

2008

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## Recommended Citation

Alam, Sultana Lubna, "To Wiki or to Blog: Piloting Social Software Technologies for Assessment in a Large First Year Information Systems Class" (2008). *ACIS 2008 Proceedings*. 43.

<http://aisel.aisnet.org/acis2008/43>

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## **To Wiki or to Blog: Piloting Social Software Technologies for Assessment in a Large First Year Information Systems Class**

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### **Abstract**

*This paper describes two exploratory pilot projects using the social software technology (i.e. blog and wiki) for assessment purposes to teach an introductory Information Systems subject at University of Canberra in 2007. Social software technologies known as web 2.0 have gained considerable interest among academics across the higher education landscape. These tools have features that focus on the social construction of collective knowledge, communication, reflection and peer networking. However, while there are many claimed pedagogical benefits, little is known about the impact and effectiveness of social technologies to support innovative approaches to Information System assessment tasks in large classes. In this study the author reflects on the process of integrating social technologies into the teaching syllabus for assessment purposes and presents a reflective account of the outcomes of the trial from both student and staff perspectives. Important teaching and learning issues associated with the development and implementation of social technology based assessment tasks for large classes are discussed. This analysis confirms the importance of usability, workload and 'fit for task' for technology-infused teaching and learning for large classes.*

### **Keywords**

Social software (web 2.0), wiki, blog, assessment, Information Systems

### **INTRODUCTION**

This research originated from speculations about the rising needs of the so called 'net generation'/'digital natives' and surge in the social software and wireless device usage by students (Fitzgerald 2006; JISC 2008; Oliver & Goerke 2007). The generation Y students are characterised by information connectedness, multitasking, and a focus on immediacy. They stay connected using SMS, mobile phones, iPods, games and social networking sites. Their lifestyle is increasingly fragmented and there is a need for time shifting (Fitzgerald 2006). There is an inherent assumption that because students are using particular technologies in their everyday lives this warrants their use in teaching and learning (Bryant 2007; Kennedy et al 2006; Oliver & Goerke 2007). In addition the advances in social technologies allow for new and perhaps more efficient means of learning and communicating. The importance of social networking tools to education is that they can be seen as an emergent form of alternative communication (Sims & Salter 2006). But what aspects of Facebook, YouTube, wikis, LiveJournal, Flickr, and MySpace.com might translate into new ways for better and more effective student and academic services (Berg et al 2007) still needs to be seen. It is not clear that students want their 'everyday technologies' to be adopted or appropriated as 'learning technologies'. New research commissioned by JISC (2008) and carried out by Ipsos MORI suggests that the role of these social sites (e.g. wiki) for formal teaching purposes still is not clear among first year students. Attitudes towards whether lecturers or tutors should use social networking sites for teaching purposes are mixed, with 38% thinking it a good idea and 28% not. Despite students being able to recognise the value of using these sites in learning, only 25% feel they are encouraged to use Web 2.0 features by tutors or lecturers; 87% feel university life in general is as, or better than, expected especially in terms of their use of technology (JISC 2008). In another large Carrick funded study a survey of 851 students across three Australian Universities of their own participation in social networking, social bookmarking, blogging, wikis, photo sharing, video sharing and music networking found that browsing is much more common than contributing content (Barrass & Fitzgerald 2008). Moreover, many academics understand the care and planning needed to successfully integrate technologies within well-designed learning and teaching contexts in specific discipline areas (Kennedy et al. 2006). Hence technology provides a vehicle by which one can address changing needs, but it is clear that students still wish to engage in a meaningful way with those facilitating their learning (JISC 2008).

Previous research indicates that there are beneficial aspects of social technology use in education including increased student-staff interaction, anytime anywhere access to teaching and learning resources, peer networking and building a communities of practice (Barrass & Fitzgerald 2008; Berg et al 2007; Bryant 2006; Bryant 2007; Cochrane 2006; Cych 2006; Fitzgerald 2006). However, there is very little empirical evidence about the impact

and effectiveness of these new learning environments for assessment task (Choy & Ng 2007), in particular for first year large classes. This paper describes two exploratory pilot projects using the social software technology (i.e. blog and wiki) for assessment purposes to teach an introductory Information Systems subject at University of Canberra (UC) in 2007 called Information Systems in Organisation (ISO). The following sections describe the process of integrating social technologies for assessment purposes in the two pilot studies and a reflective account of the outcomes of the trial from both student and staff perspectives. Important teaching and learning issues associated with the development and implementation of social technology based assessment tasks for large classes are discussed. This analysis confirms the importance of usability, workload and 'fit for task' for technology-infused teaching and learning for large classes.

## BACKGROUND TO INFORMATION SYSTEMS IN ORGANISATION (ISO)

Information Systems in Organisation is a first year subject from the Information Systems major. The subject introduces the Informatics discipline as the study of the use of information technology, particularly as applied through information systems, in conducting the work of government, business and other organisations. It is a core subject in various courses taught over a fifteen teaching week semester to a large cohort of students including the degrees in Information technology, Business Informatics, Software Engineering, and Commerce both at undergraduate and master's level. The 2007 enrolment in semester 1 was 220 and semester 2 was 240. Thus the students undertaking the subject can vary considerably in terms of age, learning styles, employment and enrolment status, language background, computer literacy, and general level of IT technical knowledge. They use very different set of software for study, work and social life. Meeting the needs of this multi-cultural diversified cohort of students is a constant challenge.

The subject adopts a blended teaching model including comprehensive subject web site, use of online electronic sources through the library, hands-on computer labs, face-to-face (f2f) contacts through interactive lectures and tutorials, collaborative work using groupware, WebCT discussion forums and chat rooms, emails, subject bulletin boards, guest lectures and FAQs (Frequently Asked Questions). Table 1 describes the basis and weight of each assessment item in the subject. Assignment 1 requires students to demonstrate their ability to work individually on a relevant current IS topic relating it to theoretical knowledge and then share with peers through tutorial presentations. It is hypothesised that the nature of this assignment offers opportunities for the use of social technologies to enhance delivery and sharing of findings through collaborative construction of knowledge, social networking or critiquing peer work. To explore this hypothesis assignment 1 was adapted to trial two separate social tools (i.e. blog and wiki) in consecutive semesters. The choice of the social tool was mainly driven by 'fit for task' (i.e. suitability) and then availability. Notably the assessment tasks set for both trials were administered previously in traditional mode in 2006.

Table 1. Assessment items and weightings in Information Systems in Organisation (ISO)

Assessment Item	Description of assessment item	Weighting (%)
Assignment 1	<b>IS issue</b> (individual) - Involve an investigation of issues and concerns related to Information Systems (IS) to gain some understanding of the industrial reality of information systems in organisation.	10
Assignment 2	<b>Lab folder</b> (individual) - There are four lab folders to be completed in laboratory sessions.	20
Assignment 3	<b>Case study</b> (group) - Involve modelling the work/business processes around a described situation, describing various scenarios of use, stakeholder identification, attributes and needs, preparing some models such as activity diagrams etc, and presenting this in a management report.	20

## INTEGRATION OF BLOG FOR ASSESSMENT IN SEMESTER ONE

### The Assignment 1 Task

Students were asked to collect two recent (not less than 6 months old) news related to information systems use and concerns in organisations, summarise and post as blogs on a designated blogging site and then peer critique another blog. Students were to present their work in tutorial. The selected topic areas were broad and open for example information security and privacy, innovative uses of ICTs (Information and Communication Technologies) in organisations, impact of ICTs and ICT professionals on organisations and their use in Higher Education. Their assignment was assessed by tutors on its data collection (use of different sources), relevance to the topic, analysis, quality of critique, presentation style and proper citation of other's work.

The blog was introduced as an alternate way for students to present their findings to the entire class as opposed to a tutorial. As students were required to critique other student's work to provide peer feedback, blog became the obvious choice of social tool because of its commenting functionality. Blogs can work as a reflective/collaborative space and can be used to elicit feedback and review learning materials and professional papers as well as enable the exchange of views and opinions (Oliver & Goerke 2007). It allows for the integration of content, communication and participation breaking down the traditional segregation of these components, which is imposed by traditional learning management system (Lefoe & Meyers 2006). Hence it was envisioned that it will become a powerful tool for students to learn about differing views and opinions on information systems use and impact on organisations.

### Implementation Issues

The blog for the unit was set up using the open source tool Open Academic (OA) – a Drupal content management system (<http://drupal.org/>). This site was setup as part of a larger study Researching Online Learning@UC (<http://ucspace.canberra.edu.au/display/ROL/Welcome>) investigating a replacement LMS for WebCT. The BETA Drupal site was hosted externally with the OA service provider in UK. This Drupal site was setup in addition to the standard WebCT site that is automatically setup for each unit as an online teaching portal at the university. The Drupal blog was used as an online submission mechanism for assignment 1.

In the first tutorial students were shown how to create an account in OA, navigate through the Drupal site, post blogs and comment on blogs. However early teething problems and technical troubleshooting became an issue. Lack of customizability of the Drupal site template and lack of site structure became an obvious reason of frustration for staff and student (see figure 1). There were no clear relationship between units, groups and overall segregation of content. For example there were two links for blog - the unit blog and personal blog. But students never used or understood how to use the personal blog let alone setting any access rights. The unit forum misleadingly linked to all the units that participated in the OA trial. This is a classic example of user interface that causes human error. Even after repeated attempts by the lecturer the website template could not be changed due to dependence on an external UK based support team. Lack of fund meant only highly technical issues were resolved, not simple usability problems. The bad webpage design remained a usability issue throughout the semester.

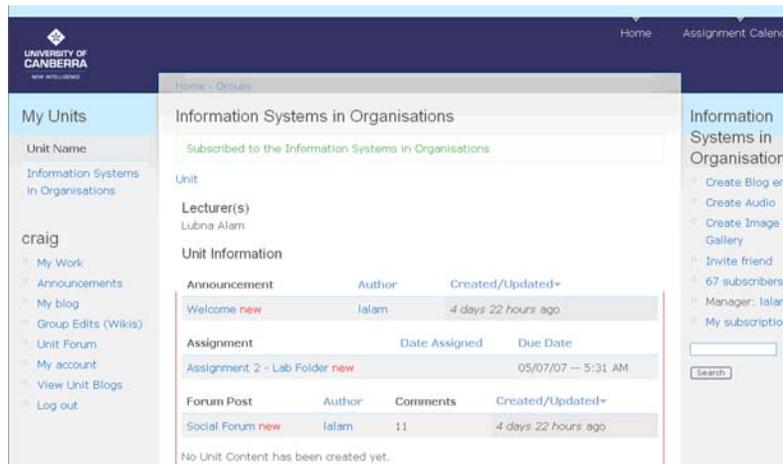


Figure 1: Screen shot of OA Drupal Blog site for assignment 1

Students were also faced with problems in uploading files with .htm or .html extension. Initially it was thought to be a problem with university network system. Finally it was established that OA team in UK imposed this restriction due to security risks. Although most of the usability and technical issues with the OA site were resolved over time, some students continued to comment that an internal university blogging installation would be easier to use and would provide the same functionality.

### Overall Outcomes

In total there were 224 subscribers to the open academic (OA) site. It was clear that blog type functionality implemented within a conversational environment encouraged comment and feedback that is important for both students and lecturers. The Drupal blog was used as an online submission mechanism for assignment making it visible to the entire class. This translated to students learning about the different topics, not just their topic of choice. This is an additional learning outcome compared to traditional assessment. It gave them an opportunity to be involved in submitted assignment work of others through the blog comment feature and learn from peers.

The peer critiques of blog posts increased the scrutiny of submitted work by people in addition to the tutor and made the students socially accountable for plagiarism. However tutors marked the assessment based on the face-to-face presentation alone due to workload issues.

All interactions (except two incidences involving offensive behaviour) proved to be constructive, friendly and supportive, and there was no vandalism or flaming evident. This may be in part due to site moderation by lecturer and Drupal support team's prompt action to enforce a positive culture.

Students were encouraged to participate in a WebCT voluntary survey to capture student experiences with the social software used in this pilot. Student feedback was positive (see Table 2). Even though the response rate of the online survey was low, it is still indicative of the outcomes of the trial as reflected in table 3.

Table 2. Student survey response on blog assignment

Survey Question Title	N	Frequency		
		Strongly Agree and Agree	Don't Agree	Not sure
The blogs for assignment 1 helped us to learn more about ISO issues	24	15	4	5
		54%	14%	18%
The blog assignment was interesting and useful	25	18	4	3
		64%	14%	11%

Students were further invited to provide feedback on their experiences with Drupal blog through additional reflective assessment task. Their comments have been depicted in the following table.

Table 3. Student feedback on blog assignment

Positive Comments	Negative Comments
<ul style="list-style-type: none"> <li>• Opportunity to critique or post feedback on other's work</li> <li>• One location for all student work</li> <li>• Accessible anywhere, anytime</li> <li>• Time-shifting</li> <li>• Many views on one topic</li> <li>• Email alert notification on new posts</li> <li>• Communicate with lecturer through blogs and comments</li> <li>• Ease of use</li> <li>• Share information</li> <li>• Raise problems and questions</li> <li>• Handy</li> </ul>	<ul style="list-style-type: none"> <li>• Stealing other people's good ideas &amp; source for assignment</li> <li>• Inaccurate information or lack of accountability for uploaded information</li> <li>• IP rights (who owns the work after university life?)</li> <li>• Offensive material uploaded</li> <li>• Upload time, External server, browser capability</li> <li>• Authentication issues like Identity misrepresentation by creating a false/ fictitious account or avatar name. Who can sign up?</li> <li>• Security risks such as loss of data, hacking or intruder attack, virus upload, failure of hardware</li> <li>• potential to become a bullying tool</li> <li>• Accessibility issues due to bandwidth or work access restrictions as some social tool use are banned at work</li> <li>• The timing gap between offensive act and moderation</li> <li>• Afraid to ask questions as everyone can see (an issue with shy or NESB students)</li> </ul>

## INTEGRATION OF WIKI FOR ASSESSMENT IN SEMESTER TWO

### The Assignment 1 Task

The major purpose of the assessment item was to gain some understanding of the industrial reality of information systems jobs in organisation using a communication and collaborative technology to create an online *IS Jobs Registry*. Wikis are good for collaborative construction of knowledge, connectedness through hyperlinks, low-tech and easy to use. A wiki site called *IS Jobs Registry* was set up for ISO in the university Confluence site UCspace at <http://ucspace.canberra.edu.au/display/isjobs/Home> (see figure 2). Students were required to find 1 current (one or two months old) IS related job advertisement and then contribute to relevant job description page in UCspace based on a given template articulating assignment requirements. A contribution constituted all of the activities such as uploading initial job information, editing any existing information, or



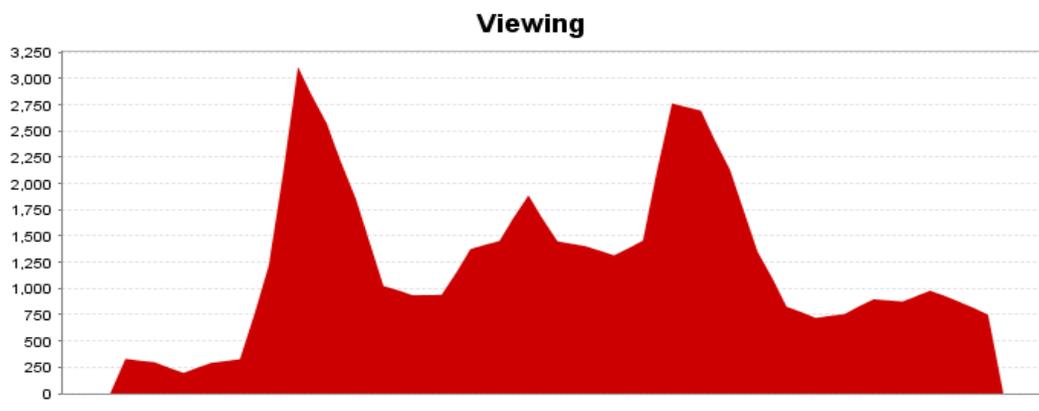


Figure 3: Graph shows how many times pages and news posts have been viewed in August 2007

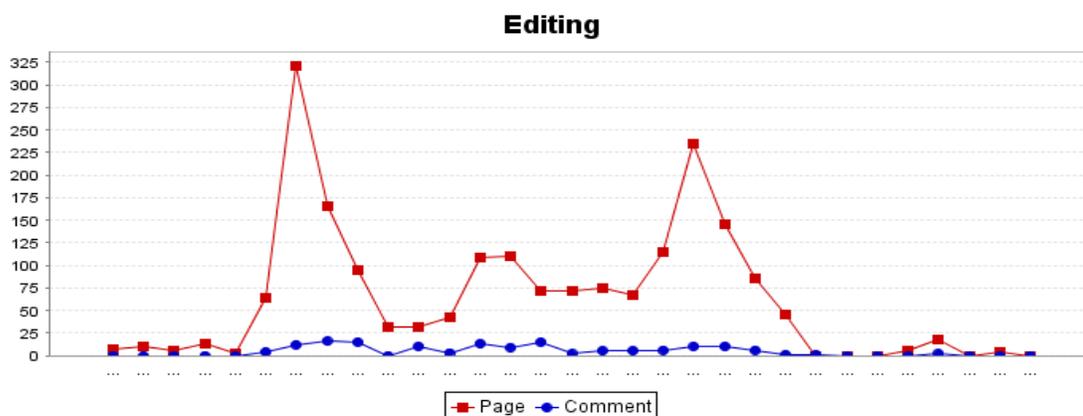


Figure 4: Graph shows how many pages and comments have been created or updated by ISO students in August 2007

A survey of 20 students after the unit showed that more than half the students (80% of respondents) thought the wiki was moderately useful, useful, or very useful in helping them learn from each other. 10% of students didn't think it was useful. Only 25% of the respondents thought they were competent or expert in using a wiki before the unit, but 100% thought they were competent or better after the unit was completed.

As the survey response rate was low, students were invited to participate in tutorial discussion about their experience with wiki to reflect on peer learning and evaluation of wiki as a teaching and learning tool. During the tutor-led focus group discussion a scribe entered the group ideas into a wiki page. The focus group feedback is depicted in the following table and can be found at <http://ucspace.canberra.edu.au/display/isjobs/Home#Home-TutotiralGroups>.

Table 4. Student feedback on wiki assignment

<b>Positive comments</b>	<b>Negative comments</b>
<ul style="list-style-type: none"> <li>▪ Group participation, sharing information and editing tool was user friendly. The technology is an improvement over emails etc.</li> <li>▪ Opportunity to use the comments function on each job (wiki) page to discuss/negotiate/share opinion on issues with other's work, query regarding references, editing information such as formatting or spelling correction</li> <li>▪ Ability to see how many has contributed to a job role</li> <li>▪ Convenient to see what others have done and correct errors</li> </ul>	<ul style="list-style-type: none"> <li>▪ There are no access restrictions; everyone can change anything they want. No control over the way people interacted or wrote on UCspace</li> <li>▪ People overwrite others' work or assume that their contribution is correct and others' are wrong. Often did not even read the content before deleting.</li> <li>▪ Unregulated wikis are not suitable for formal applications</li> <li>▪ Limited formatting features &amp; control over layout</li> <li>▪ Problem with separating content from presentation</li> <li>▪ People generally did not read instructions</li> <li>▪ Wiki is not that good a program to create work with reliability and validity – because anyone can change and edit, and no one can be sure of the quality of</li> </ul>

- Division of labour – students contributed to different sections of the job template
- Cumulatively building the jobs registry - People could take different roles with document editing and contribution
- Revision history, Shows changes in color
- Option of rolling back to previous version
- Live document/Real time – allowed users to see edits as they happened
- Great way for a teacher to see that everyone in the group is participating
- No bandwidth problem
- No boundaries on user location
- Simple system, high-tech not required, just need a browser. Relatively easy to use
- Contact friends through UCspace student directory
- Learned from each other's ideas and references. More people could contribute in less time with a lot of different jobs which you could then research and compare
- Learned about all sorts of IS jobs through others' contribution
- Allowed people to collaborate without actually meeting in person
- input. No accountability for information accuracy.
- Someone lazy can cut the current version and input the same information from a different source – a form of plagiarism.
- Using the comments feature to make personal attacks or offensive comments
- It saves time by not having to meet in person; however it adds time because of the waiting time involved in receiving/giving feedback.
- Ability to check if students are doing their work. However not being able to check their contributions in one page view/summary
- Some students are shy or don't want to interact with others online, in particular NESB students
- No formal methods of referencing followed
- Anonymous access made UCspace open to vandalism or undesirable activity
- Simultaneous editing of different sections on same document was not possible
- No spell check function
- Unlimited people can contribute - information overload. Information overload leads to people contributing the same or very similar information
- People who edited early found it hard to look for their previous versions

## LESSONS LEARNED FROM SOCIAL SOFTWARE PILOT PROJECTS

### Student Issues

Despite the initial teething problems with IT facilities, many students felt that their shared experiences had created a strong feeling of increased student-staff and peer interaction. However, a significant number of students were uncomfortable about the overall level of dependence on social technology for uploading their assessment work and making it publicly available for others to critique or edit. Some were concerned of reuse of their ideas or assignment work by others. Ability to overwrite other's work without any notification became the biggest hurdle in wiki implementation. Some NESB students felt shy to participate in an online open platform while some feared that these tools may become a bullying tool. Students remained cynical about their IP rights for their work and the educational value of such new technology.

Students also had concerns about the cost of gaining on and off campus access to the social tool for assessment. For example, the OA blog site was hosted outside the university network. Hence reading the blogs meant that students were using their limited internet usage quota provided by university. To some this represented as unnecessary and unfair usage of their limited quota.

Further the add-on nature of the implementation of the blog and wiki assignment (in addition to regular LMS) also caused workload and motivation problems for the participants. This is similar to Choy & Ng's (2007) finding with wiki for supplementing distance learning.

### Staff Issues

*Increased workload* – Social technology-infused assessment task involves a significant amount of academic workload in planning, development, implementation and monitoring as opposed to traditional delivery. The time and effort in setting up the social platform to align with assessment task is not recognised in the workload model. This form of assessment tasks require constant monitoring and active engagement on part of the lecturer in the form of email communication, tracking forum discussion, f2f discussions, commenting on student work, running a FAQ page on the assignment and moderation during the course of the assignment. These need to be taken under consideration before commencing any trial, in particular, for assessment tasks.

### Managerial Issues

*Netiquette* – During the blog assignment some students used inappropriate language for an academic environment, made poor choice of words in their writing (often showing SMS style writing). During the wiki

implementation a policy on netiquette for online communication for educational purposes was added. There was a need to enforce a positive culture with repeated reminders to respect other's opinions and ideas.

*Moderation & Governance issues* –The use of social web 2.0 tools in educational context requires active control and moderation by the lecturer. There were few flaming incidences such as leaving anonymous abusive comments on student contributions or attacking individuals by making personal remarks. For example, in the blog assignment an offender uploaded rude picture as his/her avatar. The identity of the peer critique was only known through their avatar name in the blog site. In the wiki implementation anonymous browsing and comment feature were used to make abusive comments regarding a student. The lecturer had to intervene immediately. Even after the prompt moderation some students still felt insecure and distrust the system which was reflected in their feedback.

### **Technical Issues**

*Authentication problems* – complexity of sign-on and sign-on management became quite a big problem due to a larger class size (200+ students). For example, as the blog site was hosted externally it was not possible to use student ID and university network password for authentication. Initially students were asked to create an account with a username in the format of firstname.lastname and a password. Later due to some abusive and misappropriation of names, student email address was added as a third parameter to authenticate. Again this posed problems for students working fulltime who prefer to use their work email account for communication. Some workplaces restrict access to external social networking sites.

*IT support* - the role of IT support (or lack of it) is critical for successful experience of social technology use for learning and assessment. The roles of IT support need to be clarified from the onset of the project to avoid later confusion (and often frustration) about who is responsible for what. The two pilot studies were externally funded and thus were not supported by university IT team. There were many troubleshooting incidences during the trial such as server downtime, lack of backup of student work, restrictive site template, usability issues with navigation, access to usage statistics which could have been avoided if internal support was available.

*Usability issues* –For blog and wiki implementation, the web page design was based on templates provided by the development team. The templates were quite limited in navigation and could not be altered to the extent to meet particular lecturer needs. This might be due to the technical development team's views on pedagogical alternatives required. These contributed to the usability frustrations the students faced for both blog and wiki implementations and contributed to negative student feedback.

### **Pedagogical Implications**

Teaching and learning innovations are best implemented when informed by learning theory (Cochrane 2006). There were only 75 posts in the social forum for the blog implementation which shows the low level of social interaction among peers. This pilot needed to incorporate social constructivist pedagogy more explicitly for example attempt to create communities of practice for the learners before any commencement of assessment task (Vygostsky 1978; Wenger 1999). For a community of practice to build and function and be sustainable, continued opportunities for sharing ideas and practices must be provided. This is challenging for a large class with 200+ students. One idea is to offer separate wiki/blog space for each tutorial. This was also echoed in student feedback: "*The exercise [wiki] would have worked better if the tasks were assigned to specific sub-groups.*" Sociability (De Souza & Preece 2004) aspects of web design principles should have been incorporated in the online assessment design.

Although majority of incoming students are techno-literate and are regularly using emerging devices, there is still a significant proportion who are not, and students need to be educated in the proper use (and associated risks) of tools such as blogs and wikis (Oliver & Goerke 2007).

Use of social tools for assessment requires a rethink of assessment criteria as well. For example, how do you assess work where content can be edited and amended by all participants? In this regard, blogs were easier to mark as you can search for blog entries by a single author. Whereas the wiki assignment posed problems and often frustrations among tutors as it is not easy to find all contributions of a single author for a single wiki page. The versions are only indicative of changes done from previous versions. For the trial, the marks were assigned based on student presentation and report. For future implementations tutors need to participate online to facilitate and communicate with students regarding assessment and to be aware of issues relevant to the specific assignment.

## **CONCLUSION**

Reflection shows that the process of integrating social software into the ISO unit was beset early on by a combination of usability and technical challenges that most likely interfered with the implementation of an

effective assessment task, in particular for a large class. The student surveys and feedback show that these issues have negative consequences for the delivery of the assessment. The theories on usability suggest that the student experience and learning outcomes can be improved if the assessment was run again with the knowledge of usability issues and workarounds identified in these pilots. The alternative is to find another social software platform with better capability of search and comment and access control. However one of the lessons learnt from these types of pilots is that it requires a significant effort to uncover the technical and usability issues in software that looks suitable on the surface (Barrass & Fitzgerald 2008), often resulting in additional workload for a larger class. The innovative nature of social software means that it is in the early stages of development and there are likely to be many such issues (Barrass & Fitzgerald 2008). Further evidence from the JISC report (2008) shows that using social sites in education are more effective when the students set them up themselves; lecturer-led ones can feel overly formal.

Student feedback further reinforced the view developed from other sources like Barrass & Fitzgerald (2008) and JISC report (2008) that students have in reality little experience of Web 2.0 services before they are introduced to them in units. The concern here is that while there are widespread expectations of students having these literacies when they enter university, the reality demonstrated across the trial 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.

Social collaborative software like blogs, wikis etc. have been described as “disruptive technologies” and their disruptive nature forces a rethink of pedagogical strategies and relationships in education (Cochrane 2006). While much of the current focus is on the *how*, *when* and *where* aspects of Information System education using social web 2.0 technologies, little attention is being given to the more important concerns of why it should be used and pedagogical value. Future researchers should find innovative ways to rise to this challenge (Tennent et al 2005) and adopt iterative and reflective design methods to the experimentation of emerging technologies.

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## ACKNOWLEDGEMENT

The author would like to thank Associate Professor John Campbell for his valuable suggestions. This conference paper is presented as part of two larger studies at the University of Canberra titled *Researching Online Learning* and *Digital Learning Communities* project funded by the Australian Carrick Institute. The author wish to acknowledge support of members of the research team.

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