



UNIVERSITY  
OF WOLLONGONG  
AUSTRALIA

University of Wollongong  
Research Online

---

Faculty of Education - Papers (Archive)

Faculty of Social Sciences

---

2010

# Web 2.0 in higher education: blurring social networks and learning networks

Lori Lockyer

*University of Wollongong, lori.lockyer@gmail.com*

Shane P. Dawson

*University of British Columbia, sdawson@uow.edu.au*

Elizabeth Heathcote

*University of British Columbia*

---

## Publication Details

Lockyer, L., Dawson, S. P. & Heathcote, E. (2010). Web 2.0 in higher education: blurring social networks and learning networks. In J. A. Herrington & B. Hunter (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2010* (pp. 2454-2461). Chesapeake, VA: AACE.

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library:  
[research-pubs@uow.edu.au](mailto:research-pubs@uow.edu.au)

# Web 2.0 in Higher Education: blurring social networks and learning networks

Lori Lockyer  
University of Wollongong  
Australia  
[llockyer@uow.edu.au](mailto:llockyer@uow.edu.au)

Shane Dawson  
University of British Columbia  
Canada  
[shane.dawson@ubc.ca](mailto:shane.dawson@ubc.ca)

Liz Heathcote  
University of British Columbia  
Canada  
[liz.h@ubc.ca](mailto:liz.h@ubc.ca)

**Abstract:** This paper reports on a study that investigated how two cohorts of students (in medicine and education) adopted a social networking platform to assist their university studies. The study examines the sites of dissonance between predicted and actual usage of the tool. Although the integration of social technologies into higher education is not new, there is mounting imperatives for developing creative, flexible, technologically literate graduates. Yet, to date, limited research has focused on how contemporary learners expect to and in actual fact, utilise these tools to support their study. This study observed that students' perceptions of how technologies should support their learning is evolving. These perceptions can be used to help guide teachers and students to better understand and address the blurring of the boundaries between social and learning networks that are rapidly unfolding.

## Introduction

Recent advances in information and communication technology (ICT) offer educators new and unprecedented opportunities to develop practices that will inculcate the sorts of skills and capabilities students require for an information rich and networked conceptual age. For instance, the introduction of Web 2.0 technologies into higher education has numerous commentators declaring a revolution in the social learning agenda (Alexander, 2006; Downes, 2005). Pushing aside the inflated euphoria and hyperbole - what makes these new technologies more effective than their predecessors in terms of their capacity to engender the types of pedagogical practices that are congruent with building and sustaining a community of learners? The answer to this question lies in the ability for Web 2.0 tools to provide for content to be more easily generated, published and shared (Kamel Boulos and Wheelert, 2007); for more democratic organisation of content using social tagging and folksonomies (MacGregor & McCulloch, 2006); and, for shifting the control of online activity from institutions/teachers to the individual/student (Craig, 2007). In making isolated contributions public, individual users have an opportunity to capitalise on the vast potential co-operative nature of the Web 2.0 environment (Cardon & Aguiton, 2007). From these relatively small individual contributions, large collective productions can emerge. Examples of these social collectives can be found in the photo-sharing site – Flickr ([www.flickr.org](http://www.flickr.org)), or video sharing on youtube ([www.youtube.com](http://www.youtube.com)). The capacity to rapidly generate content or re-use and re-combine and re-publish to an unstructured collective promotes more creative, and innovative based skills such as, marketing, networking, transdisciplinarity, peer and self evaluation and communication.

While Web 2.0 may present new opportunities for users to experience and develop skills associated with creativity, adaptation, innovation, and socialisation, there are also many challenges coupled to this open, and unstructured environment where information is readily retrieved, manipulated and re-published (Zhang, 2009). For instance, the more unstructured and democratic socio-technical environment can be seen to be antithetical to the more controlled, structured and hierarchical context of formal education. Although technologies such as learning management systems (LMS) have been broadly adopted across the Higher Education sector their overall design limits

opportunities for student initiated collaborations. Historically speaking, any shift from student as a passive consumer of information to an active co-teacher - linked-in with other critical peers in a learning network, is not easily achieved nor relinquished (McWilliam, Lebler, & Taylor, 2007). This is where the more amorphous and democratic nature of Web 2.0 software can provide specific educational advantages. In short, the increasing adoption of Web 2.0 technologies within the education sector enables a power shift in the locus of control of learning activities from the institution to the student. The control-centric hierarchy is well evidenced in many contemporary LMS that necessitate a divide in user roles and approved content. In contrast, social networking sites such as Facebook, MySpace, or Twitter devolve responsibility for privacy and control to the individual user.

By their nature, Web 2.0 technologies such as wikis, blogs and other social networking applications remove any associated boundaries that could or would be linked to a command and control hierarchy. Learning in this context is less formal and structured and as such can provide educators with the tools necessary to promote such an environment. The available social network resources present new modes of connectivity for any self-directed learner attempting to join to an open and like-minded community. It is the formation and participation within these open systems that promote the types of community diversity and engagement that Richard Florida (2002) contends will ultimately lead to the development of a more productive and robust economy. This is also well stated by prominent educational and policy analyst Tom Bentley (2000) who noted that the “transition to post-industrial economies means that prosperity depends on workers who are able to create, use and communicate knowledge in increasingly complex and sophisticated ways” (p. 353). In short, the types of interactions and relationships established through the use of Web 2.0 technologies serves to promote more 21<sup>st</sup> Century oriented skill sets. Thus, the use of such technologies to engage in more self-directed learning practices within an open education system, supports the movement in the vocational oriented disciplines (such as medicine and teacher training) to develop the whole professional who must engage in life-long learning and work in both individual and inter-professional team situations.

Despite the recognised potential of Web 2.0 technologies and in particular, social networking technologies, limited research has focused on how contemporary learners expect to and in practice utilise these tools to support their study. This study explored students’ perceptions of how social networking technologies should and did support their learning before and after they had used such a tool in their studies. An understanding of learner expectations and use of social networking for study could help guide teachers and students in the effective use of networking technologies for educational purposes.

## **Methodology**

This mixed-mode case study approach was carried out across two cases comprising students from the faculties of medicine (n=160) and education (n=130). These two faculties were chosen because of their relative difference in learning design (as the project doubled as a trial of new software with a view to implementation more widely across all faculties) as well as due to expressed interest from staff of these two faculties. Within the medical faculty, students enrolled in their first and second year of this graduate-entry program were invited to participate. In the education faculty, the project was open to all students enrolled in research programs (i.e., all students enrolled in honours, masters and doctoral research programs regardless of their year of enrolment). Students were recruited to participate in the social networking environment as well as the two sets of surveys and focus groups via email invitations, printed flyers and a 5 minute face-to-face class overview. The research project included Design, Implementation and Post-Implementation phases allowing for continuous data collection, analysis and consultation with the participants from each case study. For the design phase, an incentive of a shopping voucher was drawn from participants; but for the implementation phase, there was no participant incentive.

### **Design Phase**

During the Design Phase, data were collected from a student survey and focus group sessions. The anonymous survey was available to all students in each case study and included questions regarding perceived use of social networking technologies and the likelihood of using various features of social networking technologies to support

student learning. A voluntary face-to-face focus group session was held for medical students and two sessions were carried out with education research students (one face-to-face and one via a synchronous chat space to cater for part-time and/ or those who study away from campus). This data was analysed to inform the design of the two networking sites (one for each case) that was to be made available to students during the Implementation Phase. The research team considered the findings of the Design Phase in concert with a technical analysis of the open-source social networking software (<http://elgg.org/>) chosen as a platform for the sites.

## **Implementation Phase**

The two networking sites were established and deployed for the Implementation Phase. In this phase, students were invited to participate via email listerv notification. The invitation also included a description of the design findings and instructions on how to register and access the networking site. Additional information and support for education research students was provided during an on-campus project launch and presentation about the site. Members of the research team were available during the launch to help participants with any initial difficulties students may have encountered in terms of use and access. Similarly, medical students were led through the various tools and functionality of the site during an on-campus teaching session.

During the Implementation Phase, unobtrusive observation and monitoring of participant online activity through data logs within the social networking sites was conducted for the purposes of uncovering the nature of community activity. This observation by the project team members had been outlined in the recruitment of students and when they logged in to the Elgg software for the first time. Online behaviour data was extracted from the software, and student interactions with the system were codified and analysed. This naturally occurring data reflects actual behaviour rather than perception. After four months of implementation, students were invited to complete anonymous survey regarding their perceptions of the experience. Additionally, high and low users of the site were invited to separate focus group sessions (or interviews for those who could not make the focus groups) to provide more in-depth views of the benefits and limitations of the sites and their opinion of how such a tool supported or hindered their learning.

## **Analyses**

This paper reports on analysis and discussion of the data collected during the Design Phase survey and focus group interviews and the Post Implementation Phase focus group interviews. Survey data were analysed using the software package SPSS for Windows© (Vers 15.0) incorporating descriptive statistics and a *t* test for differences between the investigated variables and the discipline-based case studies. Focus group interview data were analysed thematically within each case and subsequently between each case.

## **Results and Discussion**

### **Design Phase**

The Design Phase survey and focus group data highlighted differences in the perceived value and use of the networking software between the two case studies. In terms of the perceived importance of the types of functionality offered by the social networking software (e.g. blog, instant messaging, email notification, friends, social bookmarking, file sharing, etc.), analysis of the data revealed no significant difference between the two cohorts. However, when students were asked to rank (on 1 – 5 likert scale) the perceived importance of how they would utilise a networking tool for their learning (such as maintaining contact with current friends; get help with a study

issue; or communicate with academic teaching staff), some differences did appear. Table 1 highlights the significant differences observed between medicine and education students of the networking tool.

**Table 1: Perceived importance of social networking use – medicine and education students.**

Anticipated use	Medicine	Education	t - test	Df
For professional activities e.g. job networking	M = 2.47 SD = 1.4	M = 3.56 SD = 0.86	-2.72	25*
Communicate with teaching staff	M = 3.3 SD = 1.07	M = 4.1 SD = 0.64	-1.71	33*
Market your research and or prior experience/ skills	M = 2.29 SD = 1.57	M = 3.17 SD = 0.79	-2.05	33*
Participate in advertised online special events	M = 2.76 SD = 1.39	M = 3.72 SD = 0.67	-2.57	32*

\* Correlation is significant at the 0.05 level (2-tailed).  
Only significant variables illustrated above.

While students seemed to value the same types of social networking features, there were obvious differences between medical and education students in how they perceived these features would be utilised to assist their learning. With the education students all being postgraduate and typically having greater challenges ahead in the employment market, it is perhaps not surprising that job-related activities (job networking, marketing skills/ research) were rated higher for education than for medical students.

The differences identified in the survey were also well highlighted in the various focus group interviews during the design phase. For example medical students felt that staff participation in the networking site would inhibit student expression and community development. This perception was largely driven from concerns over privacy and how networking sites such as Facebook and Myspace are currently utilised. This is illustrated by one medical student who suggested that,

*“...I would be a lot less likely to post things if it’s all being watched by a whole bunch of really big scary people.”*

While a few education research students also agreed that staff access might limit their expression online, others saw the tool as being a more formal learning support and thought academic staff presence was essential to facilitate the network. Indeed, many education postgraduate students were also tutors or research assistants and already worked as staff at the university in any case.

*“I think the boundaries between staff and students are a little blurry at the [doctoral] level; I think different people would bring different expertise to different features; I don’t think the staff/student distinction is relevant.”*

Although medical students expressed an overall reluctance for staff involvement, this did not necessarily restrict the use of Elgg to merely a social context. Students noted that there were multiple other communication sources for maintaining their social environment, and did not want to double up. For instance, as one focus group participant explained:

*“I’d rather it was more academic, more of an academic environment rather than a chatty friends...You’ve got Facebook for that really bad day, all that kind of stuff with your friends...”*

This emphasis on using the site for facilitating student learning was identified in both medicine and education cohorts. While education students were more accepting of staff involvement, there was also a trend towards using the software for enhancing further opportunities for peer assisted learning. For example students noted that access to peers who have experience and knowledge in certain discipline areas would value-add to their research and study preparations. It was perceived that the site would provide greater flexibility in accessing peers and staff for assistance and guidance as students progress through their research training. This was well noted by the education

cohort when they suggested that access to the networking site must be open to the faculty and research student cohort.

The Design Phase survey also highlighted differences in the use of the social networking tool for professional activities such as job networking; marketing profile and participating in advertised events. These differences can be explained in terms of the alternate models of curriculum delivery for the education research and medical students. For the education research students there is a strong need for developing appropriate networks in order to establish a research presence within the faculty and, for that matter, beyond their institutional community. Given the potentially isolating nature of individual research work, it is not surprising that education students value any opportunity to identify and network with students at a similar stage of learning and area of study (McWilliam & Dawson, 2009). The capacity to identify like-peers, whilst promoting and marketing individual research activity, was readily achieved through the customisation of profiles and blogs within the networking site.

Additionally, it was observed that a large majority of the education research students were undertaking study part-time and off campus. Students noted that the potential for developing an online community via the networking tool would provide the necessary flexible affordances to identify and access their peers in order to receive help, support and guidance during key research stages (e.g. literature review; confirmation; data analysis; etc.). For example:

*“I contribute to forums when I see others with similar problems to my own. For example, I was quite 'traumatised' by the whole theoretical framework part of the proposal. A focus group just on this would have been really good at the time.”*

In contrast to this more independent and diverse research study, medical students progress through a scaffolded and well-structured curriculum. For example, the first year of study for this cohort is primarily on-campus and revolves around investigation into specific case-based learning scenarios and clinical skill sessions. Thus, while the course is designed on a problem-based pedagogical approach (PBL), the students do encounter similar problems at similar stages of course progression. Consequently, for this cohort there is a greater emphasis on immediate collaboration (e.g. file sharing in PBL groups) with established peer groupings in lieu of attracting any additional potential support networks. At this stage of course progression the medical cohort perceives limited need in developing and maintaining a detailed profile in order to identify future collaborators and mentors.

The Design Phase survey also revealed significant difference in the perceived use of the networking tool for advertising and participating in online events. Again the education cohort indicated a higher preference than the medical students for using tools that would facilitate the advertising and participating in special events. Again these differences can be accounted for in terms of the discipline curriculum and mode of delivery. Education research students undertaking part time study are largely time poor with many competing demands. The potential to participate in online events offers additional affordances that are previously beyond the reach of the traditional off-campus student.

### **Post-Implementation Phase**

The design survey and focus group draws attention to the differences in how medicine and education students perceive a social networking tool aiding their learning in their course of study. As the study incorporated a student-driven design model for adoption, the networking software (Elgg) was implemented differently within each faculty drawing on the findings of the design phase. Analysis of the focus group interview data collected post-implementation highlights student perceptions of the enablers and barriers to their use of the networking site post their use of the site.

There were some differences between the medicine and education students in terms of their use of the networking site. In the main, education students did not feel that there were any technical barriers that hindered their use. They felt the tool and the features of the tool were easy to use but did identify they may have needed more support to understand what features were available. As one student who was unable to attend the on-campus launch of the tool explained,

*“I probably needed something face-to-face to understand what I could really do in the space. I found things too late.”*

On the other hand, some of the medical students identified frustration in the functionality such as sharing documents. For students who were part of the same problem-based learning group, their decision to attempt document sharing within the tool was quickly abandoned when the functionality was not as well developed as another online tool that they had been previously using (e.g. google docs). This raises issues not only with ensuring comparable functionality across multiple Web 2.0 platforms but also the need for introducing these technical initiatives early in the course progression.

With respect to the participation of staff within the networking environment, there was movement in the views of medicine and education students from what had previously been expressed within the Design Phase. While the education students had identified during the Design Phase that staff would be important contributors to the network, post-implementation some students were circumspect about the time staff would have available for such activity. One student’s comments is representative of this view,

*“The key would be to ask supervisors to be part of the community and promote it. Maybe they wouldn’t have time to get involved but they could promote it.”*

Based on the medical student views during the Design Phase that it should be a student-only space, medicine faculty staff were not invited to participate in the networking site. However, in the post-implementation interviews medical students seemed to change their views and believed it would be a benefit for staff to participate in the network. One student said,

*“I wish that some of the staff can actually post things, like articles, journal links, or even additional lecture notes and things like that onto there, so it’s more attractive as a learning environment for us to use.”*

This comment highlights the dissonance about formal and informal academic-related activities and the tools that might support such activities that was expressed by participants when they were asked for suggestions to improve the nature and level of activity within the networking environment. Among education students there was a blurring about how such a tool could be used in place of the functionality already catered for in the Learning Management System used in their coursework and what functionality might support more student-directed activity in a Web 2.0 tool. Some students suggested an expansion of use of the tool could come through more links to resources that were organised by topic – much the same way resources are organised in the course LMS. This suggests that students may not have made a the conceptual shift to the Web 2.0 paradigm using user-created tags and social bookmarking or may not immediately see how this functionality could work within the formal academic environment.

Medical students could see some benefits of using the Web 2.0 tool instead of their LMS. For example, they felt the discussion functionality in the networking site was superior to that available through the LMS. They suggested that the existing discussion forum on the LMS that was used by both students and staff should be abandoned in favour of Elgg. Similarly, education students suggested more structured, student-led activities such as peer-support or buddying would enable greater peer participation within the networking site. Such activities may fulfill the needs articulated by other students. For example, as one student who enrolled in the education research program concurrently to the launch of the networking site explained,

*“Ideally it would have been nice to meet some people, some people that are interested in the same things as me, some people that have been here longer so kind of give me a leg up on things because I was new and terrified.”*

Students in both cases identified the need to direct students toward the networking site early in their program. A student in medicine noted that a range of training sessions were provided during orientation (such as using the LMS, accessing library resources, etc) and suggested a training session on why and how to use the networking site at that time would enable student take up of the tool. Similarly, the education research students felt that the networking site should be introduced to students upon enrollment and use promoted within their coursework activities.

## Conclusions

It would appear there is a certain amount of confusion with students as to how a social and educational networking tool intersects their social and academic life. In particular, how the commonalities associated with the social and academic translates across each context. In essence, despite the strong advocacy relating the implementation of Elgg, there was a high degree of ambiguity as to how the networking tool would in practice support student learning. For instance, students in the Design Phase were polarised as to whether teaching staff should be involved in the networking site or not. On the one hand, medical students advocated for a student driven community exempt from staff intervention and observation – in essence, a student-only space, run by students, for students. On the other hand, education students reported some expectation that staff would structure a comprehensive learning environment. Yet, there was some shift in student perspective on this issue after the Implementation Phase with both medicine and education students wanting structured staff participation – although education research students did anticipate the practical limitations that might exist.

Once the students had experienced the networking site there seemed to be some dissonance in terms of what limited their actual participation or what might enable their participation in the future. There seems to be a blurring of students seeking formal, teacher-directed learning opportunities within what can be considered a learning-directed platform.

These differences could be indicative of the way students are developing their understanding and distinguish between the characteristics of social and academic elements of their lives. Table 2 describes these elements.

**Table 2: Characteristics of social and academic aspects of social networking from the learner-viewpoint**

	<b>Social Context (<i>Social Network</i>)</b>	<b>Academic Context (<i>Learning Network</i>)</b>
Responsibilities	Intrinsic motivation – contributions and networks formalised around self interest.	Contribute within a staff-defined structure in the learning network. Pre-established and formalised culture, rules and hierarchy.
Value	Maintaining friendships and relationships.	Access to course information and peers relevant to course of study.
Return on Investment (ROI) (time, effort)	Long-term relationship building and maintenance ROI.	Short-term (semester or study period) ROI.

The implication for the design of higher education contexts lies in the recognition of this blurring of social and academic elements of the contemporary student life. For course developers and teachers there is a need to consider combining the teacher-directed elements of learning management system with the democratic elements of Web 2.0 tools. The key is an integration of Web 1.0 and Web 2.0 paradigms within a single online environment. As has been suggested, social networking tools within the formal learning context are "... made that much more impactful if they are made available at a single access point and in the appropriate context" (Abel, Humes, Mattson, Mckell, Riley & Smyth, 2007, p. 15). But this technical integration must be accompanied with guidance to students in terms of purposeful use of specific tools.

## References

Abel, R., Humes, L., Mattson, L., Mckell, M., Riley, K., & Smyth, C. (2007). *Achieving Learning Impact 2007: Annual Report from IMS Global Learning Consortium on the Latest Trends in Learning, Technology & Standards*. from <http://www.imsglobal.org/learningimpact2007/LI2007report.pdf>.

- Alexander, B. (2006). A New Wave of Innovation for Teaching and Learning? *EDUCAUSE review*, March/April, 33-44.
- Bentley, T. (2000). Learning Beyond the Classroom. *Educational Management Administration & Leadership*, 28(3), 353-364.
- Cardon, D., & Aguiton, C. (2007). The strength of weak cooperation: An attempt to understand the meaning of Web 2.0. *Communications & Strategies*, 65(1), 51-65.
- Craig, E. M. (2007). Changing paradigms: managed learning environments and Web 2.0. *Campus-Wide Information Systems*, 24(3), 152-161.
- Downes, S. (2005). E-learning 2.0. *eLearn, Magazine*, 2005, Online: <http://elearnmag.org/subpage.cfm?section=articles&article=29-21>, accessed 21 September 2009.
- Florida, R. (2002). *The rise of the creative class*. New York: Basic Books.
- Kamel Boulos, M. N., & Wheeler, S. (2007). The emerging Web&nbsp;2.0 social software: an enabling suite of sociable technologies in health and health care education. *Health Information and Libraries Journal*, 24(1), 2-23.
- MacGregor, G. & McCulloch, E. (2006). Collaborative tagging as a knowledge organisation and resource discovery tool. *Library Review* 55(5), 291-300.
- McWilliam, E., & Dawson, S. (2009). Flocking together: How to optimise the value of your doctoral network. In C. Denholm & T. Evans (Eds.), *Beyond Doctorates Downunder: Maximising the impact of your doctorate from Australia and New Zealand* (pp. 187-194). Camberwell, Victoria: ACER Press.
- McWilliam, E., Lebler, D., & Taylor, P. (2007). *From Passive Consumers to Active Producers: Students as Co-Teachers in a Popular Music Program*. Paper presented at the The 13th International Conference on Thinking, Norrkoping, Sweden.
- Zhang, J. (2009). Toward a creative social Web for learners and teachers. *Educational Researcher*, 38(4), 274-279.