phase of their <i>Ning</i> project, students make their proposed contributions to the social network space. This includes establishing the space itself, as well as populating and maintaining it. This work is overseen by the student group itself, organised into working parties as appropriate, and relies on the individual contribution of each student. Building on applicable theory, students document and reflect on their contribution to the project, and submit this as their final assignment.	Planning – building – maintaining	Collaboration and coordination in a large team.

Domain – what was the shared domain of scholarly interest? What is the unique problem and/or context of your group/community?

The chief domain of both units is the field of new media itself, which is not without its problems – for one, because ‘new media’ is a notoriously fluid terrain that is difficult to define with any certainty. This also means that students’ expectations as they enrol in either unit may well be at considerable variance from what is in fact addressed in learning and teaching. Additionally – and this problem is common to the wider field of media and communication studies -, the flexibility and universal applicability of new media means that it is difficult to address specific professional and vocational skills in these units: new media skills are today relevant to almost every professional discipline (and the same is true for media and communication skills), and both units therefore aim to prepare students not for any given specific profession, but rather to enable them to understand and utilise new media tools (and understand the implications of doing so) on a more general basis. From a student perspective, this lack of specificity may mean that there is only a limited sense of how participation in the units may be *immediately* useful to their present and future careers.

Additionally, anecdotal evidence and formal and informal feedback from students and staff indicates that there is a substantial group of students in the overall cohort who enter the unit believing that they are already expert self-taught users of new media (‘digital natives’, in other words), and have little to gain from engaging in a more scholarly examination of new media. This can manifest in a notable resistance to the critical analysis and problematising of new media tools and practices that the units engage in. In extreme cases, such resistance may disrupt class interaction and affect the learning experience of other students. (Students may react negatively to being confronted with the negative aspects of popular social networking sites such as *Facebook* and *MySpace*, for example – especially when they have a significant social investment in their existing profiles on such sites.)

Such problems are difficult to overcome and can be addressed often only if the students themselves adopt a more open-minded approach to the study of new media. In such cases, it may be especially helpful to confront students early on with the limitations of their own

knowledge of new media, and to work with lesser-known substitutes for currently leading social software sites – in the present case, using *Ning* rather than *Facebook* or *MySpace* for the development of social networking spaces, and highlighting the less obvious features of *del.icio.us* and other social bookmarking sites rather than focusing only on bookmarking itself.

Community – How did you (and others) use social software to engage in joint activities and discussions, help each other, and share information?

As outlined above, all of the student work in these units takes place in a variety of social software environments, including *del.icio.us*, *Blogger*, QUT's install of the Confluence enterprise wiki, and *Ning*. Additionally, the units also utilise some of the social software components of QUT's *Blackboard* learning management system (especially its group discussion functions), and weekly lecture podcasts in the units are hosted externally on *Slideshare*. Further, where appropriate, content is embedded into *Blackboard* (which serves as the central information portal and distribution hub) – this includes especially the *del.icio.us* feed for Virtual Cultures and the lecture podcasts from *Slideshare*.

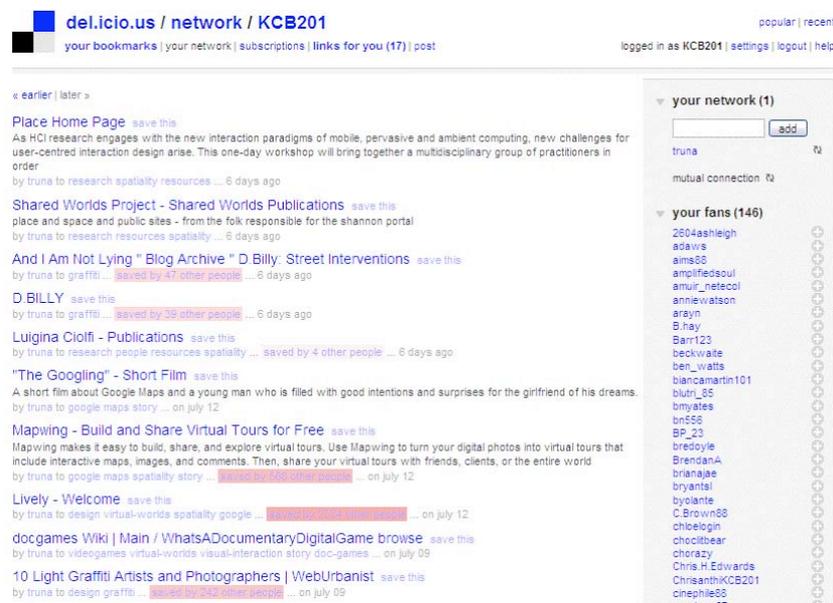


Figure 8: *del.icio.us* page of recent bookmarks and network subscriptions by KCB201 students

Especially towards the later stages of Virtual Cultures, and throughout New Media Technologies, the social software platforms themselves provide the key spaces for information sharing and discussion, however, and such practices are also encouraged through the design of learning and assessment activities. Tutors further enhance this during the weekly tutorials by highlighting useful and interesting contributions from the past week.

Practice – How did you develop a shared scholarly practice? What were the project's most significant experiences and ways of meeting the group's scholarly learning needs?

Given the significant diversity of backgrounds and career interests in the student cohort for both units, developing a shared scholarly practice across the unit cohorts remains the key challenge for both units. This is further complicated by the necessarily strong practical

orientation of many of the assessment items in the units, which may work against students engaging deeply with scholarly resources. This could be addressed by reintroducing more conventional forms of assessment (such as theoretical essays or exams), but this, in turn, would reduce the degree of practical experience with advanced new media tools and environments which students are able to gain in the units, and instead redirect their attention to more artificial forms of academic expression which may have little value for their future careers.

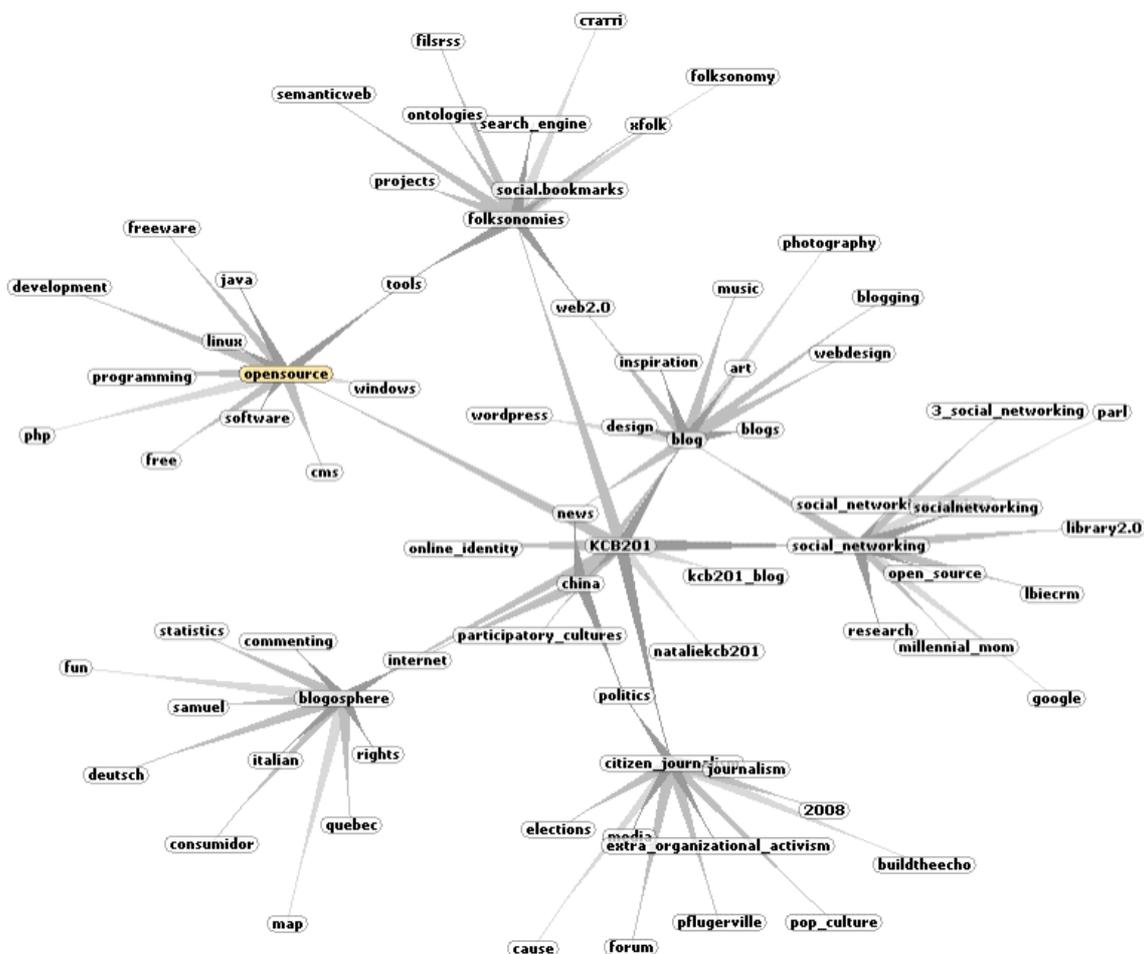


Figure 9: Network of interrelated del.icio.us bookmark tags, centred around the 'KCB201' tag

Such limitations aside, the requirements to engage critically with their peers' contributions which existed for work with blogs and wikis (and to a lesser extent, in *del.icio.us*) generated some good evidence for the development of shared scholarly practices across the student cohort; it is hoped that such development will also be evident in the *Ning* social networking projects during 2/2008. Such evidence extends from very basic exchange on functional aspects (students using the commenting functions on *Slideshare* to share tips on saving and printing podcast Powerpoints) to direct and at times in-depth commentary and discussion of unit materials in blog entries and comments. (In 2/2007, one student demonstrated his understanding of new media theory and practice by creating an audio mash-up of lecture podcasts, set to music.) However, more work will need to be done during coming semesters to further strengthen the students' sense of belonging to a community of scholars.

What technical and research support did you need?

In addition to the in-house *Blackboard* learning management system, both units rely largely on external services for student work; this has proven to be the most sustainable and authentic basis for student work, but also raises questions about student privacy. One exception from this is the Confluence wiki environment which is hosted at QUT. Confluence is a commercial enterprise wiki product that offers significantly more advanced content creation and collaboration features than comparable external wikis (or the wiki plugin for Blackboard). It supports a large number of individual and separate wiki spaces within the one installation, and it can be hosted and maintained centrally within an institution (a major advantage over many current open source wiki systems). At the same time, increased adoption of wikis in learning and teaching is now generating significant load, and QUT is currently exploring the establishment of a dedicated Confluence installation for teaching and learning purposes, separate from its corporate wiki server.

The emergence of such additional resourcing implications is likely to be a common feature as the use of social software in learning and teaching is mainstreamed; while pilot projects in general (and the Virtual Cultures / New Media Technologies units, both of which operate in a new media field and therefore necessarily rely on staff with significant levels of technological knowledge, in particular) may be able to draw on staff enthusiasm and ad hoc solutions, any more large-scale adoption of social software will need to be substantially and sustainably resourced. Similarly, during 2008, development work across both units was substantially supported by learning designer Jane Turner, who acted both as a contributor to the development of unit resources and teaching strategies and as a mentor to tutors in the units; such learning design support is likely to be even more crucial as the use of social software moves beyond the phase of pilot projects.

Whole of course approach using a University-wide blogging platform

Adrian Miles (RMIT University)

The pilot conducted at RMIT examined the whole of program approach to blogging that the Bachelor of Communication (Media) program has adopted. In this model semester one introduces students to traditional book-based journals, semester two introduces blogs as a simple electronic journal, semester three develops the blogs as participatory and social systems, while semester four examines and uses blogs critically from the point of view of Web 2.0 technologies and practices. In semesters five and six blogs are sufficiently embedded into the teaching that they are used 'automatically' by students to document, reflect, distribute and discuss a wide variety of teaching related matters.

The blogs are provided to each student and are hosted by the university on a suitable server. However, they are outside of the existing Learning Management System as they utilise a major open source blogging system (WordPress) and the Media program requires the blogs to be public rather than firewalled so that students are actively constructed and supported to be knowledge contributors and producers rather than consumers. An additional rationale for this is that as these students are training to be professional media practitioners there is an assumption that a significant aspect of their future professional practice will be the production of media that is available publicly. The use of blogs that are fully accessible outside of the university allows students to be introduced to authentic issues of copyright, intellectual property rights, media practice, and the development of their own 'voice' as writers and media practitioners.



Figure 10: RMIT blog: <http://raws.adc.rmit.edu.au/~s3024962/blog2/?p=118> (Lim, 2008)

This pilot has met with considerable success, as evidenced by the comments received during the RMIT focus groups and the extensive use of blogs for teaching and learning that the students manage. The Media program have developed a range of innovative pedagogical practices to facilitate and scaffold blogs and they have become central to their introduction and enhancement of a process and problem based methodology across the media curriculum. The blogs are routinely used as informal portfolios, and are the primary site where students document and provide evidence of their participation. This experience has been documented in the blogs and education section of the DLC cookbook (<http://wiki.mashedlc.edu.au/index.php/cookbookBlogsAndEducation>) and also forms the backbone to the Post Industrial Media project, which is an extension of the original DLC project (<http://media.rmit.edu.au/projects/pim>).

MyToons as a digital learning community for new media

Stephen Barrass (University of Canberra)

Associate Professor Stephen Barrass ran a pilot that used the MyToons social site (<http://www.mytoons.com/>) to teach new media in the media production unit at the University of Canberra in 2007. MyToons is an online animation community where “people who love animation, from seasoned industry professionals through to rabid fans, can upload and share their creations and favourites with the entire world for free” (MyToons, 2008).

The project built on a blog-based Drupal site used in the unit in previous years that made in-class discussions and the sharing of media assets possible within the class. However, MyToons, modeled on MySpace and other popular social software sites, has additional characteristics that focus on the construction of social identity and peer networking through personal portfolios, special-interest groups, friend lists, comments, flags, tags, and thumbs-up feedback. MyToons is located in public space beyond the classroom giving students an authentic community of practice with exemplars, technical support, and opportunities to network and showcase their creativity and productions. This study was interested in the effects of the creative and social MyToons community on imaginative practice as evidenced by the creative and technical quality of works produced by the students.



Figure 4: MyToons: <http://www.mytoons.com/>

The pilot was informed by the first survey of social software that provided a rationale for the selection of MyToons based on its capabilities. The design of the unit objectives, outcomes and assessment around the social and technical capabilities provided by MyToons were considered. Key data included a blog of the social and technical issues that arose during the study, and the student evaluation of the unit:

I found it interesting that the work we created in class became instantly accessible for a whole online community, it made me a bit more wary of what I posted up on the site and made me aim for better quality images in my work because there are some really pro animations on my toons and your work is there for all to see. (Student feedback)

Analysis of the MyToons project confirmed the importance of usability and sociability for the creation of an online community of practice for peer learning. Barrass & Fitzgerald (2008) explain:

The ongoing success of an online community is determined by usability and sociability (De Souza & Preece, 2004). The usability of software describes how easy it is to learn and use a computer interface to achieve some task. Usability is a much more established and better-understood concept than the sociability. Although usability is evaluated in terms of an individual user, DeSouza and Preece observe that it can also affect an online community by impacting on conviviality and the sense of satisfaction and belonging. They define Sociability is related to the extent to which social aspects such as reciprocity, empathy, trust and shared understandings can be supported.

The pilot was hampered by technical issues that impeded a full analysis of the use of this software in higher education. These technical issues underline the need to ensure that whatever environment is selected for use in teaching is robust, comprehensive, able to be used easily by the intended cohort of students (and their lecturers), and is as transparent as possible to allow those involved to concentrate on the tasks at hand and not the technology.

Student comments in the unit feedback reinforced the need for lecturers to ensure that they provide their students with a professional learning environment.

Before a system such as this can be used on a unit it should undergo testing, something as simple as testing if animations could be uploaded from the labs that tutorials were held in would of saved much pain and frustration with the unit. I think a similar site that was administrated by the unit staff would be more suitable however perhaps not practical. Overall myToons has been a negative experience for me, and through no fault of my own.

A full paper on the MyToons experience was presented at the 2008 ED-MEDIA World Conference on Educational Multimedia, Hypermedia & Telecommunications, held in Vienna, Austria 30 June-4 July and is available on the project website.

Plants and animals

Nancy Fitzsimmons and Katarina Mikac (School of Resource, Environmental and Heritage Sciences, University of Canberra)

Drs Fitzsimmons and Mikac used the Mashedlc community site (based on Drupal) to create an online social network to inspire learning and teaching in the core first-year unit 'Plants and Animals in the School of Resource, Environmental and Heritage Sciences at the University of Canberra. Their approach was to supplement their existing WebCT unit with a social community focused on using blogs (<http://community.mashedlc.edu.au>).

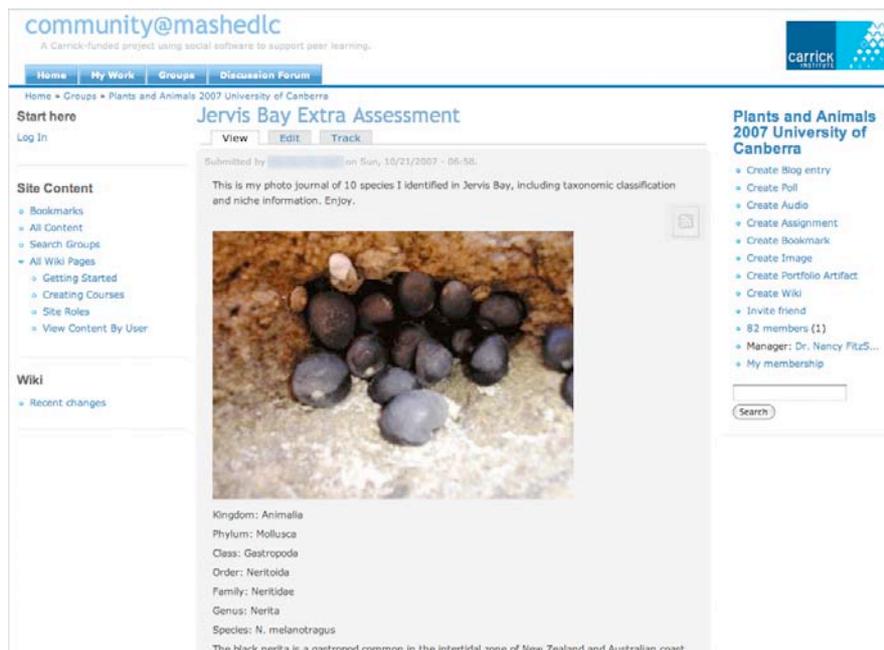


Figure 5: Plants and Animals 2007: <http://community.mashedlc.edu.au/group/216> [note: login required]

Nancy and Katrina had observed that the majority of their current students did not favour traditional teaching practices like oral lectures and discussion-lead tutorials. These teaching practices were also often in conflict with learning strategies adopted by students, who appear to learn through a combination of structured hands-on and experimental activities, and through the use of technology involving e-learning strategies. The core unit was redesigned to incorporate the use of an online e-community (social network) in which the learning of fundamental concepts of this subject drew on self-reflection and peer learning.

The lecturers presented a report on their experiences, the subjects' imaginative redesign process and the impact this has had on student learning experiences to the 6th International Conference on Imagination and Education in Canberra in early 2008.

Social bookmarking using del.icio.us

Sarah Lavelle and Eamonn Kelly (Curriculum Resources Centre, University of Canberra)

Sarah and Eamonn set up a del.icio.us account (<http://del.icio.us/edcrc>) to help preservice teachers easily find education resources on the web. They developed a number of unique tags and encouraged preservice teachers, lecturers, tutors and CRC staff to use them to tag their personal and other resources so that online resources they find valuable could be shared among their colleagues. An RSS feed of the unique tags was developed to give participants in the project easy access to the aggregated resources. Sarah and Eamonn kept a project blog at <http://crcdeliciousproject.blogspot.com/> to document their work.



Figure 6: CRC tag cloud: <http://del.icio.us/edcrc>

Their first goal was to encourage students and lecturers to contribute their bookmarks to the project by tagging them appropriately using the CRC tags. Secondly, they wanted the students to actively contribute comments and feedback to other students, using del.icio.us as a social networking environment, and, finally, to use the del.icio.us RSS feeds to 'push' newly-tagged bookmarks out to students who subscribed to the feed.

One notable aspect of the project was the intention that it remain as a resource for preservice teachers once they completed their University studies and enter the classroom. If the project were housed on a University computer this would be a problem, since University ICT resources are generally limited to campus teaching, learning, research and administrative applications. By using a public resource like del.icio.us there was limited impact on the University's ICT resources and the project could remain available to the students after graduation and the wider community.

The pilot leaders were both enthusiastic champions but when one of them left the university the project lost momentum. In addition, it was difficult to get these undergraduate students to contribute to the project. Eamonn explains:

A lot of the research that we read said that people generally are selfish. It's not an intentional, conscious thing, but if they're really busy, they've got everything on, the chance of them going out of their way to really give other people resources is not going to be high. (Eamonn Kelly, 2 April 2008)

Eamonn went on to say that people were much more likely to contribute if they saw a benefit for themselves. He explained the limited take-up by reflecting on his own recent experience as a student:

I know from just being freshly a student myself, you try and get by as easily as possible, and if you have somebody gifting you a bunch of resources like Sarah did, the temptation's there to, instead of going above and beyond, to just use those. (Eamonn Kelly, 2 April 2008).

He also pointed out that there was a difference between Education students and New Media students: the latter were "much more open to this resources sharing than just using it for their own uses", although with experience with online services like Facebook, Education students were starting to see the value of contributing.

More work was needed to proactively promote the tagging service, particularly with first year students who tended to have more time and were more prepared to engage in new ways of doing things than their busier and more set-in-their-ways second and third year colleagues.

The CRC del.icio.us pilot demonstrates that students are not the active contributors to Web 2.0 services that some believe. Lecturers must take care to understand students' previous experience and capabilities and not assume that undergraduate students necessarily have the required capacities (i.e. skill and time).

Information systems jobs registry

Lubna Alam (Information Systems, University of Canberra)

Lubna used a wiki to help her students develop a registry of jobs in the area of Information Systems (IS). The wiki is an initiative of the University Canberra called UCSPACE and is based on the corporate application, Confluence. The IS Jobs Registry site (<http://ucspace.canberra.edu.au/display/isjobs/Home>) was used by Lubna as a collaborative space for students enrolled in a first-year unit, Information Systems in Organisation. The purpose of this pilot was to provide students with an environment to collaboratively build a registry, so that the students would gain some understanding of the nature of IS industry and its organisation. Students worked in small teams to collaboratively contribute to IS job titles and position descriptions in order to build shared resource.

The student's work formed a part of their assessment altogether students contributed 44 job descriptions to the registry. A survey evaluation of the pilot showed (n=20) that more than half the students (80% of respondents) thought the wiki was some use (moderately useful, useful, or very useful) in helping them learn from each other. Only a small number (10%) thought the wiki exercise was not useful at all. Only 25 percent of the respondents thought they were competent or expert in using a wiki before the unit. Following the unit 100 percent of these students thought they had developed their wiki skills as a result of this exercise.

IS Jobs Registry

<p>This is the home page for the IS Jobs Registry space.</p> <p>This site is for students enrolled in Information Systems in Organisation (6348 & 6675). The purpose of this site is to collaboratively build a <i>IS Jobs Registry</i> to gain some understanding of the reality of IS industry and organisations. Students will participate in this shared wikispace to collaboratively contribute to IS job titles to create the IS Jobs Registry.</p> <p>This work is assessable and is part of Assignment 1. Download a copy of assignment 1. You may also download assignment 1 through the Attachments link on top right.</p> <p>If you would like to play with the features of this wikispace, please use the sandpit.</p>	<p>What's on this page</p> <ul style="list-style-type: none"> • IS Jobs Registry • The Job Titles <ul style="list-style-type: none"> ◦ Issues raised • The Jobs Template • How to use UCSPACE • Tutotiral Groups
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Figure 7: Information Systems Jobs Registry: <http://ucspace.canberra.edu.au/display/isjobs/Home>

Comments from the students reinforced the view developed from other sources like the social software survey, the interviews with lecturers and the student focus groups, that many students have little experience of Web 2.0 services before they are introduced to them as part of the DLC project. The concern here is that while there are widespread expectations of students having these literacies when they enter university, the reality demonstrated across our project is that the majority of students have not used Web 2.0 services to produce or actively contribute to collaborative workspaces on the internet before.

Digital photomedia and Flickr

Tim Thomas (New Media, University of Canberra)

Tim used the public social software photo-sharing site Flickr in his Digital Photomedia unit. Digital Photomedia is a first year unit with a relatively large cohort, and as it is the students' first New Media production unit, it is very important that the unit is managed well and the students have a positive experience.

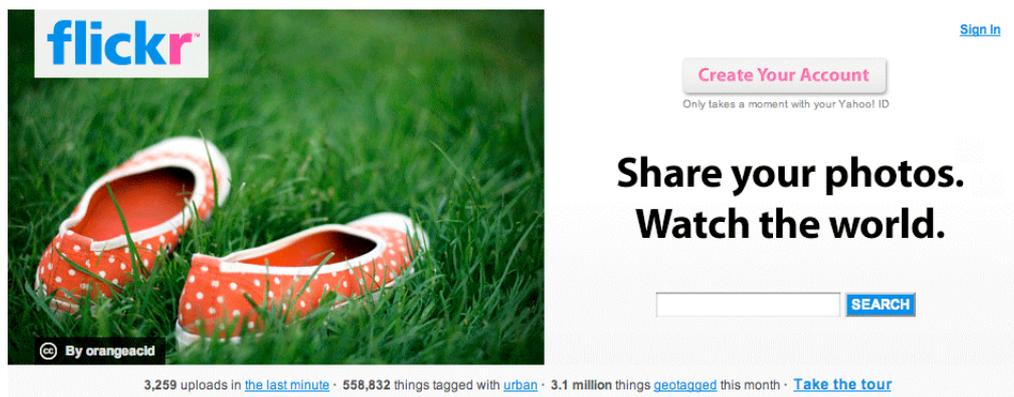


Figure 11: <http://www.flickr.com/>

Each week the students were required to create images, complete exercises and share and discuss their work with their workshop groups.

In previous years, sharing of materials was managed within a faculty-run Drupal server, however this pilot trialled the use of the publicly-available Flickr site as a simpler-to-manage

alternative. Students set up their own accounts on Flickr, and shared their work with their workshop group using Flickr's group facility. Flickr groups can be created around any topic or subject, and the group administrator can make the group public, invitation-only or completely private. Each invitation-only group in the Digital Photomedia unit had a place for sharing photos where they could add comments, notes and tags, and discuss the images.

Flickr was also used for in class presentations and for submitting assignments. The discussion boards allowed students, tutors and the lecturer to address the whole cohort and the student's individual Flickr pages allowed for one on one communication.

The students felt Flickr was familiar to most users of social networking software and they did not perceive its use as an obstacle, or something too difficult to master in order to take part in the unit. This had not been the universal experience with the previous Drupal server, and reinforces the idea that, to be useful, services used need to be comprehensive, easily to use, and generally hassle-free.

Student focus groups

During the project we ran a number of focus groups with about 70 students overall. About 20 students from QUT came along to a 45 minute session, and 50 to a similar session at RMIT University. The students were very generous with their time and in their contribution to the discussions, and provided us with insights that have informed the project and this report.

The discussions were recorded and transcribed (with the written permission of the students), and the transcriptions used extensively to inform the project and provide material for this report.

Staff interviews

Nine staff across the three institutions were recorded in group or individual discussions about their experiences with the Digital Learning Communities project. The recordings were transcribed and informed this report, and will provide material for additional consideration in developing proposals for additional activities, research, and teaching practice.

Key messages

Towards a pedagogy of ideas

The literature shows that e-learning in universities is directed towards the administering of learning and teaching (Reeves, Herrington & Oliver, 2004; OECD, 2005; Dalsgaard, 2006; Hedberg, 2006), with lecturers themselves most often using the learning management system as a place for making content available rather than developing interactive activities (Fiedler et al, 2007; Boezeroy, 2003). Our experience reinforces these findings and suggests that a combination of the weight of current e-learning practice, and the lack of support for trialling and testing of new software and approaches, is ensuring that the answer (i.e. content) is far more important than the question (i.e. process). We regularly see examples of e-learning that is held up as innovative or exemplary primarily because of its content. For example, the developer has applied visually appealing templates; integrated a multiple choice exam into their course; carefully formatted a large amount of textual and graphical information or used a piece of middleware to sequence some instruction. There is no question that content is important: however the process we use to engage students with this content (and its redevelopment) is fundamental. In many cases e-learning sites are monuments to lecturers' content creation with students positioned as browsers and not contributors. The transformative potential of technology is only possible if we engage with the 'big' ideas of the ways technology mediates the learning process – what Papert (2000) referred to as a 'pedagogy of ideas'. In addition to considering content creation technologies in our work, one small step the DLC team took in this direction was the articulation of the learning manifesto: a statement of our common understandings of learning in higher education (<http://wiki.mashedlc.edu.au/index.php/cookbookmanifesto>) that helped guide and shape our work.

Two cultures and the Dilbertisation of ICT

In his 1959 lecture, C.P Snow (1963) outlined his concern with the cultural gap between science and literature. The great loss for Snow was not just that science and literature did not understand each other's work, nor that they didn't speak to each other, but that the lack of scholarly dialogue and partnership was ultimately a loss for their imaginative and creative practice. In our experience the problem of 'two cultures' is acutely apparent in our day-to-day work. When it comes to the application of technology to learning and teaching, the providers of ICT services in universities on the one hand, and academics on the other, do not appear to understand each other's work and rarely speak to each other. The common result is that ICT services often make decisions that impose significant restrictions on academic work that inhibits innovation. Scott Adams, in his Dilbert cartoon series, explores this issue with the character Mordac. Mordac's approach to the management of IT services has struck a chord with both ICT professionals and users around the world (and the DLC team). The cartoon below is one example of what has become known as the Dilbertisation of ICT.



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Institutional ICT Services are not partners

Centralised ICT Services departments have proved a barrier to the exploration of innovative emerging online technologies and services being explored in this project. For example, at one of our universities, requests (wider than this project but having an impact on it) to have the Firefox web browser retained on the standard computer images used on desktops throughout the University have been denied by ICT Services. As an example of an innovative approach to unite the community across the campus, the university's wiki site was used to develop a submission to keep the browser. The submission was ultimately unsuccessful. During the discussions around the submission academics were told by senior ICT managers that they were only *users* of ICT services and not *clients*. The economic imperative of standard operating environments (SOE) and centralised management structures influences pedagogy and other activities.

In another example, a DLC team member's purchase order for an operating system upgrade, approved by the Head of School and funded from the academic's account, was refused by ICT Services on the grounds it could not be installed on university assets. The purchase order was returned to the academic with a ten-page document describing the process for requesting a change to the standard environment. This document requires the user to frame their request according to ten headings: Background; Business Requirements; Scope; Aim & Benefits; Impact Statement; Risks; Constraints; Stakeholders and Related Initiatives; Cost Estimate and Sources of Funding; and References. This is the first-step in a 14-step process!

The use of centralised ICT services at two universities has led to difficulties contacting students via email to inform them of our online Social Software Survey. At one University there was no easy way to contact all students. At another, a senior administrator declined our request for a global email to be sent to students because of a university policy to use email for 'official' communications only.

To explore the full potential of emerging technologies like the Web 2.0 services considered by the DLC Project, we must resist the forces that would tame them to suit existing controlling institutional bureaucratic administrative requirements, thereby hobbling their ability to contribute to more efficacious learning and teaching.

Institutional ICT services groups are becoming irrelevant to academics whose use of social software transcends institutional boundaries (e.g. working with other institutions, the wider community irrespective of location, or with collaborators in the professions: all using services from outside providers). Tired of central ICT services' lack of flexibility, academics are

pursuing opportunities offered free by outsiders to provide their students with the services they want to use. Often during the pilots, the interviews, and the focus groups, problems with the lack of flexibility and functionality of university-provided services was raised by administrators (for example, in the del.icio.us pilot), academics (for example, in the use of Flickr and MyToons in New Media course), and students (particularly with problems using a University-provided wiki in the IS Jobs Registry pilot).

Senior university leaders must actively support interconnections between their university systems and outside services.

The internet is changing the way people work, and there are often alternatives, often free, to a number of the services traditionally supplied (and controlled) by ICT services organisations within universities. Call the traditional helpdesk these days and often the person taking the call will google the answer: teach the callers to google for themselves and the reliance on the helpdesk may be reduced:

There's not much need for Help Desk these days when you've got Google You often get more of a clear answer anyway. (Female student)

Often the services provided by the in-house team do not compare well with freely-available outside services. The blogs and wikis provided through learning management systems, although they provide an integrated environment for the institution, can't keep up with the innovations constantly appearing with application such as WordPress, Blogger or MediaWiki.

Another side effect of the increasing use and availability of technology in their personal lives (computers, phones, iPods) is that students are more likely to have access to technology that equals or betters that provided by the university. With the reducing costs of technology students are relying less on university-provided technologies and more on their own, although they see the university-provided infrastructure as a backup to home or outside technology if their private services and technology fails.

Relying on outside services does have its downsides: moving control to commercial organisations like Google or Flickr puts users' data under the End User Licensing Agreements of the organisations, the legal implications of which are extremely complex. Jurisdiction, security, backup, access are some of the issues that need to be considered.

Open source software and free web services are vital

Much of what we have been able to achieve in this project is the result of the availability of open source software like Drupal and free online services like Google Groups, Flickr, MediaWiki and MyToons. In institutions where ICT departments can be unresponsive or hostile to requests from academics to use a new piece of software, or an online service for research or teaching, access to the internet's growing range of accessible services provides a more than viable alternative to in-house supplied services. ICT departments are actively discouraging such approaches where they can, for example by denying the easy availability of appropriate browsers on University computers or closing ports on routers used for video collaboration. While there are risks to privacy, questions of accountability, and no guarantees of reliable or continuing services associated with external services, equally there are

questions of quality of service, responsiveness and availability of expertise when using institutional services.

Open source software development must be supported

One of the often overlooked risks of using 'free' web services is the tendency for universities and funding bodies not to fund open source software development because 'free' services are available. Open source software development therefore gets left to larger commercial groups or sole developers effectively losing a higher education 'voice'. This often results in the education community being left with the task of adapting/modifying existing software systems to suit their often different needs with little or no opportunity to influence software design.

Cross-institutional projects are problematic

Cross-institutional collaboration can be richly rewarding for students and staff. The benefits include raising awareness of best practices, re-use of resources, peer review and economies of scale generally, but there are barriers, not just of time and place. There is a not-invented-here attitude that may have some credibility but should not be a reason to reject outright an approach or resources developed elsewhere. Individual institutions have their own cultures and timetables that don't necessarily align with others. While each institution continues to run its own ICT services, there will be barriers to seamless cross-institutional collaboration. It may be time to investigate opportunities to provide ICT systems (like student email, financial management, student management, human resources, student portfolios, alumni services, even a common learning management system) across the sector not just to facilitate collaboration but also to provide a more efficient and effective service to the community. This is not unprecedented: while the ALTC Exchange may not provide a total solution for collaborative services across the sector, it does provide resources that individual institutions don't now need to provide for themselves.

Social software has enormous potential in education

The standout experience for the DLC project is that social software provides enormous opportunities for wider community involvement in learning and teaching, what Associate Professor Stephen Barrass has referred to as the 'bleed-in' from the wider community of interest. We have already seen students engage with mentors, practitioners and users within and outside of their units who become actively involved in the student's learning experiences by providing comments, help and suggestions. Social technologies are implicated in a generational shift from the focus on the individual to the group, as demonstrated by the results of the first year biology students in the Plants and Animals pilot putting their work-in-progress in front of their peers, and the extensive use of blogs to document and share ideas, work in progress and additional resources by the RMIT media students.

Most learning and teaching in universities, however, still appears locked into an industrial model that is preoccupied with individual production and the assessment of only completed work (summative assessment). Social software and Web 2.0 services open a channel for exploring the value of social and collaborative production, including peer learning, and a variety of practices that support formative assessment models. These services, when

appropriately supported and used, allow students to make multiple social and intellectual connections within and outside of their class cohorts, expanding the 'range' of the classroom and the teaching and learning experience. We believe this has enormous potential for education, however there remains a paucity of examples and studies that model and document the changes required to pedagogy and assessment for this potential to be realised. Our cookbook is a step towards providing such guidance (see <http://wiki.mashedlc.edu.au/index.php/cookbookBlogsAndEducation>, for example)

No one-size-fits-all

The rich variety of alternatives and complementary tools available online to support communities of practice can make the selection of the correct tools for a particular purpose difficult. There is no one tool that provides a social software solution to support learning and teaching, nor is it appropriate to use the one technique for all disciples or even throughout the teaching of a particular discipline.

There is no single place with all the tools available to support different types of communities of practice. Nor should there be one place: different learners have different needs, their needs change, and tools and opportunities are constantly changing. Our project was founded on the understanding that there are a multitude of web services that are readily available to students and lecturers, and we sought to discover underlying principles that make these services valuable in learning and teaching rather than building or significantly modifying large computing systems. What is becoming clear is that institutional ICT systems like the corporate learning management system must be developed in ways that can work with web services that sit outside the academy. While we look forward to using the ALTC Exchange, it cannot, and will not, be the *only* place for social networking, sharing and exchange in Australian tertiary education.

Students themselves are not always seeking ICT solutions as alternatives to traditional teaching. Some recent surveys (Berger, 2007; Ipsos MORI, 2007; Salaway *et al*, 2007) note that students are wary of too much ICT in teaching and seem inclined to a balance between online and face-to-face. They are also concerned that instructors do not have sufficient expertise to use ICT effectively in teaching: some feel students have more expertise than their lecturers (Ipsos MORI, 2007).

In our 2007 Ed-Media Symposium in Vancouver (Fiedler *et al*, 2007), we argued for the urgent need to explore decentralized models of e-learning and software services – models and services that must by their very nature sit outside of institutions. Mordac, The Preventer of Information Services, may not be comfortable with this idea.

At this symposium, Scott Wilson from the Centre for Educational Technology & Interoperability Standards (CETIS is funded by JISC, the Joint Information Systems Committee of the Higher and Further Education Funding Councils, and is managed by the University of Bolton) put a strong argument for the urgent need for universities to engage with decentralised models of ICT. He said

Far from threatening institutional viability and control, distributed, user-owned technology offers an escape route from escalating costs, liabilities, and bureaucracy that come from a supply-driven model. (Wilson, 2007)

In our experience it is clear that the ideas of embracing decentralised models of ICT and supporting user-owned technologies are not well understood in universities and across the wider education sector. The Rudd-Labor Government's commitment to spend \$1 billion putting computers into the hands of Year 9-12 students has accelerated the need for educational institutions to engage with the challenge of user-owned technologies. Universities can learn from watching what happens when the *irresistible* force of user-owned technologies meets the *immovable* object of institutional ICT services. In universities we need to begin a conversation now around the importance of decentralised models of ICT that allow users to create their preferred learning landscapes by connecting institutional and external web resources and services.

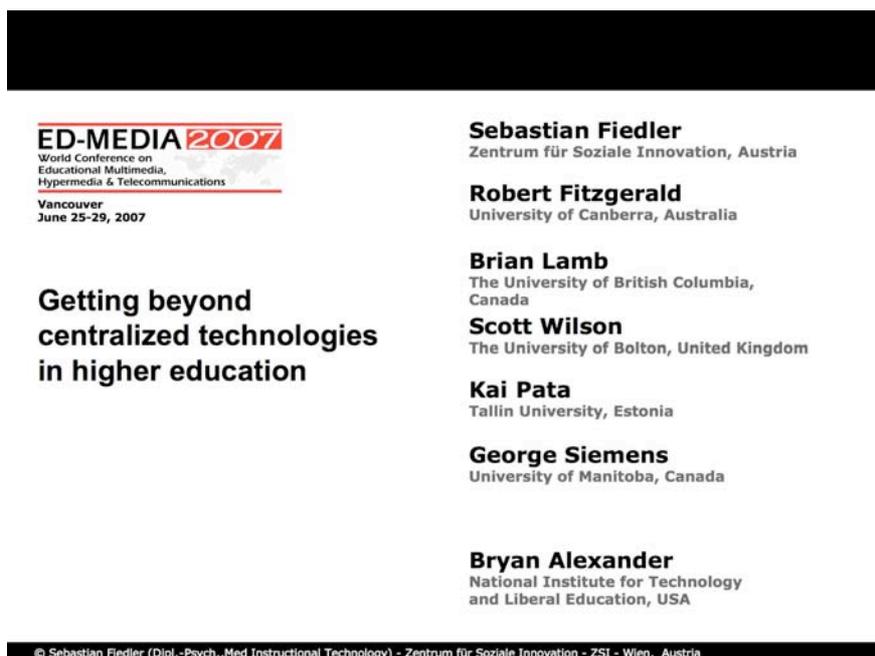


Figure 12: Ed-Media 2007

Which technology?

As has always been the case, choosing the appropriate mechanism to engage learners or deliver instruction is complex. It is the same with Web 2.0 services: no one service or environment can provide a solution in all situations. Just knowing about what is available is difficult for individual lecturers to manage: students are aware that their lecturers are not using all the features that are already available in their learning management systems:

There are tools [in Blackboard] but no-one uses them and I think a lot of the time it's because they're not informed that they're actually there ... (Male student)

While there is some need to develop a system for cataloguing the affordances or attributes offered by each service, the fluid nature of this environment, where change happens almost daily, suggests that other metrics will be required. This is one of the roles of a network literacy program for lecturers: to help define novel or emerging teaching and learning needs that utilise the possibilities of new technologies or services, or even the possibilities afforded by existing resources. This provides a much simpler way by which individual social software and Web 2.0 services can be evaluated and trialled, and also helps lecturers to understand

the differences between individual technologies and that not all educational technology solutions are appropriate for all teaching:

I guess it depends on the unit as well. I think it seems if you're doing something really theory-based, like IT and that and you just don't understand some concepts and that then it would be useful to sort of engage with other people, but I guess in a lot of cases a lot of people wouldn't find it that useful. (Female student)

If they are going to use any new technique in their teaching practice, lecturers need to ensure that they are doing it well. Academics are busy people who cannot afford to miss the opportunity to provide the students with a worthwhile learning experience while also getting a reasonable return on their time investment made in using alternative strategies. For example, students in our focus groups were critical of podcasts of hour-long lectures as being boring and difficult to focus on:

When you're sitting in a lecture sort of it's a bit rude to fall asleep or get up and leave or whatever. But if you are sitting there in front of a computer you can just switch it off. (Female student)

The cookbook developed during the DLC project provides a 'real-world' reflection of how colleagues have used social software and Web 2.0 services, not necessarily always successfully, in learning and teaching. It is a source of information for others on how they might be able to introduce their students to services that support the development of student skills and experience in using collaborative tools to support their learning.

There needs to be institutional commitment to support innovative learning and teaching activities from the experimental through to the mainstream use of services, and above all individuals have to become and remain involved in developing better ways to help their students succeed.

We recommend to lecturers that they persist with experiments with social software.

Social networking

Facebook and other social networking sites are often mentioned as possible services that might be useful in learning and teaching. However as they have been designed for social-recreational and not social-educational purposes their flat structure can result in the personal and educational interacting in unexpected and unwanted ways. In some cases the design precludes the use of groups that might allow users to keep their friends separate from their colleagues. In focus group discussions students often commented that they didn't want to share their Facebook information with their lecturers or that they were worried about their private data (e.g. photographs) being inadvertently accessible to potential employers. Quite clearly this requires a more critical analysis of the way software is designed and how that affects the use of the software and its users. Rather than simply accepting software as valueless, lecturers need to develop the skills necessary to examine potential services to determine what values are implicit in the service, and the potential impact of these values on their learning environment. In addition they need to develop the skills necessary to determine in what ways their teaching practice, including curriculum, pedagogy and assessment, may be enhanced or altered by their use of these services so that teaching develops in concert with the emerging paradigms of content generation and participation that we are seeing online.

As an example, Ning (<http://www.ning.com/>) may be a way for using social software where interest groups can share their particular interest without sharing their whole lives. Ning is a more group-oriented site than Facebook: it is specifically arranged around communities, or groups, not people. It is something that students can set up for the course of the semester, but then they can also step away from it again. This might work differently than intruding onto their Facebook space by setting up a Ning group for a class rather than share what students are doing outside of class on Facebook, which they may not like. Flickr is another example of a site that supports groups: a factor that was key in its selection for the Photomedia pilot described above.

Wikis and blogs

Wikis are self-contained, project-based or unit-based, collaborative authoring environments. They can be run internally within an institution if the content is restricted to the campus or can be hosted on outside services if wider engagement in the content is deemed appropriate. In this case the community generates the content, and while there are strong arguments to maintain the resource for future communities, the issue of ownership is often not contested. On the other hand blogs are the product of individual effort, meant to be seen by a wider audience, and generally ongoing. Blogs within learning management systems are typically unit-based so a blog cannot cover multiple units, even if the units are running at the same time. At the end of each unit, that blog will disappear. Typically also unit-based blogs are restricted for viewing only by other people enrolled in that particular unit. An exception to this is RMIT who have undertaken to keep its student blogs permanently, although as read-only after a student leaves the institution.

It may seem like unnecessary duplication for an institution to set up a system for student blogs, to be kept permanently even after a student leaves, when there are free services like WordPress or Blogger available, but there may be reasons why an institution or an individual academic might not want to direct students to use these publicly available services.

Wikis and blogs are forms of publication, subject to media and other laws. If a student who has been directed to use a public site to blog breaches copyright, for example, or gets comments on their sites that vilify, slander, or incite, and they get sued, the institution may be vicariously liable. These are not reasons not to engage with these technologies but rather a reminder that all teaching and learning involves risk and that we must develop strategies to manage risk in ways that still enable students to become knowledge producers and creators.

Another issue with using outside-hosted services is whether it is appropriate to ask students to sign up for an account with, for example, Google, in order to set up a Blogger blog for their course. Students may provide personal information that they are uncomfortable with providing, or that may be used by the organisation they are signing up with in inappropriate ways that, for example, breach a university's privacy rules.

When contemplating using outside hosted services, lecturers need to be aware of what the End User Licensing Agreement for each of these services says: often the user has no real rights or protection. If they do decide to go ahead with requiring their students to use an outside service, there must be a mechanism for keeping current with any changes to the often changing agreements.

Traditional learning management systems

During our pilots, our discussions with staff and with students, and our project meetings, the question of using existing services provided by institutions through traditional learning management systems came up often. The response was almost universally that the existing services did not provide the functionality offered by outside providers. Speaking of MyToons, Stephen Barrass said:

There's no educational software that does this, it's five to ten years away. (Stephen Barrass)

The services offered by the institutions typically do not reflect professional practice that the students will experience once they leave university, or often already experience in their lives outside of university when they share their photos on Flickr, their videos on YouTube and their lives on Facebook.

The challenge for lecturers in choosing which technology or service to use is to balance the needs of the institution to manage their risks, with the needs of lecturers to efficiently and effectively prepare their students for their professional lives.

Peer support

One of the underpinning principles of the DLC project is that social interaction is key to promoting learning. Students recognise the value of having their colleagues around to help them to supplement more public or formal channels:

I find it's a bit safer to learn from your peers because then you don't have to deal with the embarrassment of sticking your hand up and saying, "Oh, I don't know that" or you could just ask the person next to you. (Female student)

They [fellow students] can also say it in more comprehensible terms sometimes. (Female student)

Also when you're speaking to your peers you have a lot of different opinions, because you've got a big group of people's, generally not going to be the way everyone's going to agree with the same thing. So you sort of get an all-round kind of deal, which it's good. (Female student)

With decreasing opportunities for on-campus interaction, online services like the discussion boards in learning management systems can provide students with a forum for clarifying ideas or other unit-related information. After a lecture, particularly with a large group of students where asking a question might be a bit daunting, a closed group discussion board might be a good way of promoting questions and discussions where the live venue might be intimidating (JISC, 2008). One student commented that Instant Messaging might also be a useful way of seeking help from colleagues, not a great idea during a lecture, but afterwards to talk about it.

It is important, though, not to assume the online environments can replace the traditional face-to-face interactions:

This online peer-to-peer helping out loses the social thing. Because in tutes you make friends and you can have a study session or call them up and say, "Oh, I really don't get this. I missed the last lecture". You develop a social group and then online, everybody's pretty much anonymous. I mean it's either your student number or name that comes up, which doesn't really mean anything. And sure you're learning off them, which is great except you do lose the social aspect a bit. (Female student)

Lecturers should consider providing students with opportunities to interact informally through existing learning management systems or other forums as a supplement to other learning and teaching opportunities provided in their teaching.

Teaching network literacies

Our discussions with lecturers revealed that their view was that students do not come into universities with the necessary skills to create HTML, embed video and audio in a web page, nor do they understand the manner in which writing a blog or contributing to a wiki has altered the economy of knowledge production and dissemination. In addition they felt students struggle to critically evaluate the information they come across on the internet or even how to use Google to find information accurately, comprehensively and effectively. This was a common theme throughout pilots, the focus groups and interviews. As Miles argues:

The most basic quality of network literacy is recognising that content and its containers, whether web pages, blog posts, photos, video or any other media type, are distributed across the network, and that we weave these together very easily using simple protocols that were developed to allow 'inter' and 'intra' communication between different sorts of internet services. The paradigmatic shift that this represents in relation to what I have described as book knowledge is twofold. The first is that the parts remain as parts at all times, so it is not simply the 'cut and paste' operation that is the basis of earlier digital practices. The second is that in contributing my content to these services others have access to my material (if I desire), in the same way that I have access to theirs. Through such sharing the distinction between consuming and creating content dissolves so unlike books in network literacy we become peers in the system, and indeed to be 'good' at network literacies is to contribute as much as it is to consume..." (Miles, 2007, p26)

As a consequence, because the services available are changing all the time, it is pointless students learning, or lecturers teaching, particular technologies by rote. It is better for students to learn how to use the internet to find the answers to their questions, and solutions to their requirements, and to develop these deeper literacies of production, distribution and use. In our student focus groups, one student summed it up thus:

It changes so fast, so I think the best thing is getting to go and teach ourselves so we can keep up with the changes. [The university is] not going to be able to have the facilities to keep us up on the latest technology all of the time so everyone just needs to be aware of it and to access it ourselves, that's the only way they can prepare us. But then they're not going to be there the whole way through our career, so we need to learn the skills to identify what's out there for ourselves. (Female student)

Another commented:

Everything's there, you can do anything. (Male student)

Web 2.0 services are relatively recent additions to the techniques available to lecturers, and it is sometimes forgotten that students, like lecturers, are not always familiar or experienced with using the latest application:

I think there are a lot of people that just aren't educated in the new media technologies They come from a very old school camp and it's very hard to break through and change their thinking (Female student)

Nor do all students take to using the new approaches afforded by Web 2.0 services immediately:

[Being asked to blog] was confronting, because it was a forum where you had to go public, and I guess that was different to other courses that I've done that were one-on-one with your lecturer or your tutor. So for me it took a while to get used to putting the stuff out there for everyone to read and judge. (Female student)

For many students in the focus groups and the pilots, their university experiences with blogging and sharing bookmarks through del.icio.us were their first experiences of using Web 2.0 services. It is wrong to assume that students coming from schools are competent or even experienced with using these technologies. They may not all be the savvy 'Net Gen' members actively contributing to FaceBook. One student related her experience of missing out on the end-of-year celebration in her Journalism unit because the invitations were organised through Facebook:

I don't have FaceBook and I don't have MySpace, but at the end of last year I did Journalism and they were organising my end of year drinks and they did it through FaceBook, and so on the day I got like these phone calls going "where are you?". "I don't understand, what?" "End-of-year party!" "No, sorry." "It's all on FaceBook." (Female student)

She was not impressed.

Students clearly need to develop a range of ICT skills and knowledge that can usefully be grouped under the broad umbrella of network literacy. In our view such network literacies should be integrated into all units and courses and identified as a key graduate attribute. This of course has direct implications for academic staff developers in their support of lecturers but also for universities as they ensure their professional and administrative staff have the skills and knowledge to support network-base teaching and learning.

We recommend development and implementation of a range of network literacy programs for university staff and students.

Wikipedia

Students reported that they are getting mixed messages from lecturers about the use of various online resources. One particular example raised by students during the focus group discussions was Wikipedia: some lecturers forbade students to use it, while others allowed its use providing proper attribution was given and that Wikipedia was not the only source used. The students felt that there should be a consistent institutional policy clearly articulated so that they could use the resources appropriately and without unexpected penalties. Part of a student's network literacy is how well they are able to use online resources like Wikipedia critically.

The status of Wikipedia as an authoritative source is a vexed and vexing issue. Wikipedia itself is seeking to address the issue through its WikiProject Fact and Reference Check project (http://en.wikipedia.org/wiki/Wikipedia:WikiProject_Fact_and_Reference_Check):

The bold purpose of this [WikiProject Fact and Reference Check] project is nothing less than having facts in Wikipedia verified by multiple independent sources to make it the most authoritative source of information in the world. (Wikipedia, 2008)

At the launch of Apple's 3G iPhone, Dr S Mark Williams from Modality Learning presented Netters Anatomy atlas for the iPhone [<http://www.modalitylearning.com/netters-anatomy.asp>]. At the presentation, Dr Williams explained:

Medical students typically rely on bulky paper flash cards and atlases to learn the complex names and locations of the structures of the human body. But this is about to change. We've started with the gold standard in medical illustrations, the beautiful Netter collection, and using the iPhone SDK we've created an app that is not only more portable but also far more powerful than paper flash cards. A student can easily find a region of the body and then view hundreds of anatomical images. Once they select one of those images then they can easily zoom and pan across these beautiful and highly detailed images. Simply selecting a pin shows the anatomical structure and makes it very easy for a student to jump out to the Web and find additional information on that particular part of the body. (Dr S Mark Williams, 2008)



Figure 13: Dr S Mark Williams from Modality launched the Netters Anatomy Atlas for iPhone

What was really interesting in the presentation was that this was a highly respected learning software development company using a 'gold standard' title encouraging students to find additional information about subject using not only Google searches but specifically providing a link to Wikipedia (see illustration above).

He also said:

We really believe that applications like this will provide unique and new opportunities for effective learning outside the classroom, and I witnessed this first hand in my teaching of brain anatomy when a student after using a prototype of this application said, "Dr Williams, I learned five new brain terms this morning while I was waiting in line for my latte." So the iPhone SDK has enabled Modality to provide learners instant access to the content that they trust on a device that they really want to carry. (Dr S Mark Williams, 2008)

Academics and institutions have to be aware that new opportunities provided by online services like Wikipedia, media-rich portable devices, and traditional and emerging publishers are out there, and that their colleagues, competitors and their students are using them.

Mainstreaming innovative techniques

Often during the DLC project we came up against the issue of how to take innovative teaching practices from the individual experiment to the faculty and then to the university mainstream level: not necessarily used by all staff, but reliably available throughout the institution, supported professionally by ICT services and recognised by the administration as legitimate services. On the frontier, it is a shared journey, a shared investigation with colleagues and students often spread beyond the institution's boundaries. Our experience was that when something that has been tested and proved valuable is brought back inside

the institution, the individual, including individual academics, stop taking responsibility and left it to the institution to make it work.

Individual academics and administrative staff must take responsibility for supporting services once they have been incorporated into the mainstream. At QUT they are developing a framework to mainstream innovative technologies for use on campus. There are three stages proposed for the framework: firstly the sandbox, where the academics are experimenting in their own time with services they set up themselves somewhere as a trial; then the service goes into something called healthy hothouse, which is still an experimentation stage but with support from faculties. If it is an inhouse service, it is hosted on faculty servers, but provides a wider scale, and is often supported by internal learning and teaching grants; and then the service goes to the disciplined central ICT services engine room where it goes mainstream across the university.

During the course of the DLC project, QUT has been working through the process with wikis. It started in the sandbox with various individuals using MediaWiki hosted on internal servers, or using outside wiki solutions. QUT has had a healthy hothouse install of Confluence to support using wikis in learning and teaching, and there have been centrally-supported wikis in the central ICT services engine room, but for research and administrative applications rather than academic applications. The university is now trying to work out how best to bring the use of wikis in learning and teaching out into the mainstream and to support them on a large scale.

One of the challenges is to ensure that handing over the responsibility for providing the service to centralised ICT does not require insurmountable submission procedures, nor lead to ossification, alienation and the end of creativity.

We recommend institutions develop workable plans to transition innovative learning and teaching practices from experimental to mainstream services.

Students are changing

During our investigations a number of students and academics commented on the changing nature of the student population: as we have mentioned elsewhere in this report, these days students are much more time-poor than their predecessors. Students today, even full-time students, work, often at full-time jobs. In the tight labour market that has existed recently, students can get jobs before they graduate, and have significant financial obligations. There is also the spectre of their HECS debts: academics in our interviews commented that students feel much more that they are paying a significant amount for their education and their expectations of the services provided by the institution are therefore higher. For financial reasons they need to get through a degree as soon as possible, and demand the institution provide them with educational opportunities that make the most efficient use of their time.

Students are more demanding. Work, family and social commitments outside university pressure them to manage their fragmented time better than their predecessors, and the students pressure academics and their institutions to deliver learning opportunities in the most efficient forms possible. For example, they appreciate the flexibility offered through podcasts provided through their learning management system:

It's more a convenience thing, obviously, if you're missing a lecture ... Having the opportunity of still being able to listen to the lecture and even revise on it again and not just read notes, there are a lot of things you might otherwise miss. (Male student)

They also choose to make their investment in education in a way that gives them the best return.

I'm not going to go to the lecture if I can see it and watch the podcast in my pyjamas, at a time that suits me. (Male student)

The flexibility offered by online services gives institutions and academics opportunities to improve the experience of learning that students have. Podcasts of lectures or supplementary material, 'always-on' discussion forums, shared collaborative wiki environments, and social bookmarking resources are all techniques explored in our pilot studies and generally assessed favourably by students in focus groups and feedback surveys.

Social software has the potential to streamline traditional teaching practices to make the interaction with students more flexible and efficient: podcasting (possibly illustrated) lectures through iTunesU for the cost of the download; using del.icio.us to share resources among emerging professionals; sharing images through Flickr among students and their instructors for critical review; using a university-provided wiki facility to promote collaborative efforts among students; using a locally-hosted instance of a widely-used blogging platform to provide students with a cushioned environment for exploring blogging; providing students with the facility to receive administrative information from the university via text message rather than mail or email; all these are examples of how universities can increase the efficiency and effectiveness of their service delivery to students of the Net Generation through alternative or additional channels.

We recommend that academics and institutions explore the opportunities provided by social software and Web 2.0 services to provide their students with alternative and/or additional opportunities for learning, teaching and assessment that are compatible with the changing needs and demands of students.

All students are not created equal

It is a common view that students today are more adept and experienced with using technologies:

Your students are mobile. They rely on their phones to stay in touch, their iPods to stay entertained and their laptops to stay connected. Their time is under pressure, their money more so. To balance the demands between life and life on campus, they must be able to learn anywhere, any time they choose. (email from Apple, 2008)

Our experience during the DLC project does not support these contentions, at least for the majority of students. Our discussions with both staff and students during the Project revealed that students have different levels of engagement and comfort with technology in learning and teaching. Our experience is supported by the JISC studies (Ipsos MORI, 2007; Ipsos MORI, 2008; JISC, 2007), and the University of Michigan data provided by Carl Berger (Berger, 2007). What these sources do show us is that there is a range of skills, experiences and abilities in using new technologies across student populations.

In our surveys most respondents judged themselves as being at least competent with the technologies they were asked about. In the focus groups and academic interviews, though, it was obvious that students' level of competence varied quite a lot, and that overall the impression was that students were not as competent as they rated themselves in the survey. Follow up research to compare how students rate themselves with a more independent rating through testing, follow-up interview or observation may be useful to get a better idea of the actual level of competence the students have, and therefore be able to better interpret outcomes of surveys where individuals rate their own skills. Knowing the actual (rather than the reflected) skill levels of students is particularly important in order to determine how much and what type of support needs to be given to students when building Web 2.0 services into their courses.

We recommend ongoing investigation of students' ICT skills, knowledge and experience, and the mapping of these to desired graduate attributes.

Anecdotal evidence would suggest that students are indeed becoming more familiar with using technologies, but longer term studies are needed to better track the changing profile of their skills and experiences to better inform lecturers, administrators and ICT professionals alike.

We recommend the periodic surveying of pre-tertiary and tertiary students in Australia to build an evidence-base of students' competence with emerging online services and technologies.

Students are partners

One of the great fears people have is that if you open up websites and web services to students they will either be overly critical of each other or vandalise the space. This was not our experience during any of the pilots. During the Applied Ecology pilot, for example, a group of first year students had to complete a number of practical exercises where they had to draw and describe a plant or animal. The lecturer set up a blog for each student where they would post the pictures they had drawn and their descriptions. Other students were encouraged to comment on their peer's work. Almost without exception, the comments were supportive and encouraging with helpful suggestions for improvements by pointing out errors or providing additional information. Participants were supportive and professional and it suggests to us that handing over control of the tools to students may be the most powerful way advance collaboration and co-operation in learning and teaching.

Students in the focus groups commented that their experiences with online communities in their university units were positive, with support from their fellow students and positive feedback being the norm. In several of the pilots that used online communities through Flickr, Wordpress, MyToons or Drupal lecturers and students were positive about the way peer interaction added value to their learning.

While it is important to consider the risks associated with online communication, institutions should explore ways to manage the risks rather than use the spectre of defamation or vandalism to deny the use of collaborative or contributory online services.

Get out of my Facebook

There were a number of students in the focus groups who felt that there was a very clear distinction between their social lives and their lives at university. Indeed one of the major themes of the focus groups was that students see their university lives as separate from their other social, work and family lives. Their Facebook accounts (and their mobile phones) were part of their social lives and so out of bounds for their lecturers. While it was reasonably clear that they didn't want lecturers involved in their social lives online, they were ambivalent about whether fellow students who otherwise may not be their friends should access their Facebook pages or have their mobile phone number.

In the JISC follow-up study (Ipsos MORI, 2008), about three-quarters of first-year university students in the UK study used social networking sites to discuss coursework with their peers, and many used social networking sites to keep in touch with their tutors and lecturers. Forty percent thought that it was a good idea for lecturers to use social networking to support learning and teaching, but thirty percent said, quite adamantly, that they didn't think it was a good idea. Students preferred social networks that they set up themselves, that grew organically, rather than those set up for them by their lecturers. These were considered to be overly formal and out of place. Students have a perception that social networking sites are largely for social purposes.

It's a social network, not a learning network. (Kat: JISC, 2008).

In the interviews with project team members and others during the DLC project, lecturers also reflected the view that they wanted to keep their own social life separate from their academic life, and did not want students, for example, inviting them to be their Facebook friend or to join them (or to recognise them) in online games.

Any proposed intrusions into students' other lives by the university, say by lecturers accessing their Facebook pages or calling or texting them on their mobile phones, need to be examined carefully and negotiated with students to ensure the relationship between the university and the students is not compromised by inappropriate behaviour.

I think I would be deeply offended if I had a lecturer at the other end of my mobile phone. I see my phone as a contact point for my social life, and those two things are separate to me. (Male student)

Facebook is more personal. I don't know if I'd like my lecturers having my Facebook. I think Blackboard still sort of suits lectures more. Facebook, that's crossing the line a bit. (Female student)

There is a service where QUT will SMS something. I've seen a poster. It says QUT wants to SMS you. And I'm like I don't want you to SMS me. (Male student)

Traditionally formal contact between an institution and its students for administrative purposes has been via post, but institutions are moving to email or portals as alternatives for both administrative and teaching contact. Because of, among other factors, problems of spam and malware, our focus group students reported that email is not a preferred method of communication for them. SMS and mobile phones, preferred for social contact among their friends, are for private lives outside university, not contact with the institution, so at the moment the preferred method or methods of contact between the institution and its students are unclear.

Students see different modes of communication as of different levels of importance. They distinguish between emails, text messages and phone calls:

I get calls from lecturers on my mobile, if you've missed stuff or they need volunteers to see if you're interested. I thought it was nice, but they send it in an email it's "Oh, it's another one", delete, delete, delete, delete. But they're like "Oh, no, no. We think you might really suit this, blah, blah, blah, blah". "Oh, OK, yeah, all right. We'll give it a shot". (Female student)

Email may no longer be a reliable means of communicating with students:

I delete any email without a heading. If it hasn't got a subject and it's from QUT I won't open it because it'll probably just be some viral spam going through. (Female student)

Some universities insist that students use their university-provided student email accounts for official administrative communication with the university, and some insist that even learning and teaching communication via email must be through the student's university email address. Most will provide a facility for the student to redirect their student email account to an outside provider, but don't allow students to communicate with their lecturers or the administration directly from outside accounts, especially using services like HotMail or Yahoo! that are frequently seen as inherently insecure and risky.

The vast majority of students we surveyed have one or more email addresses when they begin university. Just as universities ask students for their postal address and phone number, but don't supply (free) housing or mobile phones, the time may have come to ask for the student's preferred email address, and cease to support in-house their own email systems.

We recommend that institutions actively engage with their students to negotiate mutually acceptable protocols covering academic, administrative and community communications with social software.

Equity issues might dictate that institutions provide an email service to those students unable to provide their own, but there are public, free services like Google's Gmail that can be used either by students individually, or by institutions as a whole to provide an alternative service to the institution's own. Recently the New South Wales Department of Education and Training was reported to have decided to dump its Exchange email system used for students and replace it with Gmail accounts for all students, on the tail of a similar announcement from Macquarie University in Sydney that it would transition its student email across to Google's Gmail (AFR, 2008).

Several lecturers raised another issue in relation to the use of social software in teaching. They observed that for many students their experience using Web 2.0 software has been for social or recreational uses and that students often find it difficult to distinguish between that private use and the professional use required by the university. This may be a reason for universities to more carefully examine the use of services like Facebook and instead clearly distinguish the professional role of social software by using a separate service, like an institutionally supported social networking (e.g. a Ning), where students can to some extent 'wall-off' their university work from their private lives.

Sharing

There are advantages and disadvantages with students sharing their own and their collaborative work with their fellow students, their collaborators within or even outside their units, other teams and possibly with the wider community. This more open sharing of their work is a fundamentally different approach to learning than previously practiced, where particularly assessment has been done on an individual basis.

Sharing can be problematic, especially in an open online world: individuals may be subjected to inappropriate responses to their work or inappropriate contact from others, from outside of or even within the institution. On the other hand, the opportunity for wider feedback on their work and the opportunity for the poorer students to see what their fellow students are producing may be a positive experience for them that otherwise would not be possible with traditional learning situations. Unlike the face-to-face contact they would have in a workshop, tutorial or lecture, sharing their thoughts, ideas, experiences and work through Web 2.0 services provides them with opportunities for, for example, collateral learning when they blog the lecture and share their fellow students' observations; or a greater understanding of an assessment task when they share their concerns about it and responses to it among themselves; or expand their range of sources by sharing bookmarks among themselves; or just the added impetus to contribute when they know their fellow students are reading their work or outsiders can view it online.

Students can share the content they are creating with a wider community, as appropriate, and not just text: still images, sound and video, and any other sort of data like scientific test results or survey statistics, for example. During our pilot with a first year Plants and Animals biology unit, students shared their drawings, photographs and research with their fellow students in a closed blog group. Students were able to provide their colleagues with feedback on the work posted, including supportive comments, corrections to details, and additional information about the assessment items the students were developing through the blog.

Are we different?

Sharing in learning at universities is a new experience in many disciplines, and provides challenges for example in assessment and unit administration. It may also highlight, as mentioned in several interviews during the DLC Project, subtle cultural differences between individuals and communities across the globe.

We cannot assume that technologies developed and exploited successfully elsewhere are immediately applicable to local conditions. According to the Australian Productivity Commission (Banks, 2001), about one-third of Australia's productivity surge in the 1990s was due to the adoption of ICT (mainly in the distribution and financial sectors), and that strategic and "smart" ICT use would push further productivity gains across all sectors and assist with social issues such as ageing, education, health and security. Banks also notes that "the OECD's own recent international research [shows] that it is how effectively the new technologies are used, not the extent of their domestic production, which is the dominant source of benefit." (p2). We need to ask whether Australian students are well-placed, when compared with their contemporaries in other communities, to realise these benefits for the Australian community, and whether we need to focus on promoting our social capital (the collective value of all 'social networks' [who people know] and the inclinations that arise from

these networks to do things for each other ['norms of reciprocity'] [<http://www.hks.harvard.edu/saguaro/primer.htm>] so that we do not fall behind our competitors.

While we did not set out to explore the relationship between culture and the use of social software in learning and teaching, indications from our interviews suggest that Australians may be more reticent to contribute to the cloud than their North American, specifically US, counterparts. Co-operation, collaboration and sharing are fundamental to the successful use of social software in learning and teaching: Australians may not be inclined to engage in these activities when traditionally formal education has focused on the activities, contributions and assessment of the individual rather than the group. This is an area we have identified as a significant one for further research activity to take place. Given the increased instant availability of solutions internationally, we need to better understand the context within which a particular technology is proposed to be used and the likely impact cultural differences between the developers and the intended users, and how these differences, if they do indeed exist, will influence the use of the technology. One example given during interviews with academic staff for this Project was the feeling that Australians are less inclined to write about their activities in a blog when compared with their American counterparts, and another commented that self-promotion is not regarded very highly in Australia, while in the US it is seen as "an absolutely professional attribute" (Interview with Dr Mitchell Whitelaw, 2 April 2008, p6). If blogging can be thought of as self-promotion, then it may be that Australians don't hold blogging in the same regard as Americans do, don't value it as much as an activity, and don't see it as a necessary professional skill to have.

Dr Whitelaw went on to say:

A single example is a student we have who is an American student who is completing his studies here who is one of our most aggressive and proficient users of social media in terms of getting his film and TV work out in front of the world, so he's across YouTube and Revr and all of the social video platforms. He's right into it, and he's pushing that in a way that I haven't seen any other students do, and I certainly haven't seen any Australian students do. (Mitchell Whitelaw)

While there is no particular data to support the proposition that there are cultural differences in the way Australian and US students and academics use social software, nor whether if there are such differences would they have any significant impact on learning and teaching, given the amount of attention Web 2.0 services are receiving in education it is prudent to develop a better understanding of the interactions between the technologies and different cultures before launching into their widespread use. The work of Danah Boyd (<http://www.danah.org/>) may be useful in such a discussion, as would comparison of existing survey data like that collected during this study with, for examples, data from the University of Michigan's IT surveys [http://www.carat.umich.edu/carat/um_it_surveys] and research carried out by the Joint Information Systems Committee on user expectations and experiences of using ICT in universities in the UK.

Our experiences during the DLC Project as detailed in this report reinforce the idea that teaching is a highly contextualised activity, and that what may be an appropriate approach in one context will not work in another. Ideas and services developed in one culture, like blogging for example, do not necessarily transfer seamlessly to other cultures. We believe a firm evidence base is needed to support (or deny) our thesis that there are cultural differences between even otherwise quite similar communities that have an impact on the effectiveness of the services used to support learning and teaching. Academics and

administrators need to be aware of the nature and impact of these differences to guide their decisions on appropriate approaches in their contexts.

We recommend further work be done on the role of cultural difference in the use social software, and from this develop recommendations for lecturers and software developers.

Leaders or laggards?

Australians are often described as being pioneers in adopting new technologies, but there is little research evidence for this. In fact, there is some evidence to suggest Australia lags behind its major partners in adopting technologies, like an always-on high speed broadband connection, for example. Recent OECD statistics compiled to 2006 of broadband rates measured by subscribers per 100 inhabitants rank Australia 16th out of 30 countries in the OECD list, up from 23rd in the same list in 2004. (OECD, 2007). While this is progress, we still have lower broadband take-up than countries like the UK, the US and Iceland (see following graph).

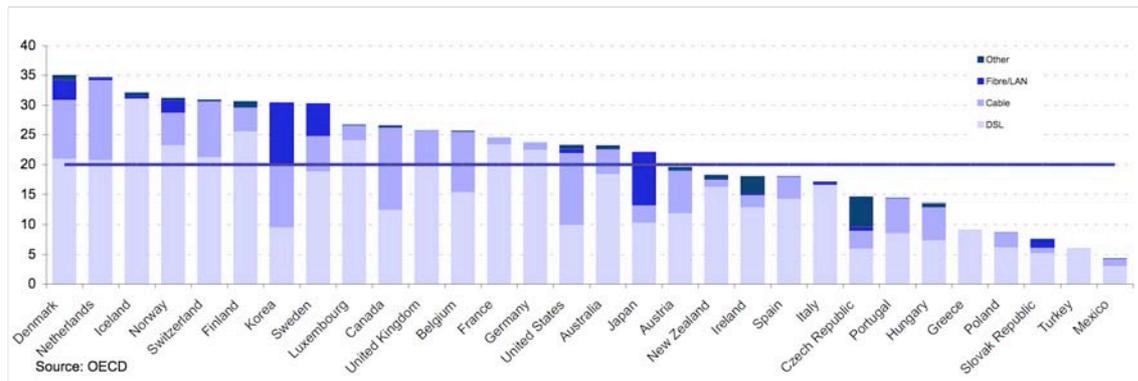


Figure 14: OECD Broadband subscribers per 100 inhabitants, by technology, Dec 2007 (OECD, 2008)

What is interesting in the graph is the absence of Fibre/LAN broadband connections in Australia when compared with countries like Korea and Japan. Fibre/LAN connections will support higher bandwidths than DSL or Cable connections, and therefore provide better opportunities for exploiting high data-rate services based on, for example, video and audio. While university campuses generally enjoy high-bandwidth connections to the internet, with students spending less time on campus, and more time using home-based connections for their university work, the lack of Fibre/LAN broadband connections for Australian subscribers limits the opportunities for exploiting social software in learning and teaching when compared with other countries. The social software surveys undertaken in the DLC project show that here are still students reliant on dial-up connections for internet access, even further limiting the options for especially high data rate social software services like video and photo sharing.

Australia's practice of charging subscribers for traffic volume also limits the opportunities for exploiting high-volume data like audio and video, in podcasts and recorded lecturers, for example, in learning and teaching. Recent 3G network pricing plans for data limit the amount of data a subscriber can transfer (up or down) each month, then charge prices like 35c a

megabyte (Optus) or \$2 a megabyte (Telstra NextG prepaid) for traffic over the limit. At these prices the use of these networks for anything but text-based services like email is impossible.

Relying on students universally having access to broadband connections outside of the university network may be problematic. According to a CNN report (CNN, 2008), a recent survey from Pew Internet and American Life Project (Horrigan, 2008) of American attitudes to broadband take-up showed that

Thirty-five percent [of dial-up users] say they're still on dial-up because broadband prices are too high, while another 19 percent say nothing would persuade them to upgrade. (CNN, 2008)

In our own interviews with lecturers, the issue of students with slow connections was still a factor in one lecturer's selection of media to make available to her students through the learning management system: even PowerPoint slide shows were too big to expect all students to download, so she made other arrangements to get the materials to them.

How much do we protect our students?

Public access to student work raises a number of issues that need to be considered. Our pilots, focus group research and interviews with academics raised these issues, but it is beyond the scope of the DLC Project to provide detailed analysis of, or solutions for, them: they are noted here for consideration by people who are contemplating using Web 2.0 social software in their teaching, so that they can make more informed decisions in selecting appropriate techniques and practices themselves.

These issues include:

Copyright infringements

Students (and lecturers) engaged in producing web-based materials run the risk of intentionally or otherwise infringing the copyright of others. Closed institutionally-controlled environments lessen the risk of these infringements damaging the institution, and provide opportunities for closer scrutiny and better management when compared with a situation where student and staff work is being published on public sites.

Other legal barriers

As with copyright, there are a number of other legal situations where institutions need to manage the risk of students and staff intentionally or otherwise becoming involved with litigation. For example, blog postings can offend a number of laws covering things like racial vilification, national security, defamation sexual harassment, and so on. And not just in the territory where the staff or student resides: using off-shore Web 2.0 services complicates the legal situation regarding the law applicable in a given situation, and the world-wide access provided by the internet provides us with a situation potentially where a blog post published by a person residing in one country, on a service hosted in another, may find their post legal in both places but not where it can be read in other jurisdictions.

The university is a place where students can *be* students, exploring ideas and practicing techniques in what should be a safe environment. There needs to be a balance struck between providing them with a safe environment, and exposing them to sufficient outside

influences to give them the best possible opportunities to advance their learning. Controlled, restricted, isolated university networks may be not able to provide a neither a sufficiently rich environment nor the networking and tools students need to learn their professions.

Identification of students

Students generally agreed that identifying students on websites was a good idea, it was felt that students would be more positive and circumspect if their colleagues knew who was saying what, although one student pointed out that

If you post anonymously, or use someone else's name, or a pseudonym, you have that freedom to be completely open and honest without worrying about repercussions. (Male student)

This may be very well on private sites maintained by universities that are not available without institution-sanctioned authentication, but anecdotal evidence from our project suggests that students can be a little naïve when filling out their profiles on public sites like Flickr and MyToons where their profiles may be available to the wider community. Again, this is a network literacy issue, and the question remains what responsibility an institution has to ensure the safety of their students online.

Permanent records of student work can be a disadvantage to students, as well as an advantage. What they blogged in university may not be something they would like a prospective employer to see after they graduate. Providing students with ways to manage their data and digital traces is essential.

I think the way that I write in my blog is very, very different to my personal diary because we got warned at the very beginning that this is the internet, anyone, your future employer could google your name, find your blog. If you're talking about last weekend when you pashed and so on, and you've got to be really careful what you write. Not only that sort of stuff, but how you approach things and how opinionated or subjective your posts are. You always have to keep that in the back of your mind and let it restrict you. (Female student)

Students' Facebook and other social communications may not be appropriate reading for their lecturers or prospective employers: students need to understand the pitfalls of sharing their social lives with the internet:

Nothing's private on the internet. Even set to private, it's not private. Like a few weeks ago My Space was attacked and every profile that was set to private with photos on it, all the photos got leaked on to a BitTorrent site. Millions and millions of photos of people. Most of them were probably 16 year old girls doing those Emo pose shots and things. (Female student)

Conclusion

The Digital Learning Communities Project considered the potential of social software to support peer engagement and group learning in higher education. Throughout all aspects of the project the message was clear: students are changing, and teaching practices will need to adapt to teach these students effectively.

The project established a series of pilots that examined ways in which social software could provide students with opportunities to engage with their peers in a discourse that explores, interrogates and provides a supplementary social ground for their in-class learning. In addition the project established a wiki-based cookbook that provides ideas and suggestions for the use of social software, and conducted two Social Software surveys of staff and students' use of new social technologies. Our project continues to generate interest across our universities and beyond by demonstrating real-world practice involving the innovative use of new social software technologies and techniques to support learning and teaching.

The social software surveys and our pilots have made and will continue to make significant contributions to the sector. The social software cookbook provides models for helping users take existing services and loosely connect them together to support learning. For those users requiring a more supported social networked environment, our work with Drupal offers a flexible framework that allows users to easily create a social learning environment. The presentation of our work to date at the Edmedia conferences in Vancouver (<http://www.aace.org/conf/edmedia/>) and Vienna, have provided an opportunity for us to share this work directly with an international audience. In a recent chapter discussing our work, Ryan & Fitzgerald (Forthcoming) concluded,

Finding creative ways of using technology to expand and enrich the social base of learning in higher education will become increasingly important to lecturers and instructional designers alike. This project represents one small step in testing the applicability of social software to these contexts. While many of our students are already using various technologies to maintain and develop their social networks, it remains to be seen if these offer viable uses in more scholarly settings.

References

- AFR (2008). NSW schools dump Outlook for Gmail. Australian Financial Review, Monday, 07 July 2008 Retrieved 7 July 2008 from <http://www.misaustralia.com/viewer.aspx?EDP://1214270475399>.
- Alexander, B. (2006). Web 2.0: A new wave of innovation for teaching and learning? EDUCAUSE Review, 41, 2, 32-44. Retrieved April 18 2006 from <http://www.educause.edu/apps/er/erm06/erm0621.asp?bhcp=1>.
- Alexander, C. (1977). A Pattern Language: Towns, Buildings, Construction. Oxford University Press, USA.
- Apple (2008). iTunesU and Mobile Learning: the road to knowledge is wider than ever. Retrieved 16 July 2008 from http://www.apple.com/au/education/itunesu_mobilelearning/itunesu.html
- Banks, G (2001). The Role of ICT in Australia's Economic Performance. Presentation to the Communications Research Forum, Rydges Lakeside, Canberra, 26 September 2001. Retrieved 4 July 2008 from http://www.pc.gov.au/__data/assets/pdf_file/0007/7828/cs20010926.pdf.
- Barrass, S., & Fitzgerald, R. (2008). Social Software: Piloting MyToons as a Digital Learning Community for Teaching New Media. ED-MEDIA Conference Presentation, Vienna, Austria, July, 2008.
- Boezeroy, P. (2003). Keeping up with our neighbours: ICT developments in Australian higher education. Retrieved November 11 2007 from http://www.surf.nl/en/download/Australian_book.pdf.
- Berger, C. (2007). The Digital Student and now, the Millennial Instructor, Presentation to the Apple University Consortium Conference, September [http://www.carat.umich.edu/carat/files/auc2007millennialinst.pdf].
- Bruns, A. (2008). Blogs, Wikipedia, Second Life, and Beyond: From Production to Produsage. New York: Peter Lang.
- Caruso, J. B. & Salaway, G. (2007). The ECAR Study of Undergraduate Students and Information Technology, 2007 (September 2007). EDUCAUSE Center for Applied Research Key Findings. Retrieved November 21, 2007 from <http://connect.educause.edu/library/abstract/TheECARStudyofUnderg/45076>.
- CNN (2008) Broadband Internet? No thanks. Retrieved 5 July 2008 from <http://edition.cnn.com/2008/TECH/ptech/07/02/broadband.study.ap/index.html>
- Dede, C. (2005). Commentary: The growing utilization of design-based research. Contemporary Issues in Technology and Teacher Education, 5, 3/4. Retrieved April 12 2006 from <http://www.citejournal.org/vol5/iss3/seminal/article1.cfm>
- De Souza, C. S. & Preece, J. (2004). A framework for analyzing and understanding online communities. Interacting with Computers. The Interdisciplinary Journal of Human-Computer Interaction, 16 (3), 579-610. EDUCAUSE Center for Applied Research (2007). ECAR Research Study 6, [http://www.educause.edu/ir/library/pdf/ers0706/rs/ERS0706w.pdf].
- Fiedler, S., Fitzgerald, R.N., Lamb, B., Pata, K., Siemens, G. & Wilson, S. (April 2007). Getting beyond centralized technologies in higher education. In C. Montgomerie & J. Seale (Eds.), Proceedings of

World Conference on Educational Multimedia, Hypermedia and Telecommunications 2007 (pp. 1340-1346). Chesapeake, VA: AACE.

Fox, S, & Madden, M. (2005). Generations online. Pew Internet & American Life Project. Retrieved April 18 from: http://www.pewinternet.org/pdfs/PIP_Generations_Memo.pdf

Geertz, C. (1973). "Thick Description: Toward an Interpretive Theory of Culture". In *The Interpretation of Cultures: Selected Essays*. New York: Basic Books

Hedberg, J. (2006). E-learning futures? Speculations for a time yet to come, *Studies in Continuing Education*, 28, 2,171-183.

Horrigan, J. B. (2008) Home Broadband Adoption 2008. Pew Internet & American Life Project. Retrieved 5 July 2008 from http://www.pewinternet.org/pdfs/PIP_Broadband_2008.pdf

Ipsos MORI (2007). Student Expectations Study: Key findings from online research and discussion evenings held in June 2007 for the Joint Information Systems Committee July 2007 [<http://www.jisc.ac.uk/media/documents/publications/studentexpectations.pdf>]

IPSOS MOR. (2008). Great expectations of ICT: How Higher Education institutions are measuring up Retrieved 12 June 2008 from <http://www.jisc.ac.uk/media/documents/publications/jiscgreatexpectationsfinalreportjune08.pdf>]

JISC (2007). Student expectations study: Findings from preliminary research [<http://www.jisc.ac.uk/publications/publications/studentexpectationsbp.aspx>]

JISC (2008). Podcast: Great expectations of ICT. Retrieved 1 July 2008 from <http://www.jisc.ac.uk/news/stories/2008/06/podcast43greatexpectations.aspx>

Krause, K., Hartley, R., James, R., & McInnis, C. (2005). *The first year experience in Australian universities: Findings from a decade of national studies*. Canberra: DEST. Retrieved July 4 2006 from <http://www.cshe.unimelb.edu.au/downloads/FYEReport05KLLK.pdf>.

Kvavik, R. & Caruso, J. (2005). *ECAR study of students and information technology: Convenience, connection, control and learning*. EDUCAUSE Center for Applied Research: Boulder.

Laurillard, D. (2002). *Rethinking university teaching in a digital age*. Retrieved November 1 2007 from <http://www2.open.ac.uk/lto/lto/team/Diana/Digital/rut-digitalage.doc>.

Lim, A. (2008) "The Reflexive Practice." *The Overhaul*. June 10, 2008. Retrieved July 2008 from <http://raws.adc.rmit.edu.au/~s3024962/blog2/?p=118>

MacLuhan, M. (1964). *Understanding media: The extensions of man*. New York: McGraw Hill.

Mikac, K. & Fitzsimmons, N. (2008) *Imagination gone wild: Online social networks inspire teaching and learning in the first-year University subject 'plants and animals'*. Presentation to the 6th International Conference on Imagination and Education, Canberra, Australia, January 2008.

Miles, A. (2007) *Network Literacy: The New Path to Knowledge*. *Screen Education Autumn*. 45: 24-30.

MyToons (2008) About us. Retrieved 16 April 2008 from <http://www.mytoons.com/about>

O'Reilly, T. (2005). What is Web 2.0. Design patterns and business models for the next generation of software. Retrieved November 1 2007 from <http://www.oreilly.com/lpt/a/6228>.

OECD (2005). e-LEARNING IN Tertiary Education: Where do we stand? Paris.

OECD (2007) Broadband Statistics to December 2006. Retrieved 4 July 2008 from http://www.oecd.org/document/7/0,3343,en_2649_34223_38446855_1_1_1_1,00.html

OECD (2008) OECD Broadband Portal. Retrieved 4 July 2008 from <http://www.oecd.org/sti/ict/broadband>

Papert, S. (2000). What's the Big Idea? Steps toward a pedagogy of idea power. IBM Systems Journal, 39, Nos 3/4, 720-729.

Reeves, T. C., Herrington, J., & Oliver, R. (2004). A development research agenda for online collaborative learning. Educational Technology Research & Development, 52, 4, 53-65.

Ryan, Y. & Fitzgerald, R.N. (Forthcoming). Using Social Software To Support Digital Learning Communities In Higher Education. Handbook of Research on Social Software and Developing Community Ontologies. Edited by Stylianos Hatzipanagos and Steven Warburton. To be published by IGI Global in Winter 2008.

Snow, C. P. (1963). The Two Cultures: and A Second Look. An expanded version of The Two Cultures and the Scientific Revolution. Cambridge: Cambridge University Press.

The Design-Based Research Collective (2003). Design-based research: An emerging paradigm for educational inquiry. Educational Researcher, 32, 1, 5.

Vygotsky, L.S. (1978). Mind and society: The development of higher mental processes. Cambridge, MA: Harvard University Press.

Wenger, E. (1999). Communities of practice: Learning, meaning and identity, Cambridge: Cambridge University Press.

Wikipedia. (2008) Wikipedia:WikiProject Fact and Reference Check. Retrieved 16 July 2008 from http://en.wikipedia.org/wiki/Wikipedia:WikiProject_Fact_and_Reference_Check.

Wilson, S., Liber, O., Griffiths, D. & Johnson, M. (2007). Preparing for disruption: developing institutional capability for decentralized education technologies. In C. Montgomerie & J. Seale (Eds.), Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2007 (pp. 1386-1395). Chesapeake, VA: AACE.

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