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Abstract
The theme of the new Strategic Plan 2008-12 for Deakin University is the delivery of effective partnerships with a key focus on enhancing student experience. The Library has a key role in seeking new and improved ways to support the university's teaching, learning, scholarship and research activities. Investigations of Web 2.0 technologies have pinpointed suitable applications to enhance student engagement with the Library and with information resources. Along with digital initiatives, the Library is creating intelligent collaborative and contemporary spaces to support and enhance students' informal learning. Spaces will accommodate student-centred problem-based pedagogy and offer options for interactive group learning, quiet study and reflective zones.

This paper outlines a holistic approach adopted by Deakin University Library and reports on successes and challenges in meeting strategic outcomes to enhance student experience and learning discovery.
1. Introduction

Digital capabilities have revolutionised all aspects of life, including the sub-theme of this conference, learning discovery.

Competition within the higher education sector requires a thoughtful strategic approach to university activity, an ever more commercial business approach with a strong customer focus and an eye on competitive difference and client satisfaction.

This paper addresses these matters. It begins with an overview of Web 2.0 and its genesis. It outlines how Deakin University Library is investigating, testing and developing new digital capabilities, including Web 2.0 online services, and assessing their strategic fit in supporting new approaches to teaching and learning, and improving learning discovery options for students and academic staff. It also reports on the benefits to its workforce in experiencing digital learning discovery first hand. Finally it considers the barriers to rapid uptake of Web 2.0 in higher education and opportunities for iterative development in its application to learning discovery.

2. Web 2.0: Is it all ‘hype’, what do we mean?

Defining Web 2.0 and what it encompasses often reads more as a media release than a clear set of technologies, standards and applications. This is not surprising when we reflect upon the genesis of the term. Paul Anderson provides an engaging account of what is meant by ‘Web 2.0’ or ‘Web 1.0” in his ‘tale of the two Tims’ in the JISC Technology and Standards Watch, Feb. 2007(Anderson, 2007). The ‘two Tims’ referred to are, of course, Sir Tim Berners-Lee and Tim O’Reilly.

There is nevertheless a common set of terms or descriptors that are being used to discuss Web 2.0 developments that emphasise the social aspects of collaboration and contribution, as well as the richer user experiences attained through the contextualisation of information.

It was RSS feeds that introduced many libraries to a practical application of this Web 2.0 concept; followed by blogs and wikis, and now tagging, social bookmarking, and folksonomies. Social software tools are also being applied to teaching as higher education seeks new ways to connect with current and future generation of students, integrating digital delivery into course design. The landscape is being populated with exemplars of practice, with educators showcasing the use of Facebook and Second Life.

New technologies can certainly be seductive. For some, “Social Networking” environments are all consuming. Many students come to university with a rich digital experience in their everyday world. Affordable communications and internet technologies, provide increasing access to aggregated sources of information. Google, Yahoo, Amazon and iTunes have changed our information-seeking behaviour, and our expectations. Mobile technologies and social networking applications, including MySpace and Facebook, continue to change the way students communicate and contribute to shared knowledge in their personal or public spaces.

Universities globally are adapting to changing student needs and expectations. There has been increasing emphasis placed on student experience. It is being recognised that students’ views of their time at university are formed not only on the basis of the quality of the teaching, the relevance of their courses and their employability, but also on the students’ level of engagement with the university and their sense of being an active member of the university community.

While it is too early in the developmental life cycle of Web 2.0 services to have an extensive body of research that provides evidence of the value Web 2.0 brings to teaching and learning, and to students’ experiences of higher education, some academic staff are undertaking creative experimentation of Web 2.0 in course delivery and assessment. University researchers are also looking for ways to better connect with their peers at local and cross-sectoral levels and to strengthen global research networks. Libraries are adapting their services, developing service delivery models that align with their clients’ preferences for how they study, work and engage
with their peers. The question all are asking is whether there is strategic advantage to be gained through integrating Web 2.0 services into course design, research collaborations and information services delivery.

3. Harnessing Web 2.0 for Strategic Advantage

3.1. Plans for Teaching and Learning, and the Student Experience

An external review of teaching and learning at Deakin University has informed the University’s Teaching and Learning Plan for 2008-2012. This is within the context of the University developing its next 5-year Strategic Plan to be released in March 2008.

Deakin University has a strength in flexible education and aims to be recognised both as a national leader in teaching, and in research and scholarship in flexible education. As a highly successful provider of distance education in past decades, Deakin University has offered several modes of study – off-campus, on campus and online. The new Deakin University Teaching and Learning Plan 2008-2012 focuses on the University’s success as a provider of flexible education that allows students choices and supports their studies, regardless of where they may be located or a student’s mode of enrolment. The focus is on improving students’ experiences in all their associations with Deakin University.

Strategies look to leveraging Deakin’s distinctive approach to flexible education, in part, through the development and implementation of a comprehensive strategy for the provision of new types of physical and virtual learning spaces, designed to further increase social networking opportunities for all students. Deakin’s distinctive approach includes the creation of a unique and valued Deakin student experience.

The Library has traditionally been central to students’ experiences beyond the formal classroom. Libraries, over the last decade have re-developed their physical spaces to support new approaches to teaching and learning including the move to student-centred and peer-to-peer learning. An academic library’s social spaces - places to meet and work together - are providing choices for students. Libraries continue to introduce flexible learning spaces more suited to students’ preferences for how they study and learn. The need for the library to be present in virtual spaces where students work and study is just as important.

We will explore how the Library’s implementation of Web 2.0 services to date support the development of Deakin’s unique student experience. Before doing so, it is important to review the Library’s capacity to deliver services aligned with these plans.

3.2 Library’s Capacity to Implement Strategies

For Deakin University Library, the timing of the University’s new planning cycle presented an opportunity. The Library had recently been re-established as a single-purpose Division within the University; a move away from a more diversified organisational entity. Its new structure was introduced at the end of 2006, following a process of change that reviewed the Division’s structural and strategic capacity to fulfil its purpose in a dynamic environment. The Library’s purpose, its vision and how it would achieve this vision had already started to be re-defined when a university-wide consultative process for the development of the University’s Strategic Plan 2008-2012 commenced.

The new library structure introduced a senior management team with the breadth of expertise and knowledge required to drive change and to strengthen the Library’s strategic implementation competencies. The path that led to the introduction of a new client services structure required a review of all current practices and patterns of use, and a greater understanding of client behaviours and new approaches to teaching and learning. The Library’s approaches to environmental scanning and monitoring of its own performance were enhanced. It was recognised, though, that we needed to extend the dialogue and debate about future scenarios and the monitoring of environmental trends. It was critical to improve how staff were
informed of key issues and were able to contribute to solutions. This is particularly challenging in a multi-campus university, spanning urban and rural regions. New approaches were required.

The review of the client services structure considered new models for providing information services and assistance, supporting flexible education for students studying on campus, off campus and online. Deakin University's long-standing reputation as a highly successful provider of distance education has grown to encompass its more contemporary successes in online delivery. Web 2.0 services and applications offered potential solutions for developing discovery services that were more open; that encouraged contributions from clients to enrich the context and enhance the relevance of information; and that allowed personalisation or customisation of information networks. The university was emphasising 'partnerships' in its vision for Deakin 2012, and the Library was considering how to develop effective partnerships not only with teaching and research staff, but also with students.

4. The Deakin Student Experience

Deakin University Library has significant expertise in adapting its services and facilities to the changing world environment and to the changing needs of academic teaching and learning, and research. It has been a lead site in Australasia for Innovative Interface Inc.’s integrated library management system, Innopac (now Millenium), for over a decade. It was an early adopter of digitisation and online communications software.

The Library is investigating a range of innovations in response to the strategic directions identified in the Deakin University Teaching and Learning Review 2007. These actions directly and indirectly seek to improve student experience both in physical and virtual library spaces.

4.1 Direct impacts on the Deakin Student Experience

Changes to Library services and facilities that directly impact upon student experience align with five key elements which the University has identified as underpinning the Deakin student experience. These elements are:

- Being treated as an individual
- State-of-the-art courses and well supervised research training
- Well configured, accessible academic support services
- Physical and virtual environments conducive to learning
- Engagement as a member of the University community

The Library’s initiatives incorporate Web 2.0 capabilities as well as other developments in global communications and information environments. Initiatives relating to the five elements are described below.

4.1.1 Being treated as an individual

The Library has introduced several forms of online personalisation to support the student’s sense of individuality and to cater for specific personal preferences. For several years, the Library has offered RSS feeds for a range of journal contents pages enabling researchers at all levels to keep up-to-date with the titles that they identify as supporting their areas of interest. In addition, all library users can access their personal borrowing records through My Library, an online service listing items on loan, on request and available for pickup; along with a facility to renew online. Privacy legislation had required the Library to discontinue providing users with lists of previous borrowings and yet Library users often need to check recent loans to confirm citations for assignments and to construct their research strategies. Working within the bounds of privacy legislation, the My Library web application now provides a means for individual users to have sole access to their personal borrowing history – while disallowing all others, including library staff, to view.

A further extension of My Library will introduce an RSS capability - My Feeds. This will enable library borrowers to subscribe to an RSS feed of patron-specific information such as items ready
for pick-up and items soon due for return or renewal. The Library is investigating the concept of personal learning environments and is seeking further push technology to increase personalised content via the My Library interface utilising user profiles and authentication capabilities.

For students undertaking higher degrees by research, future My Library links will include contact details for Liaison Librarian team members - staff with subject expertise who are available for individual consultations and group workshops; links to Endnote and SmartResearcher online tutorials; and links to the Deakin University Research Repository.

4.1.2 State-of-the-art courses and well supervised research training

As a development partner with Innovative Interfaces Inc (III) the Library has introduced Encore\(^2\) to its client community. Encore is a new search and discovery interface incorporating Web2.0 features that have resulted in an interactive and more intuitive search tool. Encore delivers a faceted display, a subject-based tag cloud, “Did You Mean...?” assistance and relevance-ranked results from a single keyword search. Encore is being well used as one of several catalogue search options and its features are appreciated by users. Feedback during the initial public preview included: “This is a great feature which makes searching the library so much easier!” [Student] and “Picked up very relevant resources from a general three word enquiry. *Enough to impress!*” [Staff member]

Deakin University’s 2007 Teaching and Learning Conference\(^3\) showcased innovative and experimental teaching practice, including the integration of e-portfolios in reflective learning and assessment; presence in Second Life\(^4\); and online self and peer assessment in student learning. The conference indicated that face-to-face elements of student learning experience are being effectively supplemented with online collaboration. This online collaboration incorporates peer-to-peer file sharing (especially creative images) and social networking software, which enables peer learning and review.

Deakin’s early experimentation with Second Life indicates that there are significant barriers at this stage. Students have encountered technical difficulties installing and optimising the Second Life client on their laptops or home computers. Second Life software is under constant development and requires users to update the client at almost every log in. Firewall and student download quotas further limit the widespread use of Second Life at this stage.

On the other hand, Facebook\(^5\) is a user-friendly interface and although its functionality continues to grow it does so in a more seamless way compared with the Second Life client. Being a web application, new functionality is made available via its web interface and users simply choose when and whether to use it. Facebook has become a key means of communication. In October 2007, Facebook had “more than 42 million members and will exceed 60 million members by the end of the year”\(^6\)

Due to its current popularity and high level activity, many Facebook users are logged into Facebook all day.

With this in mind, the Library considered appropriate ways to deliver services in this virtual space. At 1 Dec 2007, Deakin University Library was one of only two Australian university libraries with a Facebook profile. On 7 Dec 2007 the Library’s request for a Facebook application – a library catalogue search - was approved and Deakin University Library became the first Australian university library to have such application accepted. Within a day, without promotion, the library Facebook page had requests from 3 ‘new friends’. Students were out there looking – and invited the Library into their space.

4.1.3 Well configured, accessible academic support services

The Library is one of Deakin University’s providers of academic support services. It has been actively involved in the University’s trial of social networking software. The trial was conducted in the latter half of 2007 by Deakin’s Institute of Teaching and Learning. Library staff have
trialed WordPress (Blog software) and MediaWiki (Wiki software) as new means of communicating with library users and amongst library teams.

The most immediate application of blog and wiki software has been for internal library purposes. This non-public development has enabled library staff to become familiar with blog and wiki functionality and service potential.

A WordPress blog has been trialled to replace the Library staff newsletter previously available via the library’s intranet. The newsletter blog provides all staff with an accessible forum to actively discuss and debate many issues, enabling communication to be multi-way.

Likewise, a Library wiki developed with MediaWiki software has provided an online space for Library staff to post content that will inform the Library’s forward planning and implementation project: Vision 2012. Members of the Library’s Web and IT Advisory Group regularly undertake environmental scans to gauge trends and assess potential external impacts that may influence the development and delivery of library services over the next 5 years. Results of these scans are posted to “LibraryWiki” and include topics such as search and discovery 2.0; social bookmarking; innovation at the hard edge (hardware, equipment and infrastructure); online personalisation; mobile technologies; and personal learning environments (PLEs).

LibraryWiki also hosts information and research reports on current library developments, such as the Library’s activity as development partner with Innovative Interfaces Inc. for Encore; the Facebook library catalogue application; and web solutions for delivering key resources. Another wiki is being used for the collaborative development of work procedures, extending the opportunities for library staff on any campus to update content, to view and to discuss.

Armed with a better understanding of wikis, staff have identified potential applications to better support teaching and learning. A cross-campus Library Liaison team project investigated wiki software as a means of delivering library ‘subject guides’. These guides consist of key library databases, e-journals and websites in subject discipline areas which librarians in consultation with academic staff recommend to clients as initial research products. Attractive features included good search capability and content submission and comment by clients.

Thorough analysis showed that basic wiki software was less useful than some Springshare proprietary software that had been developed specifically for this purpose. Springshare’s LibGuides’ bring together a variety of Web2.0 and other functionality to create useful resources for students and researchers. Feedback from users during the development phase has been very positive. The rollout of the new-function subject guides is underway at the time of writing. Their success will be monitored via ClickTracks site-visit statistics and levels of tagging, contributions and feedback by client groups.

### 4.1.4 Physical and virtual environments conducive to learning

Earlier in this paper, reference was made to the University pursuing a comprehensive strategy for the provision of new types of physical and virtual learning spaces. Projects for addressing the physical spaces have commenced with two Library refurbishment projects underway over the next three years.

The business case for these projects recognised that an appropriately refurbished campus library, as a centre for informal learning on the campus, would have a strong positive influence on students’ learning experiences at Deakin. The provision of new generation learning spaces - including contemporary, wired casual spaces and flexible collaborative spaces - will encourage students to come on to campus and to stay, strengthening opportunities to build an active learning community. An active on-campus face-to-face learning community combined with online social networking has the potential to extend to students studying online and off-campus.

We know that Deakin students ask for assistance in finding information and accessing IT in a variety of ways – face-to-face when studying in the library; by email, instant messaging and web forms; and by telephone. Increasingly students are bringing their own laptops to use in the
Library. In a May 2007 survey, one third of library clients were using their own laptops at the Melbourne Campus at Burwood Library. More and more students confirm Lorcan Dempsey’s insight to move services into the workflow of our uses – increasingly, they are sending requests for assistance within their own workflow from their own laptop in a library carrel or study room. Leaving where they are working to ask a question is inconvenient, has potential risks (laptop theft, loss of study seat) and interrupts creativity and productivity. Students have also been observed conducting virtual group work using their mobile phone to ring another student off campus, while working with others gathered around a personal computer or laptop.

The challenge for any academic library is planning physical and virtual spaces that can better support our current and future students. The broad adoption of social networking applications is hampered by current network capacity, remote student access and IT policies. A number of these barriers are referred to later in this paper. It is extremely difficult to develop a concept for the Next Generation Library without considering the convergence and interplay of both physical and virtual dimensions. At the same time, there are quite widely divergent views within the community and amongst library directors regarding the role of the library in these new social networking spaces.

### 4.1.5 Engagement as a member of the University community

Throughout 2007, the complex development of the University’s Strategic Plan 2008-12 included an extensive in-person and online consultation process with staff and students. Face-to-face presentations and discussions were conducted at all campuses and online contributions and comments were encouraged and moderated via a well-developed blog using Drupal software. The blog was adopted to increase student engagement in the process, and it was successful in this endeavour. As a result, the University intends to use blogs to engage students in other matters.

The Library will also trial the use of blogs to engage students in virtual focus groups and feedback, including polls on topical issues. The 2006-7 Library website redevelopment project successfully engaged a wide range of stakeholders in focus groups, informal feedback, online surveys and extensive user testing. The development of future physical and virtual library services and facilities will use blogs to facilitate online input and feedback, RSS feeds for library news updates, and videos on YouTube for visual updates on new learning space amenity.

### 4.2 Indirect impacts on the Deakin Student Experience

A major indirect impact that the Library has on student experience is the ‘unseen’ factor of library capability – the skills, knowledge and understanding that enables library staff to offer higher level service delivery to support teaching, learning and research. Strategic Library workforce planning has identified that staff need to maintain high levels of information literacy and computer literacy, and also to develop new and evolving web literacy. Furthermore, the five primary elements contributing to the Deakin Student Experience highlight the increasing value and importance of social networking applications in higher education.

The Learning 2.0 program, first introduced by the Public Library of the Charlotte and Mecklenburg County was identified as a strategic development opportunity for Deakin University Library. Staff undertaking the program would not simply look at or hear about new web offerings but would actively use, learn and develop social networking skills in 23 different applications and thereby extend their web literacy, confidence and awareness.

Although program participation is not mandatory, as at December 2007, over 50% of all continuing, fixed term and casual staff have commenced the program and set up a personal blog to log their experiences in the program. The proportion of these who are continuing staff is very high.

The key outcomes identified for the Learning 2.0 project were:
- to introduce all library staff to the information networks and communication spaces being used by increasing numbers of students in social and study activities
- for participants to actively explore 23 social networking ‘things’ and to reflect on each experience
- to provide all Library staff with equitable access to this development opportunity
- to encourage cross-library, cross-campus, cross-unit and HEW level interaction and communication between staff in the process of learning, sharing and achieving
- to develop social networking applications for internal library use as part of the learning process, and to transfer skills acquired to the development of appropriate Web2.0 library and information services and functionality for library clients
- to engender a culture of learning in the Library
- to encourage further exploration of web applications after the program is completed

The program was launched late August 2007. Technical support by the library’s Web Developer has been vital to its success, as has the leadership of the Library’s Manager, Quality and Innovation.

Learning 2.0 has had positive library-wide results. All outcomes have been achieved and those achievements are ongoing. Blogs and wikis are now everyday experiences. Many staff are Facebook, del.icio.us and Flickr aficionados. Librarians are developing new and better client services, and staff on desk, phone, email and IM service points are aware of less distance between their online experiences and those of students. Staff are communicating across gulfs rarely breached in the past. Morale is higher and engagement seems far stronger. Staff are asking – will there be another 23 things?

The Learning 2.0 blogs of some staff show confident experimentation being undertaken in new unchartered web applications, indicating a healthy level of web literacy. The program will continue to be available for staff to revisit throughout 2008.

Learning 2.0 is equipping library staff to work with Faculties and Divisions to utilise Web 2.0 to improve the student experience. Library outreach in 2008 will build partnerships with academic staff, instructional designers, academic skills advisors and web developers to ensure that Library-based Web2.0 applications integrate with university-wide Web2.0 developments.

5. Barriers

The largest barrier for libraries may be to do with perceptions, both on the part of clients and on the part of librarians. The 2007 OCLC study into Sharing, Privacy and Trust in our Networked World surveys over 6,000 users from 6 countries across Europe, the United Kingdom and the United States. Unfortunately, the study included neither Australia nor New Zealand. It is useful to note that both the views of the general public and the views of library directors regarding the library’s role in relation to social networking activities indicated a low level of interest. This has in part been attributed to little if any exposure to library examples of ‘social’ services. The study recognises that while there were over 10,004 blogs about libraries or librarians listed on Technorati (a catalogue of website blogs) in September 2007, it suggests that only a ‘few libraries are experimenting with and piloting social networking and social media projects’ (OCLC 2007).

Some of the barriers experienced by those teachers in higher education and libraries who are inhabiting this social networking space, include the following:

- Policies and procedures that govern and manage Internet access within universities and the internal billing of such access were all developed prior to the advent of social networking sites. Student download quotas, who pays and who determines when the access is for the purposes of teaching, learning and research are difficult questions that may need resolution.
- The bandwidth available to students and staff can be an issue in outer urban areas as well as to those in regional and rural Australia.
- It is difficult to assess the university’s capacity to support the establishment and inevitable growth in social networking sites of different types and varieties.
- Responsibilities for funding and maintaining sites, and ensuring that access to the sites comply with university policies, legislative and contractual requirements may be unclear. Privacy concerns can be seen to present an insurmountable barrier.
- Workforce capability to experiment and test will be variable, with few established structures to support early adopters. The institutional approach will be fragmented.

While these issues are not insurmountable, the time and resourcing required to address them will stall the ubiquitous uptake of Web 2.0 across higher education.

6. Opportunities

*Deakin is the difference,* and a key contributor to that difference is the university’s approach to flexible education. Web 2.0 applications and services provide new opportunities for exploring how universities can effectively engage with an increasingly diverse cohort of students who are continually balancing competing demands on their time.

Deakin University Library has identified key drivers guiding its research, testing and development of Web 2.0 capabilities that have the potential to be integrated into the Library’s service delivery and improve the Library’s strategic implementation abilities. The examples of social networking software and other applications discussed throughout this paper have been guided by the following:

- The need for the Library to be integrated into the students’ work space.
- The drive to improve, to build better resources through collaboration with academic staff and students.
- The opportunity to enhance creativity within the Library, support openness to new ideas and a willingness to explore new web applications.
- The benefit of positioning the Library for further exploration and implementation of online futures in a dynamic environment.

7. Conclusion

As part of Deakin University Library’s ongoing strategy to support teaching, learning, scholarship and research, many Web2.0 applications will underpin improved Library services in 2008. Social networking developments are improving library collaboration with academic staff, providing better contextualisation of content for students, and engendering communication and creativity amongst students, teachers and researchers, and library staff.

It is important to get past the ‘hype’ of Web 2.0 and investigate the capabilities of the applications, and the competencies of staff and the organisation in integrating Web 2.0 approaches into service delivery that improves learning discovery.

Alignment with the university’s strategic priorities for teaching and learning can assist in overcoming some of the barriers that will be presented, including internal policies and funding mechanisms governing IT and network accessibility.

The ‘unseen factor’ of building library capability provides a leverage that is often overlooked. The enhanced capability of the library as an organisation and its individual staff to offer a higher level service delivery is powerful. Within an environment where there are few established structures to support early adopters of Web 2.0 services, the library becomes a natural partner with academic staff in the exploration of the potential of these applications for teaching, learning and research.

The debate about whether the library has a role in many ways is a distraction. The information landscape is rich with social networking applications that extend the way we engage with each other and contribute to shared knowledge. Library and learning management systems and commercial information providers are already delivering Web 2.0 services to libraries that are
enriching the digital experiences of our students and academic staff. The question we need to ask is are we ready, have we positioned our libraries so that we can leverage the capabilities of Web 2.0 to enrich the learning discovery experiences for university communities.

4 Second Life: http://secondlife.com/
5 Facebook: http://www.facebook.com/
9 Public Library of the Charlotte and Mecklenburg County: http://plcmclearning.blogspot.com/