

## DeFrosting professional development: reconceptualising teaching using social learning technologies

Thomas Cochrane\* and Vickel Narayan

*Te Puna Ako, Unitec, Carrington Road, Mt Albert, Auckland, New Zealand*

*(Received 01 March 2011; final version received 27 May 2011)*

In this paper we discuss the impact of redesigning a lecturer professional development course with the aim of embedding a community of practice (COP) model supported by the use of mobile web 2.0 technologies. This approach was based upon a model developed to support 30 mlearning projects between 2006 and 2010, which also informed the institutions' new elearning strategy developed in 2009. Participating lecturers were brought into the course as participants in an intentional COP investigating the pedagogical application of social learning theories and frameworks, facilitated by the course lecturers who took on the role of technology stewards guiding the COP in the appropriation of mobile web 2.0. Three examples of participants' journeys of discovery throughout the course are highlighted to illustrate the impact of this approach to professional development. Reflections on the first 2010 iteration of the course are then used to inform the following iterations in 2011.

**Keywords:** professional development; communities of practice; social learning theories; pedagogy-andragogy-heutagogy continuum

### Introduction

In the 2010 movie "Kick-Ass" (Vaughn 2010) Nicholas Cage plays a fanatic vigilante (Damon Macready) fighting crime and training his daughter to do likewise through experiential learning. Cage fires a round of a pistol at his character's daughter (Mindy) wearing a bullet-proof vest:

(Mindy) Daddy I'm scared

(Damon) Come on Mindy, Honey, be a big girl now, there's nothing to be afraid of.

(Mindy) Is it gonna hurt bad?

(Damon) Only for a second sugar. A handgun bullet travels at more than?

(Mindy) 700 miles an hour.

(Damon) So at close range the force is going to take you off your feet for sure, but it's really no more painful than a punch in the chest.

(Mindy) I hate getting punched in the chest.

(Damon) You're going to be fine baby doll.

*Shot*

(Damon) How was that? Not so bad, kinda fun huh? Now you know how it feels, you won't be scared when some chunky asshole pulls a Glock. (Vaughn 2010)

In a similar way to Cage's Kick-Ass character, the researchers developed the Social Learning Technologies (SLT) course as an experiential learning environment for the

---

\*Corresponding author. Email: [tcochrane@unitec.ac.nz](mailto:tcochrane@unitec.ac.nz)

participants, while informed by a graduate-level critique and reflection upon emergent learning theory. The goal was to provide participants with a model and experience of both a community of practice (COP) and enabling mobile web 2.0 tools that they could then continue to develop within their own teaching and learning contexts after the completion of the course. This was underpinned by a rigorous investigation of social learning theories and frameworks throughout the course, and scaffolding the experiential learning via the establishment of the course as a supportive COP.

### **Development of the social learning technologies course**

The Graduate Diploma of Higher Education (GDHE) is one of the institution's primary methods of lecturer professional development. However the learning technologies paper of the GDHE had become dated and antiquated. The authors were tasked with redeveloping this paper and bringing it into alignment with the institution's new elearning strategy.

### ***The context***

Unitec is New Zealand's largest polytechnic and is in the process of differentiating itself from New Zealand's eight Universities by the roll-out of a distinctive pedagogical approach termed the Living Curriculum and exemplified in the institution's new elearning strategy.

### ***The COP model for professional development***

A COP model was developed (Cochrane 2007; Cochrane and Kligyte 2007) to support the implementation of over 30 mlearning projects managed and implemented in partnership with a variety of lecturers by the authors between 2006 and 2010, and has become a core element of the institution's new elearning strategy (Cochrane 2010). The 2006–2010 research was interested in bringing about sustainable and transferable pedagogical change that would benefit lecturers and students, transforming pedagogy from a face-to-face classroom based instructivist paradigm to a context bridging social constructivist paradigm. Mobile web 2.0 tools were used as a catalyst for this pedagogical change. To achieve this goal, the second problem was creating an implementation approach that did not rely upon (or never go beyond) already techno-savvy ('geek') lecturers, but was capable of supporting and scaffolding the average lecturer to become confident integrating innovative technologies into their curriculum. Rather than relying upon a series of workshops, the sustained engagement of a COP was found to achieve significant ontological shifts for both lecturers' conceptions of teaching, and students' conceptions of what it means to be a learner.

### ***Research methodology***

A participatory action research methodology was used for evaluating the impact of the redesigned SLT course, which was embedded within the roll-out of the institution's new elearning strategy, developed with strategic input from the authors of this paper. All SLT students signed ethics consent forms and an acceptable use policy relating to the use of the mobile web 2.0 tools throughout the course. The 2010 SLT class began with

nine enrolling students with two students withdrawing in the first week of the course due to time constraints, leaving a small but committed class of seven students, and two facilitating lecturers. The course participants were expected to have a wifi capable laptop computer for use during the course. The one student who did not have access to a laptop was supplied with a netbook for use throughout the course. Additionally, all of the course students were supplied with an iPhone 4 for use during the course, allowing them to experience the affordances of mobile web 2.0. The introductory session of the course established the core collaboration tools used to enable the COP to operate beyond the face-to-face sessions, including: Twitter (including a course hashtag), personal Blogs, a group wiki page ([http://ctliwiki.unitec.ac.nz/index.php/Social LearningTechnologies](http://ctliwiki.unitec.ac.nz/index.php/SocialLearningTechnologies)), Gmail and associated Google Apps, and a course Moodle hub where students added their web 2.0 contact details to their Moodle profiles. The Moodle LMS (Learning Management System) was therefore used as a scaffold while students established their own PLE (Personal Learning Environment) consisting of a mashup of web 2.0 tools.

### ***Data collection and triangulation***

Data collection consisted of:

- (1) Beginning of course surveys of lecturers and students, to establish current practice, expertise and experience.
- (2) Post-course surveys and focus group, to measure the impact of the mobile web 2.0 environment, and identify emergent themes.
- (3) Lecturer and student reflections via their own blogs and eportfolios throughout the course, collated via RSS feeds. The research used the technologies that were an integral part of the redesigned course assessment, such as participant blog posts, peer blog comments, and VODCast reflections to capture data on the progression and impact of mobile web 2.0 on the participants' learning experience.

### ***Communities of practice***

'Communities of Practice' (COP) is a social learning theory. The concepts were proposed by Lave and Wenger (1991), while studying the apprenticeship model of learning. Wenger (1998) later further developed the concepts, and then simplified the concepts for wider contexts: "Communities of practice are formed by people who engage in a process of collective learning in a shared domain of human endeavour" (Wenger 2005, 1). Though not originally intended as a pedagogical strategy or teaching technique, rather an analytical viewpoint on learning (Lave and Wenger 1991), the concepts of COP have found popularity within educational contexts. The main differences between traditional teacher-directed (didactic) educational environments and COP are: an emphasis on inventiveness with a continual evolution of ideas and direction of the community (Brown 2006), a lack of hierarchy (Head and Dakers 2005; Langelier 2005) and teachers take on the role of expert mentor (Herrington et al. 2006) rather than delivery of content.

The SLT course was designed as an intentional COP. Wenger's (2005) definition of COP "allows for, but does not assume, intentionality" (1). While COP often form organically and spontaneously, they can also be created intentionally and cultivated

for specific purposes. Intentional COP share the same characteristics as organic COP, but have at their core a plan.

One of the key concepts developed out of COP has been the importance of 'technology stewards' (Wenger, White, and Smith 2009; Wenger et al. 2005) within COPs to guide the use of technologies supporting the COP. Within the context of the SLT course, the course lecturers took on the role of technology stewards, attempting to model the pedagogical use of mobile web 2.0 as part of a collaborative partnership with the course students.

### ***Social learning theory and frameworks***

The SLT course was explicitly founded upon a social constructivist pedagogy (Vygotsky 1978) and focused upon students investigating related pedagogical theory and frameworks and the appropriation of web 2.0 tools to implement these theories and frameworks within their pedagogical practice. These included both established and emerging theories and frameworks such as: COP (Lave and Wenger 1991), the conversational framework (Laurillard 2001), learner-generated content and learner-generated contexts (Luckin et al. 2008, 2010), authentic learning (Herrington and Herrington 2007; Herrington and Oliver 2000), connectivism (Siemens 2004) and activity theory (Engestrom 1987).

Links were provided to educational research organisations that publish regular reports and RSS feeds to new resources, thus keeping the course 'readings' up to date rather than reliant upon rapidly aging set texts. These included:

- Educause, 7 Things You Should Know About Series [<http://www.educause.edu/7Things>]
- JISC reports [<http://www.jisc.ac.uk/publications.aspx>]
- New Consortium reports [<http://www.nmc.org/publications>]
- Educause Resources [<http://www.educause.edu/resources>]
- Becta [<http://research.becta.org.uk/>]

### **Redesigning the GDHE SLT paper**

The redesign of the GDHE Learning Technologies paper into the new SLT paper was a collaborative process by the two authors during 2009. The final course was approved late 2009 and ran for the first time in semester two of 2010 with the two authors as the course lecturers.

### ***Course outline: 2009 vs 2010***

The original Learning Technologies paper centred round the course participants creating a resource for their students to use, i.e. teacher-generated content. The redesigned SLT course focused upon modelling the use of mobile web 2.0 tools as a catalyst for pedagogical transformation, leading to the participants' developing their own theory and experience-informed teaching and learning framework. This framework was to establish links between new and emerging learning technologies and social learning theories, and then became the basis from which they developed student-centred learning activities for their context, i.e. enabling student-generated

content and student-generated learning contexts. Table 1 outlines the key differences in the redesign of the SLT paper.

The SLT course ran over the period of a semester, with six 3-hour long face-to-face sessions. Figure 1 illustrates the structure of the course, within the framework of an intentional COP.

## Results

This section discusses the findings of the research into the impact on the professional development of the participants resulting from the design of the SLT course around an experiential COP.

### *2010 participant profile*

The bulk of the participants in the course were from the vocational training departments at Unitec, including: Boat Building, Automotive, Carpentry and Electrical trades. The students were skilled tradesmen, but not necessarily skilled teachers, and most had limited experience of integrating technology into their teaching practice, but were keen to explore the potential beneficial impact for their students. The participants' ages ranged from 29 to 59, with an initial enrolling cohort of seven male and two female participants.

Table 1. Key differences in the redesign of the social learning technologies course

	Old LT course	New SLT course
Design	Prescribed course resources (Book and printed journal articles provided to learners in class)	Open – students determine appropriateness of the content according to discipline, their own contexts and learning technologies chosen
	Only theory Exploring potential use of learning technologies	Applied theory Exploring potential use of technology and applied within the learner's own context
Facilitation	Focus on individuals in class (learning alone)	Focus on the community and the role the individuals play in the community (learning together – collaboration, co-creation, peer-feedback and communication)
	Emphasis on strategies for delivery of content (passive learning strategies) Learning context control by the teacher	Emphasis on active learning, learner-generated content and authentic learning Learning context determined by the needs on the community and individuals
Assessment	Two separate assessments	Assessments embedded within the learning process, each building on the other
Department involved in teaching the course	Lecturers from the education department	Academic advisors from Te Puna Ako (Learning and Teaching Development Unit)

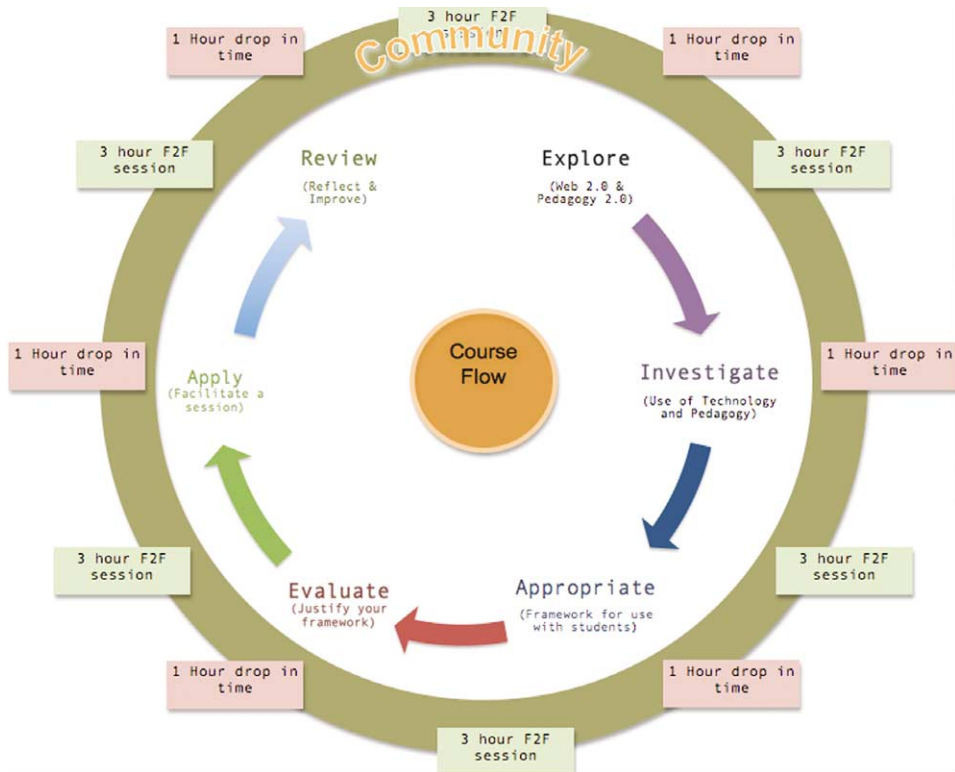


Figure 1. Outline of the SLT course.

### ***Student surveys***

The beginning of course student survey provided data on students' previous experience. Figure 2 indicates that while the SLT participants all had computer and Internet access, and the majority owned a cellphone, most of their web experience had previously been as consumers of information and media rather than producers. There was minimal use of interactive web 2.0 technologies prior to the course, with those that were already engaging in web 2.0 having previously worked with the authors on projects.

The students' responses to the end of course survey were overwhelmingly positive about their experience of mobile web 2.0 during the course.

### ***Transformational journeys***

The key goal of the course was for the lecturers to model the pedagogical use of mobile web 2.0 tools embedded within an intentional COP comprised of the course lecturers and the course students. The course students were then guided to apply their experience to create a personal framework for authentic experiential learning within their own teaching contexts. This represented a significant process of reconceptualising the participants' notions of identity and agency within teaching, i.e. an ontological shift. For many lecturers this will require an 'ontological shift' in their understanding of what it means to teach, and can represent a fundamental challenge to the lecturer's understanding of self within the context of the nature of teaching and learning. An

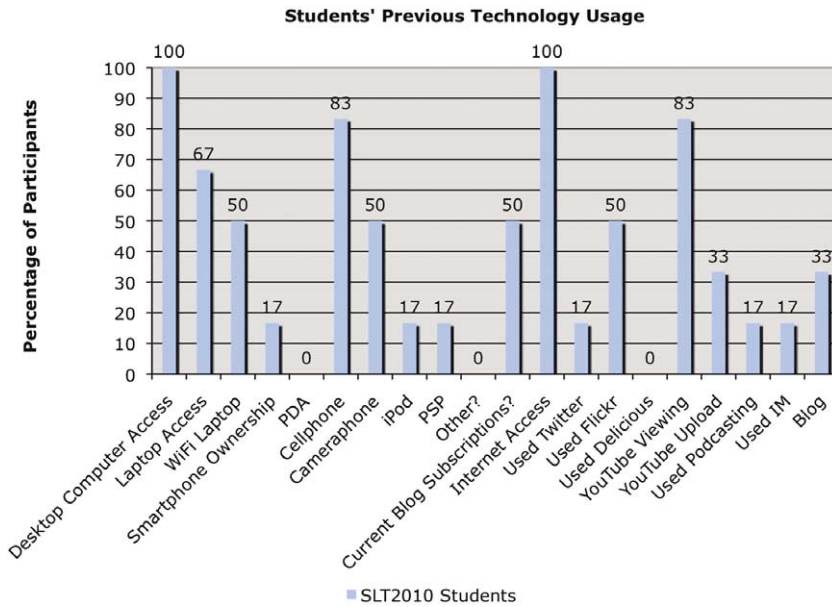


Figure 2. SLT students' previous technology experience.

'ontological shift' is "the re-assignment or re-categorising of an instance from one ontological category to another" (Chi and Hausmann 2003, 432), or simply put, a reconceptualisation. This shift involves a reconceptualisation of lecturers' understanding of teaching and learning from their prior experience to understandings built upon the foundation of learning theory such as social constructivism. This ontological shift can take significant time as lecturers reconceptualise and develop new and appropriate forms of assessment, collaboration and communication strategies. For several of the course students the course facilitated an ontological shift from tradesman to teacher. Examples of the impact of the SLT course on participating students are discussed in the following sections.

### ***Boat building lecturer 1***

This participant became a key peer mentor and driver for the group. He helped to establish a real sense of community, encouraged the group to try and contextualise their learning, and he modelled collaborative discussion and critique using a range of technologies. For example, he initially experimented with creating personal reflective VODcasts and then extended the concept to establish Skype video call discussions between the SLT students, screen captured these, and shared them on YouTube as examples of critical reflection upon the theoretical pedagogical frameworks (<http://www.youtube.com/watch?v=BPLYQIRSVhU>).

The social collaboration built into the SLT course was very important for the participant's transformational journey, as he expressed in a blog post, contextualised using boating terminology:

The fog is still at sea level. But I'm hearing others sounding off, so there is hope out there. Some are still at a distance but I can feel that others are close by. I think at last I'm starting to get my mind around what links might look like. The links I'm starting to see

are those that are between emerging learning technologies (Web 2.0 and stuff) and social learning theories. (SLT student blog post 2010)

The experience of the SLT course impacted this lecturer's own teaching practice by enabling him to form a theoretical foundation for his approach to teaching based upon social constructivism that he has explicitly implemented with his students in 2011 <http://www.youtube.com/watch?v=qoJEgkvygw>.

### ***Carpentry lecturer 1***

This participant synthesised his experience as a student on the SLT course and his own teaching practice to create innovative ideas for use with his own students. His goal in participating in the SLT course was to explore how to more closely link the theory and practical components of his carpentry course by getting his students involved in capturing, sharing and critiquing their practical on-site work via short videos recorded on their camera phones and uploaded to their blogs. He enjoyed the experience of the course:

This has been a very interesting course and I have gained a lot from my peers, Vickel, Thom and the readings. Also getting the chance to use the iPhone has been a real learning curve and an eye opener to what we could possibly achieve with our students and some interesting thoughts about empowering student ownership and responsibility. I have enjoyed experimenting with different web 2.0 tools and having the opportunity to participate as a student and also facilitation possibilities from a teacher's perspective. (SLT student blog post 2010)

By the end of the course this participant also demonstrated a new level of critical pedagogical reflection:

Key new knowledge gained for me is Vygotsky's zone of proximal Development and the fundamentals that almost feel specific to our learners, although I realize it is for a wider community. This is an important aspect to our frame work, understanding where we are, where we need to be, and what we can build on to eventual empowering students negotiation and enquiry. (SLT student blog post 2010)

The experience of the SLT course impacted this lecturer's own teaching practice in 2011 by enabling him to conceptualise ways of integrating mobile web 2.0 tools into the context of bridging the theory and practice of building onto the building site with his students. This led to the design and building of a portable 'eshed' for theory lessons on site <http://www.youtube.com/watch?v=-tEDxHcV-4w>.

### ***Boat building lecturer 2***

This participant began the SLT course with the least previous experience of computing and web 2.0 of all of the 2010 participants. Initially he was dubious of the benefit or applicability of mobile web 2.0 to his teaching context. However, during the process of investigative reading around theoretical frameworks for educational technology, he experienced a 'eureka' moment: a dawning of how the combination of reading social constructivist theory, his SLT experience, and his previous teaching



experience aligned to create a deeper understanding of teaching and learning. The participant reflected upon what brought about this eureka moment in a blog post:

Where did the learning finally happen? Was it in a societal environmental? You bet it was, the daily collegiate banter between colleagues in the SLT group and staff that just get into it, with lunchtime discussions, items of interest being distributed freely, online bog posts from a variety of educationalists and tutors, suggested readings that then promoted surfing wider topics and views, all had a hand in it. Has web 2.0 tools played a role? Of course. (SLT student blog post 2010)

Following this experience this participant became an educational technology evangelist, to the point of buying his own iPad and iPhone, and presenting his transformational journey using his brand new iPad at a subsequent minisymposium organised by the researchers (<http://www.youtube.com/watch?v=zGEquKzzMyU&feature=feedf>). The experience of the SLT course impacted this lecturer's own teaching practice by providing him with a foundation to conceptualise how his own students could utilise iPod Touches to record and document their learning via blog-based eportfolios in 2011.

## Discussion

While the number of participants in the 2010 SLT course was small with a 2010 cohort of six students (although average for the GDHE courses in general), the results are indicative of those observed by the researchers' throughout over 30 mlearning projects using the developed intentional COP support model between 2006 and 2010. The SLT course serves as an example of the impact of mobile web 2.0 integration supported by COPs involving over 50 lecturers, from 13 different Departments at Unitec.

The authors redesigned the course around a social constructivist pedagogy that leveraged several emergent learning frameworks. Creating the foundation and circumstances for pedagogical transformation was the goal. This transformation is aptly described by the Learner-generated contexts group and the concept of bridging the Pedagogy-Andragogy-Heutagogy (PAH) continuum. Luckin et al. (2010) argue that Heutagogy (student-directed learning) need not be the domain of post-graduate research students only, and propose the concept of learner-generated contexts as a framework to help achieve this. Garnett (2010) describes the process of this transformation of lecturer's reconception of pedagogy in three steps following the PAH continuum: moving from Pedagogy (teacher-directed) to Andragogy (student-centred, student-generated content), and towards Heutagogy (student-directed or negotiated learning).

- (1) The ability to understand how to use their subject for teaching, that is an effective *pedagogy*?
- (2) To understand how to manage the learning environment they are working in and treat each learner as an individual, that is the *andragogy* of learning relationships
- (3) Then having learnt how to manage the learning process related to their subject they then turned their control over to their learners, enabling the *heutagogy* of creativity to kick in (Garnett 2010)

Achieving this reconception takes significant time, involving sustained engagement.

***Sustained engagement leading to ontological shifts***

The case study illustrates that creating sustained engagement around the integration of mobile web 2.0 tools supported by COP can facilitate ontological shifts among the participants. Two key issues around reconceptualising teaching and learning representing ontological shifts in the participants' understanding were identified:

- (1) Shifting lecturers from pedagogy to heutagogy, reconceptualising teaching as proposed by Luckin et al. (2008, 2010) and McLoughlin and Lee (2008).
- (2) Shifting students beyond their previous experience, reconceptualising learning, and using the mobile web 2.0 tools to engage students via a focus upon student-generated content and student-generated contexts.

There were certain elements of the SLT course that the participants found harder than others. For example: the participants took a while to get used to using correct referencing and bibliographic tools, particularly within the context of blogging. This was important to underpin the course experience with graduate level critical thinking. Some students took a while to get into the swing of using Twitter for communicating, with several 'lurking' until a momentum developed, and then they became quite engaged by using Twitter once a community had been established around its use in the course, effectively moving from legitimate peripheral participation to full participation in the core of the COP.

The 'intentionality' of the SLT community of practice was embedded in the course design and assessment activities, with the authors purposely building the course as a learning experience. In contrast to an organic COP active participation in the course COP was mandated as an assessed activity. However, this intentional COP kick-started the participants' experience of COP formation, and has led to the organic development of a continued COP of the course graduates. As the majority of 2010 SLT students were located within the same faculty, these SLT graduates have continued to build their own COP after the end of the SLT course, inviting their peers to join this COP. The 2010 graduates have also taken a keen interest in the 2011 iteration of the course: joining in Twitter conversations with the 2011 participants, and offering links to resources and even technology support for the 2011 cohort, effectively becoming brokers of their own transformational journeys.

***Participant feedback informing 2011 implementation***

Feedback was gathered from a variety of sources from the 2010 participants, including: analysis of participants' blog posts, a face-to-face debrief between each participant and the course lecturers at the end of the course, final student surveys and feedback elicited by an independent course reviewer after the course had finished via email and personal phone call interviews with participants.

Feedback indicated that some participants initially felt a bit thrown in the deep end with the new learning experience represented by the SLT course and the embedded use of mobile web 2.0 tools. However, by the end of the course, feedback from the students indicated that they were "no longer fearful" of trying new technologies. Some participants suggested adding extra scaffolding of the mobile web 2.0 tools via extra drop-in tutorials (these were offered during the course, but no one took up the offer). Bridging the other GDHE courses into the SLT course was also

suggested. The integration of elements of the SLT course throughout the rest of the GDHE is one of the goals of the authors.

### **Limitations**

As an assessed course, the researchers attempted to model an intentional COP as far as possible without the assessment becoming the core driver for participation. The SLT course was designed to provide students with an experience of social constructivist learning, underpinned by reflection upon sound pedagogical theory, and enabled by mobile web 2.0 technologies. As such we (as the ‘teachers’) of the course attempted to model this approach in our facilitation of the course, for example: we used alternative web 2.0 tools for in class presentations including Prezi (<http://www.prezi.com>), we used web 2.0 communication tools such as Twitter for remote and in-class brainstorming, and we modelled the pedagogical use of Blogs and moblogging in our own practice. These helped the students conceptualise how to use these tools in their own practice. However this generally required significant time and reflection by the students, for whom the ‘lights came on’ near the end of the course.

We also allowed a certain amount of negotiation with the students around the course goals and assessment activities (as far as the redesigned course descriptor would allow) – allowing the COP that developed to be unique to the participants, which students tended to find a new experience.

### **Conclusions**

The SLT course demonstrates the transformative impact of a COP model of lecturer professional development. The 2010 course graduates have now become technology stewards within their own departments, effectively drawing in their peers from the periphery of the SLT community of practice and forming spin-off COPs within their own departments. Scaffolding the integration of mobile and social technologies within the SLT COP involved a range of approaches, including modelling by technology stewards, peer mentoring and the utilisation of flexible technologies beyond the face-to-face contact. As Nicholas Cage stated “Now you know how it feels, you won’t be scared” (Vaughn 2010).

### **References**

- Brown, J.S. 2006. New learning environments for the 21st century: Exploring the edge. *Change*, (September/October): 18–24.
- Chi, M., and R. Hausmann. 2003. Do radical discoveries require ontological shifts? In *International Handbook on Innovation*, ed. L. Shavinina and R. Sternberg, Vol. 3, 430–444. New York: Elsevier Science Ltd.
- Cochrane, T. 2007. Moving mobile mainstream: Using communities of practice to develop educational technology literacy in tertiary academics. Paper presented at the MLearn 2007 – Making the connections 6th international conference on mobile learning, October 16–19, in Melbourne Exhibition Centre, Melbourne.
- Cochrane, T. 2010. Beyond the Yellow Brick Road: Mobile web 2.0 informing a new institutional elearning strategy. Special Issue ‘The Transformational Impact of Learning technology’ of *ALT-J. Research in Learning Technology* 18, no. 3: 221–31.
- Cochrane, T., and G. Kligyte. 2007. Dummies2Delight: Using communities of practice to develop educational technology literacy in tertiary academics. Paper presented at the JISC online conference: Innovating eLearning, JISC online conference, June 11–14.

- Engestrom, Y. 1987. *Learning by expanding: An activity-theoretical approach to developmental research*. Helsinki: Orienta-Konsultit.
- Garnett, F. 2010. Heutagogy and The craft of teaching. *The Heutagogic Archives* (November 18). <http://heutagogicarchive.wordpress.com/2010/11/18/heutagogy-the-craft-of-teaching/#more-340> (accessed November 19, 2010)
- Head, G., and J. Dakers. 2005. Verillon's Trio and Wenger's community: Learning in technology education. *International Journal of Technology and Design Education* 15: 33–46.
- Herrington, A., and J. Herrington. 2007. Authentic mobile learning in higher education. Paper presented at the AARE 2007 international educational research conference, Fremantle, Australia.
- Herrington, A., J. Herrington, L. Kervin, and B. Ferry. 2006. The design of an online community of practice for beginning teachers. *Contemporary Issues in Technology and Teacher Education* 6, no. 1. <http://www.citejournal.org/vol6/iss1/general/article1.cfm> (accessed July 15, 2010)
- Herrington, J., and R. Oliver. 2000. An instructional design framework for authentic learning environments. *Educational Technology Research and Development* 48, no. 3: 23–48.
- Langelier, L. 2005. *Working, learning and collaborating in a network: Guide to the implementation and leadership of intentional communities of practice*. Quebec City: CEFIRO (Recherche et Etudes de cas collection).
- Laurillard, D. 2001. *Rethinking university teaching: A framework for the effective use of educational technology*, 2nd ed. London: Routledge.
- Lave, J., and E. Wenger. 1991. *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.
- Luckin, R., W. Clark, F. Garnett, A. Whitworth, J. Akass, J. Cook, P. Day, N. Ecclesfield, T. Hamilton, and J. Robertson. 2008. Learner generated contexts: A framework to support the effective use of technology to support learning. <http://api.ning.com/files/Ij6j7ucsB9vgb11pKPHU6LKMGGQkR-YDVnxruI9tBGf1Q-eSYUDv-Mil6uWqX4F1jYA1PUkZRXvbxhnxuHusyL1IRXVrBKno/LGCOpenContextModeling.doc> (accessed November 5, 2008)
- Luckin, R., W. Clark, F. Garnett, A. Whitworth, J. Akass, J. Cook, P. Day, N. Ecclesfield, T. Hamilton, and J. Robertson. 2010. Learner-generated contexts: A framework to support the effective use of technology for learning. *Web 2.0-based e-learning: Applying social informatics for tertiary teaching*, ed. M. Lee and C. McLoughlin, 70–84. Hershey, PA: IGI Global.
- McLoughlin, C., and M. Lee. 2008. Mapping the digital terrain: New media and social software as catalysts for pedagogical change. Paper presented at the ASCILITE Melbourne 2008.
- Siemens, G. 2004. Connectivism: A learning theory for the digital age. *eLearnSpace* (12 December). <http://www.elearnspace.org/Articles/connectivism.htm> (accessed December 31, 2009)
- Vaughn, M. (Writer). 2010. Kick-Ass [Film]. In A. Bohling (Producer). London, England: Universal.
- Vygotsky, L. 1978. *Mind in society*. Cambridge, MA: Harvard University Press.
- Wenger, E. 1998. *Communities of practice: Learning, meaning, and identity*. Cambridge: Cambridge University Press.
- Wenger, E. 2005. Communities of practice: A brief introduction. (17 July). <http://www.ewenger.com/theory/index.htm> (accessed October 14, 2006)
- Wenger, E., N. White, and J. Smith. 2009. *Digital habitats: Stewarding technology for communities*. Portland, Oregon: CPSquare.
- Wenger, E., N. White, J. Smith, and K. Rowe. 2005. Technology for communities. In *Working, Learning and Collaborating in a Network: Guide to the implementation and leadership of intentional communities of practice*, ed. L. Langelier, pp. 71–94. Quebec City: CEFIRO.