Dummies2Delight: Using Communities of Practice to develop educational technology literacy in tertiary academics.

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Abstract: A case study of how a communities of practice (COP) model (Wenger et al., 2002) transformed a group of IT phobic tertiary academics (Cochrane, 2006a) into educational technology evangelists (Cochrane, 2006b). How the 'technology steward' (Wenger et al., 2005) guided the group in an investigation of the educational potential of various social software (web2) and elearning technologies (Cochrane et al., 2006b). And the culmination of the COP in a two hour workshop presentation (Cochrane et al., 2006a) by the group on their journey and outcomes (Cochrane et al., 2006c). Finally, how the model is now being used on an institution-wide basis for developing educational technology literacy in tertiary academics.

Introduction

The Problem

1. Disconnect between technology skills of today's learners and today's teachers.

2. How to maximise the learning environment for academic staff.

Today's learners naturally engage with technology as an everyday part of their lives (Prensky, 2005). However, when attempting to use technology to engage today's learners, there is often a disconnect between the techno-savvy of the learners and the lecturers. This could be illustrated by the following scenario describing today's learners.

> A junior at the university, Eric wakes up and peers at his PC to see how many instant messages (IMs) arrived while he slept. Several attempts to reach him are visible on the screen, along with various postings to the blog he's been following. After a quick trip to the shower, he pulls up an eclectic mix of news, weather, and sports on the home page he customized using Yahoo. He then logs on to his campus account. A reminder pops up indicating that there will be a sociology quiz today; another reminder lets him know that a lab report needs to be emailed to his chemistry professor by midnight. After a few quick IMs with friends he pulls up a wiki to review progress a teammate has made on a project they're doing for their computer science class. He downloads yesterday's chemistry lecture to his laptop; he'll review it while he sits with a group of students in the student union working

on other projects. After classes are over he has to go to the library because he can't find an online resource he needs for a project. He rarely goes to the library to check out books; usually he uses Google or Wikipedia. Late that night as he's working on his term paper, he switches back and forth between the paper and the Internet-based multiplayer game he's trying to win (Oblinger & Oblinger, 2005).

In comparison, many of today's lecturers may be unfamiliar or uncomfortable with the use of the tools described above (Blogs, wiki's, RSS, instant messaging etc…).

The Solution
Development of peer group support guided by a teaching and learning professional, i.e. a Community Of Practice, investigating the use of web2 social software tools in education.

Participant Survey – what web2 social software tools do you currently use?

Communities of Practice

'Communities of Practice' is a relatively new approach to learning. The concepts were developed by Lave and Wenger, while studying the apprenticeship model of learning (Lave & Wenger, 1991), "Communities of practice are formed by people who engage in a process of collective learning in a shared domain of human endeavor" (Wenger, 2005).

Social Constructivism
Social constructivism forms the underlying basis for learning theories such as 'Communities of Practice'. Constructivism is based on the work of Piaget (1973), Dewey and Bruner (1966). According to these theorists, knowledge is constructed from our own experiences, and facilitated (?) by teachers. The learner learns by being involved in the learning process, constructing new concepts from simple ideas and previous experiences. Social Constructivism is an extension of constructivism, and is attributed to Vygotsky, according to whom the social context is very important in constructing knowledge. Vygotsky argued that learning is a collaborative process of students actively constructing their knowledge through interaction with their peers and teachers while engaging with the learning tasks. According to Vygotsky the role of the teacher is to create and maintain the Zones of Proximal Development (Head & Dakers, 2005) – an environment that will help move the learner from their current understanding to a potential deeper level.

Characteristics of Communities of Practice
The main differences of Communities of Practice to traditional educational environments are an emphasis on inventiveness, evolution of ideas and direction of the community, and lack of hierarchy, as all the members in a Community of Practice interact as peers.

The three characteristics of communities of practice

- The Domain – the shared interest.
- The Community – some form of regular group relationship.
- The Practice – the development of a shared repertoire of resources, involving time and sustained interaction.

Legitimate Peripheral Participation

Lave and Wenger assert that passive community members learn from the active members of the community, and are gradually brought into an active role in the community.

Attwell (2006) draws a comparison between the concept of legitimate peripheral participation and Vygotsky's zone of proximal development.

> Bridging the zone of proximal development construct with legitimate peripheral participation construct may be accomplished if one thinks of a zone in which the expert or mentor takes the learner from the peripheral status of knowing to a deeper status… the expert scaffolds the environment to the extent in which the learner is engaged with the discourse and participants within the zone and is drawn from a peripheral status to a more engaged status. The peripheral learner interacts with the mentor, expert learners and peers within the zone. More able learners (peers) or the mentor will work with the less able learner potentially allowing for socially constructed knowledge (Attwell, 2006).

Social Software and Communities of Practice
Wenger (Wenger et al., 2005) discusses the contribution that technologies can make to communities of practice, in particular Web2, social software tools.

He describes two tensions that communities must live with but can mitigate using technology via a cycle of inventiveness:
1. Community implies an experience of togetherness that extends through space and time.
2. The relationship between communities and individuals.

Social software tools make a natural companion to Communities of Practice. 'Social Software' (interactive collaborative software) is one of the key features of what has been termed 'Web2' (O'Reilly, 2005). Examples of current and emerging social software tools include blogs, wikis, RSS, instant messaging, podcasting, social book marking, etc… (Farmer, 2004; Glogoff, 2005; Kaplan-Leiserson, 2004). The key characteristics of social software fit well with the pedagogies described above, enabling a natural and relatively simple approach to creating collaborative learning communities.

Web2 is about:
   * Moving beyond CONTENT
   * Ease of use
   * Interactivity
   * Collaboration & sharing
   * Customisation
   * Personal Publishing

> This emerging class of flexible, boundary-spanning tools has been called social software by its proponents. The label points to the user's ownership of their software-mediated experience and to the ways that the software bridges between the individual and the group. Easy publication and easy group formation, driven

by individuals, are key phrases in this new frame for online collaborative technologies (Wenger et al., 2005).

The Technology Steward

Communities of Practice can be enhanced with the use of appropriate communications technologies when under the guidance of a Technology Steward. The Technology Steward (Wenger *et al.*, 2005) is a member of the community with a grasp of how and what technologies can enhance the community. They act as a guide to the rest of the community as the community learns to utilize and benefit from technology. The technology steward in these case studies is either Thom Cochrane or Giedre Kligyte from the Centre for Teaching and Learning Innovation at Unitec.

Case Study1: Dummies2Delight

Beginnings

The Community of Practice (COP) was born out of discussions between the founding group member and the author (Academic Advisor – elearning & Learning Technologies). The COP was devised as a way of bridging the gap between today's learners and teachers. Admitting that there is a gap that needs bridging is a significant first step. The following is a selection of comments made by the members of the COP regarding their initial comfort levels with integrating technology into their teaching (Cochrane, 2006a):

Lecturer 1: "When people talk IT stuff, for me its like a foreign language – I don't even know if IT is the label I should be using".

Lecturer2: "In my Diploma programme we need more flexibility, we have a lot of students who want to come in at odd hours and are working, and this technology stuff should offer my students a lot. However I'm scared of it. I don't want to just dive in. In the past I've always hung back because I always think there's going to be bugs in the system".

Lecturer3: "I guess I feel a burning desire to learn about this stuff, but I've never created the space to do it, and I suppose that's an excuse".

Lecturer4: "I just feel totally out of touch with the technology, particularly when I see what my kids can do, and I haven't really had any motivation to go about updating myself. But I guess for me one of the issues is whether the technology overshadows good pedagogy, and I want to be absolutely sure that technology enhances pedagogy rather than gets in the way of it".

The Journey

The technology steward chose a range of communication, collaboration, and social software tools for the group to investigate. The choices were made on the basis of a social constructivist pedagogy, and a selection of indicative technologies that would work well together and sites that had good policies on content appropriate for an educational setting. The COP was comprised of heads of schools within the vocational studies department of Unitec. From an initial six respondents five started the COP with four members completing the COP (one member withdrew due to health issues). The first meeting took place over breakfast in one of the campus café's, where the participants voiced their initial hesitations with using technology in teaching. This then became the baseline from which the group measured its progress. Weekly two-hour workshops were held in the Centre for Teaching and Learning

Innovation's computer classroom, and participants were expected to interact and practice with each technology during the following week using their work and home computers. Regular revision sessions were also scheduled using a group wiki page (Cochrane et al., 2006b).

Notes and discussion forums were set up online for each weekly meeting of the COP using Blackboard – the LMS for the institution. Each participant was encouraged to create and maintain a student homepage in the Blackboard course updating it with links to their blog, flickr site, etc as they created them. Although Blackboard has been the official LMS for the institution since 1998, none of the group participants had used it beyond the very basics. However, Blackboard was the least threatening environment to expose the group to as they entered the world of cyberspace. The use of Blackboard as a learning tool was thus modelled by the technology steward as it was used to link and discuss the various social software tools. Their Blackboard homepage became a contact hub for the group participants until they became confident with RSS and subscribing to each others' social software sites.

Topics covered included:
- Interactive use of Blackboard and Moodle LMS's.
- Social Software in Tertiary education.
- Blogging.
- Image Blogging.
- Instant Messaging.
- RSS and aggregators.
- Wikis.
- Podcasting.
- ePortfolios.
- Digital Video – YouTube, BlipTV…
- Mobile Computing.

After gaining some confidence with the selection of social software tools that were investigated by the group, the group members began to document their journey from technological illiteracy to technological delight using a group wiki (Cochrane et al., 2006c). This became a focal point for the group to reflect on how far they had come and how to integrate the new ideas into their teaching practice. Eventually group members also began to feedback examples of how they were implementing some of the technologies with their own courses and students.

Nurture: Communication and Social Software
One of the key goals of the group was to create a collaborative environment utilising collaboration and communication technologies. The use of instant messaging became a cornicopian revelation for the group as a means of peer support when they were dispersed across the institution and at home.

> The beauty of IM is the immediacy of it. You talk in real time and so the conversation flows without having to wait for emails to go back and forward and it also allows for collective conversations. I can see that it can be addictive if you don't watch out (Cochrane et al., 2006b).

Subscribing and commenting on each other's blogs and photoblogs also nurtured the group.

> I think that being introduced to RSS stuff after having done Blackboard, Blogs and Flickr is a good idea because you start to get the feeling that it's all getting too vast, and then along comes RSS to make it all manageable (Cochrane et al., 2006b).

The weekly face-to-face workshops were also a source of group identity building. Finally, having a common concrete goal for the group kept them focused and ensuring that everyone was keeping pace with each other as they learnt.

> It is very easy to let the words roll off your tongue now. At the BoS today, I listened to Ray talk about Blogs, Flickr, RSS, Newsgator, Wikis etc as if they were words and concepts we had known forever. The words are easy. Some of the concepts are easy. Some are still complex and, while I can achieve some things independently, I am still not 100% clear about working my way painlessly and seamlessly around these. I can only assume that, like other technologies I have mastered in the past, it will become second nature with use. There is no doubt we've progressed enormously. But in helping Malcolm with some updates yesterday, I realised that I'm only just remembering some of the concepts. It is the use it or lose it concept (Cochrane et al., 2006c).

The goal
A timeframe and goal were used to give the COP a focus and an initial lifespan. The goal was to present a workshop on the use of social software tools in education at the institution's Teaching and Learning Symposium in six months time. These were brainstormed between the group founder and the technology steward before the establishment of the COP, but were presented to the group as a possible goal for negotiation by the group at their first meeting. The group agreed with the proposed goal and timeframe, while also feeling included in the decision making process.

This goal provided the group with an opportunity to formalise their reflections, work together on a specific project, and produce a research output. By running this workshop, the group effectively became educational technology 'evangelists' and made regular progress reports at each board of studies meeting, creating quite a buzz and a lot of anticipation regarding the workshop presentation. The workshop consisted of demonstrations of instant messaging, the use of wiki's for audience participation (Cochrane et al., 2006a), and presentations by each group member on each of the social software tools investigated during the COP (Cochrane, 2006b). From the technology steward's point of view it was amazing to see the transformation of the group.

Institution-wide Model

Model
After the success of the first Dummies2Delight Community of Practice the Centre for Teaching and Learning Innovation (CTLI) decided to put more resources into developing this

approach to academic staff development model as an alternative to blanket staff development workshops. The COP approach enables the COP members to define the scope and the aims of the learning explorations and enables CTLI staff to offer more targeted support. The prolonged engagement of 7 to 16 weeks ensures that the technologies are practiced over a period of time, as opposed to the one off encounters usually experienced in CTLI workshops.

Interest was developed throughout the institution by the Dummies2Delight workshop/presentation at the annual Teaching and Learning Symposium, giving the concept a high profile. As resources are limited, the current approach to creating Communities of Practice investigating educational technology is on an invitation basis. Invitations to form COPs are initiated with schools that either express an interest or appear to have the potential to benefit from the approach. The model is currently in a viral mode of spreading. It is envisioned that eventually graduating COP members will become technology stewards for further COPs to be formed within their school.

An invitation letter briefly outlining the concept, commitment required, topics covered, and links to examples is sent to interested participants. Following this, a first group meeting is scheduled, usually involving coffee and food as an incentive. At the first group meeting a goal, timeframe, workshop style/modes and weekly time are brainstormed, along with an indication of what the participants' initial confidence with educational technology is.

Structure
Four to six group members per COP plus the technology steward meet weekly for a two-hour workshop to explore the educational potential of different technologies. After the use of elearning tools are established much of the interaction can be undertaken 'virtually' and flexibly if required. The workshops are facilitated by either Thomas Cochrane or Giedre Kligyte, and can be held either in the CTLI multimedia lab, or elsewhere on campus (including café Kreem with wireless laptops). Each different COP culminates in a specific project goal (e.g. a presentation at the Teaching & Learning Symposium, a presentation at a conference, a presentation to other academics in their department, incorporation of some of the technologies investigated into their own courses etc…).

Topics covered include (but are not limited to):
- Interactive use of Blackboard or Moodle
- Social Software in Tertiary education
- Blogging
- Image Blogging
- Instant Messaging
- RSS and aggregators
- Wikis
- Podcasting
- ePortfolios
- Digital Video – YouTube, BlipTV…
- Mobile Computing

Topics, the goal, the LMS, and the COP workshop format are all open for negotiation with each COP group, allowing a customized experience relevant to each unique group.

Key Issues
- Participants require basic computing and Internet usage skills.
- Participants require access to their own computer and Internet connection.

Example COPs

Early Childhood Education (ECE)

Early Childhood Education (ECE) lecturers expressed their interest in forming a COP as an opportunity to explore alternative technologies to Blackboard LMS. Most of the School of Education staff at Unitec were strong proponents of Social Constructivist learning theory and many of them have been extensively using Blackboard discussion forums to support students' learning. However, they felt that Blackboard was not flexible enough and they were aware that some of the new emerging technologies held more potential to encourage and support students' interaction. After several weeks of weekly one hour sessions ECE COP participants reported increased confidence in using new technologies.

Lecturer 1: "I feel much more confident than I did in the beginning, that's for sure. I think I feel pretty confident to try the technologies out and to try using them further. Just the fact that I know what's available and how to use them is really good."

Lecturer 4: "I feel a lot more hopeful that I will actually eventually be more ok with it, whereas once upon a time I was like: "oh my God, that is just another planet for me". In terms of the potential that it has unleashed… My confidence is still not that good, but I'm confident that I am capable."

Lecturer 2: "I thought it was something I could never do. (…) But actually it is just a different type of learning."

Lecturer 4: "It has made me realise that you don't have to go off and do a diploma in computer technology (…) to be able to access some of the tools that can help you to create awesome presentations. (...) And to see just how accessible technology is becoming, with the right support. I wouldn't like to sit at home and try to do it. But to have that Community of Practice and somebody who is right there with you, just gives you the confidence to have a go."

Lecturer 1: "We had a one hour session every Friday afternoon and that was really good to just have that one hour controlled session where we knew what we were talking about. We could just dip in to that technology and try it out for an hour. That worked really well, it wasn't too much and it wasn't too little. We supported each other and nobody took it too seriously, it was a learning adventure for all of us and we could laugh about our mistakes. We could help each other after the hour sessions, so we might sit down in somebody's office and try and figure out the blogs a bit more or help each other to do a blog entry…"

They appreciated the opportunity to share their learning experiences with a group of colleagues while being guided by a technology steward, instead of engaging in solitary technology exploration themselves (some of them teamed up with their colleagues and helped each other out after hours). They asserted that COP sessions opened up a vast educational potential of the new technologies and identified blogs and wikis as the most promising tools. Some of the ECE lecturers stated that participation in the COP made them reflect on the changing roles of educators and learners in the wider educational system.

What Next?

Plans were made to take up some of the explored tools to be used as students' portfolios and reflective journals next year (Kligyte *et al.*, 2007).

Lecturer 1: "I think that for our students (because they are learning to be teachers) I can definitely see the potential for blogs. Blogs are quite close to portfolios that we already ask them to do, but with much more potential for social aspect to share reflections and dilemmas with each other, and contribute to each others' knowledge. (…) And with video sharing, (…) there is potential for us to tape scenarios of teaching and use them in an online way to get students to comment or reflect on that particular teaching practice (…). I can also see the potential of wikis in terms of being quite close to discussion groups that we already have with the students (…)"

Lecturer 4: "There's so much that has opened up for me as an educator. When I came in to the group, it wasn't in the full front of my mind, but since being involved in this Community of Practice, I have been thinking more and more about the future of the classroom and the role of the teacher. (…)"

Lecturer 3: "I think I want to use that more once I am confident enough to go in and out of windows and going through the process… It is actually the process of coming in and going out, that is where the confusion is. But I suppose if we put it in practice like an everyday kind of thing, it will come naturally to you. Hopefully like using your email."

Lecturer 4: "The one that I have already used was the blog. (…) …it excites the students. Technology turns people on, that's what I noticed in the class. (…) I noticed from the very outset, after my very first blog posting, (…) there was something relevant for the discussion in the class and I clicked on the link and said: "have a look at this, this is a posting that I have just done". And they just became so inspired. (…) For me, I guess, the biggest learning that I've done so far isn't so much how it can assist me as a teacher, but how it assists the learner, how it engages the learner. This is probably one of the unforeseen outcomes for me of being in this workshop."

Not For Profit Management (NFPM)

Not For Profit Management (NFPM) programme team is physically dispersed with some members located in Auckland, Hamilton, Christchurch, New Zealand, and some in the Pacific Islands. Most of the NFPM team are employed part time and they meet each other face to face only once a year. The idea of the COP was adjusted to become a "distance" COP with NPFM COP Moodle course used as the central "meeting space". The participation guidelines were posted fortnightly in the Moodle course and all the COP interactions were coordinated remotely via email and the Moodle course. Despite the best efforts of the technology steward to motivate and encourage the participants, the NFPM COP demonstrated very fragmented participation. People accessed the Moodle course at different times and often put just minimal effort in completing the tasks. Some of the more active members started showing less engagement as they didn't receive expected support and encouragement from their colleagues. The experience of running a distance COP shows that physical proximity of the team and everyday non-COP related interactions at work may have a strong influence on the success of the COP. The support of the peers and interactions that take place in face to face sessions seem to be very important factors helping to engage COP participants in the learning experience.

Diploma Landscape Design

One of the Dummies2Delight COP 'graduands' partnered with CTLI to integrate educational technologies to enhance a student group project. The project focused on using blogs and online photo albums to document and reflect upon the design process for landscape designs for the Ellerslie Flower Show. In 2006 the students involved in the project received two gold and one bronze awards for their designs. The success of the project has led to on-going collaboration between the Diploma Landscape Design and CTLI. Effectively a COP is created involving the lecturer, the technology steward, and the students. The success of the project is also developing interest from other lecturers in the department, with a COP with the teaching staff scheduled for semester two of 2007.

Product & Object Design

A pre COP collaborative project between CTLI and the Bachelor of Product Design identified several issues that could be aided by a COP with the teaching staff. A COP with the Design teaching staff has started during semester one 2007 with the goal of developing a more successful student blogging project in semester two.

Discussion

Successes
- Senior management evangelists
- Increased interest across institution
- Better use of resources
- Measurable outcomes
- Collaborative projects with CTLI, Lecturers, and Students

The COP model develops strong relationships between the technology steward and teaching staff that can then lead to collaborative projects.

Hurdles
- Managing goals/outcomes
- Group size
- Participants' access to technology
- Number of manageable COPs, moving beyond viral implementation
- Partnership with the institutions IT department

Installation and updating of software on lecturers computers and student labs is often restricted by the institution's IT department. Additionally, firewall and packet-shaping restrictions may make media sites (e.g. YouTube) and synchronous technologies such as Skype unusable.

Key Issues
Importance of:
- The technology steward
- Developing quality partnerships between the technology steward and teaching staff
- Dedication and peer support of the group
- Communication
- Achievable goals
- Team building/nurturing
- Involving senior management
- Reflection

- Recognition of uniqueness of each COP group

Group Wiki for JISC participants input

Conclusions

The use of a Communities of Practice model for creating academic peer support groups to investigate the integration of social software and elearning tools into tertiary education has been more successful and a better use of resources than general workshops for academic staff. IT phobic tertiary academics have been transformed into educational technology evangelists, and the participation of senior management in COPs has created a buzz throughout the institution. While still in early days, the uptake throughout the institution of COPs for educational technology is encouraging, and leading to collaborative projects between CTLI, academics and students. Key to the models success is its flexibility: recognizing that every COP formed is unique, requires negotiable content, motivational goals, and appropriate access to resources. Every COP will require a different approach for nurturing and motivation, however it must also be recognised that not all starting members will finish. Finally, the guidance of a technology steward is critical in establishing and guiding each COP in their investigation and use of technology.

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