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### **Review Process**

ICELF followed a "double blind" peer review policy. Abstracts of papers submitted to ICELF 2012 went through a double blind peer review process. Authors of selected abstracts were invited to submit full papers or posters. Full papers went through double blind reviews again. Accepted abstracts and papers are included in this document.

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Cover design by the Department of Marketing, Unitec.

# **International Conference on eLearning Futures**

**Nau mai, Haere mai, Whakatau mai! Nga mihi mahana tenei.**

Welcome to the Inaugural International Conference on eLearning Futures (ICELF) hosted by Unitec Institute of Technology in Auckland, New Zealand. Welcome one-and-all to beautiful Aotearoa – land of the long white cloud.

The ICELF conference focuses on eLearning strategies, policy, pedagogy, research, technology and practice. At its core ICELF endeavors to promote interdisciplinary collaboration and the conference will embody leading edge, rigorous academic thinking. The programme provides ample opportunity for stimulating debate, combined with panel sessions led by hand-picked expert panelists reflecting on the main conference strands.

During this conference you will undoubtedly encounter innovative and provocative eLearning thinkers as keynote speakers. I take pride in introducing our 3 key note speakers: Steve Wheeler, Agnes Kukulska-Hulme and Judy Kay. Steve will focus on the future of education and learning with specific attention paid to how social media, mobile technologies and pervasive computing are being used (or might be used) to enhance and extend learning for all. Agnes will bring challenges regarding the idea of a learner-driven curriculum, learner uses of mobile technologies, and what's different if learners are allowed to decide what they would really like to learn. Judy will present on some of the cutting edgework being done in her lab, linking that work to the vision that drives the Computer Human Adapted Interaction Research Group.

My sincere thanks to gracious Dr Linda Keesing-Styles and the ICELF Organising Committee for the sterling work done in the planning and co-ordinating of the ICELF conference.

On behalf of Unitec's Chief Executive, Dr Rick Ede, I want to welcome you to our fantastic 55-hectare green campus at Mount Albert. I trust you will experience the uniqueness and richness of our New Zealand culture in picturesque Auckland, and the wonderful multi-cultural people of our vibrant cosmopolitan city. We look forward to hosting you in our all embracing Kiwi manner, and trust it will be an experience you will not forget!

**Tena koutou! Tena koutou! Kia ora tatou katoa.**

Leon Fourie

Executive Dean, Faculty of Creative Industries and Business

# Table of Contents

## **Keynote Speakers**

1- 3

## **Quality Assured Papers**

### **Elearning and Teacher Education: Crossing Digital Divides**

Noeline Wright

4 - 11

### **Design for Virtual Professional Learning and Development: Infinity and Beyond**

Hazel Owen

12 - 21

### **Keep the Laughs Coming! Implementing a New LMS**

Penelope Neuendorf, Margaret O'Connell

22 - 30

### **Working with Student Diversity in an Online Program**

Luisa Signor, Catherine Moore

31 - 37

### **Understanding Facilitator Workload in an e-Learning Future**

Josephine Bourke, Karen Kane

38 - 41

### **Mlearning Praxis: a Pragmatic Guide to Implementing Mobile Learning**

Thomas Cochrane

42 - 53

### **Significantly Exceeding Expectations: Reflecting on the Implementation of an Institutional Elearning Strategy**

Linda Keesing-Styles, Robert Ayres

54 - 62

### **A Long & Winding Road: Library Staff Involvement in an Institutional Elearning Strategy**

Penny Dugmore, Fran Skilton

63 - 74

**E-Learning and Distance Education: Reciprocities and 'DOXA'**

Luke Strongman, Polly Kobeleva

75 - 84

**How Teachers Use Blogs for Professional Development and Enhancing Digital Capability**

Bronwyn Hegarty

85 - 96

**Are We There Yet? Steps to Success in Building Capability for E-Learning**

Ardis Cochrane

97 - 105

**E-Learning in Design of Engineering Experiment Course**

Charnnarong Saikaew

106 - 116

**Using Facebook as a Supplementary Tool for Teaching and Learning**

Kanda Saikaew, Kornchawal Chaipah, Arnut Chaosakul

117 - 130

**Students and Some Teachers' Views of Using Web 2.0 Technologies in E-Learning: Findings From a Survey and Interviews**

Xiaosong Li

131 - 139

**Selected Abstracts**

**Developing and Evaluating Strategies for Professional Learning**

Richard Jones

140

**Learning as You Go: Participatory Activities That Support In-Service Teachers Learning to Use New Tools**

Karen Haines

141

**Exercising the Cat: a Self Reflective Framework Enabling Personal Professional Development Planning for Open, Flexible and Networked Learning**

John Clayton, Richard Elliott

142

<b>Frown Gives Game Away: Affective Tutoring System for Improved Learning</b>	
Abdolhossein Sarrafzadeh	143
<b>Elearning Futures for Peer Feedback</b>	
Helen Cartner	144
<b>Learning a Second Language in Second Life. Using ‘Holodecks’for the Language Classroom</b>	
Clare Atkins, Belma Gaukrodger	145
<b>Using Authentic Materials and Corpora to Discover Formulaic Language</b>	
Joe Geluso	146
<b>Entertainment Lab for the Very Small Screen (ELVSS)</b>	
Daniel Wagner	147
<b>Considering Kaupapa Maori eLearning Pedagogy - Te Ao Rorohiko</b>	
Michelle Lee, Nicoletta Rata-Skudder	148
<b>A Distinctive Blend: Seamless Integration of E-Learning Tools with Classroom Delivery in A Blended Learning Oral Skills Language Course</b>	
Katherine Danaher	149
<b>Tricksters, Portals and Alternative Realities: Creating New Learning Opportunities using Mixed Reality Games</b>	
Maggie Buxton	150 - 152
<b>Weatherproof Lectures: Engaging Learners with ScreenCapture</b>	
Mushtak Dawood	153
<b>Authentic Learning and WEB 2.0. The Convergence</b>	
Vickel Narayan, Christopher Lovegrove	154 - 155

**Making the ‘Case’ for the iPad**

James Oldfield, Thom Cochrane, Dawn Duncan

156

**Task Implementation in CMC: How Does It Influence Language Learning Opportunities?**

Rebecca Adams, Nik Aloesnita Nik Mohd Alwi, Jonathan Newton

157

**E-learning for English as a Specific Purpose: A case study of a site that facilitates the learning of specific vocabulary for finding work and in a range of careers**

T Pascal Brown, Adon Kumar

158

**Applying Agile for Increasing Students. Performance on Information Project**

Sakauwrat Jongpattanakorn

159

**E-Learning in Information Management Education in Sri Lanka: An Examination of Needs and Issues**

Namali Suraweera

160

**“The Speaker Said Too Fast” - Learner Perceptions of Slowing Down Authentic Listening Materials**

Chris King

161

**Intelligent E-Learning Tools and Systems IAG LMS Implementation**

Shaun Sheldrake

162

**Mobile Wireless Technology in Education**

Shanti Ravi, Jacqui Thornley, Kay Fielden

163

**Are Institutions Ready for E-Learning?**

Kathiravelu Ganeshan

164

**A Learning Aid That Looks Like a UFO: Or Is It A Digital Super(Wo)Man?**

Kathiravelu Ganeshan

165

<b>Learning Practical Skills Using E-Learning: Real Life Examples</b>	
Kathiravelu Ganeshan	166
<b>Engaging Students in Contextual Technology</b>	
Penny Cliffin	167
<b>Designing Mobile Games for Engagement and Learning</b>	
David Parsons      Krassie Petrova	168
<b>Dialogic Inquiry Online</b>	
Jennie Swann	169
<b>Teachers' Individual Objects in Elearning-Enhanced Environments in Higher Education</b>	
Khalid Alshahrani	170
<b>Conversations with Online EFL Learners</b>	
Lynn Ann Deocampo	171
<b>The Use of the World-Wide Web and Students Perception of It in Facilitating Writing</b>	
Lynn Ann Deocampo	172
<b>Predictive Analytics for Elearning: A Multi-Institutional Initiative</b>	
Phil Ice	173
<b>National Resources to Strengthen the Literacy and Numeracy of Adults: Pathways Awarua and the Assessment Tool</b>	
Gill Thomas	174
<b>Tailoring Language Learning To a World of Screens</b>	
Mark Pegrum	175

## **Poster Paper**

### **Foreign language learning by eTandem between Germany and Japan: A case study of a learner of Japanese**

Masako Wakisaka

176

## **Workshops**

### **Screencasting for You**

Yvonne Hynson, Zane Egginton

177

### **National Resources to Strengthen the Literacy and Numeracy of Adults: Pathways Awarua and the Assessment Tool**

Gill Thomas

178

### **Weatherproof lectures: Engaging learners with ScreenCapture**

Mushtak Dawood

179– 181

# Keynote Speakers

## Keynote Speakers

### SELF-DIRECTED LEARNING WITH MOBILE DEVICES: WHERE IS IT TAKINGUS?

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Institute of Educational Technology, The Open University, UK



Professor of Learning Technology and Communication in the Institute of Educational Technology at The Open University, UK, and President of the International Association for Mobile Learning.

Agnes has been researching mobile learning since 2001. She is co-editor of two books in this field - *Mobile Learning: A Handbook for Educators and Trainers* (2005), and *Researching Mobile Learning: Frameworks, Tools and Research Designs* (2009). Her recent work includes editing special issues of *ReCALL* (2008) on mobile-assisted language learning, and *ALT-J* (2009) and *Open Learning* (2010) on mobile and contextual learning. Agnes's original discipline background is in foreign language teaching and learning and from this perspective she has a long standing research interest in effective communication with technology and human concerns in technology-mediated interactions. She has published a number of papers on informal, learner-directed language learning.

#### Abstract

Educators aspire to instil a degree of self-direction in their students and are gratified to see them act in self-directed ways. Self-direction is associated with highly valued traits such as initiative curiosity, capability and self-knowledge, ever since Knowles (1950, 1975) began expounding the notion of andragogy and the idea of learner self-determination gradually matured and garnered wider support (Hase & Kenyon, 2000, 2007). Or is self-direction simply a desperate measure when the learning materials and instruction methods offered are not what learners want? Digital learning and the proliferation of mobile technologies give learners increased scope to determine their own goals and learning paths. In foreign language learning, as in many other subjects, there are countless free digital resources as well as opportunities to collaborate and learn informally with others. This talk explores the notion of a learner-driven curriculum in language learning, derived from learner practices with mobile technologies and the mobile behaviours and lifestyles that are such an important part of mobile learning. What is different, or what needs to change, when learners are given new opportunities to decide what they really need or how they want to learn? The talk draws on research studies and learner experience, including projects at The Open University.

## THE FUTURE OF SMARTER EDUCATION & ELEARNING

Dougal Watt  
IBM New Zealand



Dougal Watt is the Chief Technologist for IBM New Zealand. Dougal also leads both the Architecture Practice and Profession for IBM Global Business Services New Zealand. IBM believes that education will be the critical determinant of success for communities in the 21st century.

Dougal has worked abroad in the UK and Europe in a broad range of positions, including working as a CTO, Lead Architect and Business and IT Consulting expert for clients in the telecommunications, manufacturing, government, financial services, publishing and IT consulting industries.

Dougal has extensive international experience in business and IT consulting, project, programme and senior management, has exceptional enterprise architecture skills, and is a published author with considerable public speaking experience.

### **Abstract**

We believe that education will be the critical determinant of success for communities in the 21<sup>st</sup> century. Looking into the next decade, the education industry will continue to face evolving challenges. Changes in technology, commerce, politics and demographics will require educational systems to adapt.

Signposts for the future are already visible - signalling significant changes to all segments of education. These five signposts – technology immersion, personalised learning paths, knowledge skills, global integration, and economic alignment – are rapidly converging to produce a new and transformative paradigm that we call the “educational continuum”.

This continuum will further dissolve the traditional boundaries between academic segments education providers, and economic development initiatives to create a single view of learning skills development, and workforce training. The educational continuum creates a smarter way of achieving national objectives.

To anticipate and embrace these challenges, educational leaders can take action now tounderst and shifting dynamics and to transform their organisations to deliver better student performance, greater workforce flexibility, and enhanced value to society.

# LIFE-LONG AND LIFE-WIDE LEARNING ACROSS PERSONAL DIGITALECOSYSTEMS

Judy Kay  
University of Sydney, Australia



Judy is Professor of Computer Science at the University of Sydney, Australia, and a principal on the Computer Human Adaptive Interaction, CHAI lab, which conducts both fundamental and applied research in personalisation and pervasive computing. Her personalisation research aims to exploit the huge amounts of data available about people, from conventional and emerging systems, to create useful mirroring tools and user models that can support lifelong learning as well as personalisation of future pervasive computing environments.

She has published extensively in the areas of personalisation and teaching and learning. She has been a keynote speaker at major conferences:

UM'94, Boston, USA; IJCAI'95, Montreal, Canada; ICCE'97, Kuching, Malaysia; ITS'2000, Montreal, Canada; AH2006, Dublin, Ireland, ITS'2008, Montreal, Canada; ECTEL2010, Barcelona, Spain. She is on the editorial boards of journal UMUAI, User Modeling and User Adapted Interaction, ACM TIS Transactions on Intelligent Information Systems, Associate Editor of International Journal of Artificial Intelligence in Education and IEEE Transactions on Learning Technologies. She is president of the International Artificial Intelligence in Education Society.

## **Abstract**

Learners create digital footprints across the many devices in their current digital ecosystems including mobile, portable, embedded, appliance and conventional computers. At present, we make almost no use of such personal learning data. This talk will present an overview of several research projects which aim to create new technology to support learning by exploiting these digital footprints in new ways. It will present new embedded interactive tabletops that can be used with personal mobile and portable devices. The talk will show how these can provide new ways for people to learn to learn more effectively through collaboration and, importantly, to learn to collaborate more effectively. Key to this is the capture of personal learning data, under the learner's control, so that it can be transformed into Open Learner Models. These can support meta-cognitive processes such as reflection, goal setting and planning, as well as helping learners develop the associated meta-cognitive skills. Learners can choose to make these models of their learning, or parts of them, available to others, for example, teachers, facilitators and peers. At a very different level, is an ambitious vision to integrate systematic definition of multi-year curricula with learner management systems. This builds from a curriculum planning, mapping and monitoring system. This aims to evaluate the curriculum, both as designed and as delivered. The unifying theme is to create technology that supports learning and exploits the learner's digital footprints.



# Quality Assured Papers

# ELEARNING AND TEACHER EDUCATION: CROSSING DIGITAL DIVIDES

Noeline Wright  
The University of Waikato

**Abstract** - Prensky's (2006) notion of digital natives appears to have been appropriated to mean that every young person is digitally able. However, this assumption masks the point that these digital skills are often used for informal, and often uncritical purposes. This links to a widely held view that being able to use digital tools equates with thoughtful, critical use of information found online. In the ICT module taught to the initial teacher education (ITE) secondary graduate cohort at the University of XXXX, superficial understanding is exposed during a workshop in which students' online information-gathering skills is tested using a "truth and validity detection on the web" (TVW) activity. The task identifies some worrying overall patterns regarding these adult learners' behaviours regarding Internet information. For example, out of a cohort of 100 in 2011, approximately 20% went beyond the provided website pages themselves to investigate the veracity of the site. This activity identified a key need to continually make critical thinking an explicit part of learning regardless of the source of information, the cohort and the learning context. Interrogating online sources does not appear to be a standard practice for most of a cohort that spans new graduates in their 20s through to career-changers in their 40s or 50s. Thus, the digital divide can be reinterpreted as those who use metacognitive skills effectively to make sense of what they read online, compared with those who remain uncritical consumers. It can be argued that proficient digital natives are those who can effectively critique online texts and create new meanings from them, rather than using a range of digital tools uncritically. This paper argues that while technological tools may transform how we connect socially and engage with and share information, this cannot be at the expense of explicit explorations of the fundamental technology of critical thinking.

## Introduction

In a paper examining assumptions about digital skills of younger generations, it is sensible to begin with scoping the term 'Digital Natives'. I will start with noting what's happened to the term over time, since it serves to illustrate assumptions about how the digital skills of younger learners are positioned. Prensky initially intended the term as a metaphor for "describing the differences that many people observed, around the turn of the century, between the attitudes of younger and older people regarding digital technology" (2011, p. 450 of 5917<sup>1</sup>). He points out that being technologically able does not mean the same thing as capabilities or knowledge in terms of critical thinking. Instead, he intended the term Digital Natives to refer more to students' "comfort" with such tools. This is, therefore, about propensity, behaviour and access. So how do those who are considered to be digitally comfortable, apply critical thinking when digital sources are the first (and often only) place to go for information?

We can begin by tracing what one of the expectations is of New Zealand's formal education

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1. NB: this page numbering links to an epub text. The page numbers change according to how I oriented the iPad and how large the font was. It is therefore necessary to add the whole pagination.

provision. It is that critical thinking is taught to students in that sector so that they, in turn, can use those skills to achieve merit and excellence in NCEA<sup>2</sup>, and use them beyond school in further education, work and life as independent, thinking citizens. Standard Two, for example, in the New Zealand Graduating Teaching Standards, includes the expectation that graduating teachers “know how to develop metacognitive strategies of diverse learners” (<http://www.teacherscouncil.govt.nz/te/gts/>). And under Criteria 8 of the Registered Teacher Criteria, it states that fully registered teachers can “assist ākonga<sup>3</sup> to think critically about information and ideas and to reflect on their learning” (found at <http://www.teacherscouncil.govt.nz/rtc/rtc.stm>). These two elements in particular require ITE programmes to find ways to introduce ITE students to concepts and approaches that can support the achievement of those standards via as many contexts and conditions as possible. The Key Competencies in the New Zealand Curriculum, notably *Using language symbols and text*, *Relating to others*, and *Thinking skills*(Ministry of Education, 2007) also strongly link to this.

It is with this background in mind that a module in a paper for the secondary graduate initial teacher education (ITE) programme at the University of XXX is designed. The ICT module is compulsory for the entire cohort, so regardless of subject area and prior ICT knowledge and competence, every ITE student in that programme must participate. The lecturer in charge has therefore designed the module with the following specific goals in mind:

- Understanding pedagogical purposes for using ICT is paramount (leading to the module being called PICT, to privilege the pedagogical orientation)
- Approaches that privilege critical thinking and co-constructed knowledge are modelled and made explicit (Loughran, 2006)
- Having authentic contexts and tasks within which learners can develop digital proficiency are a means by which ICT tools can be embedded into learning.

Because pedagogy is intended to be the driver of the module rather than the ICT, pedagogical design and purpose is made as explicit as possible throughout the module. The ‘Truth’ and Validity on the Web (TVW) workshop, as part of the first four-hour session, introduces the graduate cohort to some of those abovementioned goals. Whitehead’s (2008) exploration of linking how things were taught with how they were assessed, especially in relation to thinking and literacy skills is also pertinent here. He argued that the “dynamic processes of teaching and learning” (p.11) tend not to be linked to assessment in meaningful ways, and tend not to be part of an holistic pedagogical design. The TVW workshop in the PICT module attempts to link dynamic learning and teaching with self-assessment, while embedding the use of ICT tools into authentic learning experiences. This design links to Mishra and Koehler’s (2006) TPACK (ie the concept of technological pedagogical content knowledge where all three parts are interconnected and integrated) framework, in which they argue that teachers’ ICT professional development, when divorced from pedagogical and content knowledge, is empty. In other words, if teachers learn about a specific ICT tool, they do not always learn of its

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2. NCEA: the National Certificate in Educational Achievement. This is the national school qualification, achievable at three levels.

3. Ākonga is a Maori word for student

educational affordances at the same time. This means they are less able to consider how, when, or for what purposes a tool may be used in their subject contexts. The foundations of the approach also link closely to Loughran's (2006) articulation of pedagogical design in ITE courses.

## **The process**

For the past five years, the four-hour PICT session topics are repeated four times across two Wednesdays to accommodate the entire cohort in one of the few teaching spaces that provide individual computer access. One of these sessions is focused on thinking critically about web sources. This has been continually refined over time, and now deliberately centres attention on revealing the initial teacher education students' existing habits, approaches and practices related to extracting information from web sources, thus deliberately destabilising their self-comfort and exposing to themselves their practices as users of Web-based information. This session is designed to both identify gaps in their practices and build new knowledge to apply to their teaching.

The session is designed to alert teacher education students to issues related to 'truth' (a contested notion, which is why it is in single speech marks) and validity (in other words, their practices in verifying the accuracy and reliability) as they relate to information available on the Internet. The session is intended to achieve two things:

- Help the cohort fill any gaps in their own approaches to examining online resources
- Provide some ideas to adapt for their own pedagogical practices to students they teach to be more informed users of online resources.

After a brief introduction and outline about issues teachers often articulate about students' use of online sources of information (such as, that students seem to just copy and paste from the first source they find), the class was organised into six groups. The initial outline provides context for the focus of the collaborative task, in which each group must review a specifically assigned website. All groups answer the same four questions, albeit about different sites. Within each group, each person is responsible for answers to one of the four questions. This is achieved by contributing to a shared group GoogleDoc. Group members collaborated using the chat function within the document and read what each other contributed while building a whole set of answers. Simultaneously, they experience something of the collaborative potential of GoogleDocs. Each group then used the collected answers to decide on a response to a fifth question, designed to synthesise their thinking as a prelude to sharing with the wider group. While the focus is on the content of the task, it is also intended to model the following:

- groupwork to build collective knowledge using technological tools
- using straightforward and efficient organisational strategies (ie organising groups and task functions) to cover content
- tasks that require different levels of thinking
- co-construction
- self-evaluation.

The fifth question centred on the group's ability to explain their thinking and processes they used to examine the substance and veracity of their assigned website. During the whole class

feedback, the whole class viewed each site as individual groups briefly explained their decisions about it. What the groups didn't know in advance was that four of the sites are spoofs, while two have overt political agendas: one is about holocaust denial, while another announces itself to be about New Zealand men's rights.

The next section explores what happened and what trends emerged about levels of critical thinking.

## Emerging trends

Over three years, and three cohorts, common practices and patterns have emerged from this task in which mainly digitally comfortable students have shown how they examine websites. The most consistent factor across these cohorts is that these initial teacher education students generally take these sites at face value. Feedback quite often focused on visual appeal or lack of it, while some, even when they Googled information to check understanding, still failed to treat sites with any suspicion, even when they couldn't understand its purpose. In other words, they often did not go beyond some basic searches to find out more.

The spoof site *Save the Guinea Worm* is a case in point. Even when the relevant group discovered what a guinea worm is – often through the World Health Organisation site - they seldom asked themselves questions like, 'Why would there be a foundation to save a parasite the World Health Organisation is trying to eradicate?' They accept without question that the site is genuine.

On the other hand, the site that the ITE students considered most obviously bogus is called *Help Save the Endangered Pacific Northwest Tree Octopus*. However, they regularly based this view on their belief that there was no such thing as a tree octopus, but failed to demonstrate how they knew, why they didn't believe the site's content, or explain their information literacy strategies/approaches in checking information. Instead, they iterated a belief that because they didn't think there was any such thing, then their point of view must be true. They were thus unable to summon evidence to prove their position.

Another site, this time about Victorian Robots, was also taken at face value. Many have admired it as a well organised if busy, site. Few have asked whether or not robots could have existed in Victorian times, or if there was any other evidence to support or refute the site's claim. None have ever commented on the URL and why it is about *bigredhair* and not Victorian robots.

The fourth spoof site is a fake cosmetic surgery site called the floral sculpture studio designed by a conceptual artist rather than a cosmetic surgery company. While the initial URL appears legitimate, navigating away from the page takes a reader to the URL that contains an artist's name: <http://www.simonevanbakel.nl/floral/newcoll.htm>. While this site is beguiling because of its clever layout, student teachers reacted more to the *form* of the site, rather than checking any of its *content*, even when details on the site about procedures and staff are non-existent.

The holocaust denial (<http://www.biblebelievers.org.au/wasthere.htm>) and NZ Men's Rights (NZMERA) (<http://nzmera.orconhosting.net.nz/>) sites are the two sites of most concern, given the lack of critical examination by the ITE students over various cohorts. These sites are freely available on the Web and present extreme views about their topics. The holocaust denial site is coupled in Google with a line explaining that it is about providing "Facts that expose the fraudulent extortion racket known as the *holocaust* of Jews". The site itself is mostly text with a few hotlinks. Dr E. R. Fields, the author, is revealed (after wider checking) as an active white supremacist (<http://bit.ly/hBO7gV>). While students commenting on this site felt its language was extreme, none went beyond it to find out about more the author. Again, they stayed with their own opinions rather than venturing anywhere to search for evidence. Over three years, five students (out of approximately 280 over that period) have ever commented on the holocaust URL itself and what 'biblebelievers' might suggest to them. However, none actually explored the term to find out.

The NZMERA site lists about five other mirror sites on the home page of the *Black Ribbon Campaign*. Comments about the author's (Peter Zohrab) views can be found in Victoria University's student publication *Salient* (2006) (<http://www.salient.org.nz/features/a-mans-world>) and elsewhere (Farrar, October 26, 2009). For the entire time Zohrab's site has been used for this TVW task, only two students have used a search engine to find out more about him, even though most students expressed disquiet about the tone and substance of the content on the site. Again, the lack of curiosity and acceptance of sites is disturbing, given that these ITE students will soon be teaching in our secondary schools.

## **Discussion**

While the topic of this particular paper has been part of an ITE programme for a number of years, it has not been formally reported before. This paper is a set of observations collected over time about students' practices and behaviours in this session and thus is not grounded in a specific research methodology, but is an accumulation of reflection in/and on action (Craig, 2010). Because it is not the result of a deliberate research process, it is important to be clear about this limitation. However, the ITE students' practices over time have built a consistent pattern of prior learning behaviour that mirrors what Clark (2011) observed when summarising the findings of a longitudinal study into US tertiary students' skills at critical thinking. Clark observed that these students "were woeful at critical thinking, complex reasoning and written communication" (para 1). In terms of Clark's critical thinking claim, there is resonance between this more rigorous report, and what is elaborated in this paper. Next, I explain what I consider to be an omission in ITE students' prior learning development, and, potentially, the ITE process itself.

In order for anyone to develop critical thinking, they need to know the *how* of it. This is not an innate or osmotic process. Instead, it is a process that needs to be deliberate, consistent, and experienced across a wide range of contexts and for a wide range of purposes, over time. The ITE cohorts entering the one-year postgraduate course generally consist of people who have gained an initial degree, and/or who are career changers. An assumption that goes with such a cohort of adults, is that (a) they are already able to think critically, and (b) they apply those skills to their study. The TVW task un.masks that as erroneous.

Perhaps this means we may need to overhaul our assumptions about ITE students' prior skills, and deliberately teach, across the curriculum, critical thinking processes. Through experiencing specifically designed and contextual opportunities to put critical thinking approaches into practice, ITE students may better learn to be more vigilant about checking any sort of information, particularly web sources. This might also make them better prepared to teach their own students how to think – with and without digital tools and sources. Also, by making explicit the pedagogical design of any critical thinking session, the practice links directly to Loughran's (2006) theory of a pedagogy for teacher education. This theory expects that the implicit becomes explicit, and is a way of developing reflection on action and critical thinking about process. It is also intended to model for ITE students, ways of approaching tasks to include critical thinking elements so they can adapt them for their own pedagogical practices and classrooms.

One of the difficulties within ITE is integrating curriculum courses with ways of modelling the New Zealand Curriculum's Key Competencies while embedding ICT use. This embedding and integration would link to Mishra and Koehler's (2006) TPACK framework of developing technological competence in teachers alongside, and embedded in, pedagogical and content development. Without the space to experiment with tools themselves, curriculum lecturers in ITE programmes often struggle to model these practices alongside critical thinking activities. Designing learning with technological tools is not straightforward, because it can also lead to disruptions to preferred pedagogies (Wright, 2010), and be constantly evolving as the technologies evolve and update. Moreover, adding ICT tools to the existing content mix is also challenging. Making wholesale changes to one's practices is a tall order, even for teacher-educators, yet finding ways to integrate ICT and the Key Competency of Thinking Skills into programmes offered to ITE students is, of itself, critical. Halpern (1998) for example, had this to say about the value of critical thinking:

The goal of helping students improve their critical-thinking abilities represents a major change in the way the teaching and learning process is viewed. The term *critical thinking* refers to the use of those cognitive skills or strategies that increase the probability of a desirable outcome--in the long run, critical thinkers will have more desirable outcomes than "noncritical" thinkers (where "desirable" is defined by the individual, such as making good career choices or wise financial investments) (p, 450).

While Halpern wrote this late last century with the US context in mind, his point is still relevant now. Given what Clark (2011) reported about tertiary students' critical thinking in the US, little has changed since Halpern expressed the above view.

Perhaps in the New Zealand context, the national focus on teaching effective literacy strategies in secondary classrooms to develop students' abilities with inference is our way of at least partially addressing the need for deeper thinking. Perhaps too, a focus on critical thinking through combining learning contexts with technological tool use, may enhance teachers'

understanding and practices about what it takes to get students to reach excellence in NCEA, where demonstrations of critical thinking and inference are expected. Clark (2011) also argues that it isn't enough to have the ability to think critically: it must be used meaningfully and regularly if it is to have learning value. It is, he says, "important to separate the disposition or *willingness* to think critically from the *ability* to think critically" (p. 452, my emphasis). Teachers therefore need to design opportunities for students to both develop and use their critical thinking skills to solve problems, make decisions and answer meaningful questions. When educators teach for thinking, it is a many-pronged goal:

- To understand new information and its provenance
- To use the approach/skill successfully to make meaning out of unfamiliar texts/problems
- To recognise when that skill might be next used
- To challenge existing assumptions.

## Conclusion

This paper has attempted to demonstrate that designing an opportunity for ITE students to experience using ICT tools while examining content in websites, can illuminate gaps in critical thinking practices. It can also model pedagogical purposes and approaches these ITE students might wish to adapt when teaching their own students how to be more actively critical about sources of information. As well, the paper has attempted to illustrate how ICT tools can be integrated into a group task that exposes non-critical practices that appear to be constant across cohorts over time, and demonstrates that for learning to proceed, sometimes learners need to be made aware of the shortcomings of their own practices. Furthermore, the paper also argues that by exposing these gaps in critical thinking practices related to expectations of digital literacy in ITE students, there is a chance that the cycle of "woeful" (Clark, 2011) critical thinking practices may be broken, and that so-called 'digital natives' are not just comfortable with digital tools, but regularly use them critically.

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# DESIGN FOR VIRTUAL PROFESSIONAL LEARNING AND DEVELOPMENT: INFINITY AND BEYOND

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## Introduction

Few would deny the fundamental importance of ongoing Professional Learning and Development (PLD) for educators, but the question that continues to be debated is the form that PLD might take. It appears that the design of PLD often fails to recognise the potential offered by emerging eLearning pedagogies, in particular those that are underpinned by 'situated learning' where the process of human development, cognition and context are not considered separate factors.

This paper provides a theoretical grounding to and description of the Virtual Professional Learning and Development (VPLD) pilot, and 2) briefly synthesises main findings from the in-depth evaluation conducted.

## Literature review

Three theoretical perspectives have been influential in the design of learning experiences, including for PLD: the behaviourist, the cognitive and the situative (Mayes & de Freitas, 2004).

Design from a behaviourist perspective focuses on task-analysis and on writing a set of learning competencies that learners meet by completing structured activities and receiving feedback. Assessment concentrates on the overt demonstration of knowledge or skill components.

Design from a cognitive perspective stresses individual conceptual development within a discipline domain, with learning outcomes couched in meta-cognitive requirements such as self-directed learning. Interactive activities are important for a learner's construction of their own knowledge through experimentation and reflection, and assessment emphasises broad understanding of concepts, often assessed over time.

Design from the situative perspective includes sociocultural theory, which has its foundations in the work of Vygotsky (1986). Underpinning this theory of human development is the hypothesis that higher order functions develop through the social interaction of an individual with the external social world (Tharp & Gallimore, 1988), which includes people, objects, and events in various physical settings (Kublin, Wetherby, Crais, & Prizant, 1989). Design informed by sociocultural theory centers around collaborative learning communities that undertake scaffolded activities, and formulate and solve real-world problems. As such, assessment includes elements of participation, peer assessment and authentic practices (Mayes & de

Freitas, 2004).

One of the potential advantages of situative learning design is the overt recognition that participants require ownership and control over how, where, when and with whom they communicate. Such design may also enable learners to “to test ideas by performing experiments, to ask questions, collaborate with other people, seek out new knowledge, and plan new actions” (Sharples, 2000, p. 3). A range of other benefits arise from these affordances. For example, there are increased opportunities to scaffold practitioners to become more focussed critical thinkers who apply theories and concepts to their own practice (Hauge, 2006), while also developing a record of learning over time (Smith & Tillema, 2003). Sharing this learning record (especially reflections) with trusted mentors and peers can increase insights (DiBiase, 2002), creativity, design, and planning skills (Brown, 2002). In addition, where relevant, active involvement from the practitioner's wider community, including employers and professional organisations, can be encouraged (Hallam et al., 2008). Staff may also be encouraged to adopt new pedagogies, technologies, tools, and vocabulary by the influence of 'champions', and the 'viral' effect of sharing effective practices (Moses, 1985).

PLD, with the features described above, can be augmented when translated into a (mainly) online or 'virtual' format. ICT has the potential to enhance learning and teaching through an “increasingly fluent use of media and communications methods and novel distributions of collaborative activity and relationships” (Goodyear, 2005, p. 83), with learning enabled at any time and in any place. With the formation of online Communities of Practice (CoPs) a strong sense of community and group identity can be developed in spaces such as blogs and other social networking sites, and can involve a high level of sharing and participation. As such, a VPLD initiative underpinned by a situative perspective is likely to include:

- Dynamics that aid building rapport and trust;
  - Choice around modes of working;
  - Personalisable spaces;
  - Opportunities to work collaboratively;
  - Models, exemplars and scenarios that illustrate a wide range of approaches;
  - Active learning through engagement with authentic tasks;
  - Opportunities to be immersed / learning by doing;
  - Flexibility to select interactions and resources that suit learning and cultural preferences;
  - Timely, relevant feedback; and
  - Design that enables participants who have specific needs (for example, low vision)
- (Adapted from JISC, 2009)

The shift to a VPLD model, however, is not a simple process and requires wider understandings around expectations of what PLD should be and what it should provide (JISC, 2009), as well as discussions as to how education institutions are going to support and recognise practitioners who wish to participate in VPLD. In addition, other factors that can influence the uptake of such a model are:

- Participants' context(s), attitudes, and beliefs;

- Practitioners' capability and experience in virtual spaces;
- Comfort with the programme design;
- Time pressures;
- Access to appropriate technology and connectivity; and
- Opinions of peers.

## **Description and evaluation of the VPLD programme pilot**

From 2009 to December 2010 the VPLD programme pilot was initiated and supported by the Ministry of Education New Zealand, who also funded the project. The five principle objectives were to:

- Provide contextualised, personalised professional learning that could be accessed by all educators regardless of location;
- Foster online CoPs;
- Develop an approach to PLD underpinned by mentoring;
- Raise student achievement of learning outcomes, partly by ensuring a strong student focus; and
- Be sustainable (financially and environmentally) and scaleable.

This section describes the VPLD programme, and examines some of the main findings and the lessons learned.

### **Data collection**

To evaluate this project, it was necessary to generate a rich, examinable body of data that would permit an in-depth investigation into the design and facilitation of the VPLD pilot, including influential external factors. Five questions were developed to guide the data analysis and interpretations:

- How are participants' opinions of the value of the VPLD pilot affected by participation in the VPLD CoP?
- How does working with a mentor affect participants' opinions about their own efficacy and teaching practice?
- Which external factors have an effect on access to and satisfaction with the VPLD pilot programme?
- What are the observed effects on participants over the course of the VPLD programme?
- What are participants' opinions about the effects of shifts in their teaching practice on their students' achievement and engagement?

Tools used to collect data included (but were not limited to) online surveys, blog postings, discussion forum postings, chat history, recordings of the synchronous sessions in Adobe Connect, and emails.

- The quantitative data were exported into Excel, analysed and interpreted.
- A qualitative approach was used to interpret the open-ended survey responses. Recurring words were noted as possible emergent themes and used as codes.

Comparative methods of analysis were used during coding (Charmaz, 2008).

## Participants

The VPLD pilot programme was formed around the development of the capability of ten NZ educators - nine secondary and primary school teachers and one tertiary teacher - from a variety of locations ranging from Kaitaia to Canterbury, as well as from a range of disciplines. The practitioners were from diverse backgrounds, ethnicities and cultures.

## VPLD programme

The integral principles and aspects of the VPLD initiative are represented in Figure 1, and some of these are unpacked briefly in the following section.

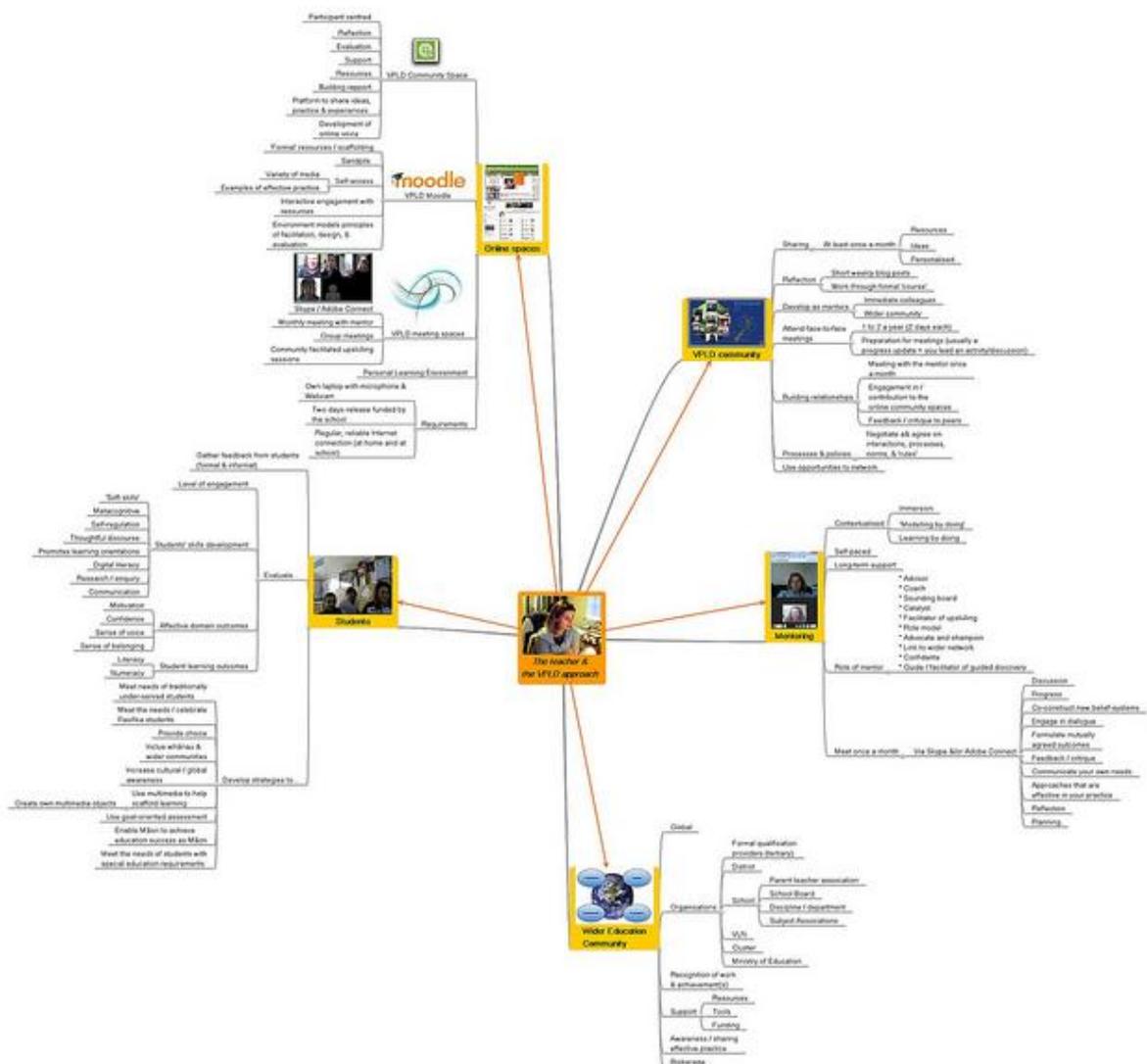


Figure 1. Integrated aspects of VPLD model (to view the **full size mindmap**, click [here](#))

## **Teachers' Professional Learning: Contextualised, Personalised PLD**

One of the key benefits of the VPLD model is that PLD is contextualised within a participant's education institution. Learning outcomes are negotiated by the practitioners, and the goals and skills that they identify are directly related to the students with whom they are working. They are also scaffolded to access and share PLD focussed on the needs of their students and school community. In turn, this helps align planning with government priorities and initiatives such as National Certificate of Education Achievement (NCEA), Ka Hikitia: Māori Education Strategy, Pasifika Education Plan, and other key initiatives.

As a result, the content, tools and meaning of the PLD are subsumed within the teacher's function of being part of their own school's/institution's community, rather than being the central focus as can happen with more traditional approaches to PLD via generic workshops. Furthermore, by participating in PLD that is blended, the teachers themselves are being immersed in a learning environment that models the principles, facilitation, design, and evaluation that could potentially be applied to enhance their own students' outcomes.

### **Social learning and mentoring**

In line with the findings provided by the Te Kotahitanga project, teachers are provided with opportunities to engage in dialogue with peers and/or one or more mentors. Each educator meets with their mentor online using the Web conferencing tool, Adobe Connect, or Skype, once a month for between forty-five to ninety minutes. These exchanges are complemented by interactions within a social networking space (Ning), and through access to their own 'sandpit' courses in the MoE learning management system, Moodle. During monthly meetings a variety of subjects are discussed (including what they have been working on with their students, student learning outcomes, and how students have been reacting). Participants also identify areas of support they need. This provides an opportunity to encourage self-access to resources such as online readings and exemplars of effective practice, or to provide 'just in time' tailored resources via personalised 'how to' videos and critique.

The VPLD model seeks to foster the formation of an online CoP. After consideration of issues around ease of use and non-hierarchical roles that would enable all group members to contribute equally, a decision was made to establish an online space in Ning. The space was initially populated with discussions, activities, resources and information that were targeted at engaging new participants. At a face-to-face meeting in December 2009 participants were supported through the sign up process, and were encouraged to create a profile, and explore the spaces and tools. An extended discussion around the possible purposes and protocols of the online space led to some key decisions; for example, one was to keep the community closed except to individuals invited from the wider education community because participants felt that they could be more honest and open in a 'safe' space with people that they knew.

An integrated model of virtual professional development that relies on learning and working collaboratively is likely to require an initial meeting face-to-face; Milligan (1999) in fact suggests that it is vital, although once a working relationship is established "face-to-face contact need not occur frequently" (p.16). As part of the VPLD pilot there were two face-to-face

meetings, one in December 2009, and the second in June 2010. Alongside the face-to-face meetings a variety of other community building strategies were employed such as sending out a monthly newsletter that highlighted discussions and contributions in the online Community space, as well as showcasing the work of community members. There were also all-community webconferencing sessions, either to mark, for example, the end of the year, or with a specific topic or skills focus.

## Findings

The findings from the in-depth evaluation of the VPLD programme show that VPLD participants demonstrated:

- Moves toward becoming more reflective self-critical practitioners;
- Shifts in teaching approaches and beliefs about learning that influenced facilitation, whereby sessions became more student-directed and led;
- Design of pedagogically sound blended programmes of learning;
- Evaluation / action research of student learning outcomes;
- Increasing engagement of students;
- Trialling of strategies, approaches, activities and tools recommended / modelled by VPLD community members;
- Independent formation of CoPs and/or offer of mentoring and PLD to colleagues (seven of the ten teachers); and
- Upskilling, and associated improvement in confidence.

The significant level of engagement and development demonstrated by nine of the ten teachers suggests that the VPLD approach is flexible enough to suit the myriad needs of educators as learners. However, something that took time to recognise was that, while some participants immediately started to produce visible, measurable results, others required time to process internally and to become a part of the community, thus creating the illusion that they were less engaged. However, it was found that with consistent guidance and support, as well as increasing confidence, levels of visible engagement gradually increased.

Participants were encouraged to collect evidence of the impact of shifts in practice as perceived by the students, as well as feedback to use for further changes, and (although problematic because the variety of influences within each learner's environment) influence on student achievement of learning outcomes. Anecdotal evidence indicated increased student engagement and greater achievement of learning outcomes; one teacher commented: "Personally, I only need to see the achievement, attitude and engagement of my students to know that I am on the right track". Another reported after trialling a maths intervention which included the used of concept videos and Facebook:

*Comparing test scores, there was an average of 18% improvement on the December test results, ranging from -3% (he missed a page!) through to 50% improvement. It should be noted that it was a very small population - 17 students - that I had December data to compare. Of note was that the three most improved students were the three who were most enthusiastic and consistently involved with the combined*

*Facebook-video-online homework model. Other students had scored highly in the December test, but still improved their scores by 11%.*

Being part of the VPLD community was ranked highly by participants although the benefits identified varied, which became apparent in the responses to - "What has been the highlight, for you of being part of the VPLD community?". These included:

- Impact(s) on student learning;
- Opportunity to work with a mentor;
- Opportunities to network;
- Provision of platforms for sharing ideas, practice and experiences;
- 'Cross fertilisation';
- Access to online spaces / resources; and
- Recognition of work and achievement(s)

Prior to the VPLD initiative several teachers felt isolated, and were keenly aware of the apparent lack of support and understanding around what they were attempting to achieve with students. The following comment captures the powerful effects of working as part of a community: "knowing that I am one of a team with a common sense of purpose serves to reinforce the positive aspects of what I am doing. We are all pioneers, and it always pays to know your neighbours. There is no cavalry out here". Isolation can be difficult to work with, especially in rural schools with few teachers, so it was particularly important for participants to have a sense of being part of a community of professional practitioners. Furthermore, because the VPLD CoP formed over time it offered a 'sandpit' - a safe environment in which educators could 'play' and find their voice, thereby trialling roles and approaches before trying them with students and direct peers. A growing sense of security and trust also led another participant to say that they felt a sense of "security because as I have gotten to know people in the group I have become less inhibited in contributing ideas".

The extended duration of the VPLD appears to have had a deep, lasting effect on teaching practice (Ham, 2009), as well as offering opportunities to forge lasting relationships. A clear example of how well the VPLD pilot was received is: "Thanks for the opportunity. I've learned much and been inspired over time, without pressure of instant results. That's what PD should be about". Another participant commented "I realized just how valuable and important being involved in a group like this [is] and the contributions and assistance that can take place both ways". Therefore, as is identified in some of the effective practiced literature (e.g. JISC, 2009), participants were encouraged to adopt new pedagogies, technologies, tools, and vocabulary partly from the 'viral' effect of sharing effective practices within an online CoP (Moses, 1985).

Part of the sustainability of the VPLD model is the fostering of mentoring roles. Participants were therefore encouraged to start mentoring colleagues where the inclination and requisite existed. It was interesting to see the variety of forms that consequent initiatives took; a shared feature though was that they were built around communities - either within a physical context or across locations – and around a specific discipline.

## **Barriers**

During the course of the pilot project it became obvious that among the VPLD teachers there was not equality of access to the technology itself, or in the level of technical support. Previous studies have shown that external factors have an extensive impact on access to and satisfaction with learning experiences (e.g. Owen, 2010). While participants' ICT skills and experience could be augmented, some negative factors were technical (bandwidth and hardware / software) and could not be resolved by the mentor or VPLD community. There were also issues around the blocking of essential sites in a school setting. For the bigger picture of scaling the VPLD model to a nationwide initiative these factors have several implications. The regular virtual meetings and sessions rely on video, audio, and screensharing. Once ultrafast broadband has been rolled out in New Zealand, bandwidth should not be an issue. However, suitable functioning hardware (microphones, headphones, and webcams, for example) also need to be available. Therefore, there is an associated cost implication to the school (Shea, Pickett, & Li, 2005), while there also needs to be an attitudinal shift in the more rigorous blocking of sites in education workplaces.

Another barrier that was consistently identified was lack of time to participate (which is in keeping with the findings of research conducted recently in New Zealand - for example, Ham, 2009). Therefore, it is strongly recommended that funded release time be provided for any practitioner wishing to participate in PLD of this nature. A caveat might also be that, as one participant mentioned, "it does depend on the teachers/participants enthusiasm to follow through with what is being suggested".

## **Conclusion**

Implications to date indicate that PLD design underpinned by the situative perspective has the potential to alter educators' professional identity and practice (Hughes, 2008), and can raise awareness for the need for, and planning of, associated upskilling (Hallam et al., 2008). Using such a perspective can lead to the development of meaningful, sustainable PLD opportunities that acknowledge 1) affective factors - community, belonging and relationships; 2) a personalised, contextualised curriculum; and 3) an experience where 'training' in discrete 'stand alone' skills takes second place to a teacher's own learning journey. Participation in such a programme, however, does not promise a 'quick fix' because the process or attitudinal shift, and its translation into practice tends to be slow and gradual due to the human factors involved.

It is essential that practitioners have input into initial planning and decision-making, identification of their own and of student needs, design, choice of tools, resources, and the piloting of innovations developed. Credible mentors and CoP members need to facilitate and support the process, alongside timely PLD and technical support, just-in-time training, problem solving, and all-important release time. 'Champions' are also vital to support the planting of initial seeds of new thoughts and spreading ideas. These aspects are, however, only parts of a much bigger picture. A range of other influences at institutional and/or governmental level, including conflicting messages, can affect the results of any initiative.

It has been shown that there are affordances built into the VPLD approach that encourage and enable teachers to move at their own pace, in a supported, supportive environment, with access to all that they need to scaffold their learning journey. Thus, if it is accepted that student outcomes frequently mirror teacher performance (although this is a somewhat simplistic relationship), it would therefore follow that if teachers can be mentored and guided in their own continual professional development and thinking around learning and teaching philosophy(ies), there is a strong potential that the overall learning experience for students can be enhanced. However, it is still incumbent upon the wider education structures to act to minimise constraints that discourage, prevent or enforce.

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# KEEP THE LAUGHS COMING! IMPLEMENTING A NEW LMS

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**Abstract** - Implementing a new online learning environment (OLE) for a large Australian vocational education and training (VET) institute is a major undertaking. Keeping teachers and students engaged and enthusiastic is a challenge, not to mention the “buy-in” of support staff, including ICT staff, librarians and educational developers. This paper looks at the laughs and the tears of our unique *eLearn* rollout and our continuing philosophy of engagement, in particular through the professional development of staff across all areas on the institute.

## Overview

Implementing a new online learning environment (OLE) for a large Australian vocational education and training (VET) institute is a major undertaking. Selecting the right system is only a small part of the journey. Our decision to not only replace the OLE, but to replace it with a new multifaceted and fully integrated learning environment, increased the complexity. Keeping the teachers and students engaged and enthusiastic was a challenge (see for example Slay, 1999; Ellis & Phelps, 2000; Jackson & D'Alessandro, 2004), not to mention the range of support staff, including ICT staff, librarians and educational developers. This paper looks at the laughs and the tears of our unique rollout and our continuing philosophy of engagement.

The newly implemented learning environment consists of three different products seamlessly integrated, to provide staff and student with an holistic online learning experience. The environment is named *eLearn* in an effort to move away from brand names and consists of Moodle (LMS), Wimba (virtual classroom and audio tools) and Equella (digital repository).

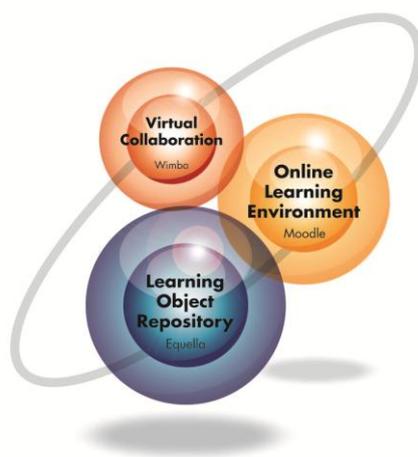


Figure 1. System components of *eLearn*.

Change management strategies were devised and implemented to ensure not only a smooth rollout but also an increased uptake and renewed enthusiasm for online learning (Martin,

Quigley & Rogers, 2005). Our unique approach to the rollout included strategies to engage and support the innovators, early adopters (Jacobsen, 2000: 452-3), early majority, late adopters and laggards (Rogers, 1995) across all levels of the institute.

A key risk factor for the rollout of a new system such as this is often the lack of adequate updates for teaching staff and students. In response to this, a communications strategy, staged rollout, and a consultative and customised professional development program, which included weekly online forums and mandatory training in the new system, were implemented.

The biggest challenge throughout the implementation was addressing and supporting cultural change. The overlapping project phases served as a guiding factor in planning and implementing both the communication and professional development approaches (see Figure 2). These initiatives are further discussed in the following sections together with the in-house implementation, and governance and policy issues, and were paramount in managing cultural change across the institute.

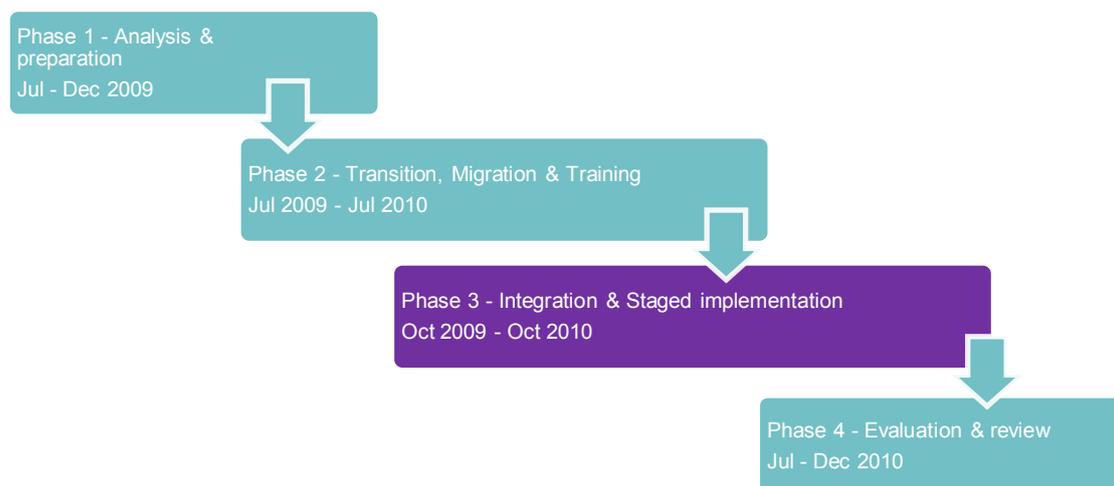


Figure 2. Overlapping project phases of *eLearn*.

## Communications strategy

The communications strategy was necessarily multi-pronged (see for example Martin, Quigley & Rogers, 2005; Whelan & Bhartu, 2007). The “*eLearn story*” was told from many perspectives in an effort to ensure all areas for the institute were aware and informed of the implementation and the associated project phases in a timely way. Along with the abovementioned road show presentations, regular all-staff email bulletins were sent, as were project updates to relevant institute committees. In addition, project managers and team members attended a range of staff and committee meetings, training sessions, other staff development programs (such as staff induction workshops) and executive and management forums.

The “*eLearn story*” was itself staged in tandem with the implementation. The story began with “*eLearn is coming*” and moved through to “*eLearn is here*”. Its success proves that the

transformational power of storytelling. The storytelling process was a dynamic and entertaining one that drove the swell of enthusiasm for the new OLE.

### ***eLearn* professional development program**

With the previous OLE, teaching staff were frustrated with its lack of speed and limited capabilities, with some teaching areas opting to not use it at all. Our aim was to address change from a transformational, empowering, enabling and educational perspective; each provides powerful tools to assist with the complexities inherent in many change situations (Steel, 2005: 1). We were able to turn this “change challenge” into a series of successes through our communication strategy.

The communication strategy involved a road show style presentation in parallel with the planning and pilot phases of the implementation (Figure 2, Phases 1 and 2). This presentation was delivered at key management meetings, centre meetings and staff meetings. The new features of the system were highlighted and put into a learning context to demonstrate the benefits for students and teachers. Similar presentations were delivered to upper management and institute support areas to ensure complete buy-in at all levels. This was especially important at executive level when competing priorities threatened the project’s resources and timelines (Macchiusi and Trinidad, 2000).

A challenge for all institutes is promoting and managing the quality of online courses (McNaught, 2001; George & Wood, 2003) At our institute, 7,000 subjects come into the system every six months. Mandatory training prior to access gave us the opportunity to explain the new OLE and give hints and tips without getting bogged down in educational theory. A learning design template was designed with set columns and included suggested features that would optimise the educational experience of the course. This gave early adopters and innovators a starting point from which to work, rather than simply a ‘blank slate’. This served to acknowledge teachers’ previous online work, ensuring their engagement with the system and willingness to generate new and innovative online subjects.

Professional development not only increased staff competency and capability in *eLearn* but also was a pivotal point for cultural change in online learning. We can indeed identify with the broader contextual changes highlighted in Jackson and D’Alessandro (2004: 461-463), these being increased time pressure on teaching staff, unpredictable availability of resources and support, increased (yet arguably variable) teaching innovation, increased e-learning maturity, student pressures, and increased expectations on support staff to mainstream innovations. In response to these change factors it was important that the professional development strategy be endorsed by the institute’s academic board as well as the committee responsible for the institute’s overall ICT strategy, to ensure ongoing commitment to confront these changes head-on. Staff professional development included all employees; teachers, administrative staff and technical staff, including the CEO.

One strength of the professional development was the marketing and delivery of the training. The training was always upbeat and engaging. Delivery was customised to each group upon

request. Customisation most often involved focusing on those features of most benefit to the learning cohort for which teachers were designing their online subject. To illustrate, one example was the Certificate 3 in Aged Care. In this course, teachers got together to devise an overall look and feel and educational philosophy across all subjects, which not only produced a professional-looking course, but engaged all teachers in some online activity, including those who had not previously taught online.

Training consisted of a series of three two-hour workshops, developed to introduce academic and administration staff to design techniques and principles of delivery of educational material using the *eLearn* environment. This is not a new strategy; Monash University used a similar approach with the implementation of WebCT (Weaver, Button & Gilding, 2002: 1). However, we made the training mandatory, which was endorsed by the institute's academic board. Staff members were unable to access the live system until they had attended the first orientation session, which provided an overview of the system along with its key integration features. All staff were given access to their own development course and were encouraged to work through the guided activities in the workshops. This approach helped to also identify other related professional development needs,

To compliment the face-to-face workshops, an online self-paced course was designed to increase access for part-time, casual and 'time poor' staff members. For six months we delivered face to face workshops up to four times a week, including sessions after business hours. During this time we trained over 300 staff members, close to fifty percent of the staff population.

The innovators and early adopters filled the majority of these sessions for the first two months. Another round of road show presentations brought the early majority in. These presentations aligned with the development of the live *eLearn* environment which incorporated pilot group feedback and suggested changes and improvements to some system functionality, in particular to the digital repository (see Figure 2, Phase 3). Emails to managers with congratulations to those who had successfully completed the training then prompted the late adopters to engage in the training sessions. It was the ceremonial closing down of the old system and not having access to the new system that prompted the laggards to finally dip their toes into the new system.

Now some six months into using *eLearn* we see the occasional laggard, but these are now few and far between. New staff members are using the online self-paced orientation course to acquire basic knowledge and gain access to the system. Currently we are developing the online self-paced course into a publicly accessible course that will enable new staff members to have access to the training before they are fully indoctrinated into other necessary human resource systems.

As with Martin, Quigley & Rogers (2005: 135), the implementation was set up as a rolling launch. The three-stage rollout was designed to help customize the environment to the

institute's needs. Such customisation required feedback from teaching staff and learners in authentic teaching and learning situations. The first stage was a *pilot environment*. Volunteers were called for from different areas of the institute. The pilot group were given the freedom to develop course material and layouts. To give structure to the pilot, scenarios were developed to make sure they were using all the tools available, especially new features such as wiki and audio tools. Feedback features were made available within the pilot environment to enable ongoing discussion and commentary between the pilot group and the project implementation team. One example of an outcome of the pilot was the inclusion and exclusion of system features and how features would work best in an integrated way, for example, between the digital repository and the LMS components.

The second stage was a *development environment* that formed part of the live environment, for exclusive use by institute staff. Innovators and "power users" were invited to start developing and delivering in the new environment first off. Around 20 teachers were involved initially in the development environment. This development environment was also used for the professional development workshop series.

Feedback on aspects of the pilot and development environments was considered when moving to the third stage, a *full production environment* and a priority business system of the institute. The existing learning environment was used in parallel with *eLearn* for a six-month period (equivalent to one semester) to enable time for teaching staff to switch over to *eLearn*.

To ensure Centre (Faculty) buy-in, centre-specific transition plans were formed in consultation with the centre management teams. Plans included centre based training sessions, which ranged from one-off workshops to a six-week 'developing digital literacy' course. This approach was very successful for the teaching centres who undertook this training. Factors enabling success included level of readiness in the Centre to move to *eLearn*, having key online mentors in the Centre to support other teachers, and existing knowledge and experience with teaching online. Other teaching centres less successful did not have one or more of these factors present.

In conjunction, additional funding was acquired for centre based professional development. To distribute the funds, expressions of interest were sort for centre based projects. As with other large scale professional development initiatives (McNaught, 2001), the aim of the projects was to establish a high quality online course and online learning leaders within each of the centres. The project teams were supported by educational and graphic designers. The projects were showcased at an institute professional development day to demonstrate the capabilities of *eLearn* and of the staff involved. These projects acted as intensive development opportunities for teaching teams and proved highly successful. One example involves the three teaching teams of the trades training centre of the institute. One team was funded to initially develop a range of resources that could be used simultaneously online and in the workshop setting. While showcasing their project to other teaching teams, they collectively devised a process of sharing teaching resources, subject templates and online teaching tips, which saw two more teaching teams use *eLearn* with the students (these being mainly apprentices). The overall

result was a centre, one previously averse to online teaching and learning, became a leader in online teaching and learning practice of the institute.

### **In-house implementation**

The *eLearn* environment consists of three products but its uniqueness comes from it being an integrated, in-house implementation. This means that the hardware for each of the systems is hosted within the institute, as opposed to an external hosting service.

A major challenge facing the implementation was the time it took for the external vendors to familiarise themselves with, and negotiate, the organisational context. It was important not only for the system itself to be seamlessly integrated but that it also integrate with other organisational systems, in particular, the student information management system. The implementation timeline from procurement to a live production environment was a challenge, as teaching staff in particular were motivated and excited about the prospect of a new system but didn't have immediate access. We were able to turn this challenge into a success by extending the professional development opportunities for staff, which enabled them some level of system access. We also involved the innovators into our decision-making around system features and policy aspects in order to keep them motivated and on-side. Not only were these individuals our innovative champions, they were also our loudest critics.

Key project requirements were used to measure the success factors of implementing *eLearn*. The first requirement was integration. This three-way integration had not been attempted elsewhere previously but was a critical factor to the success of the project. Proprietary names of each of the components were not used when demonstrating, showcasing or training in the system, and an overall name concept was used to brand the integrated solution, *eLearn*. Users are unaware of when they are moving from system component to the next. This in-house branding enabled us to tell and retell "the *eLearn* story" as part of our change strategy.

The second requirement was migration. The migration of content from the previous system to the new system was imperative and an important factor when showcasing the system. A key success factor in implementing the new system was automating the migration of existing subjects and their content. This addressed a primary concern of teachers that they would not have time to transfer their subject resources and online processes to the new environment. Part of the professional development strategy was to show teaching staff how their nominated content had been migrated and how to rearrange it and update it for delivery. A basic migrated subject took as little as twenty minutes to refine for delivery.

The third and fourth project requirements were data privacy and digital rights management. Staff needed to be assured that they had the power to enable other people to see their resources. They also needed assurance that staff and student information was well-protected and that system roles were clearly defined. With regards to digital rights, it was imperative from an institute point of view that digital objects could be managed in an effective way. This development has seen the institute formulate new policies regarding digital rights

management. In response to this ongoing need, customised reports are being refined by the external vendor to assist with these obligations. An example of this is the 'course size' report, which allows us to identify and monitor large courses within the course management component of *eLearn*. This provides us the opportunity to educate teachers on the effectiveness of the repository and move items from their online course into it. This shows how we can both manage and value objects (as well as our copyright obligations) through multiple components in the one system.

The fifth and final key requirement was flexibility in learning design. The institute delivers a wide variety of qualifications from trade certificates to bachelor programs. The OLE learning design template needed to be easily adaptable for staff to cater for variations in the educational intent of courses, as well as the varied level of digital literacy exhibited by teaching staff. This approach has put much pressure on the educational design team and seen some fundamental changes to the way in which the team responds to a broad range of teaching needs and requests. As a result, for example, reusable and more adaptable themes and templates are being developed in consultation with teaching teams to help smooth this transition. One example of this is our Trade Training Centre whereby working with one area had an immediate flow on effect for the whole centre. Not only did this work promote a whole-of-Centre look and feel but also uncovered a much greater need for basic digital literacy training. This remains an on-going challenge, as Weaver, Button & Gilding (2002) concur, as the educational design team must confront a range of digital literacy needs prior to engaging teachers on learning design aspects in the online environment.

### **Governance and policy**

Business processes and institutional policies needed to be adapted to deal with the diverse functionality of the new system, while being careful to not set up barriers to engaging teaching staff to develop their online subjects (cf. McNaught, 2001: 437). New processes and policies were devised to take into account the technical, educational and business needs of the system and serve to "future proof" the environment as these needs change over time. To facilitate this, an executive *eLearn* steering committee worked closely with the project management team, who in turn liaised with the project team and the external vendors. The executive committee also advocated for the project at key institute committees including, in particular, the committee responsible for ICT infrastructure and the Academic Board.

In addition, implementing a system of this nature meant that the project team was large. The sheer size of the project team was a challenge in itself. The initial project team included five project managers each with different responsibilities, two of whom were system business owners and two representing external vendors. Management processes needed to be established from the outset and maintained throughout the implementation. This was facilitated by weekly project meetings, intensive planning sessions and kick-off workshops, all of which included the external vendors.

The introduction of the digital repository component was a highlight and was sold to staff as a way to manage their resources, enabling easy version control, as well as copyright

responsibilities. The key challenge with the repository revolved around its setup and establishing intuitive workflow procedures that were not time-consuming, nor overly bureaucratic. Migrated resources made up much of the digital objects and enabled teaching staff to see their materials within the system in full working order, thus helping them understand the resource management process more readily. The repository has been successfully implemented as a key part of *eLearn*, and contains over 70,000 items.

The institute has a Teaching and Learning Plan to which the project's professional development strategy was aligned and was sold to the teaching centres' management teams as one way to fulfil their obligations to the plan.

## Conclusion

Implementing an online learning environment can be a fun and empowering experience for all concerned. If asked to give advice to another institute about to start such a process we would highlight to the importance of selling the project concept. Through the *eLearn* story we were able to generate the critical mass Rogers (1995) describes is required to drive such an implementation. The presentation and delivery of the roadshow presentations and the professional development have made our implementation a success. Of equal importance is the support from the executive, as described by Macchiusi and Trinidad (2000), and we concur that while institutional leaders present a vision for change, it is primarily teachers – and ultimately learners – who are change agents in our increasingly digital world.

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# WORKING WITH STUDENT DIVERSITY IN AN ONLINE PROGRAM

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**Abstract** - The case study described in this paper illustrates the importance of the role that informed learning design plays in the planning, development, and implementation of online programs when educating diverse student cohorts. Within the context of this paper student diversity refers to: personal and geographical demographics, work and life experiences and consequent skill bases. This diversity was prevalent in the open-access, online undergraduate Bachelor of Technology program and can be attributed to the different backgrounds of the students many of which enter the program via non-traditional pathways. A significant number of people working in the Information and Communication Technology (ICT) industry within Australia do not have higher education qualifications in the field; however for career advancement, they are seeking credentialing. Likewise, employers are pursuing professional development opportunities for their staff within their own ranks since higher education ICT programs Australia wide have failed to attract school leavers in recent years. In contrast, the Information Systems (IS) program discussed in this paper, has experienced exponential growth of over 80% since 2007 attracting large cohorts of mature-aged students studying while employed. These students enter the program with a variety of skills, experience and learning styles challenging the educators to establish strategies and adaptive learning designs to cater for this diversity. The paper discusses the practice-led design adopted for online learning and teaching with emphasis on working with student diversity.

**Keywords** - Diversity, e-Learning, open access, online education

## Introduction

The inclusion of online education at many universities worldwide has led to research studies which investigate different aspects of e-learning. One aspect explored in this paper is the diversity of students in online education.

Online education with its potential for flexible delivery attracts non-traditional entry students such as mature-age students who are balancing study with work and family (Coldwell, Craig, Paterson & Mustard, 2008). These students come from diverse backgrounds not only in terms of geographic locations, technical skills, and access to online connectivity but also in relation to timeframes they can devote to study due to their other commitments (Elias, 2010).

The literature revealed other areas of diversity such as the cultural backgrounds of students (Anderson & Simpson, 2007; Liu, Liu, Lee & Magjuka, 2010), and students' preferred learning styles (Donnelly & O'Rourke, 2007; Signor, 2009). Not all identified areas of diversity fall within the scope of this paper, for example the issue of cultural diversity will be explored in future research. This paper focuses on diversity in terms of student backgrounds and experiences, geographical locations and students' preferred learning styles.

An online Information Systems (IS) undergraduate program at an Australian university (in partnership with Open Universities Australia (OUA)) forms the case study for this paper. The IS program guarantees open access entry to any person i.e. there are no formal tertiary entry requirements. The outcome is significant variance among the student cohorts in terms of their personal and geographical demographics, work and life experiences and subsequent skill bases. This reality led to many challenges faced by the educators particularly in terms of catering for differences in student backgrounds and learning styles. As members of the academic team involved in the original on-campus provision of this program, the online transition and ongoing pedagogical development for learning and teaching to diverse cohorts was a high priority.

### Growth of the online program.

Student enrolments in the program have grown by 80% since 2007 in direct contrast to the declining trend in Information Technology (IT) enrolments in universities Australia wide as reported by the Department of Education, Employment and Workplace Relations (2009), see figure 1. A possible explanation for the growth in this program may be the demographics of the cohorts. The cohorts have been observed as predominantly Australian mature-age students. Supporting this observation is the OUA Annual Report as reported by Open Universities Australia (2008), which stated that 90-95% of students studying ICT through OUA are Australians who are 25 years and older. In light of this information, these mature-age students are likely to be balancing work and life commitments with their studies and may be drawn to the flexibility offered by online education in relation to time and place of study (Stephenson, Brown & Griffin, 2008).

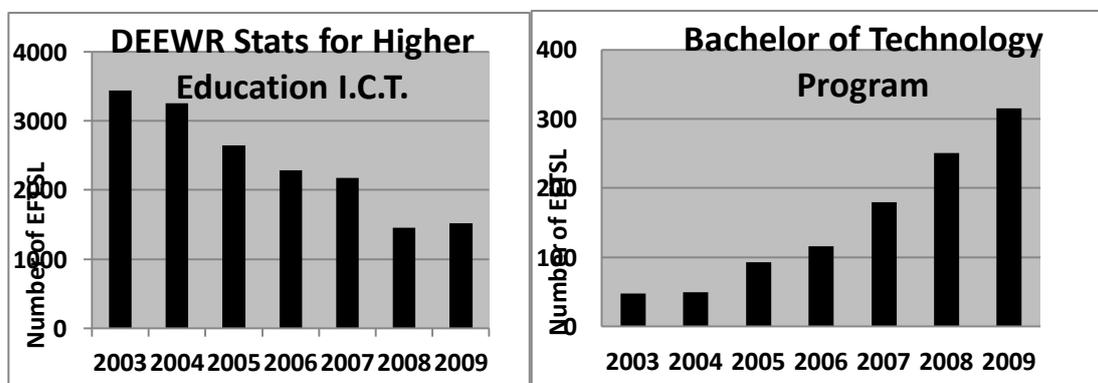


Figure 1: DEEWR vs IS program statistics according to *Equivalent Full Time Student Load (EFTSL)*

Learning in relation to technology is considered extremely important to Australian employers as it can enhance employees effectiveness hence improve the performance of the company (Australian Employment & Workplace Relations, 2008). The continued growth in the IS program is seen as meeting an otherwise unmet need by mature-age candidates, who either desire to credential their existing work-based experience or are looking to enhance their career and employability prospects.

## **Diversity of students.**

The open access feature of the program is the 'no entry requirements' such as prerequisite studies. This feature guarantees the student cohorts entering the program bring with them assorted skill bases, varied online accessibility and a mixture of preferred learning styles. The multiplicity of students led to developments in online learning design and teaching practices. As a result a range of pedagogically based initiatives to support students in the program were developed.

## **Work and Life Experiences**

The program's typical cohort include students returning to study for the first time after numerous years and students who wish to receive formal academic qualifications to supplement their industry experience. Many students are not in a position to stop employment in order to physically attend a university. The IS program is filling this otherwise unmet gap in Australia. The aim of the program is to create credentialed information systems professionals who add value to an organisation with their critical thinking skills and ability to liaise with colleagues and stakeholders, including clients.

The use of interactive, collaborative online activities within the program draws upon students' individual experiences and skill bases. Students are encouraged to develop a theoretical understanding of the information systems discipline to underpin their skill development. This has facilitated successful career outcomes and provides a foundation for lifelong learning. A primary focus for future research into this program will be to explore student outcomes in terms of their learning and career prospects. An example of this is the following feedback, in the form of an unsolicited email, received from a student in 2009:

"I have full time work now and it is all thanks to this course. A really big thank you...for making it possible for me to study at home in a rural location and gain a fantastic job as a result".

Meyers and Jones (1993) active learning principles was used to inform the use of case studies for student team dynamics and collaborative learning. In mirroring on-campus practices the active learning approaches include small groups in online tutorials and the use of industry sourced and real world scenarios such as case studies and relevant assessment tasks. Options are available for students to base their assessments on their own work-related scenarios or, to cater for students who may not be currently employed, case studies are provided which emulate real-life scenarios that encourage analysis and problem solving.

As discussed previously, the program's student cohorts are primarily mature-age students and are valued for the wealth of experience each student brings with them. To capitalise on this, teamwork and communication skills are facilitated via online communication within collaborative settings which enable group discussions drawing from industry experience. Students are encouraged to share their experiences as they relate to the subject matter. This results in value-added collaborative online tutorials where students stimulate conversation by bringing in their understandings around the concepts being taught. Students without the

benefit of on-the-job experience are engaged into conversations by their peers with relevant and up to date experiences which assist them in sense making of content. Learning activities direct and support students towards collaborative communication throughout their studies. For example semi-structured synchronous online chats, asynchronous discussion threads, email and use of Skype for peer support.

### **Location and Accessibility**

Online education attracts students whose residential location makes it difficult or impossible to attend face-to-face institutions (Signor, 2009). This is evident with many students in the program enrolling from local, rural and international locations.

One of the program's philosophies is to be accessible for all students, no matter where they are or what technical resources are available to them (an important issue in the Australian context). Accessibility equity is a moral consideration for educators (Anderson & Simpson, 2007) particularly when delivering online education where students have limited access to online resources. Subsequently it is not assumed students in the program have equal access to the Internet or latest software versions. Therefore to ensure content availability for all students, a CD-Rom containing a complete mirror of a unit's Website capturing all static content is offered as an alternative resource.

### **Learning Styles**

Students in the program approach learning in different ways. These approaches may be viewed as preferred learning styles although it should be noted that each person is multifaceted and unique. Attempts to categorise people as having specific learning styles can be difficult however many researchers have attempted to do so by developing frameworks as measurements (Cuthbert, 2005; Honey & Mumford, 1992; Kolb, 1981). This section will not follow a particular learning style framework but will address learning styles more generically in terms of the students' desired pace of progression through unit material, variety in viewing unit material and in the types of assessment.

One strategy employed to enhance student learning was the development and implementation of learning objects into the curriculum. A learning object can be a single file such as an animation, a video clip, a discrete piece of text or URL, or it can be a collection of contextualised files that make up a learning sequence (Oliver, Wirski, Wait & Blanksby, 2005). Learning objects offer a new conceptualisation of the learning process - rather than traditional lectures and tutorials, they provide smaller, self-contained, portable or reusable units of learning presented in manageable segments (Moore & Wallace, 2003). To encourage student reflection on their learning progress many of the learning objects contain self-assessment activities.

It was observed that learning objects afforded students a degree of flexibility to choose which areas within a unit to study as appropriate to their needs. For example, depending on each student's prior knowledge, they have the option to skip any learning object in which they are already proficient, allowing more time to focus on their learning needs. This feature is

particularly relevant for students currently employed within the IT industry due to their work experience. Students through tutor guidance are given control, responsibility and ownership for their learning within a structured environment in which they can develop self-directed learning skills.

Recognising the need to support students with different learning styles, many of the units within the program include virtual lectures with video components and text-based transcripts. Students who prefer the spoken word can listen to the video. Students who prefer the written word can read the transcripts. Students are also able to view the lectures at their own pace, revisiting sections as required.

Virtual lectures are complemented by virtual tutorials conducted via online discussion threads or online chat sessions. However it was noted early on that static text based content did not suit the learning styles of all students therefore virtual tutorials using Mimio software (an electronic white-board that records voice, images and text) were developed to provide step-by-step worked solutions to complex problems. The incorporation of Mimio files allows students to view a pre-recorded white-board presentation of a worked example along with verbal explanations which are further unpacked during chat room sessions.

## **Conclusions and Further Research**

Contemporary literature (coupled with the evidenced growth in the online program discussed in this case study) points to the growing demand for online education for students with diverse backgrounds. It has been shown that online programs teaching to diverse student cohorts can be successful in a tertiary environment, where explicit planning and development has been undertaken.

The planning and development for delivery of flexible learning materials which cater directly for student diversity must be a key focus of the underlying learning design philosophy. Imperative to this philosophy is to provide collaborative communication which affords accessibility for all students. As part of the communication strategy, educators proactively facilitate an inclusive environment that encourages the sharing of experiences amongst students.

This case study has illustrated an aspect of innovation in learning design for a highly successful, nationally recognised online and open-access undergraduate program (Australian Learning & Teaching Council, 2010). Future areas for research include cultural diversity and the need for equity for students with learning impediments and disabilities. In addition, exploration into the student outcomes in terms of their learning, career prospects and satisfaction within the program will form a key component of further analysis of this case study.

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# UNDERSTANDING FACILITATOR WORKLOAD IN AN E-LEARNING FUTURE

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**Abstract** - Expectations of online facilitators can be high, with some writers indicating that they need to variously be subject matter experts, technology experts, counsellors, facilitators and adept at online social networking. This represents a significant skill set for any one person, and although there is no agreement that the online facilitator should fulfil all these roles, they are likely to retain responsibility for overall delivery. Online facilitators are being challenged by institutional and learner expectations. They may be required to log in every day, respond to their students both individually and in groups, and monitor their student progress using online applications. In addition, they can be dealing with differing student expectations and learner inexperience with the required technology. Course design can facilitate better outcomes, but this needs to be tempered by greater understanding of the fluidity of class numbers. Despite the growing body of research into e-learning, there remain gaps in our understanding of the factors which affect facilitator workload. There is growing realization that facilitator/ learner interaction is a contributor to successful results. Therefore, there needs to be more understanding of the pressures of online facilitation and appropriate workloads. This paper describes the experience of one online facilitator working in an undergraduate course (at level 5 in the New Zealand context), with a focus on vocational education as a contribution to greater understanding of the practicalities of facilitating in an online environment.

**Keywords** - online facilitation, pedagogy, class size, vocational education

## Introduction

Provision of online learning opportunities is becoming more popular as this approach to education finds an increasing role in the 21st century (Orellana, 2006). Alongside this popularity is a lack of complete understanding of the facilitator role in e-learning. Originally only four roles<sup>4</sup>(Berge, 1995) and five competencies<sup>5</sup>(Salmon, 2003) were reported. These have expanded to over five hundred (Bawane & Spector, 2009) – a considerable skill repertoire for anyone. It is hardly surprising, therefore, that the workload of an online facilitator is not always clearly understood. This is because both a variation in the individual factors and a change in their compound interaction have significant effects on that workload. Four of the most significant factors are learner expectations, technology, course design and class size. Each merits individual consideration.

Learner expectations can cause difficulties when dealing with those who are accustomed to the often instant response of the social network, and who might not appreciate having to wait

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1. Pedagogical, social, managerial and technical
  2. Understanding of online process, technical skills, online communication skills, content expertise and personal characteristics

for a reply from their facilitator. This may be particularly problematic in managing online forums, where learners post questions for discussion but are not necessarily prepared to engage in a lengthy interaction with other students (Hughes & Daykin, 2002). Facilitators may have a different view, allowing discussion to develop and for the students to take more responsibility for the learning (Berge, 1995).

Technology can be a problem for online course facilitation, with both learner access and learner experience contributing to difficulties. Firstly, the issue of hardware disparity can be significant. When a learner has older or slower technology available than the facilitator, e.g. a dialup 56kb modem only, there are often problems in delivery time and material display. Secondly, even if they have adequate hardware, the level of software knowledge may hamper their ability to respond, either in terms of time or complexity. When the software used is new for the learner, finding operational answers can be frustrating and time-consuming. In some instances, access to technical support is available for the learner, but this is limited.

Research supports the concept that good design is an important factor when presenting any course, but it has particular importance with online work (Hughes, Ventura, & Dando, 2007). According to Berge (1995), the technology must not take over from the requirement to have well designed learning goals and objectives, and it is also worth noting that good learning design cannot replace good facilitation or appropriate course content (Edwards, Perry, & Janzen, 2011). Whereas the pedagogical requirements of teaching are the same, online course design needs to be superior because the ability of the teacher/facilitator to compensate for poor design is constrained.

Despite the growing body of research into e-learning, there remain gaps in our understanding of the number of students which constitute a manageable online class (Orellana, 2006). Although some research indicates that between ten and twenty students are sufficient for any facilitator to manage in a single online class (Orellana, 2006; Salmon, 2003), others report a considerable variation in class size (Orellana, 2006). It is clear, however, that the larger the class size, the less the facilitator time that can be allocated to individuals (Lynch & Paasuke, 2010).

## **Method**

In order to better understand some of the factors involved in facilitator workload, the experiences of one online facilitator were documented across three iterations of the same course, "Transforming Learning Experiences", at the Open Polytechnic. The course was at Level 5 on the NZQA framework which is equivalent to first-year university level. The goal of the course was to provide an introduction to current practice and thinking in e-learning. Class sizes for the three iterations were 12, 23 and 32 respectively. While entry to it was open, the course was recommended for learners who were involved in education and who worked with, or designed for, adult learners either in tertiary or community education, or in a workplace. Some relevant work experience was expected of the learner, as was access to the internet, although only basic computer skills were specified.

The focus for the learners was to obtain the skills necessary to enable them to effectively facilitate and design courses online (mainly skills based modules) for their own industries. The course iterations were entirely online and included considerable forum work, with students being required to participate in online group collaboration every second week. All iterations had three assessments, each of which included some group activities. The students on this course were all part-time, primarily vocationally- or industry- focussed learners, and (in most cases) not used to studying at higher levels on the framework.

## **Findings**

### Expectations

In this course, the facilitator found that the required online presence was greater than first anticipated. On the basis that online learners need less support than their face-to-face counterparts, the facilitator tried to keep a low profile in the online forums. Even when it seemed that the learners might benefit from more input, such as intervention, this was resisted, having regard to the need for students to self-direct. While this may be true for others, it was clear that in this course many students still felt that their need for guidance was not fully met by the course material, online readings or peer-to-peer interaction. The facilitator found that the learner-centred focus of the course was not necessarily what the students expected. They wanted the facilitator to take the lead similar to classroom-based contact teaching. This was obvious from both the level of student contact made with the facilitator and the post-course feedback.

### Technology

There was a wide disparity in student capability regarding the technology. Pre-enrolment information indicated that the course was to be run online, but suitability for enrolment was largely based on self-assessment of technological capability. This meant that some students found the course extremely challenging as they struggled to cope with the technology. This was evidenced by students complaining that the technology was not working for them, when in fact their own skill was the limiting factor.

### Course design

Whereas adequate course design minimises confusion on the part of the learner in (a) accessing the information efficiently and (b) interpreting assessment questions correctly, on this course, many students expressed difficulty in doing so. Whether this was due to design difficulties, instructional inadequacy or user inadequacy was not clear.

### Class size

Class size had an identifiable impact on the ability of the facilitator to fully engage with the learners. When the class size was small, there was more time to appropriately-monitor individual student activity, particularly within the forums. However, as the class size grew, the facilitator was more and more pressured to keep up with learner demand. The largest class involved three times as many groups as the smallest class, tripling the organisational setup and student response time. At the end of the day, the only way to sustain successful management of the largest course was to work from home, on top of a day in the office – a

tolerable solution in the short term only.

## **Conclusion**

The experience of the facilitator in this project confirmed the significance of each of the main factors highlighted. Differences in the parameters of each had a big impact on the overall workload. When these differences were compounded, the workload became unsustainable. It was clear that this course could not be successfully delivered without any input from a facilitator, and the greatest demand for facilitator time was on a one-to-one basis. Not surprisingly, therefore, as class size increased, meeting the need for one-to-one interaction depended on the facilitator working longer hours. Whereas this may be a short-term solution, it is neither desirable nor sustainable.

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# **MLEARNING PRAXIS: A PRAGMATIC GUIDE TO IMPLEMENTING MOBILE LEARNING**

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**Abstract** - This paper explores approaches to implementing mlearning that focus upon using student-owned mobile devices to enable student-generated content (Bruns, 2008) and student-generated learning contexts (Luckin, et al., 2010). The author explores how this can be achieved and supported within the context of the variety of mobile devices available and used by students today. The paper evaluates the current options for mobile devices, and discusses an mlearning design framework that can be used to implement social constructivist pedagogy using mobile web 2.0 on a variety of student-owned mobile devices with a minimum of technical expertise from the course lecturer/s. This is informed by drawing upon examples from over thirty mlearning projects implemented by the author during the past five years, evaluated within a participatory action research methodology. Examples of mobile web 2.0 implementation outlined include integrating into the curriculum the student use of: Twitter, mportfolios, VODCasting (for example mobile videos uploaded to YouTube and Vimeo), PODCasting, the use of mobile codes, geotagging, geolocation, and Augmented Reality.

**Keywords** - mlearning, communities of practice, social constructivism

## **Introduction**

Mlearning is a rapidly developing form of computer assisted learning that is defined by its focus upon the mobility of the learner, and consequently the potential to frame learning within authentic situations and bridge multiple learning contexts, on and off campus, linking formal and informal learning. This is best achieved by focusing upon the unique affordances of mobile web 2.0 tools rather than replicating on a small screen what can be achieved on larger less mobile computing devices such as laptops and desktop computers.

## ***Beyond the LMS – Pedagogical Transformation***

Mlearning provides a catalyst for moving from a lecturer-directed pedagogy (Kukulska-Hulme, 2010), often characterised by a focus upon the institutions LMS (Learning Management System), to a student-centred social constructivist pedagogy where the focus is upon enabling student-generated content (Bruns, 2008) and student-generated learning contexts (Luckin, et al., 2010). Traxler (2011) defines five types of learning scenarios where mlearning has had significant impact on learning:

1. Contingent mobile learning and teaching, where learners can react and respond to their environment and their changing experiences, where learning and teaching opportunities are no longer pre-determined beforehand.
2. Situated learning, where learning takes place in surroundings that make learning meaningful.
3. Authentic learning, where learning tasks are meaningfully related to immediate learning

goals.

4. Context-aware learning, where learning is informed by the history, surroundings and environment of the learner.
5. Personalised learning, where learning is customised for the interests, preferences and abilities of individual learners or groups of learners. (Traxler, 2011, pp. 6-7)

### **Web 2.0 Appropriation**

The researcher's mlearning strategy has focused upon enabling the pedagogical use of elearning tools beyond the LMS, with a particular focus upon developing rich-media student-generated eportfolios. The use of Wireless Mobile Devices (WMDs) utilising the affordances of web 2.0 has been a core catalyst in enabling these student-generated eportfolios.

### **WMDs**

Initial mlearning projects between 2006 to 2010 (Figure 1) focused upon developing mlearning projects using Wireless Mobile Devices (WMDs) provided by the institution and loaned to students throughout the length of each project, typically spanning one to two semesters. These projects formed research cycles within a longitudinal research project using a participatory action research methodology (Swantz, 2008).

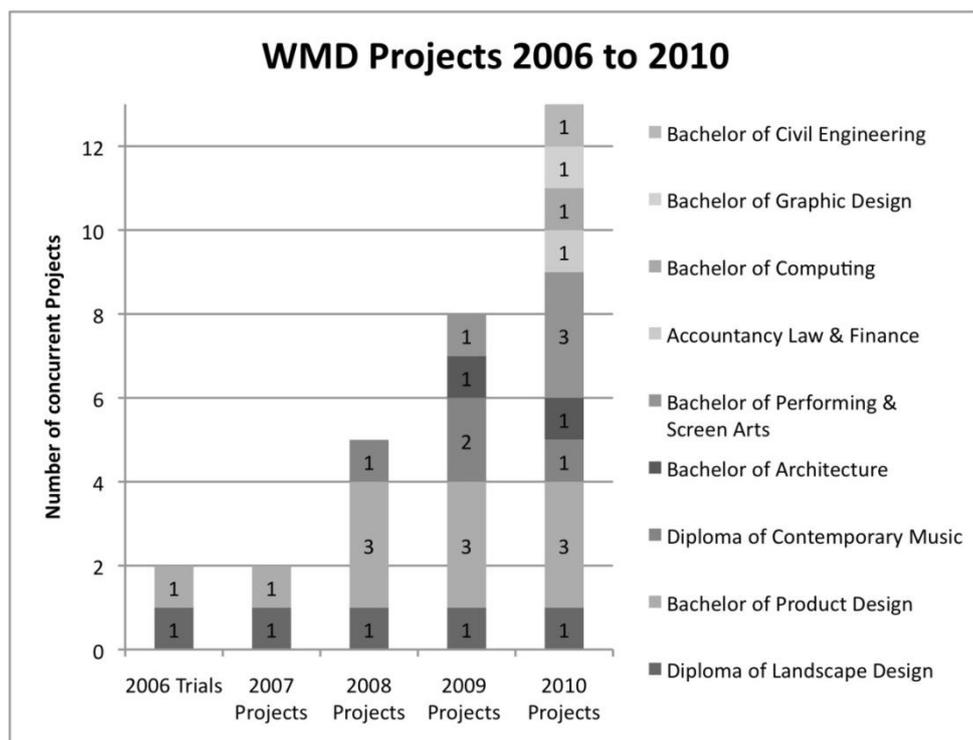


Figure 1: WMD project development 2006 to 2010.

The thirty project iterations led to the development and refinement of a variety of supporting documentation and processes including: acceptable use agreements for participants in the WMD projects, processes for organizing the distribution and collection of WMDs for the projects, an agreement with the institutional computer supplier to purchase loan devices for the project participants, and storage and re-imaging of the devices between successive

projects. The researcher worked with lecturers to choose appropriate WMDs for each different course context, ensuring these were based upon innovative pedagogical and curriculum alignment embedded within each of the projects.

The 2011 projects focused upon leveraging student-owned devices and building international collaboration into the projects. The experience of managing and implementing over thirty mlearning projects using a wide variety of devices between 2006 and 2011 has enabled the researcher to create an mlearning design framework that is essentially device independent, focusing on a common web 2.0 platform rather than on the devices themselves.

The WMD projects between 2006 and 2009 identified six Critical Success Factors for the implementation of mobile web 2.0 (Cochrane, 2010a, 2010b). Critical success factors were initially identified from an extensive literature review of mlearning research publications. Subsequently these were compared to the author's 2006 to 2009 mlearning project outcomes, using critical incident analysis, participant reflections via regular blog posts and VODcasts, and comparing participant pre and post project survey responses and focus group questioning. Key themes were identified in the early projects that the subsequent project iterations confirmed, leading to the identification of six critical success factors. The six critical success factors were then used to inform the subsequent 2010 and 2011 mlearning projects. These have relevance for any educational technology adoption where the focus is upon social constructivist pedagogy or a 'living curriculum'. The six critical success factors include:

1. The pedagogical integration of the technology into the course and assessment.
2. Lecturer modeling of the pedagogical use of the tools.
3. Creating a supportive learning community
4. Appropriate choice of mobile devices and web 2.0 social software.
5. Technological and pedagogical support.
6. Creating sustained interaction that facilitates the development of ontological shifts, both for the lecturers and the students, bridging the pedagogy-andragogy-heutagogy continuum (Garnett, 2010; Luckin, et al., 2010) from lecturer-directed pedagogy to student-directed heutagogy.

A comparison of these critical success factors with those identified via the literature review in earlier mlearning research confirmed the focus upon pedagogical integration, with supporting identification of lecturer modeling, creating supportive learning communities, and the appropriate choice of supporting technologies also featuring in other mlearning research. The WMD projects therefore established the critical nature of the development of supporting communities of practice (COPs) around technology adoption (Cochrane & Bateman, 2011; Cochrane & Narayan, 2011).

### **Student Owned Devices**

Pre-project surveys of 2010 participating students found that on average 90% of students owned a camera phone (though the majority were 'feature phones' rather than 'smart phones'), and student laptop ownership ranged from 75% to 90% across the project groups. To create a sustainable model for the integration of mlearning within courses a focus upon student-owned

devices is necessary (Traxler, 2010, 2011), and now achievable with the devices that virtually every student already own – a camera phone. Supporting student-owned devices brings significant implementation and support issues, explored in the following sections.

The nature of mobile computing (Wireless Mobile Devices or WMDs) is a far more rapidly changing market than that of desktop or laptop computing. The life span of mobile devices is typically less than a year, rather than the 2-3 years of traditional computers. Students rapidly lose interest in 'last-years' model. Therefore the future of WMD uptake is clearly to focus upon creatively supporting student-owned WMDs (smart phones, tablets, and netbooks). Student owned WMDs are potentially disruptive, pedagogical transforming devices.

Mobile devices allow students to access and store images and information of their own choosing and perhaps create and distribute new images and information independently of the lecturers and of the university. The long-term consequence must be to challenge the authority of the curriculum and the institutions of formal learning. (Traxler, 2010, p. 10)

However, Laurillard's (2007) definition of mobile learning emphasizes the critical pedagogical design input of the teacher: "M-learning, being the digital support of adaptive, investigative, communicative, collaborative, and productive learning activities in remote locations, proposes a wide variety of environments in which the teacher can operate" (Laurillard, 2007, p. 172). To achieve this, lecturers need to be brought up to speed with embedding the use of these tools within their own teaching. Facilitating Departmental COPs that investigate the pedagogical integration of WMDs is critical, particularly as the WMD landscape is such a rapidly changing/developing market. An implementation strategy is presented based upon the researcher's unique expertise and experience in utilising WMDs for enabling student-generated content and student-generated contexts, rather than an approach focused upon the delivery of course content to small screen devices.

### **The Mobile Device Market**

A focus on student-owned WMDs presents a wide range of devices that an mlearning strategy must be designed for. With the rise of mobile application ecosystems many mobile web 2.0 application developers provide apps with similar functionality for the main mobile platforms. Mobile application ecosystems include: the iTunes Store for dissemination of iOS WMD applications and media, the Android Market for Android WMD devices, and the Nokia Ovi Store for Symbian based smart phones. These mobile ecosystems bridge information, content and productivity with laptop or desktop computing via web 2.0 platforms, creating a mobile learning framework that can be easily appropriated by a wide range of educators enabling mainstream adoption of mlearning in tertiary education. At the time of writing (GSMarena, 2011; Perez, 2011), the largest mobile app ecosystems include:

- iOS (Apple iPhone, iPod Touch, and iPad) iTunes App Store with 500000+ apps.
- Android Market for AndroidOS-based smart phones and tablets with 250000+
- Symbian Ovi Store with 30000+ apps
- Blackberry App Store with 20000+ apps

- Windows Phone7 with 9000+ apps

The 2011 iOS economy encompasses a range of mobile devices including the iPod, the iPod Touch, the iPad, and the iPhone. Apple has built up a significant lead over competing mobile ecosystems (Android, Blackberry, Symbian, Windows Phone7, WebOS) in developing a mature mobile ecosystem. Whitney (2011) quotes Jack Kent, an IHS mobile media analyst, "Apple, in contrast, has been able to maintain advantage by leveraging its tightly controlled ecosystem--combining compelling hardware and content with the capability to offer consumers a trusted, integrated, and simple billing service via iTunes" (Whitney, 2011, p. 1). While Apple is often decried for making this iOS ecosystem tightly controlled and closed, the more "open" Google-owned Android mobile ecosystem has been playing catch-up and recently suffered a spate of malware attacks within the Android Market (Kirk, 2011). The Android Market, the equivalent of the iTunes App Store, is reportedly vulnerable to over seventy types of malware (Browning, 2011). Getting the best out of the Android ecosystem currently remains the domain of power users capable of tweaking and updating the OS to get the best out of it. In contrast, Nokia's Symbian ecosystem was recently described by its CEO as a "burning oil platform" (Ricknas, 2011), resulting in a partnership with Microsoft's Windows Phone 7 OS that has yet to attract significant market share. In comparison, the iOS ecosystem presents a maturing, safe and user-friendly environment supported by over 500000 apps, including 75000+ iPad apps, making it the popular mobile platform choice in education. However, the iOS economy is not without its foibles, chief among these is the restrictive file structure imposed upon iOS apps that requires application developers and users to develop creative ways of sharing content and data between applications, often relying upon cloud-based services. The next iteration of Apple's iOS (iOS5) significantly reduces that reliance of the iPod Touch, the iPhone and the iPad upon a desktop or laptop running iTunes, as iOS5 will enable direct wireless interaction and synchronisation with Apple's new iCloud web-based service.

### **An MLearning Design Framework**

This section introduces an mlearning design framework (*Table 1*) that can be used to implement social constructivist pedagogy using mobile web 2.0 on a variety of student-owned mobile devices with a minimum of technical expertise from the course lecturer/s.

The WMD case studies indicated the critical role of the level of pedagogical integration of the technology into the course criteria and assessment. This involves scoping and planning appropriate course activities and assessments based upon the chosen pedagogical model (social constructivism), creating pedagogical alignment (Biggs, 2003). The point of acceptance into course integration of the mobile web 2.0 tools is typically reached as lecturers realize the flexibility of learning context and feedback that these tools facilitate. Learning activities typically begin as translations of more traditional paper based activities into a mobile web 2.0 alternative (Herrington & Herrington, 2007). As lecturers become more acquainted with the possibilities afforded by mobile web 2.0 tools more creative learning activities are developed and integrated into the courses. A key tool used to facilitate redeveloping course outlines has been Google Docs (<http://docs.google.com>) for collaborative course and assessment planning between the course lecturers and the technology steward (researcher). As a result, a design

framework was developed to guide the integration of mobile web 2.0 tools into the courses. This framework was developed iteratively over the life of the research. The framework emphasizes that curriculum integration must start with the learning practice that is to be achieved (as illustrated in *Table 1*); aligning and choosing appropriate mobile web 2.0 affordances with this goal. Following such a design framework will ensure that the technology is not the primary focus, or that good pedagogy is retrofitted to technology. The researcher's design framework for each of the projects is shown in *Table 1*. The framework table format is based loosely on that suggested by Sharples et al. (2009).

*Table 1: MLearning project design framework*

<b>Learning Practice</b>	<b>Mediating Circumstances</b>		
<b>Social Constructivism</b>	<b>Context</b>	<b>Technology</b>	<b>Agent</b>
Lecturer Community of Practice	Lecturer professional development, pedagogical brainstorming	Face to face Scaffolded using LMS Smartphone Web 2.0 services	Lecturers as peers, with researcher as technology steward
Student and lecturer Community of Practice	Pedagogical integration and technical support	Face to face Scaffolded using LMS Smartphone Web 2.0 services	Students as peers, Lecturer as guide and pedagogical modeler, with the researcher as technology steward
Collaboration	Group projects	Social networking, Collaborative documents	Google Docs, student peers
Sharing	Peer commenting and critique	Web 2.0 media sites, eportfolio creation	RSS, student peers, lecturer
Student content creation	Student individual and group projects	Smartphone with camera and microphone, content uploaded to web 2.0 sites	Student and peers
Reflective	Journal of learning and processes, recording critical incidents	Web 2.0 hosted Blog	Personal appropriation, formative feedback from lecturer
Learning Context Bridging	Linking formal and informal learning	Smartphone used as communications tool and content capturing	Student interacting with context, peers, and lecturers

The framework guided the choices of technologies to mediate social constructivist learning environments within the projects that enable student-generated content and student-generated contexts, focusing upon online web 2.0 platforms rather than the mobile devices themselves. The implementation and impact of this framework has been reported in over forty publications across the variety of course contexts as indicated in Figure 1 (for example: (Cochrane, 2011; Cochrane & Bateman, 2009; Cochrane, Bateman, Clifflin, et al., 2009; Cochrane, Bateman, & Flitta, 2009)). The design framework grew out of the

collaborative mlearning project plans developed by the researcher and course lecturers modifying the course outlines and assessments for each mlearning project using shared and co-edited Google Docs. The development of these course plans began as brainstorming sessions within the lecturer communities of practice established by the researcher for lecturer professional development in mlearning, prior to instigation of the projects with the course students. These mlearning project plans were refined and reflected upon as collaborative peer-reviewed conference papers with the researcher and course lecturers becoming co-authors of these papers. The course mlearning project plans and subsequent research outputs became a shared repertoire of resources developed by the lecturer mlearning communities of practice, reifying the practice of the lecturer COPs and becoming boundary objects that were shared between the lecturer communities of practice within the five case studies as pedagogical mlearning integration examples. An example of the generation of this shared repertoire between three of the case studies is the collaborative 2009 EDULearn09 conference paper (Cochrane, Bateman, Clifflin, et al., 2009) that reflected upon three 2009 mlearning project plans: the 2009 second year Diploma of Contemporary Music project, the 2009 second year Diploma of Landscape Design project, and the 2009 third year Bachelor of Product Design projects.

The resultant design framework maps the unique affordances of mobile web 2.0 with social constructivist frameworks to create a shift along the Pedagogy-Andragogy-Heutagogy (PAH) continuum. The design framework extends the work of Luckin et al. (2008; 2010) on learner generated contexts and bridging the PAH continuum, and develops a practical design framework for implementation from these concepts. The design framework focuses upon desired pedagogical outcomes first, and then maps the affordances of WMDs to these outcomes ensuring that the mlearning projects were driven by pedagogy rather than merely the latest technology.

### **Examples of mobile web 2.0 implementation**

Examples of mobile web 2.0 implementation outlined include integrating into the curriculum the student use of: Twitter, mportfolios, VODCasting (for example mobile videos uploaded to YouTube and Vimeo), PODCasting, the use of mobile codes, geotagging, geolocation, and Augmented Reality. Student and lecturer feedback is used to illustrate the impact of mobile web 2.0 implementation and the pedagogical changes (Garnett, 2010) that result. These examples draw upon the transformative disruption to instructivist content delivery pedagogy that student owned WMDs can enable.

#### ***Twitter***

Essentially a text-based asynchronous communication and collaboration tool, Twitter can be used on any cell phone via SMS. New Zealand is one of several countries that provide specific short codes for SMS posting of Tweets (<http://support.twitter.com/groups/34-apps-sms-and-mobile/topics/153-twitter-via-sms/articles/14226-how-to-find-your-twitter-short-code-or-long-code>). Because Twitter is asynchronous and records messages in a users microblog it presents a collaboration and communication tool that can be used particularly well across geographic and time zone barriers – enabling

international collaboration and community building. Twitter has also been successfully used by the researcher to enhance face-to-face classroom discussions, and to enhance student engagement during presentations via an interactive 'backchannel'. Following like-minded peers or international experts via Twitter can lead to serendipitous learning (unplanned but fortuitous links and interaction) (Buchem, 2011). For example, an international collaborative project using Twitter in 2009 facilitated by the researcher created an internet 'superstar' of one of the student participants (Cochrane, 2010c).

### ***Mobile ePortfolios***

Mobile blogging can be achieved via MMS (Multimedia Messaging Service) to any blog host (for example: Typepad, Blogger, Wordpress), online photo host (for example: Picasaweb, Flickr), or video host (for example: YouTube, Vimeo) that supports email upload of text, images and video. An MMS message is essentially an email and can be sent to any email address without setting up an email account on the users cell phone. Media attached to an MMS becomes embedded content in the users web 2.0 site when sent to their email upload address, usually found in the users preferences or account settings for the site. A 2008 Product Design student used their mportfolio to showcase their design skills, resulting in a design job offer by an exclusive international design company (Cochrane & Bateman, 2010). Mobile VODCasting and PODCasting can be used to create enhanced multimedia eportfolios of student-generated content.

### ***VODCasting***

Video PODCasting is achievable on any camera phone that can record video and then upload the video either via MMS, email, or a mobile app such as Pixelpipe, to online video hosts such as YouTube or Vimeo. These VODCasts can document student projects, share experiences or events, be student reflections, or student interviews with experts. Thus mobile VODCasting can be used within situated or authentic learning contexts, and bridge informal and formal learning. An example collation of student VODCast reflections from 2009 and 2010 mlearning projects can be found at <http://www.youtube.com/watch?v=pmydqBO6ItI>.

### ***PODCasting***

Audio PODCasting is achievable on any cell phone – as every cell phone includes a built-in microphone capable of recording audio and then upload the audio either via MMS, email, or a mobile app such as Pixelpipe, to online audio hosts. Freely available PODCast hosts include: Audioboo, and Soundcloud. Smart phones can create enhanced PODCasts via free applications downloadable from the Android Market, Ovi, or the iTunes Appstore. For example the Audioboo smart phone app includes geotagging of audio recordings and automatic announcements via social media such as Twitter or Facebook. Contemporary Music students used iPhones in 2009 and iPads in 2010 to record and upload environmental sounds via Audioboo (Cochrane, 2009; Cochrane, Narayan, & Oldfield, 2011).

### ***Mobile Codes***

Mobile Codes are supported by freely downloadable applications for almost any camera phone. Mobile codes are two-dimension codes similar to bar codes found on product information labels. There are a variety of mobile code formats, with the most popular being QR Codes

(Quick Response Codes). QR Codes can represent a variety of information, including: URL's, a paragraph of text, an SMS message, a business card, or a geolocation (longitude and latitude information for an object). QR Codes can be simply generated using a variety of freely accessible web forms, such as: <http://mobilecodes.nokia.com>, <http://www.splashurl.net>, <http://zxing.appspot.com/generator/>. These codes can then be uploaded to websites, printed, or projected for decoding in a variety of contexts. A QR Code is decoded by an application on a camera phone that uses the phones built-in camera to scan the code. During 2011 Building Technology lecturers created links between building site materials, Google Sketchup plans, and illustrative YouTube videos for students to scan with their camera phones on site, enabling contingent and personalised learning situated on site, thus bridging the theory and practice of building technologies <http://www.youtube.com/watch?v=B04gFx4elx4>.

### ***Augmented Reality***

Augmented reality involves enhancing the physical environment as seen through a smart phone's camera with layers of interactive digital information including geolocation data. Augmented reality is the domain of high-end smart phones, relying upon devices that embed not only mobile cameras but also an integrated compass, GPS and accelerometers. This class of WMD includes: Nokia NSeries smart phones, most Android smart phones, Windows 7 smart phones, the iPhone, and to a limited extent the iPad2 and the iPod Touch 4+. Web 2.0 augmented reality applications include a range of freely available augmented reality browsers that allow users to generate their own content via interactive points of interest, for example: Wikitude, Layar, Junaio. Another interesting use of mobile augmented reality includes the use of mobile devices to control and stream live video from wirelessly connected 'robots' such as the ARdrone quadcopter that is fitted with two wireless webcams, used recently to explore quake-stricken buildings in Christchurch (Hampton, 2011). Augmented reality can be used within projects that feature student-generated content and student-generated contexts. For example: in field trips, and recording and locating geographic information. Architecture students in a 2010 mlearning project created a Wikitude layer illustrating poor architectural design throughout Auckland city <http://archifail.wordpress.com>.

### **Conclusion**

Mlearning can be a significant catalyst for pedagogical transformation, enabling a focus upon student-generated content and student-generated learning contexts beyond the classroom. However, the way forward for sustainable integration and implementation of mlearning in tertiary education is to create environments where student-owned devices are leveraged. The paper presents a strategy that appropriates the affordances of the platform independence of mobile web 2.0 while keeping the pedagogical goals as the key focus rather than the variety of mobile device platforms that must be supported. Based on the experience of implementing over thirty mlearning projects several key platform independent mobile web 2.0 tools and activities are presented in the paper as practical examples of what can be achieved by this approach.

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# **SIGNIFICANTLY EXCEEDING EXPECTATIONS: REFLECTING ON THE IMPLEMENTATION OF AN INSTITUTIONAL ELEARNING STRATEGY**

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## **Introduction**

The proliferation of technology is changing the way people live, work and play, and education is but one area where this change is clearly evident. Attwell and Hughes (2010, p. 7) note, 'one of the factors driving the exploration and development of new pedagogies and the use of technology for learning is a concern that education may be becoming increasingly out of step with the way that people use technology today for socialising, working and learning.' Over two decades, Unitec has explored how education technologies can be embedded in teaching and learning processes in various ways from localised initiatives to broader institutional Learning Management System (LMS) projects. A key turning point occurred in early 2009 with the decision to develop a plan to progress the effective utilisation of eLearning across the whole institution. It was recognised that, as in many other places:

'e-Learning' in its various forms is transforming the way New Zealand tertiary educational institutions are teaching and supporting their students. It is a transformation involving fast-developing technologies, some complex re-design and integration of institutional systems and the recruitment of new categories of specialists to assist teachers and managers use these new technologies (Ministry of Education, 2007a, p. 3)

An important distinction between previous institutional eLearning initiatives and the 2009 strategy was that this strategy was explicitly promoted and characterised as being a critical component of a broader reconceptualised approach to teaching and learning. From its inception, the vision for eLearning was linked to both the institution's academic strategy and to one of its four key strategic outcome areas – innovation in teaching and learning. The approach chosen involved the development of both curricula and staff and eschewed any primary attention on the technologies themselves.

Twelve months into implementation, an internal evaluation was carried out and moderated by an independent external evaluator. In this paper, key elements of that evaluation are described along with links to the literature that contributed to the development of the strategy. The key focus, therefore, is on strategy development and implementation rather than on specific localised outcomes. The management of change is a central consideration.

## Key Influences on the Strategy

The strategy was based on one powerful pedagogical idea – that it would support the institution’s innovation in teaching and learning strategic decision to reconceptualise all programmes as ‘Living Curricula’ rather than as collections of courses. The Living Curriculum goal was to reframe learning as **conversation** and develop programmes that are integrated with the world and are genuinely dynamic. A new Curriculum Design policy specifies nine characteristics of a Living Curriculum. These are: involve complex conversations; are curiosity/inquiry led, and stimulating; are practice-focussed – educating students ‘for work, in work, through work’; are socially constructed – self-sufficiency and collaboration are equally valued, and together they help nurture resourcefulness and resilience; blend face-to-face and web-based learning; are research-informed; have a discipline base, and are also interdisciplinary; develop literacies for life-long learning; include embedded assessment; and active and responsive interaction with industry, professional and community groups shapes content, curricula and delivery modes.

The pedagogic underpinnings of the Living Curriculum have strong synergies with socio-constructivist approaches (Pachler, Bachmair & Cook, 2010), and Cormier’s (2008) rhizomatic education. Living Curricula aim to nurture resourcefulness and resilience in our students and enhance their capability to flourish as graduates. We therefore defined the curriculum not as the information content of the programme, but rather as the programme learning experience. Learners are nurtured and encouraged to develop a strong ‘epistemic agency’ (Scardamalia, 2000) – a growing confidence and recognition that they are able to take significant responsibility for advancement of their own learning as individuals and as a community of learners.

This was a significant institutional change initiative and a recurring theme threaded through the literature of organisational change is that sustainable change requires effective, direct leadership (Fullan, 2005; Hargreaves & Fink, 2006). Heifetz (1994, cited in Fullan, 2001, p. 3) argues that leadership is about ‘mobilizing people to tackle tough problems’. Rather than mobilising people to tackle problems we already know how to solve, it should help them confront problems that have not yet successfully been addressed. As an institution, there were several ‘problems’ to be addressed, primarily pedagogical reform, and strong and consistent leadership at all levels was required.

Historical approaches to eLearning in the institution were largely founded on outdated models of professional development with the delivery of generic workshops outside of departments with low attendance levels and little evidence of significant shift in teacher practices or impact on student learning or engagement (Cochrane, 2010). Attwell and Hughes (2010) note that eLearning practice has frequently been seen as being technologically rather than pedagogically driven and many surveys have looked at the availability of technology, or report on use, but pay no attention to pedagogy. Effective utilisation of the institution’s existing mandated LMS was sporadic at best and primarily content-driven. So the second impetus for change was a desire to overhaul institutional approaches to eLearning as a sustainable organisational initiative rather than maintain a system based primarily on personal choice by

teachers or departments.

In 2007, New Zealand's Ministry of Education commissioned a project to develop resources to assist institutional leaders in planning and managing eLearning more strategically. This report, *Taking the Lead: Strategic Management for e-Learning*, provided invaluable guidance for the establishment of the strategy and suggested that strategy documents are the institution's 'public and internal statements about the nature of its business, its stakeholders and students, what it intends to do over the coming planning period and how it proposes to resource it. If e-learning is to be a significant activity, it should feature prominently in any and all of these documents (MoE, 2007c, p. 9)'.

Change management literature identifies 'moral purpose' as a signifier of effective institutional change (Fullan, 2001; Hargreaves and Fink, 2006; Pink, 2009). Here, the 'moral purpose' was the need for pedagogic change to better meet student needs, but the key was to avoid focusing only on teachers and rather target strategies designed to maximise student engagement and learning. And, importantly, a wide-ranging institutional strategy required attention to infrastructure.

The strategy, therefore, focused on three key areas: staff capability; student capability and access; and infrastructural changes. It also specifically targeted progress on embedding academic and digital literacies within the context of the Living Curriculum. *Taking the Lead* has a message to institutions regarding the importance of this relationship. 'The key challenge for institutional leaders, with respect to strategy, is to ensure that institutional strategy drives e-learning strategy. All too often, an institution's e-learning strategy will be a solution-based plan that has been developed by a committed group of enthusiasts somewhat detached from the broader strategic goals of the institution' (Ako Aotearoa, 2011)

## **The Two Core Components**

### ***Community of Practice Model***

Notwithstanding the attention to student outcomes, the development of staff was central as it was through staff capability and engagement that students would maximise their participation and success. The central critical component of the strategy was the establishment of an intentional Community of Practice (CoP) model (Langalier, 2005; Wenger, 1998). Part of the rationale was the desire to have teachers experience the shift from the acquisition metaphor of learning to the participation metaphor in line with the pedagogic underpinnings discussed previously in relation to their own learning (Sfard, 1998). This was a fledgling model already being implemented in the institution and showing signs of value in terms of promoting localised and sustainable change. Every department appointed at least one 'eLearning Community Co-ordinator' (eLCC) who were themselves supported and developed through the central advisor team. These people were funded by the institution for release time to focus on the development of an eLearning community in their department. Cochrane (2010a, p. 223) says:

COP 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 utilise and benefit from technology. The technology steward thus forms a pivotal role in the successful integration of technology into the group's practice.

To provide a significant launch and the best possible chance of success, Etienne Wenger and Bev Trayner were brought for a week at the beginning of 2010 to work with the eLCCs and prepare them for the development of CoPs in their departments. One eLCC commented:

The first organised event most of the eLCCs attended was the week-long Community of Practice workshop with Etienne Wenger and Bev Trayner. I cannot emphasise enough how important and meaningful this event was for me. Wenger and Trayner provided the eLCC group with an important introduction into community of practice theory and practice, and eLCCs spent the week conversing, bonding and learning. We entered as individuals and exited as a community. As far as I'm concerned, the organisation of that workshop was a stroke of genius.

The Ministry of Education had identified that weak institutional strategy and leadership and poor professional development of teachers are key factors resulting in poor uptake of eLearning strategy and encouraged a similar departmentally-based model. 'The most effective e-learning programmes tend to occur where a whole programme team makes a commitment to develop and deliver their courses to a shared set of guidelines on service and standards. This kind of collective commitment generally only comes about when team leaders understand that their core responsibility is to exercise leadership over the work of their team, which is teaching' (Ministry of Education, 2007c, p. 22).

### ***Wireless Mobile Devices and Web 2.0 Technologies***

Mobile learning through the use of Wireless Mobile Devices (WMDs) and Web 2.0 technologies provided the platform for achievement of significant engagement and learning. Cochrane (2010a), a member of the institutional implementation and eLearning teams, has articulated the role of these in the conceptualisation and realisation of the strategy. He says that mobile learning through WMDs:

can support and enhance both the face-to-face and off-campus teaching and learning contexts by using the wireless mobile devices as a means to leverage the potential of current and emerging collaborative and reflective e-learning tools (e.g. blogs, wikis, RSS). These are often called social software or Web 2.0 tools, facilitating student-generated content (Bruns 2008) and student-generated learning contexts (Cook et al. 2007). The WMD's wireless connectivity and data-gathering abilities (e.g. photoblogging, video-recording, voice recording, and text input) allow for bridging (Vavoula 2007a) the on-campus and off-campus learning contexts – facilitating 'real-world learning' (Cochrane, 2010a, p. 224).

This 'real-world learning' was an institutional strap-line and the notion of student ownership of learning is deeply embedded in the Living Curriculum initiative. So the use of WMDs to allow learning to be led by learners seemed inevitable. The strategy was not primarily about delivering content to students via mobile devices, but rather encouraging student-generated content through effective use of WMDs and by developing their teachers' capability with their use.

### **Initial Outcomes**

The eLearning strategy is only 12 months into implementation but the outcomes to date have significantly exceeded expectations. The CoP model has been one of the most successful strategies to promote change yet experienced at Unitec. The key appears to be that it locates change within the context of faculties, departments and programmes and supports this through targeted centralised support. Learning involves participation in a CoP, whereby participation 'refers not just to local events of engagement in certain activities with certain people, but to a more encompassing process of being active participants in the practices of social communities and constructing identities in relation to these communities' (Wenger, 1998, p. 4). Using eLCCs in addition to the core institutional eTeam has enabled the roll-out of this strategy to move from viral to systemic implementation.

Although each faculty is different in purpose and practice, reports indicate significant progress in all faculties, though not necessarily equally in all departments. The eTeam model with central support through institutional advisors, the faculty-based advisors, and, importantly, the eLCCs acting as technology stewards has promoted significant pedagogical change and eLearning capability development. In fact, the eLearning strategy has often been a successful vehicle for Living Curriculum implementation.

Student capability and access issues have focused largely on student use of institutionally owned WMDs. Cochrane (2010a, 2010b) identified six critical success factors for the implementation of mobile Web 2.0 including: integration of the technology into the course and assessment; lecturer modelling of the pedagogical use of the tools; creating a supportive learning community; appropriate choice of mobile devices and social software; technological and pedagogical support; and creating sustained interaction that facilitates the development of ontological shifts. These have been central concepts in assisting teachers to understand the pedagogical value of WMD use and weave it into their practice.

The institution is approaching final decommissioning of the existing LMS and full implementation of Moodle. With a semester to go, this has been a relatively seamless process. Although use of the LMS is not compulsory – and some departments have opted not to use it at all, relying instead on the use of Web 2.0 technologies – the numbers of live courses meeting minimum standards is well ahead of schedule.

Wireless infrastructure within the institution has required significant upgrading. At the end of 2010 there were 500 WMDs connecting to the wireless network daily. By the beginning of 2011

this had increased to over 1000. Planning and budgeting to meet this rapid increase presents ongoing challenges if the strategy is to maintain momentum. However, close collaboration between learning and teaching and IT staff has been a central success factor. This collaboration has allowed anticipation of key issues and an enhanced understanding of the requirements and limitations of the system. The IT department has listened to the nature of pedagogical drivers and responded where budget has allowed. Similarly, the eTeam have been alerted to many infrastructural constraints and found alternative approaches where necessary.

## **Lessons Learned**

The eLearning Strategy was predicated on the need for pedagogic change and for teachers to reflect on their own teacher identity, views of knowledge, and the place technology has to play in facilitating these beliefs. Transformational change (involving teacher identity and conceptualisation of knowledge) as opposed to transactional change (merely changing teaching activities or assessments) was crucial if the technology was not to be the primary determinant and focus of change. This transformative change takes time and challenging teachers' fundamental presuppositions around learning and teaching has been most effective and successful when there have been open, ongoing collegial conversations. This has allowed time for teachers to engage with each other, with the technology stewards, and with new technologies. Teachers' capacity for change is frequently compromised by issues of workload, and a significant ongoing challenge was enabling processes whereby workloads could be managed effectively to allow the time and space for conversation and reflection.

A key success factor has been the role of the central eTeam in supporting departmental CoPs, initially acting as technology stewards encouraging interaction between departmental CoPs across the institution. In many cases, these CoPs benefited from having explicit and sustained support from the eTeam as the community was being formed and shaped. The eLCCs needed coaching in how best to support the CoP. The tension of having an institutional strategy to develop organic CoPs was acknowledged as potentially conflicting, although every effort was made to allow complete autonomy for each CoP to form its own structure and explicit objectives.

There was early recognition of the need for both hardware and infrastructure to support desired changes. Having a stockpile of hardware to enable initial projects to get underway was a significant benefit and has seen an exponential growth in the number of eLearning projects being facilitated across the institution. As these projects have matured, they are moving from 'pilot' stage to embedding within the wider programme of study as part of 'normal delivery'. It was essential to have both academic and IT staff clearly identify and communicate future plans and projects to ensure that infrastructure requirements and limitations were known and taken into account. IT budgets are finite, and priority was directed at areas of critical need. The limitations of existing infrastructure systems need to be well understood by academic staff to ensure that expectations are realistic and grounded in reality.

The cost of technology was anticipated to impact students more than was observed in practice.

Many students already had access to various WMDs or were willing to purchase them when they understood the way in which technology is being integrated into learning and teaching processes. Clearly, affordability of the technology is an issue for some students, but these appear to be a minority. The institutionally owned WMDs are intended to assist those students with legitimate access issues by providing a loan device for use during their studies.

The final challenge, associated with the workload issue discussed above, was the impact of the plethora of institutional initiatives being implemented concurrently in the wake of significant institutional restructuring and change. Despite the close relationship between Living Curriculum and eLearning strategy, these both faced competition for attention from other shift projects also underway in the institution. Care has had to be taken to support and not over-burden staff.

## **Conclusion**

The successful implementation of this strategy is primarily contingent on a well-conceptualised and closely supported process that attends to issues of pedagogy, teacher and student identity, change management practices and effective collaboration between key players. The CoP model has been a key vehicle for facilitating collaboration within and across departments, as has the funding of specific 'technology stewards' (eLCCs) within the departments. These eLCCs are vital shaping voices in helping keep the focus and purpose of eLearning developments on core pedagogic issues.

This summary necessarily attends to only a few of the central elements of the strategy which features many more components designed to support engagement, practice improvements and a sense of individual and collective ownership and agency. What is clear is that the goal will not be fully realised in an 18-month implementation process and, without ongoing support, has the capacity to flounder. However, a strong platform has been established and there is optimism that the strategy has indeed been the catalyst for significant pedagogical change.

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# A LONG & WINDING ROAD: LIBRARY STAFF INVOLVEMENT IN AN INSTITUTIONAL ELEARNING STRATEGY

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In 2010 an urban polytechnic launched an institution-wide eLearning strategy as part of a reconceptualised approach to teaching and learning. Library staff responded to four objectives in this strategy:

1. Providing creative solutions for students' access to online tools via Wireless Mobile Devices
2. Providing learning environments that embed academic literacies
3. Up-skilling all teaching staff in eLearning capability and building institutional capability that enables continuing learning development and leadership
4. Ensuring students have equitable opportunities to participate in terms of access to equipment and resources and support for digital skills development

This paper backgrounds the eLearning strategy and shows how library services, staff and resources are integral to its success. It examines how library staff responded to the strategy and reflects on

- The projects that were initiated
- implementation
- and their outcomes

The paper identifies and addresses the 'big issues' and possible solutions. It also looks into the future of library services, staff and resources in an elearning institution.

## Introduction

### Institutional context

In 2009 the New Zealand Government's Tertiary Education Strategy (TES) for 2010-2015 indicated that Institutes of Technology and Polytechnics (ITPs) had to improve their educational delivery and performance (*Tertiary Education Strategy 2010-2015*, 2010). ITPs would receive regular external evaluation and review to ensure improvement occurred. The TES was a powerful factor for an Auckland-based ITP when it revealed, as part of its strategic framework, an initiative entitled the *Living Curriculum*.

Living Curricula can be described as "living because they are not designed then enacted. Experiences and pursuits are driven by curiosity and questions that arise within the learning process and lead to inquiry and by the learning needs that emerge on a day to day basis. Students thus participate in curriculum design on a day to day basis" (*eLearning strategy draft*, 2009). The Living Curricula goal was to reframe learning as conversation, deliver

programmes that are integrated with the world and are genuinely dynamic. Conversations are the way in which knowledge is socially constructed between peers, with texts and between teachers and learners. E-learning is an important component to this approach to learning and teaching.

Consequently, the institution created an e-learning strategy. The vision for e-learning is “linked to both the academic strategy and innovation in teaching and learning and will involve the development of both curricula and staff” (*eLearning strategy draft*, 2009).

The eLearning Strategy’s objectives include:

Providing learning environments that embed academic literacies

Providing creative solutions for students’ access to online tools via Wireless Mobile Devices (WMDs) (e.g. laptops or netbooks)

Establishing wireless computing infrastructure

Aligning all teaching and learning spaces, systems, support and infrastructure

Ensuring students have equitable opportunities to participate in terms of access to equipment and resources, and support for digital skills development

Build institutional capability to enable continual learning development and leadership

These objectives provide a major sponsor for change at the institution, affecting facilities, services, staff and teaching and learning. As the eLearning Strategy was embedded, the library was ready to make changes and had much to offer.

## **Literature Review**

### **E-learning and libraries**

Libraries are well positioned to contribute to e-learning within an institution. As a consequence of the relentless evolution of information technology, libraries have been early adopters of new trends and have frequently experimented with their pedagogical approaches in response to these new tools (Beard & Dale, 2008; Godwin, 2009; Lippincott, 2005; Saw, Wai Wai, & Fei, 2007).

Before the eLearning Strategy<sup>6</sup> was developed a variety of projects were being undertaken by the institution’s library. The eLearning Strategy validated some of these projects and gave a necessary boost to others that were more embryonic. For example, the library had already produced online tutorials, had an instant messaging reference service and Web 2.0-enabled subject guides. As others have found, institutional policy is vital to having e-learning success (Dadzie, 2009).

### **Information and digital literacies**

In a systematic review of the literature, Childs, Blenkinsopp, Hall & Walton (2005), suggest that

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1. The institution chose to use the term eLearning to signal that “embedding the ‘e’ in learning [*indicates*] the direction proposed, which sees the utilisation of a range of learning technologies as integral parts of contemporary and engaging teaching and learning experiences (*eLearning strategy draft*, 2009).” The literature uses the term e-learning, hence the different terms used in this paper.

support, skills training (in information literacy and digital literacy), and assisting in e-learning package evaluation or developing e-learning objects, are areas where librarians can contribute to e-learning. Childs et al (2005) point out that these are not new roles for librarians but there is a perception problem from non-librarians about the contribution the librarian can give.

The TES and the Living Curriculum both have requirements for improved literacy. An eLearning Strategy objective is to ensure students have equitable opportunities and support for digital skills development. It was apparent that literacy development, specifically information literacy and, as a part of that, digital literacy, was an area that librarians could provide support and training for students.

Information and digital information literacy<sup>7</sup> are necessities for all aspects of tertiary study, from enrolment to researching and writing assignments (Bundy, 2004; Macpherson, 2004).

The library, both physical and online, is a central work space that most students use at some point in their academic lives. The library deals with many student questions as they use technology to study and prepare assignments<sup>8</sup>.

The four institutional branch libraries already had a collaborative arrangement with many of the academic staff to provide library orientations and information literacy classes for their students. In 2010 there were 522 classes comprising an estimated 9697 students. These classes represent a starting point for developing information literacy and often digital literacy too, because they provide an opportunity for students to explore technology outside the normal rush to complete an assignment. According to Hegarty et al (2010), students need opportunities to play in order to develop digital literacy (2010, p. 11).

Embedding information literacy into courses either as an online component or as part of a blended learning experience is still the most effective way to engage with learners and increase their success academically (Andrews & Patil, 2007; Dadzie, 2009; Lupton, 2004; Proctor, Wartho, & Anderson, 2005; Williams, 2010). Some students at this institution are confident users of technology and e-learning resources, other students are not, though this does not necessarily mean they will not respond to e-learning (Dadzie, 2009). Whatever their technical competence, we concur with others that the ability of this generation of students to discern quality and value is less developed (Beard & Dale, 2008; Smith & Salaway, 2009).

E-learning tools such as screencasts and virtual learning environments (VLEs) can assist with embedding, but require cooperation and buy in from academic staff (Corall & Keates, 2010). Ideally, librarians should be embedding their presence on the campus VLE,

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2. The American Library Association (1989) defines an information literate person as one who is "able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information". In the context of this paper, digital literacy refers to the ability to use technology in various ways to gather and process information.

3. In 2010, students asked 15,462 IT/technical/digital literacy questions at library information desks. This number excludes similar queries via Library Chat instant messaging service or telephone and email enquiries.

complemented by face to face teaching. We have begun to do the former and the potential is enormous. The push from the eLearning Strategy combined with the more open nature of the current campus VLE has made it easier from a technical point of view for information literacy to be embedded into the learning spaces.

### **Access to resources and equipment**

As with many institutions who have implemented e-learning, issues relating to the availability, cost and functionality of software and hardware have caused difficulties (Childs, et al., 2005; Dadzie, 2009; Mercado & Domantay, 2010). In our case, these issues resulted in delays in online tutorial production and the need for the e-learning librarian to learn to use the hardware and software.

Integration of the library's federated search engine<sup>9</sup> into Moodle, linking to electronic content or embedding videos, has been reasonably simple. However, there are still issues with playback speed and buffering times. This makes it difficult to seamlessly include the media in a classroom environment either online or in a physical classroom.

To address the Strategy's objective to provide creative solutions for students' access to online tools via WMDs, the library purchased some iPads and a Galaxy tablet. This has enabled interested staff to use and become familiar with some common WMD platforms. These have been used successfully with small groups, partially because of the "cool" factor and also because of the intimacy the smaller devices promote. The devices are smaller, reasonably intuitive to use and therefore less intimidating for some groups.

### **Change and Building Capability**

According to the project draft, one of the ways of recognising the project has been successful will be when digital and information literacy skills tuition is provided for all students as required. The library can collaborate in facilitating system-wide cultural change necessary for implementation of the eLearning Strategy. This can be done either directly through a programme, or online, through the library or the institution's learning centre.

The eLearning Strategy provides both the impetus for and the vehicle by which professional development can be delivered successfully (Booth, Carroll, Papaioannou, Sutton, & Wong, 2009). Library projects launched in response to the eLearning Strategy forced staff to embrace new ways of working and teaching. As e-learning offers flexibility in terms of asynchronous engagement, self-regulation, format and delivery, it was also used as the delivery mode for professional development initiatives (Booth, et al., 2009).

As part of the library's involvement in the eLearning Strategy roll-out, two librarians became "eLearning Community Co-ordinators" (eLCCs) and an eLearning Librarian was employed on an 18 month contract. The eLCCs were to champion the development of the eLearning Strategy,

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4. An information retrieval system that allows the searching of multiple searchable resources. For example, the simultaneous search of a library catalogue and multiple bibliographic databases.

create and drive the community of practice, and help build capability through modelling and support<sup>10</sup>.

In response to the eLearning Strategy, the institution changed the online course management software to a more open, intuitive VLE called Moodle. This fresh start, combined with strong leadership directive to have all online courses on the Moodle environment by the end of 2012, has given the library an opportunity to collaborate with academic staff to enhance online courses with a library presence. We have proved, as Corall & Keates (2010) discovered, “a key factor affecting library participation was the extent to which academic staff recognised the SL’s [*liaison librarian’s*<sup>11</sup>] role in relation to the VLE and whether they allowed access and permission to update materials.” E-learning can be a vehicle by which collaboration between institutional divisions like the library and academic units can occur (Ritchie, 2010), but we found where the liaison librarian already has a collaborative relationship with academic staff, it was easier to participate in the delivery of library resources and services via Moodle.

Getting buy-in from library staff around e-learning initiatives related to their teaching has been slow. Traditionally, our teaching fits well with demonstration-style techniques and does not lend itself easily to the Living Curriculum model of teaching and learning. “The individual SLs [*liaison librarian’s*] response to technology-driven change also has a significant impact, as some clearly prefer the face-to-face approach for delivering information skills” (Corall & Keates, 2010, p.45). Unfamiliarity with some technology and associated fears of failure when trying something new, contribute to staff reluctance.

The eLearning strategy identified communities of practice (CoPs) as the best way to develop staff capability. CoPs are “communities where the learning component is central” (Wenger, White & Smith, 2009, p.3). The community usually forms because of a common interest or ‘domain’. Learning is formal as well as informal, with members learning from and with each other to improve their practice. It becomes a community because participants know that they can share knowledge and learn about their practice from the other participants (Wenger, White, & Smith, 2009).

The library initiated an Information Literacy CoP to generate some discussion around issues relating to information literacy, elearning and the Living Curriculum. The CoP provides a safe platform for experimentation with new technologies, teaching techniques and is considered an appropriate mix of enquiry and social learning suitable for librarians (Yukawa, 2010). To complement the physical CoP, an online group on the institution’s Teaching and

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5. Three eLearning Development Advisors (eLDAs) were also appointed by the institution to assist with elearning within departments.
  6. A liaison librarian or subject librarian (SL) is responsible for collection development and teaching in a particular subject area. Normally, this librarian would have some subject knowledge of the discipline and liaise with a specific school or department with respect to library resourcing and support.

Learning Ning<sup>12</sup> was also created. Involvement of staff from outside of the library has been welcomed. Unfortunately, we have yet to find a way to reach staff, from the library or elsewhere, who choose not to be involved in this CoP.

While the Information Literacy CoP membership on the online Ning community has grown, the discussions there are slow, suggesting most participants are content to be lurkers. There is a strong culture of email readers within the library resulting in reluctance to visit elsewhere to have discussions.

Generally, the use of CoPs as a vehicle for staff capability development has been beneficial for the library eLCCs and eLearning librarian. The traditional formation of groups within an institution can become a barrier to institutional strategies (Schneckenberg, 2009) so participating in CoPs outside the library walls has enabled productive conversation and ideas to form and be nurtured. The eLearning Strategy has been a common goal for all these parties which has made collaboration easier and with more purpose than in the past. As Yukawa (2010) mentions, the CoPs have assisted in the identity formation and empowerment of the librarians involved in implementing the eLearning Strategy.

## **Implementation**

### **eLCCs and eLearning plan**

The library's eLCCs introduced the library staff to the eLearning strategy and explained how liaison librarians were to work with lecturers to include library resources into e-learning. Once the eLearning librarian was appointed, a library eLearning plan was written. The plan focussed on three things – embedding information literacy through technology, building capability, providing access to resources and equipment.

### **Embedding literacies**

#### **Moodle block**

A Moodle “block” dedicated to the library's services and resources was created. This can be embedded into any Moodle course that desires to include it. The block is tailored to the needs of the course in which it is embedded. For example, the construction courses have links directly to the New Zealand Standards database and language courses have links to dictionaries.

#### **Online Tutorials**

The appointment of the eLearning librarian made it possible to focus on developing more online tutorials. Online tutorials can be embedded into Moodle courses and elsewhere. These tutorials ranged from video tours, screencasts on database searching, APA referencing to narratives about evaluating websites.

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7. A Ning is a social media platform where people can create a custom social network based around a particular area of need. It contains areas to post photos and videos, provides fora and the ability to have subject specific discussion groups.

Online tutorials add a visual element to potentially heavy text based learning resources. Attractiveness of materials in a learning environment is an important feature (Booth, et al., 2009), particularly for those whose learning styles favour visual or auditory style learning.

### **Embedding liaison librarians in Moodle**

Liaison librarians have been encouraged and assisted by the eLearning librarian to participate and have a presence on Moodle courses relating to their subject areas. Promotion of ebooks and RSS feeds from journal contents are two areas that have been incorporated by departmental eLCCs in collaboration with the liaison librarian and eLearning librarian.

### **Change and Building Institutional Capability**

#### **Community of Practice**

At the beginning of 2010 Unitec librarians set up an Information Literacy Community of Practice. Its purpose is to provide a forum and support for teachers of information literacy, both librarians and academics. Gatherings have included:

- A “journal club” discussing articles about active learning
- Using social media to connect with our users
- Information literacy and Maturanga Māori
- The best things in life are free - using online software in our teaching
- A technology “petting zoo”

The community aims to:

- Create a repository of examples of information literacy-friendly assessments and teaching plans
- Encourage a collaborative approach with lecturers to teaching the skills
- Link in with the academic literacy and the various eLearning communities on campus
- Upskill us all in technologies useful for teaching and learning
- Ensure that work done in one community will benefit others and bring new people into the information literacy community

The CoP has a dedicated space on the institution’s Teaching and Learning Ning where discussions can take place asynchronously and outside of face to face gatherings.

### **Professional Development Moodle course**

A professional development Moodle course for library staff was created to address the capability in wireless mobile devices and elearning.

### **Inter-departmental Collaboration**

Collaborative relationships between the elearning librarian, eLCCs, eLDAs<sup>2</sup> and between the library and the institution’s learning centre have been forged and strengthened. This was already happening in an ad hoc way, with the information literacy librarian working with the academic literacy advisors on various other initiatives. The eLearning Strategy formalised and upgraded that collaboration.

The eLearning Strategy has brought a more collaborative atmosphere amongst those involved in creating Moodle courses. There appears to be more opportunities to work with lecturers to embed information literacy skills into online courses. Doing so would both meet the needs of both the strategy and fulfil one of the Library's goals.

### **Access to resources and equipment**

Three iPads and one Galaxy Samsung tablet were purchased by the library to investigate their use with library services and resources. The library was subsequently successful in obtaining funding for a further ten iPads for the use in information literacy teaching.

A significant aim for the library in 2011 has been the development of a mobile accessible website and resources. At time of writing, there has been some progress made in this area and the website will be launched in beta<sup>13</sup> for feedback shortly.

The library rates very well in the annual Student Satisfaction Survey initiated by the student union, but it is clear from an INSYNC<sup>14</sup> survey there are issues with access to equipment and study spaces. Provision of both space and equipment to support information and digital literacy requires significant financial outlay from the institution and budget has yet to be forthcoming.

The number of wireless connections available in the library has been increased to help with the increase in connectivity of WMDs used in the library. Even so, the prioritising of network data means the connections can be unworkably slow for netbooks.

### **Issues and possible solutions**

The first few months of implementation were difficult as the boundaries of the library eLCCs and eLearning Librarian appeared to have a lot of overlap and the contractual timeframes placed doubts about the completion of all planned activities. Fortunately these roles evolved, and the library managed to secure permanent hours for an eLearning librarian into 2012 ensuring continuity.

Libraries are having to do more with fewer staff and therefore less time. While eager to take a hands-on role and embed ourselves into Moodle courses, in reality there are many other pressing jobs to be done in the library. The information literacy and eLearning librarian need to work with liaison librarians to set goals and provide exemplars encouraging involvement in

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8. i.e. the mobile site will be feature complete but requires user testing and feedback

9. Using gap analysis methodology, the INSYNC survey company provided the library with quantitative and qualitative data and written analyses about students' perceptions of the importance and performance of library services, facilities and collections. The contracted company Insync, which is Australasia's most experienced tertiary libraries' survey company, used their standard survey as a template – with some customised variables for our institution's unique student mix. Their database was used to provide service benchmarks with approximately 30 Australasian tertiary libraries.

Moodle. With a focused move to up-skill library staff via Moodle and other planned professional development opportunities we hope to address this.

Efforts to improve student information literacy are most effective when skills and competencies are embedded into courses and in this the library struggles. A small number of programmes have embedded information literacy into their courses in collaboration with their liaison librarian. In these cases, information literacy skills are there as part of learning outcomes, assessments and in-class activities.

Not all library staff are interested in the use of WMDs. This may change with greater market penetration within the student population and overt plans to use these tools in teaching library classes.

Some library staff are tentative in embracing e-learning - and the Living Curriculum - as part of their teaching practice. Using a mixture of self-directed learning and the communities of practice model, we seek to encourage exploration and up skilling within the library to build capability.

IT infrastructure, provision of space and equipment needed to support the library's efforts towards e-learning are still a problem. Support, both financial and in terms of leadership, needs to be given to those involved in the eLearning Strategy delivery if the momentum attained is to be continued.

### **Future of the library in an e-learning world**

Experience tells us there is a clear place for libraries and librarians in an e-learning world. Abram (2011) points out that the power of libraries is not information; it is clarification and the value of the resources they deliver. When released from the tether of physical space, library resources and librarians can be useful where ever learning takes place either online or in a brick and mortar classroom.

The challenge for the library is to have flexibility to meet the learning needs of all groups in the institution, within the institutional drivers. Rather than being a disaggregated service, deployed at particular points in the learning cycle, the library needs to be proactively integrated to support students' learning development and different learning pathways (Beetham, McGill, & Littlejohn, 2009). Integration will lead to a transformative rather than transactional relationship with learners.

### **Conclusion**

The library's involvement with the eLearning Strategy has given new opportunities to embed library services and resources into learning spaces, while experimenting with innovative ways in teaching and learning to improve information literacy. Innovation in academic libraries can be challenging, as Robinson says, "The great problem for reform or transformation is the tyranny of common sense. Things that people think, 'Well, they can't be done any other way because that's the way it's done'" (Robinson, 2010).

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## **E-LEARNING AND DISTANCE EDUCATION: RECIPROCITIES AND 'DOXA'**

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The aim of this paper is two-fold. First, to define the meaning of the terms 'e-learning' and 'distance education'; and secondly, to critique the four models of distance learning pedagogy and to discuss their relationship to e-learning (Moore & Kearsley, 1996, p. 5). The terms e-learning and distance education are sometimes used interchangeably. However, the central theme of e-learning is that it requires an 'online presence', although distance learning has also had a long history of communication through printed correspondence as well as modern telecommunications (Fisher, 2009). Koochang et al. describe e-learning as "... the delivery of education (all activities relevant to instructing, teaching and learning) through various electronic media" (2010, p. 30).

Thus e-learning could be defined by the use of electronic technology as used to support learning and instruction. As Wachira et al. suggest, "... e-learning can potentially transform education by providing high-quality educational experiences available to those whose location, economic and personal constraints have prevented them from pursuing their educational goals" (2008, p. 1). Geographical dispersment and technological facilitation are two of the central components of e-learning, but despite the paradigm shift to CMC (computer mediated communication) the former and not the latter may also be features of distance education (Prasolova-Førland, 2011, p. 1). The distinction is a fine one between the use of virtual technology for educative purposes and the facilitation of learning by any means to bridge time and distance between teacher and student.

Traditionally, distance education remediated the disadvantages of those whose "life role, geographical location, disabilities, and socio-economic circumstances" have made conventional learning difficult (Poley, 1998, p. 976). Furthermore, as Prasolova-Førland suggests, "... students are capable of taking their courses from their homes, often at their own pace and when they have time, without disruptions to family life" (2011, p. 1). This may save travel costs and lost workdays. More recently, theorists of distance education have posited that it is a natural extension of F-t-F (face-to-face) or contact learning, by reconceptualising ways in which the proximities of traditional education delivery can be seen as "less distant" forms through mediated e-learning online "presence". (Mersham, 2009). Indeed, distance learning programs that are designed for the medium, rather than being simply technology-driven 'add-ons', are equivalent or better than F-t-F. Technological advances in learning technologies are seen as spin-offs of both demand (extensive use leads to further teaching innovations and adaptations) and supply (technological advances create user networks) (Prasolova-Førland, 2011, p. 2).

Brown (2001) has commented that there may be a disappearing distinction between F-t-F and distance education. However, as the traditional close proximity modes engage with new e-technologies and synchronous delivery, which becomes more flexible and 'personalisable',

there is an increasing need to define the inter-relation of e-learning and distance learning within a pedagogical 'doxa' – or system of thought. Such a doxa needs to encompass both pedagogy and technology. E-learning is currently conceived as a narrower concept of the educative applications of the Web 2.0 medium defined as "... [w]eb platforms that support growing content and functionality that allows users to contribute, manage, share and own their own data" (Koochang et al., 2010, p. 31). On the other hand, distance learning describes the attempt to overcome distances of geography and time by varied means of structured learning which, "... provides high-quality, affordable learning opportunities at a time and place convenient for the learner" (Poley, 1998, p. 975).

However, e-learning and Web 2.0 are distinct. Web 2.0 is characterised by "use of improved web technologies such as weblogs, social bookmarking, wikis, podcasts, online videos, RSS feeds, [and] social software" which may or may not be used for educative functions (Koochang et al., 2010, p. 31). Likewise, social media are seen as something distinct from e-learning and do not constitute it in themselves. However, as Koochang et al. suggest, when Web 2.0 technologies are used for educative purposes they may support "diverse online learning environments" and enhance "interactivity, participation, and feedback between students, student peer groups, and teachers" (Koochang et al., 2010, p. 31). Consequently rather than seeing e-learning as an amorphous term that encompasses, but which is outside, the distance learning rubric, it is better understood as having an enabling, virtually mediated function within distance education. A necessary component is a content management system such as Blackboard/WebCT, Desire2Learn, Moodle, or Sakai (open source). This is the delivery dimension of e-learning and its educative functionality extends beyond social networking sites. Consequently when distance learning and e-learning are combined, we may derive the term 'e-distance learning'.

### **Theories and 'doxa' of e-learning and distance education**

Lein points out that e-learning strategies have produced a revolution in world learning instruction. This is characterised by e-learning technologies initially used to convert existing instructional material into digital formats providing geographically dispersed distribution, consistency and reduced costs for the teaching of distance learning (2009, p. 1). Despite the shift in pedagogical emphasis driven by the virtual paradigm of technological change, a learner-managed learning experience is equivocated by the fact that despite extensive group work most students will manage their own learning experience guided if not instructed by a tutor. MacDonald and Thompson (2005, pp. 234-235) identify five dimensions to high-quality e-learning experience:

- 1.) structure
- 2.) content
- 3.) delivery
- 4.) service
- 5.) outcomes.

A critical factor in student engagement in e-learning is the relationship between teacher and student. As Ross suggests, "... students work harder and express their opinions more readily

when teachers are approachable, organised, well-prepared and sensitive to students' needs .... [e]nthusiastic teachers who spend more time developing relationships and trust with students are more likely to engage them in learning than those who do not" (2011, p. 4). Such trust is entirely achievable through the online e-learning, although cognitive trust is more easily achieved than emotional trust. Student motivation is predicated largely on cognitive trust and learning and pedagogical support (2011, p. 10). However, the California Adult Education Program sounds a note of caution in as much as: "The quality of a distance education program that uses e-learning tools is determined in part by the functioning of the tools themselves" (2006, p. 2).

It has been suggested that because of the technologically mediated factor, the pedagogy of distance learning e-learning is more behaviourist, that is, concerned more with responses to external stimuli and less with the internal processes of learning. However, as Poley suggests, "Learners need to be at the centre of the process. Learners can learn from each other and from teaching faculty" (1998, p. 975). Furthermore, knowledge of these internal learning processes may be explicit in learning management systems and is inherent in course, curriculum and online campus design. Also, in the process of instructional design, as Lein points out, this may take the form of "breaking learning material into smaller instructional steps, which have an progressive interactive or modular quality against which the learner's performance may be measured providing positive and negative feedback" (2009, p. 2).

'Behaviourism' is not the only model of pedagogical theory that has been applied to distance learning; its major rival is 'cognitivism' which is often conceptualised as a response to how the learner's mind processes and uses information. Consequently cognitivism offers to more fully explain human behaviour by modelling mental structures. Cognitivism may be characterised by the use of schema and maps to organise content (Allen, 2007, p. 41), and emphasises the role of the learner's "thoughts, beliefs, attitudes and values" in the learning process (Schunk, 2007, p. 17).

A third pedagogical model of elearning is 'constructionism', which follows from cognitivism in defining learning as an contextualised process of constructing knowledge. In constructionism the learning model is learner-centric, and the learner takes an active role in the learning process, acquiring knowledge for themselves and processing it in a subjective way. Pedagogically characterised by activity-based learning, constructivism is based on three main principles: a.) learner's learn from their own framing of knowledge patterns and understanding; b.) learning is achieved through active experience and occurs when the learner uncovers inconsistencies between current knowledge, their own experiences, and instructional knowledge (it is thus concerned psychologically with the 'cognitive-dissonance' or 'learning gap' paradigm of learning); and c.) learning is adaptive and occurs in a socialised or remotely mediated context through interactions with an instructor and peers. In the constructivist model learning is predicated on the learner's ability to adapt, and has similarities with the Socratic method of questioning and answer mode of enquiry (Wachira et al., 2008, p. 2).

This model is deemed to be suited to the distance education mode in so much as it accounts

for the spectrum of learning from 'high-contact' students who respond to intensive teacher stimulus to low-contact students who seek to solve a problem on their own, rather than be given the knowledge or instructions for the problem (Modritscher, 2006, p. 7). A feature of both high and low-contact distance education is the necessity to give students "point of need" access to educational resources (Lein, 2009, p. 2). Teaching by video-conferencing for example, may actually be preferable to some forums of F-t-F communication, given that it allows a person to get to know more students than just those of their immediate proximity (Greenfield, 2003, p. 178).

In a traditional teacher-centric context the instructor is presumed to have a monopoly on information, however, with the increasing emphasis in teaching online e-learning is becoming contextual and active for the learner. With the world-wide web available to students 365/24/7, students are no-longer dependent on faculty for all their knowledge. Whilst this relativising tendency arguably requires a greater range of tolerance for what might be applicable to the curriculum from teachers, it makes more not less critical the need to distinguish between the veracity of sources. Navigation of the web is also an art and students need to be able to distinguish reliable sources from unreliable websites or websites of dubious authority. Prasolova-Førland (2001, pp. 7-8) suggests the following six key factors of student-centric e-learning as design issues for pedagogical instruction (after Pennsylvania State University, 1998):

- support for interactions between participants in learning process
- encouraging of learning-based social interaction
- accessibility of tools
- quick recovery from tech-based faults
- a feedback mechanism
- support for creation of learning community.

Laurillard also distinguishes four theories of e-learning. The first of these is 'instructivism': the teacher presents concepts and theory; the learner asks questions; the teacher adapts a practice environment for learners' needs and sets a 'task goal' from which the learner in turn adapts; and the teacher then reflects on this task and assesses the learner's performance. This model is not dissimilar from the Socratic method (2008, p.15). The second is 'constructionist': the teacher provides a practice environment and a task goal; the learner adapts to the action of the goals; feedback is received from the practice environment; and further adaptation takes place. The third model is 'social learning': each learner presents ideas or concepts to other learners. The fourth model is 'collaborative learning': this is similar to constructionist learning but the learner shares the output with another learner, learners reflect on shared outputs and present ideas to yet others, comments are received, and adaptation is made (2008, pp. 15-16).

Behaviourist and constructivist learning models emphasise the objectivist view of knowledge, in which outcomes visible to educator are emphasised over diverse implicit and explicit learning processes. Gulati (2004, p. 1) and Hughes and Daykin (2002, p. 222) identify the barrier that learners are often reluctant to criticise each other and engage in discussion. Thus,

there do exist traditional normative influences on online learning practices which focus on measurable and visible learning outcomes. The negative feature is that this has tended to disregard informal learning and what Gulati calls the “radical and emancipatory” aspect of learning that is implicit within outside online and discussions. This quality is evidenced for example by: the “passive” distance learner who is content to self-problem solve; or the distance learner who enrolls in a course to acquire specific content knowledge for another purpose; or the distance learner who wants to upskill outside the formal measurement of the system. Whilst learning arguably does take place in these previous learning scenarios, it is not internally demonstrable knowledge to the organisation beyond the fact of enrolment. Learning by ‘doing’ and active learning and ‘listening’ are constructivist concepts which need formal recognition within an organised system of learning.

This must also be countered by the fact that there is a limitation to traditional pedagogy which has relied on the objectivist view of knowledge. This view is that education can be imparted through the teacher to the learner through instruction and practice. This view may be changing as activities which would formally be regarded as leisure (such as virtual instruction) are now more widely used because they attract learners and the use of technology is increasingly ubiquitous. However, as different pedagogical concepts suggest, learning is not just a large accumulation of facts. Changes to the dominant pedagogy through e-learning have recognised that F-t-F has a redundant passive element and has allowed limited recognition of diverse preferences in learning (Gulati, 2004, p. 1). That learning is more than just the passive reception of instruction (teacher control and learner compliance) is evidenced by the prevalence of ‘recognition of prior learning’. This is the degree to which a person who has attained competencies in a vocational sphere can undertake a form of rapidly accelerated assessment to acquire a qualification.

However, as Gulati suggests, the limited learner participation and interaction in the objectivist view hindered rather than helped the recognition of the need for active learner control in the process of learning (2004, p. 1). Gulati’s suggestion is that there are different learning ontologies – much as if there are different ways of knowing the world, learning contexts may be different also. Thus the objectivist view of knowledge that it reflects a fundamental ontological reality may be flawed. This view is increasingly challenged by social constructionists and post-structuralists, for example, who have challenged the dominant paradigm in positing that there is no ‘meta-narrative’ of conformity in individual education. Dewey emphasised the need for formal education students to realise the importance of freedom and flexibility in education by allowing the “expression of even immature feelings and fancies” (1966, p. 190) to enable learning. Dewey’s philosophy, although a form of pragmatism and functionalism, emphasised freedom to interpret and the flexibility to challenge and question.

Kelly (1970) has offered an alternative constructionist philosophy which argues not that knowledge itself is inherently unstable, but rather views of the world as unitary, discrete and continuous may be different among different learners, as peoples’ learning experiences are continuously changeable as a consequence of past knowledge and future intentions. One

criticism of learner-centric learning is that it divides the public and private spheres of learning more completely than F-t-F learning. If the learner studies in his or her private environment, learning is more individuated than that which takes place in a public sphere.

A criticism levelled by Khone et al. is that “surface learning” fails to sustain interaction (2003, p. 113). Learners may be reluctant to criticise one another online because they don’t know who their audience is or how large the publication is online. In this way it is part of the distance learning and virtual environment teacher’s responsibility to set the parameters of virtual participation environment to establish the trust, rapport, confidence and explain the power discourses that affect distance learning. However there are communities forming among students that serve a peripheral educative function resembling what Wilson and Ryder (2006) describe as “dynamic learning communities”. These communities are characterised by six factors:

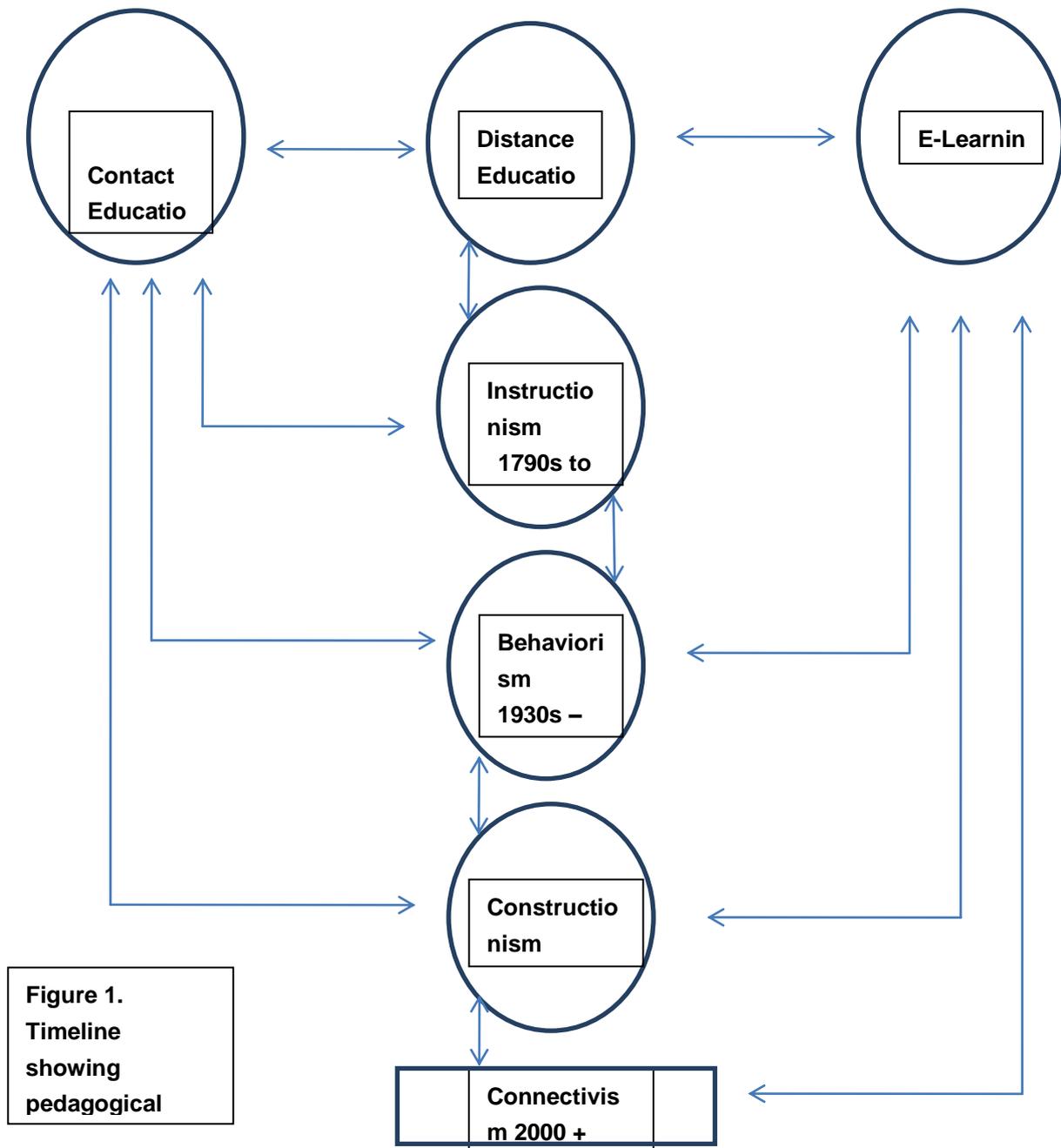
- 1.) distributed control
- 2.) commitment to the generation and sharing of new knowledge
- 3.) flexible and negotiated learning activities
- 4.) autonomous community members
- 4.) high levels of dialogue, interaction and collaboration
- 5.) a shared goal, problem or project that brings a common focus and incentive to work together.

The use of social media and networking sites is now an adjunct to the forums used in online learning. Here the student’s ‘persona’ is something other than dedicated student, the public and private spheres of interaction are broadened, and “[t]he pull of different types of tribes, clusters and personalities themselves within cyber-society will determine both your ‘individual’ personality, and society itself” (Greenfield, 2003, p. 43).

Learning by doing is an active learning constructivist concept (Bredo, 2000, p. 132). However, this establishes the issue of “silent” learner vs “active” participation. In traditional educational settings it is assumed that compulsory contribution involves the articulation and cross-transfer of ideas to a formal authority (Beaudoin, 2002, p. 149). However, Brookfield warns that enforced or coerced participation may result in learners either being increasingly physically or mentally absent, “in the sense of not being engaged with ideas, skills and knowledge” (1985, p. 12). Few have explored the impact of making online participations compulsory in formal education courses. However, there is a sense in which they are “absent but present”. In the learner-centric situation, the principles of self-directed enquiry and individuality may be compromised on the continuum towards rote learning. Enforcing “requirements” over “participation” is situated in the objectivist worldview (Brookfield, 1985, p. 12).

More recently, and perhaps due to the inability of theorists of instructional design to arrive at a model in which all theories coalesce or to settle on the overriding pedagogical attributes of any single theory, a fourth model has been posited – that of ‘connectivism’. The main proponents of this theory are Downes (2006) and Siemens (2008). Connectivism is a theory of distributed knowledge that denies knowledge is propositional. Instead it is suggested that knowledge is

literally “the set of connections formed by actions and experience” (Downes, 2007, p. 12). However, arguably the theory fails to account for the internal processes of learning – being a meta-cognitive conceptualisation of the flux of embodied learning. Connectivism is also difficult theory to apply to the modality of instructional design except by conceptualising courseware as a node within a network. Whilst this networked conceptualisation is partially fitting, given that courses are taught within programs and degrees, it tends to underestimate the agency of the individual in the cognitive process of learning. As Gorsky claimed, learning is an internal mental process, hence the presence of connection as with interaction does not necessarily signify learning itself (2008).



## **Conclusion: e-distance learning**

The terms 'e-learning' and 'distance learning' are distinct in their original meanings but the increasing prevalence of dedicated CMC in education has brought about the inter-changeability of their use. The distinction is subtle between the use of virtual technology for educative purposes and the facilitation of learning through any media to bridge time and distance between teacher and student. The authors posit that the term 'e-distance learning' might better express the increasing pedagogical inter-relation of e-learning and distance learning delivery as a consequence of the technological shifts in the medium of delivery towards the predominance of teacher and student-centred use of learning management systems. The relationship of the 'doxa' or 'systems of thought' between distance learning and e-learning is more straightforward than that between distance learning and contact learning and can be understood as a form of reciprocity. Relevant concepts in e-distance pedagogy include instructionism, behaviourism, constructivism and connectionism.

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# HOW TEACHERS USE BLOGS FOR PROFESSIONAL DEVELOPMENT AND ENHANCING DIGITAL CAPABILITY

Bronwyn Hegarty

Ascilite

**Abstract** - Blogs are used in one of the courses in the Graduate Certificate in Tertiary Learning and Teaching (GCTLT) at Otago Polytechnic, Dunedin, New Zealand to encourage academic staff to communicate their growing knowledge about flexible learning. Teaching staff who take the course in Flexible Learning are either new to teaching, and/or unfamiliar with the way in which Web 2.0 technologies can be used in education. Blogs are used by the facilitator to encourage participants to share ideas and knowledge about more flexible and sustainable ways of learning and teaching. By modelling the use of a course blog, and requiring individuals to set up and use blogs over the duration of the course, the facilitator aims to encourage up to date strategies and technologies for learning and teaching, and increase the digital information capability of staff. Some teachers embrace the opportunity for open dialogue on the web, whereas others are less confident about revealing their thinking in public. Reflective writing on blogs is scaffolded through the use of a Reflective Framework developed for a Doctoral research study. In this presentation, the use of blogs is illustrated with examples of students' work, and teachers' digital information capability is discussed. Evidence of the quality of participants' reflective writing is presented, and key indicators of quality in the blog posts are described. For example, the critique of others' knowledge and views, and evidence of reflective learning are two indicators of the reflective process.

## Introduction

It has taken a number of years for the shift to a participatory Internet culture to become established (Blackall & Hegarty, 2011). The concept of using the Internet as a "transport mechanism" for interactivity was originally coined by Darcy diNucci in 1999 (p. 32). Web 2.0 tools such as blogs and wikis and web-based media-sharing sites are claimed to enhance learner autonomy, collaboration and the sharing of information, resources and ideas in both real world and virtual world situations and participation in a socially networked community is possible "across physical, geographic, institutional, and organizational boundaries" (McLoughlin & Lee, 2008, p. 2). Increasingly, learners, through using social networked media are expected to become members of the participatory Internet, and use the Internet, not just as a repository of information, but as a vehicle for interaction and collaboration and as a space for generating and sharing content (Conole & Alevizou, 2010).

Conceivably, "Teachers need to be present and early adopters in this space, skilled and experienced with social media technologies and communication methods so that they can participate and develop the critical awareness" to respond to students who choose to enter the blogosphere and other social networking sites (e.g., Facebook, Twitter, blogs, wikis, Flickr, Youtube) to document their learning experiences (Blackall & Hegarty, 2011, para 14). Also, the

expectation when using online communication tools is to develop communities of learners who can 'speak' to each other, yet the fundamental difference between oral and written forms of communication and the use of media appears to have been overlooked in the design of communicative spaces (Enriquez, 2010, p. 230). Communicating in written formats required by blogs or discussion forums is quite different to communicating through a medium such as web conferencing when the voice can be heard, and interaction is synchronous and immediate. Also, a core outcome for students in the educational system is that they have the skills to use media to communicate ideas and problem solve in the 21<sup>st</sup> Century (Partnership for 21<sup>st</sup> Century Skills, 2008). However, for this to occur, teachers as well as students must be given opportunities to develop their capability in managing digital information through using Web 2.0 tools and methods (Hegarty, Penman, Kelly, Jeffrey, Coburn & McDonald, 2010).

## **Background and rationale**

The Flexible Learning course has been offered as a compulsory course in the GCTLT since 2007. The aim of the course is to enhance the understanding of flexible teaching and learning principles and processes, and their application to the design of flexible learning practices. Mainly, academic staff new to teaching who require a teaching qualification take part in the programme. However, from time to time experienced teachers take the course for professional development to increase their knowledge about flexible learning. Initially, in 2006, the course was offered mainly face-to-face on-campus, with adjunct online resources available in the Blackboard learning management system. It was apparent in the first iteration of the course when participants were asked to audio record their discussions that the majority of staff who attended the inaugural class had a low level of skill and self-efficacy in using digital tools and strategies for their learning, and this appeared to influence the approaches they took when teaching students. Participants were from a variety of disciplines, and were most familiar with using proprietary software, such as Microsoft Office, for preparing lecture material as text (lecture notes, and worksheets) or presentations using Power Point. Some already used the learning management system for distance teaching or to support on-campus classes, but others were not using much in the way of online teaching methods apart from providing students with links to websites. Several participants were unconvinced that online methods could be used in their subjects which they considered 'too practical' for online learning. None of the participants were familiar with using open education practices.

In 2007, work began on developing resources in an open format using WikiEducator to complement the resources on Blackboard. The lecturers also expected that this would also serve to broaden the horizons of the staff taking the course, and attract participants from the wider national and global community. This led to a partly open course being offered, and again only enrolled participants accessed it (Blackall & Hegarty, 2011). In 2008, the course went fully open using the WikiEducator platform for course materials, a teaching blog on blogger.com for announcements, and a Google group for discussion. The learning management system was not used. Therefore, the course was in a fully open format, and emphasis was placed on using Web 2.0 tools and strategies for learning and teaching. The design of the course was informed by the principles of a connectivism model of learning that is described by George Siemens as an "integration of principles explored by chaos, network, and

complexity and self-organization theories” (2005, p. 6). Accordingly, learning is expected to reside with individuals and the connections they set up with others, and also the interactions they engage in to develop their knowledge (Siemens, 2005).

Therefore, to encourage connection with others on the web, participants were asked to set up and maintain an individual blog. This move attracted a number of informal participants from the global community who participated for no fee until such time as they required assessment. Consequently, between 2006 and 2008 the methods used for facilitating learning and communicating in the course have evolved from using email and the Blackboard discussion board to use of an open group email, wiki discussion and blogs, and only the use of blogs and a wiki continues in 2011.

### **The case of the Flexible Learning course**

A teaching blog (weblog) has been used in the Flexible Learning course since 2008 (see: <http://flexible-learning-course.blogspot.com/>). A blog was chosen as a means to model open practices for teaching and learning, in an attempt to conform to the view that open learning can “expand the walls of the classroom” (Richardson, 2006, p. 28). Initially, in 2008 and 2009 two lecturers co-taught and took turns to maintain the blog. Each week an announcement about the week’s topic was posted with guidance for students about the activities, and links to resources. Further detail about each of the weekly topics and activities was located on a wiki. At the end of each week’s activity, a summary of students’ work on their blog posts was added to the course blog with links to each student’s blog post (see Figure 1). This strategy was used to broker the main points raised by students in their posts, and provide some direction in an attempt to ‘light participants’ fire’ about the subject. Participants found the summaries useful as they helped them to focus on key areas, and meant they did not have to read everyone’s blog posts to get an understanding of what was being discussed by the class. The same practice continued in 2010 and 2011, with one lecturer facilitating.

Because the intention was to model how blogs could be used both for learning as well as teaching, individuals were required to set up and use blogs over the duration of the course. This provided a means to encourage 21<sup>st</sup> Century modalities and technologies, and to attempt to increase the digital information capability of staff. It was anticipated that the blog platform would encourage participants to develop their digital skills (e.g., hyperlinking and using media), and to also access other social networking facilities such as image and video sharing sites (e.g., Flickr and Youtube) as well as Web 2.0 tools for screen capture (e.g., Camstudio and Jing) and information sharing (e.g., Slideshare and Delicious). Between 2008 and 2009, support in setting up a blog and writing for a blog was found to be very necessary to assist the participants to start blogging and interact with the class from the start of course. In 2011, most participants managed to do this relatively quickly without assistance from the lecturer, even if they had never used a blog before. This appears to be related to the greater density of teaching staff now using online methods and a broader range of media in their courses in 2011.



Figure 1: Screenshot of the Flexible Learning course blog.

Individual blogs provided a space for participants to post their ideas and responses to the course activities and document their learning about flexible learning concepts and principles. The lecturers chose a pedagogy using weblogs for a number of reasons. In the first instance, to assist participants to develop their capacity for using digital tools for accessing, interpreting and creating information, and for social networked learning and connectivity (Blackall & Hegarty, 2009). A number of claims are made about the pedagogy of weblogs by Richardson (2006). For example: their tendency to support constructivist learning and connectivity by the potential contribution to the wider body of knowledge on the Internet and opportunities for collaboration. Also, blogs allow learning to be documented and accessed at a later date as part of a reflective process, and to enable each student to build a specific body of knowledge and expertise about a subject. Blogs are also claimed to accommodate a variety of learning styles and preferences for participation, and also to help students develop skills for handling information (Richardson, 2006). The use of “social software tools” for learning are claimed to be part of implementing pedagogy 2.0 defined as including:

- Content - learner-generated;
- Curriculum - dynamic with formal and informal learning;
- Communication -open, peer-to-peer, and multifaceted;
- Process- situated, reflective, and inquiry based;

- Resources - multiple informal and formal global media sources;
- Scaffolds - support for students from a wide ranging network;
- Learning tasks - authentic, personalized, learner-driven, and experiential (adapted from McCloughlin & Lee, 2008, p. 2).

Similarly, the facilitators of the Flexible Learning course designed a learning environment characterised by the dimensions of connectivism (Siemens, 2005) and pedagogy 2.0 (McCloughlin & Lee, 2008). Thus, interactions between participants and the global community were expected to increase as a result of the participants maintaining individual blogs to present their growing understanding about the dimensions of flexible learning. The facilitators also believed that the digital information capability of the participants would also be enhanced as they used a variety of tools and engaged in open education practices during their learning. Also, to stimulate debate and the development of a community of learners, participants were encouraged to post regularly on their blogs about the course topics and to respond to other's posts. This had the double purpose of provoking interaction between the students to encourage them to give each other feedback on their work. Ehlers (2009) regards this type of approach as a form of peer learning and peer review whereby students provide each other with quality assurance on learning progress and outputs. Therefore, by asking participants in the Flexible Learning course to use individual blogs to document their learning, the facilitators endeavoured to shift the learning environment to a more student-centred and collaborative one, where blogs were used as a tool for communication as well as knowledge construction (Conole & Alevizou, 2010). The blog posts were assessed not only on the basis of participants' understanding of the principles of flexible learning and the level of critique and reflection about the subject, but also in terms of the feedback they provided to others' plans for flexible learning which individuals posted on their blogs.

To support the reflective writing process, a Three-Step Reflective Framework developed by Hegarty for Doctorate research conducted in 2007 was provided (see details in Hegarty, 2011). Reflective writing where deeper levels of reflection are demonstrated is not an intuitive skill, and is more successful when the process is scaffolded through the use of frameworks and modelling (Bean & Stevens, 2002; Hatton & Smith, 1995). For example, Korthagen and Vasalos (2005) used a model of reflection to support teachers to reflect in a way which helped them to learn from their experiences while concurrently developing skills for reflecting and solving the problems of practice. This model occurred in five phases starting with an action, and encouraged practitioners to work through looking back on the action, and develop an awareness of the factors associated with the action before guiding them to develop an alternative form of action for experimentation. In more recent research (Hegarty, 2011), a Three-Step Reflective Framework was found to be successful in scaffolding the reflective writing of Masters of Education students studying multimedia design. The Reflective Framework was developed and used as an intervention in a subject where the lecturer had previously found it challenging to get students to reflect at a level necessary for meaningful learning. The subject lecturer believed it was important the students developed reflective writing skills if they were to engage in reflective practice. The benefits of using reflection to stimulate learning about practice, and the connection to reflective practice, is well supported in

the literature (e.g., Boud, Walker & Keogh, 1985; Moon, 1999). Therefore, the students in the multimedia design subject were required to prepare reflections about the processes they were undertaking when designing learning objects for use in teaching. The framework guided students through three steps of writing which are shown in Figure 2. Overall, this research demonstrated that the Reflective Framework was successful in scaffolding levels of reflection beyond superficial description (Hegarty, 2011).

Use of the framework in the Flexible Learning course began prior to the findings in Hegarty's study being fully analysed. Even so, based on other evidence that frameworks can facilitate deeper reflection, it was anticipated that the Three-Step Reflective Framework would enhance the degree of reflection demonstrated by participants in their blog posts (Hatton & Smith, 1995).

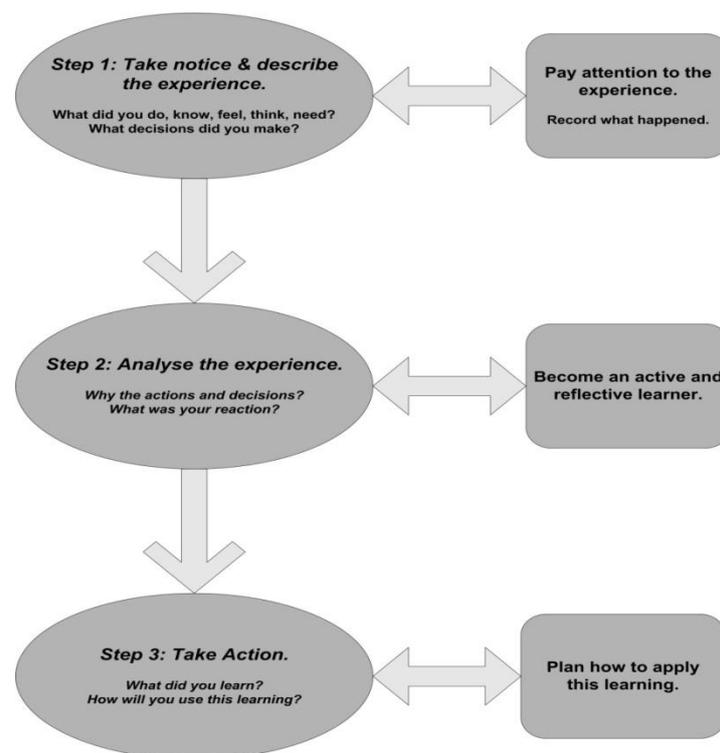


Figure 2: Three-Step Reflective Framework (Hegarty, 2011).

### Overview of how blogs were used

Students have used their blogs in a number of different ways in the Flexible Learning course. In this section, the quality of participants' blog posts is described to illustrate how participants used their blogs for learning. The explanation about the quality of the posts includes factors such as: digital skills, the type of posts, reflective writing, and the level of interactions. The blog posts were evaluated against specific criteria as they were part of summative assessment in the course. Participants were expected to demonstrate:

1. description and critical analysis of their efforts and progress with flexible learning - what, why and how;
2. application of flexible learning principles in their work setting;

3. design and development of a flexible learning plan;
4. links and references to a variety of information, including those provided by others in the course; and
5. critiques of flexible learning methods, issues and considerations (Blackall & Hegarty, 2009).

The blog posts were examined for evidence of: critical thinking about flexible learning. Evidence of critical thinking was based on the precepts of interpretation, analysis, inference, evaluation, explanation and self-regulation, defined by Facione (2011) as core skills. Also, evidence of reflective learning was sought, and the content of blog posts was analysed using an adaptation of the taxonomy developed by Hegarty (2011) to measure levels of reflection in participants' writing. Participants' writing was categorised using four levels of reflection defined by Hegarty (2011): Level 1: Descriptive reflection - description of topics with ideas linked to professional practice; Level 2: Explanatory reflection - analysis of ideas and explanations for using concepts of flexible learning in practice; Level 3: Supported reflection - ideas and explanations supported by others' perspectives; Level 4: Critical reflection - synthesis of new knowledge and application of learning.

It is worth noting that some teachers embraced the opportunity for open dialogue on the web, whereas others were less confident about revealing their thinking in public. This 'shyness' manifested in a number of ways. Some participants started the process cautiously, and admitted to feeling shy, whereas in one case the teacher developed a metaphor and adopted the character of a Greek goddess – Athena - to deal with her apprehension about posting her work openly. Generally, the participants made regular posts of their responses to the weekly activities, and documented a record of their learning over the duration of the course.

### **Digital skills**

Participants who were unfamiliar with blogs found the set up and process of writing the initial post daunting. Not only did the technology create a hurdle but also the requirements of setting up a username and password, and then remembering it. The level of digital skill appeared to influence the type of blog posts created by participants. For example, confident bloggers tended to prepare a lengthy and in-depth posts to introduce themselves with an image and a profile, whereas less confident participants produced brief posts, sometimes only one or two sentences, and more often than not without an accompanying profile. Many were not familiar with using hyperlinking in their posts, and were encouraged to include them to aid connectivity to different forms of information.

### **Type of blog posts**

Some participants were unsure about how to write on a blog, and were carefully guided regarding the content through the use of activities on the wiki, and provided with a link to the Blogging Handbook (Blackall, 2008) developed for the purpose of supporting staff at the organisation to start blogging. Some participants preferred to post their record of learning mainly in text, others also included images and hyperlinks, and some used media such as audio and video to share information and ideas. On rare occasions, slide presentations and animations were added to the blog posts. All participants appeared to develop their skills and

confidence over the duration of the course, moving from an initial basic post with just text to more sophisticated offerings, containing media, by the end of the course.

### **Reflective writing**

Although, all participants were asked to use the Reflective Framework (Figure 2) to guide their writing for the blog posts, variation in the quality and depth of reflection was apparent. Some participants wrote short descriptive statements with little explanation about what they are learning or why. Others reflected on their learning at a deeper level using critical analysis. Evidence of four levels of reflection (Descriptive, Explanatory, Supported and Critical) in participants' writing was found with a higher proportion of Descriptive and Explanatory reflection apparent, with a degree of Supported and Critical reflection apparent. Descriptive forms of writing demonstrating low level reflection are generally more common than scripts containing deeper levels of reflection (Hatton & Smith, 1995; Hegarty, 2011). A comparison of some examples of writing will be demonstrated in the presentation.

### **Level of interactions**

In 2009, a student in the Manukau Institute of Technology graduate programme (Graduate Certificate in Applied eLearning), Adrienne Moyle, conducted an evaluation of the 2009 iteration of the Flexible Learning course, as her evaluation project. As part of this project, Moyle (2009) investigated the online interactions in the course. The writing on the blogs of twenty participants was analysed to determine two factors: the frequency of posting and the level of interactions as measured by a combination of models (e.g., Gunawardena, Lowe & Anderson, 1997; Henri, 1992; Salmon, 2000 cited in Moyle, 2009). Each of the participants posted an average of 11 posts in total over the 17 week course. The main type of interaction was *student-student* interaction followed by *student-content* interactions. The majority of posts (60.66%) were classified as information exchange, particularly between students, and evidence of knowledge construction was much lower (22.27%).

The impact of blogs on the level of interaction in the course, indicated that the students placed importance on using online interaction to support their learning, and believed it also enabled them to be "supportive of each other's learning and [were] attempting to build relationships" (Moyle, 2009, p. 20). Meaningful interaction for the students involved five factors such as: "dialogue between people, having facilitators to follow up the learning, the provision of support and feedback, a meaningful instructional design and help with knowledge construction from an interesting person" (Moyle, 2009, p. 12). They found that keeping an individual blog was helpful when undertaking course activities, mainly because the blogs assisted them to reflect on their practice, share information and build their knowledge, and ask for assistance from others. Also, they found interacting was easy and satisfying. However, blogs encouraged a low degree of discussion, and this was disappointing because the facilitators had expected that when individuals posted their views about flexible learning on their blogs this would provoke discussion between participants in the course. In 2009, most of the course participants were teaching online, nonetheless this was mostly in the closed environment of a learning management system, and the teachers were not used to communicating in an open online community of learners.

Nevertheless, Moyle (2009) reported, "It is important to note that the students were very satisfied with their learning" (p. 21). Recommendations arose from the evaluation around the design of specific activities to promote interaction which led to a higher level of collaboration for the purposes of knowledge construction. The evaluator suggested that this could be achieved by breaking students into smaller groups especially at the beginning and by using a discussion forum alongside individual blogs, to promote more interaction while at the same time enabling students to keep the "individual identity and social presence" conferred by using blogs (Moyle, 2009, p. 3).

Finally, the goal of attracting interactions with the professional community has not been fully realised in the Flexible Learning course. Originally, when the facilitators chose to use blogs as a pedagogy they had hoped to attract not only informal participants, but also practitioners from the flexible learning community who would interact with the class. Between 2008 and 2011, 14 participants studied the subject as informal participants. Five of them ended up enrolling to be assessed for accreditation, and another received a certificate of attendance. The interactions between informal and formally enrolled participants were not measured, but there was some evidence they were supporting each other. On rare occasions, professionals from the flexible learning community have left a comment for participants, but this was usually after they had been invited as a guest speaker. Therefore, further work is needed to address this.

### **Summary and discussion**

Keeping a blog definitely enhanced participants' digital skills, and also eventuated in a change of attitude in some cases, towards the use of open formats for documenting learning and as a teaching method. This change is similar to the shift in digital information skills found in 40 students and staff who took part in an immersive and project-based model of learning where blogs were pivotal to the digital personal learning environments each participant created as a means to developing their digital information literacy (Hegarty et al., 2010). However, further research is needed to measure the change in digital skills leveraged through using blogs as a learning strategy. Seventeen participants who studied the Flexible Learning course between 2008 and 2009 continued using their blogs for another course in the GCTLT teaching qualification. Seven of these continue to use their blogs for professional practice and in their teaching. However, the way in which teachers transfer their blog experiences during professional development to their practice has not been investigated, and is an area of interest.

Critical thinking and levels of reflection in participants' blog posts was estimated for purposes of assessment. However, empirical evidence that the use of the Reflective Framework enhanced the depth of reflection in participants' blog posts has not been obtained, because not all participants used the framework, and a research project was not undertaken. The focus of this paper is to present a case where blogs have been used for teaching and learning. Therefore, research in this area is needed. The provision of support for blogging and reflective writing adheres to recommendations from Stiler and Philleo (2003) about providing clear instructions and support for students using blogs for the first time, as well as a hierarchical structure and facilitator guided questions to develop reflective writing ability for preparing

critical narratives.

Also, as shown by Moyle (2009), the careful design of activities is needed to encourage a higher level of interaction between participants when using blogs. The facilitator of the Flexible Learning course has noticed that the tendency is for participants not to take the extra time to communicate with others on their blogs by leaving comments and suggestions. Further measures of interactivity between participants' blogs are needed to ascertain how often they leave each other feedback as part of the peer review and peer learning described by Ehlers (2009).

It appears that writing on a blog in an open environment is not necessarily helpful for learning unless students are coached to write well and appropriately for the audience, adhere to social networking netiquette and are guided to reflect on their learning and write and interact in a manner which develops their knowledge. Even with the successes with blogging described here, further work is needed, not only to assist participants in subsequent Flexible Learning courses to re-design their teaching to accommodate the use of Web 2.0 strategies, but also to reach other teaching staff in the organisation.

Even though some participants found the process of studying flexible learning and the use of blogs challenging, the majority claimed they learned a great deal, and some have continued to use a blog in some form or other, either for professional practice or in their teaching or both. An excellent example is Sarah Stewart's blog which she uses for midwifery practice, her work in educational development and as medium for discussing a range of topics for her continuing professional development (<http://sarah-stewart.blogspot.com/>). Other participants have taken their experience of using blogs in the Flexible Learning course and started using them in their teaching. For example, in stone masonry the teacher has a course blog (Southern stonework, 2009), and students keep an individual blog to keep a visual record of the techniques they are learning. Also, a tourism lecturer maintains a collaborative course blog which all students contribute to during a project, and is about to start students using web logs for a project. Hospitality lecturers post videos of cookery on a course blog (Chef, 2009), and an art and design blog used by one of the lecturers "discussing photography, film, digital art, design and anything else that takes your fancy" (Rachel's musings, 2011).

## **Conclusion**

Blogs model open education practices, they are a flexible and creative way of learning and encourage sustainable methods of teaching and learning. Teachers develop skills to reflect on their learning which can transfer into their teaching practice. A framework is advisable to provide structure for their writing and to guide their reflections. Whilst learning to blog, teaching staff are also likely to develop skills in using Web 2.0 technologies and strategies, and enhance their capability in managing digital information. This includes a willingness to share information in an open manner, to reflect and to increase self-efficacy.

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# ARE WE THERE YET? STEPS TO SUCCESS IN BUILDING CAPABILITY FOR E-LEARNING

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**Abstract** - An experiential account in case study format describes what has worked, and what has not, for building e-learning capability within the teaching staff of a small private tertiary provider. This private training establishment offers programmes in physical therapy at undergraduate degree level. It is in its fifth year of running Moodle as a resource and assessment support tool for classroom teaching and is now moving towards developing web-based e-learning courses. The complexity of teaching a hands-on practice through e-learning continues to contribute to unease about learning technologies among current teaching staff. The specificity of the subject area in a small market obliges the college to build e-learning capability with subject-specialist teachers, as opposed to specifically recruiting technologically able candidates. Therefore a crucial first step to e-learning success for this PTE was to build a community of practice of learning technologies (Schneckenberg, 2010). To build e-learning capability in ways that are sustained by the organisational culture, a shift in the organisational culture was required. To effect this shift, having adequate technical capacity, enthusiastic management, active communication channels, able teachers (including 'tech champions') and relevant training proved insufficient. Despite the ideal of shared ownership of a community of practice, the addition of clear managerial direction, authoritative expertise in e-learning pedagogy and in-house information technology (IT) documentation appeared necessary for success. These aspects of organisational change management are reviewed in this specific tertiary education context with reference to relevant literature in the fields both of education (e-learning) and business (including change management and IT management). Recommended (successful) strategies and tactics for managing the change are detailed. Informal performance measures of the organisational shift are outlined, as are areas for future improvement. This account may be of interest to others in a similar situation.

## Introduction

What does it take to get teaching staff using Moodle? This question was asked at a recent MoodleMoot (Auckland July 2011, panel discussion) but none of the experts in the room could put forward a definite answer with any confidence. Over the last four years one private tertiary college has tried a variety of ways to get teaching staff to use Moodle. The author has been involved in the process for three years, working first in college administration and, for the last eighteen months as Moodle trainer, administrator and elearning programme designer. In the first quarter of 2011 a qualitative shift took place in how our teachers engage with Moodle. This paper reviews the background, considers the underlying reasons and offers recommendations for repeating this success.

## **Background and context**

Increasing constraints on funding have led this alternative health college, like many other tertiary education providers, to look to the international market, to tighten cost management and for innovative course delivery. Specifically, blended delivery e-learning courses at NZQA level 4-7, to comprise a combination of on-site intensives with web-based learning, are in development.

The college director (at the time the administrative, now the sole, director) was very enthusiastic about the integration of learning technologies, seeing great potential for improved service level to students, administrative efficiencies and the development of the college from a local into a global education provider. The potential to increase student base with lower infrastructure overheads is also a factor of enduring appeal in online education of all kinds (Hooper & Rieber, 1998). The background assumption was that quality would not be negatively impacted.

As a small college in a specialised area, this college must recruit teachers in physical therapy from candidates with the requisite specialist knowledge, rather than those with technological or pedagogical acumen. The level of training in pedagogy in college staff has historically been relatively low, and the level of technological ability has not been a recruitment criterion. However, the quality of teaching is in general high, reflected in government reviews, learner outcomes and learner feedback. One of the particular strengths of the college is its base in clinical practice. The majority of teaching staff are also in private practice as therapists in a range of complementary medicine disciplines. Therefore, there is a large staff, most of whom only work part time for the college. Time savings will only be realised where well-designed processes let people use the technology appropriately for their context, and often only after an investment of time to learn new tools and techniques. For the large proportion of part-time staff at the college, the investment in learning to use Moodle would pay little dividend.

In developing a successful e-learning programme, the technical capability and preparedness of staff is recognised as crucial. While its e-learning programme is still at the inception stage, the college has in recent years engaged in building capability by using Moodle to support classroom learning and administer assessments. Using Moodle in this way allows teaching staff to scaffold their expertise (Vygotsky 1978) in Moodle as a system and transition gently towards more technological capability.

The college had and has adequate data storage and exchange capacity. All office staff have free access to a workstation as required, and dedicated space is available for part-time staff to access computer resources and prepare class work. Workstations are upgraded on a triennial cycle. Shared data is accessed from one of several servers at the main campus. Both Moodle and the student management system are now remotely hosted, so issues of data access equity between campuses were ameliorated by the introduction of a new student management system in 2010 and the increased use of Moodle. IT technical staff were available on-site for 20 hours per week in 2009, increased to 50 hours in 2010 and 60 in 2011. This includes occasional emergency service outside normal working hours. New uses of Moodle are tested

and piloted before wider release in the college.

The college has a regular staff newsletter. An active academic management committee meets fortnightly to discuss and decide on issues of importance. Discussions and decisions regularly pass back and forth between this committee and the management team. The director has an open door policy and encourages communication, suggestions and discussion. Up to 2009, all-staff meetings were held periodically, although owing to the logistical challenge of scheduling so many clinicians, these have since been replaced by a Moodle forum. The director has been completely transparent about funding constraints and other external requirements, including changes to Ministry of Education reporting requirements.

Teaching staff and managerial staff have expressed reservations about the development of an e-learning mode for teaching a physical therapy. Of the courses taken by a degree student at the college, approximately half are theory-based or have significant theory components. The author agrees that the assessment of, for instance, therapeutic massage, cannot be satisfactorily conducted at a distance with any technology currently in widespread use. However many elements of the college's courses could potentially be taught via e-learning; subjects include business skills, research methodology and human physiology. Yet an equal challenge is to build relevant capability in college teaching staff, without which any e-learning programme cannot hope to succeed.

### **Aims, goals and predictions**

For staff to support e-learning in their students, it is desirable that they feel a certain level of comfort and normality about their online teaching practice. The shift from paper-based to electronic course notes, administration and assessment involves not only a significant change of everyday practice, but a change to the idea of normal everyday practice. This shift in organisational culture, to consider online administration, assessments and learning support as normal, is seen by the author, who is responsible for the design and development of the e-learning programme, and the college director as necessary to stable and sustained capacity for online teaching and learning. The hope and ideal at first was for a community of self-motivated teachers. To this end, transitions towards online teaching were encouraged rather than mandated.

Looking at the literature, one would expect still to have a proportion of staff who were slow to adopt, and a further proportion of staff who remained opposed to the shift even after it was integrated into mainstream organisational practice (Baltaci-Goktalay & Ocak, 2006). Resistance of teaching staff to (IT and other) innovation is well documented, as is the resistance of individuals and groups to IT innovation (Atkinson, 1984; Baltaci-Goktalay & Ocak, 2006; D'Silva & Reeder, 2005; Davis, 2005; Joseph, 2010; Lee, 2001; MacKeogh & Fox, 2009; Medcalf-Davenport, 1998).

### **Rollout and challenges**

The college Moodle went live in 2007 and was little used at first. Support was emphasised over compulsion, and when it was felt that uptake was less than desired and intrinsic motivators

were lacking, extrinsic motivators were proposed which were neither authoritarian nor managerial. For instance, in an alternative medicine context with an acknowledged holistic perspective, concern for the environment could motivate staff to be mindful about paper use. The possibility of increased administrative effectiveness and resultant personal time savings is another potential motivator. The urgency of external pressures from funding and regulatory changes was also presented to staff, although not in a threatening manner.

Support took the form of generous budget allocation to information technology resources and staffing allocation for personalised training and support. No specific release time was allocated for building Moodle capability, as the majority of academic staff members manage their own time and tasks. As well as specific, relevant, personalised training being repeatedly and regularly offered to academic staff, presentations were made on potential applications of technology resources.

Since 2009, course notes and readings are made available to students on Moodle, as well as information about studying in general, study at the college, research, and how to access information resources. In 2010, submission of all essay assessments through Moodle became compulsory. Additionally, some staff used forum discussions and Moodle quizzes. In 2011, the college also began to use the Turnitin plagiarism checking service via Moodle, and Moodle quizzes for short answer assignments across several courses. This clearly follows Martin Dougiamas's (2011) proposed progression of an individual teacher using Moodle.

One specific member of teaching staff was very enthusiastic about Moodle and began to integrate its features into his teaching as soon as it became available. He was pivotal in the introduction of Moodle and a front-runner in investigating and experimenting with its capabilities, as well as describing and explaining his experiences to other staff. Until his resignation from the college in mid-2010, he continued to undertake this 'champion' role, contributing to the success and uptake of Moodle.

Low computer self-efficacy was evidenced by staff explicitly identifying self and others as 'digital immigrants' (Prensky, 2001), 'technophobes', 'too old', or 'Luddite' (J. Dunn, S.-M. Hiha, personal communications 19 May, 16 June 2011). Low computer self-efficacy is a barrier to learning (Saade & Kira, 2009). Since increased engagement leads to increased skill (see for example Topkaya (2010)), which in turn leads to increased self-efficacy, the training approach has been significant. Patient encouragement, individualised training, and respect for the expertise of the learner have all been deliberately practiced with the intention of assisting teachers to an enhanced sense of self-efficacy with IT in general and Moodle in particular.

Owing to lack of active cooperation from teaching staff, implementation was not always well matched with the requirements of current curriculum documents. Mismatch between process and need, and lack of training uptake, led to non-compliance with processes as designed in some cases.

Staff complained of a lack of time to do training, described reluctance to undertake training and

a desire not to appear ignorant. When they did undertake training, frequently staff did not practice to cement their learning. Staff also complained of a lack of documentation.

### **An abrupt improvement**

The author experienced an abrupt shift in the quality of engagement over a short time frame (approximately three months) following three specific changes. These changes were: a) an increase in clear managerial directives about using Moodle; b) the release of the first in-house Moodle manual (as opposed to sets of instructions for particular tasks); and c) the author, also Moodle administrator/trainer, making it known to staff that she was undertaking post-graduate study in e-learning. Since these things happened at the same time, it is not straightforward to attribute a strong causal relationship to any one factor.

The college director recognised the value of ownership of a process in sustaining change, and therefore wanted to give staff the opportunity to take initiative, propose their own solutions, and transition at their own pace. However, the funding cap made more urgent the introduction of new efficiencies and an enhanced capacity to seek new markets. The luxury of leaving staff to set their own schedule for learning Moodle was no longer available. At the same time, there had been little apparent increase in the willingness of existing staff to participate in Moodle. The managerial intervention was a directive to complete any Moodle training necessary to use Moodle features for course requirements. The result of the directive appeared to be increased staff uptake of training, with fewer sessions cancelled and more new sessions requested.

Despite the availability of training in using Moodle features, staff did not always understand how to incorporate these features into teaching practice. The person tasked with training was not from a teaching background, so suggestions about using Moodle in teaching met with scepticism. However, the post-graduate study of education may perhaps have endowed the Moodle administrator/trainer with credibility in this domain. Since publicising the undertaking of post-graduate study, suggestions are met with more acceptance.

The noted shift was in the kind of questions asked by staff: for instance from requesting that things be done on their behalf, to requesting training and instructions for themselves and other teachers in their departments. Expressions of enthusiasm regarding the technology, and acknowledgement of the new 'normal' way of doing things (e.g., marking assignments online) are other markers of a shift. For this size of college, nothing more quantitative is required. (The attitudinal shift could also have been measured with survey tools, which might be appropriate in a larger organisation.)

### **Lessons and recommendations**

Part of the solution may have been patiently waiting for slow adopters to be ready to use the technology (Rogers, 2003). Estimates of the time required for the integration of new technologies vary from several months up to five years (Hall & Hord, 1987), so the (approximately) four year period between introduction and majority uptake is not unusual. Realistic expectations of uptake time, integrated into project planning, could help take the stress from the process.

This story includes many classic elements of individual passive and active innovation resistance as described in, for instance, Terrell et al (1995). Research describing the quantitative significance of personal interactions within groups on innovation uptake by groups in this context is only beginning to be published (R. J. Chu & A. Z. Chu, 2010; Sarker & Valacich, 2010). The development of the college Moodle manual can be seen as a response to staff resistance, in that much of it describes tools, features and processes amply documented elsewhere in the public domain. However, its presence as a collected body of knowledge may simply signal a stage of maturity in the integration of the technology.

There is potential value in having customised in-house documentation available on first deployment, both for setting good habits among staff and for demonstrating managerial commitment to the project.

Other areas for improvement are ensuring that training takes place when needed. It is essential, in the author's opinion, that the expertise of teaching staff is recognised and respected. Where possible, consultation on scheduling the introduction of new tools shows this respect substantially.

One relevant challenge for the college has been bringing administrative and teaching practice from ad hoc origins to the high standard of evidence-based practice appropriate to a degree qualification. This has included the purchase of database subscriptions and an increased emphasis on post-graduate study in staff. Since its founding in 1993, the college has mainly offered level four to six qualifications. The degree programme is new, the first cohort of graduates having been capped in 2009. With no formal background in educational academia, no easy access to research databases, and no specific in-house expertise in IT innovation in education, failing to engage with the relevant literature was a very natural omission, and an identified area for improvement in managing future innovations.

Although the literature might suggest that the improvement in staff uptake of Moodle was indicative of a maturing and integration of the changes, the rapidity of the shift suggests that at least one of the other factors described was catalytic, if not instrumental. It appears that technical, communication, teaching and training resources were effective in building Moodle capability among teaching staff, when combined with management directive, credible guidance on pedagogical relevance and the release of in-house IT documentation.

The following summarises the lessons the author would rather have learned before than after the Moodle rollout:

Change is threatening. Therefore:

- Transparency is important.
- A plan is necessary.
- Documentation is valuable. In-house documentation should be available as early as practicable.
- Communicate clearly both the schedule and the performance required of staff. This keeps the unknown to a minimum.
- Change takes time.

- Plan on a realistic uptake.

In learning new technologies, teachers are acting as adult learners. They need context, a sense of competence and connectedness. They will learn well in their zone of proximal development (Vygotsky 1978).

- Teacher education will probably require more resources than the technical and logistical requirements of the rollout. Plan accordingly.
- Acknowledge the expertise of your adult learners (i.e. teachers)
- Consult with teaching staff in developing a specific and realistic schedule for their personal professional development.
- Contextualise the innovation by helping teaching staff understand its value to their practice.
- Minimise the stress of change, as it can interfere with learning. For instance, since teachers are time-poor, specific release time may be needed for developing Moodle skills.

### **Generalising to other private tertiary settings**

The challenges encountered are very typical of those described in a wide body of research over the last three decades (D'Silva & Reeder, 2005; Medcalf-Davenport, 1998; Terrell & others, 1995; Moerschell, 2009; Waldrop & Adams, 1988- among many.) Relatively little of this comes from private tertiary providers. The applicability of the literature to this specific case suggests a potential for further generalisation of research results from secondary and other tertiary settings to private tertiary settings.

As well as the recommendations above, the particular initiatives mentioned (documentation, managerial direction, pedagogical expertise) combined with well-known precursors for successful organisational change (communication, champions, capacity) can be further tested in other private tertiary settings.

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# E-LEARNING IN DESIGN OF ENGINEERING EXPERIMENT COURSE

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**Abstract** - Design of experiment is one of the most widely used approaches for determining the impact of significant factors influencing the process or product quality characteristics. This approach is very effective for improving process performance and reducing process variability and product defects. In order for students to easily learn and understand design of engineering experiment course, the teacher should assign semester project and let the students work in project teams. Each team is assigned to create an innovative teaching material and work on the term report by following the recommended procedure of guidelines for designing an experiment. Each team is encouraged to implement the innovative teaching material and the term report through e-learning course web site. This research aims to investigate the learning motivating factors of undergraduate students who enroll this course and to evaluate learning impact before and after doing semester project through e-learning course web site in design of engineering experiment course. According to the students' responses to the questionnaire and questionnaire analysis, the results have shown that there is a significant difference between learning before and after working on the semester project through the e-learning course web site.

**Keywords** - e-learning, design of engineering experiment course, innovative teaching materials, project-based learning

## Introduction

Design of experiment is a systematic approach that can be used to efficiently study the roles of multiple experimental factors on any output characteristics of a process or a product. It can be used to control, predict, and optimize a complex process for any desired behaviors (Montgomery, 2005). This approach plays a major role in manufacturing process development, a new product design, and process improvement. It is also used to develop a process affected minimally by external sources of variability. Furthermore, it is a rigorous method for both achieving desired properties and determining an optimized mixture. It is one of the most widely used approaches for product and process design and improvements in various engineering fields (Correia et al., 2004; Kundu and Lahiri, 2008; Menezes et al., 2008; Duèe et al., 2009; Saikaew and Sripaya, 2009; Saikaew et al., 2010).

Design of engineering experiment course is taught to undergraduate and graduate students in various engineering and technology fields. In addition, this course is also offered to outsiders who are interested in this technique for process and product design and improvements. However, teachers confront many problems and issues they face in the classrooms when examining students' work. Action research can support teachers as researchers to investigate and better understand their work. Tanco et al. (2010) surveyed among academics, consultants, and manufacturers in European countries who were interested in design of engineering experiment course to identify why this subject was not widely used among those

in European countries. The researchers provided a list of barriers that obstruct the use of design of engineering experiment. There were 16 barriers consisting of resistance to change, bad image of statistics, low commitment of managers, previous bad experience with design of engineering experiment, absence of teamwork skills, not enough software aid, lack of methodologies to guide users through experimentation, insufficient resources, poor statistical background, absence of theoretical developments to solve real industrial problems, this course is not taught to engineers, poor statistical consultancy, statistical jargon is used to explain the experiments, design of engineering experiment is taught badly, publications do not reach engineers, and it is not widely used because they are a complex tool. According to a list of barriers, it is interesting to focus on a barrier of “design of engineering experiment is taught badly”. Coleman and Antony (2000) stated that many teachers do not present real case studies in a classroom due to a lack practical experience with this course. Hence this barrier should be dissolved by this research. In order for students to easily learn and understand the course, this research aims to investigate the learning motivating factors of undergraduate students who enroll this course and to evaluate learning impact before and after doing semester project through e-learning course web site in design of engineering experiment course for engineering students.

### **Literature review**

There are a number of learning approaches which can be the ways to improve the students' understanding and achievement in this course for their knowledge acquisition over traditional teaching approaches that primarily rely on classroom lecture. Box (1992); Antony and Capon (1998) presented a paper helicopter experiment which could be easily performed in a classroom to demonstrate experimental design approach. A paper helicopter could be made from A4-size paper, scissor, ruler, pencil, paper clip, and a measuring tape. Fig. 1 illustrates a paper helicopter model as an innovative teaching material. Teacher can use a paper helicopter to design a variety of experiments, collect the data, and then perform appropriate statistical analysis. Antony and Capon (1998) used a paper helicopter to demonstrate how the controllable factors such as paper type, wing length, body width, body length, number of clip attached, and wing shape affect on the time of flight. This experiment was carried out to determine the optimal controllable factor setting that would maximize the time of flight.

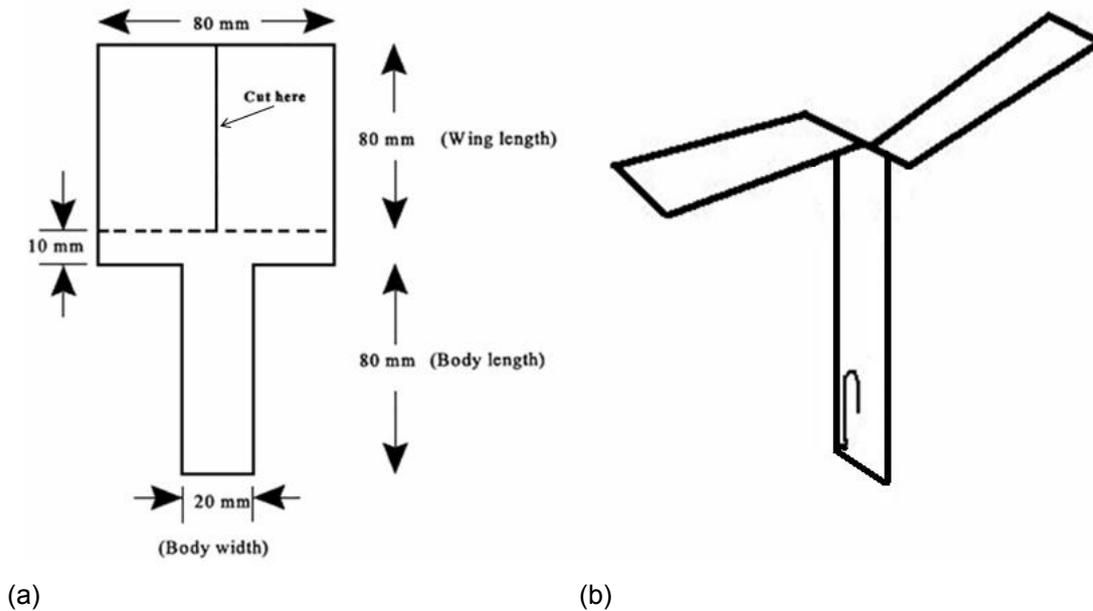


Fig. 1 Paper helicopter

In other literatures, a number of toys have been suggested as the apparatus to teach this course. For example, Gunter (1993) used a ball in a funnel experiment to study the time for the ball to spin through a funnel set at various heights. Schmidt and Launsby (1994) used a catapult to investigate many factors that influence the distance traveled by the ball. The paper helicopter and other toy experiments could provide a greater encouragement for a variety of applications of experimental design in real world situations.

Many research works have been done in order to discover the learning approaches for improving the students' understanding and achievement in this course. One of the most widely used approaches for teaching and learning in a broad range of subject fields at all levels is applying information technology (IT), especially World Wide Web computer-based learning. A website (Krider, 2008) provides an illustration of bell curve of normal distribution as shown in Fig. 2. This figure shows that balls are dropped from the top and passed through a series of pins until they hit the bottom. At the bottom, the balls stack up to record the numbers that have hit the point. Fig 2 (a) illustrates this process at first that does not seem to be any pattern like a bell curve. Fig. 2 (b) also illustrates the process after a few minutes that the stacks conform to the superimposed bell curve. This demonstration is dedicated to Sir Francis Galton (1822-1911), an English anthropologist, eugenicist, and statistician.

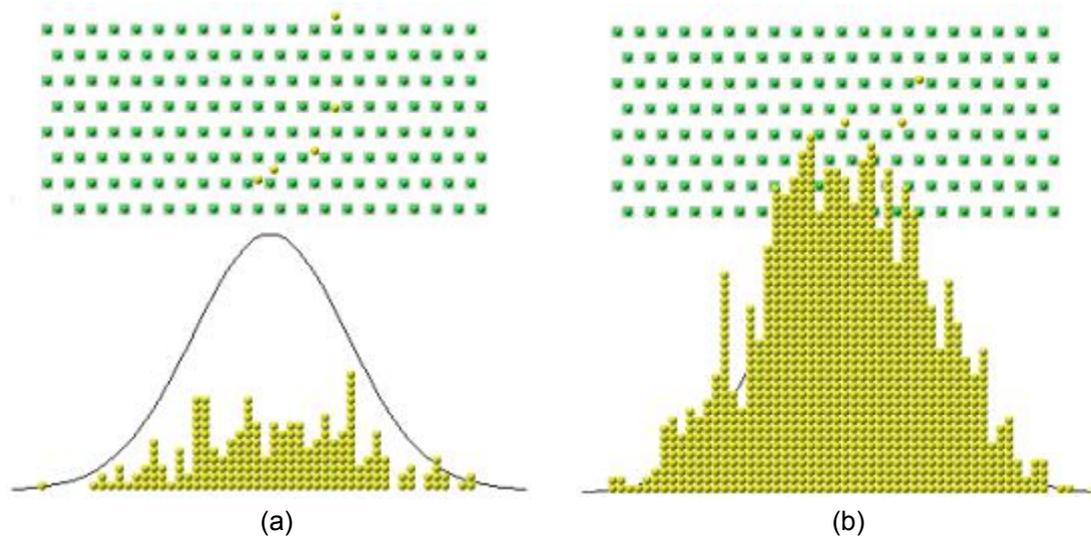


Fig. 2 Galton machine illustration of bell curve of normal distribution

An e-learning system is a very useful computer-based learning and teaching tool that provides interactive and multimedia features including computer animation, sound and video, online database, and other Internet-based features such as e-mail and chat room. These can be integrated to create a cyber-platform for learning and teaching. With the easy accessibility of the World Wide Web, the e-learning system is very flexible for students to learn wherever and whenever they want.

In e-learning system, game-based learning is very successful learning approach because it is closer to simulating real world experience than traditional teaching media and it allows students to learn as well as have fun. Ebner and Holzinger (2005) used game-based learning in structural concrete course of civil engineering by using online visualizations and animation of structural models. Hamada and Sata (2011) used a Lego robot set as a game for active learning in theory of computation related courses, such as discrete mathematics. Chang et al. (2009) described a flexible web-based simulation game in order to help teaching effectiveness and improve classroom teaching. This game could be applied in various industrial engineering courses such as logistics, supply chain management, production and operation management, etc. The researchers investigated the successful implementation of game-based learning by questionnaire survey. The questionnaire survey consisted of two components that focused on student perception on the user interface design and the students' learning experience. They found that this game could help students develop internalized knowledge and applicable skills in various scenarios.

Many engineering courses are available in e-learning system as described before (Ebner and Holzinger, 2005; Chang et al., 2009; Hamada and Sata, 2011). Gonzalez et al. (2010) investigated the successful implementation of e-learning system in statistics for dentistry students. They presented their paper to demonstrate the effectiveness of e-learning system in statistics course for undergraduate students. However, the use of e-learning system in this course has not become widespread for engineering students. This research aims to evaluate

learning impact before and after doing the semester project through the e-learning course web site in design of engineering experiment course for engineering students.

## Research methodology

One of the expectations of this course is to prepare students with knowledge and experience related to the understanding of statistical analysis and experimental design for doing their senior projects and guiding them how to apply the course in their career after their graduation. In order to satisfactorily complete the course, students are expected to understand the following statistical analysis and experimental design topics: basic statistics, discrete and continuous random variables and probability distributions, sampling distribution, test of hypotheses, experiments with a single factor, factorial designs, and introduction to regression analysis. The main focus of the course is to let the students do semester project.

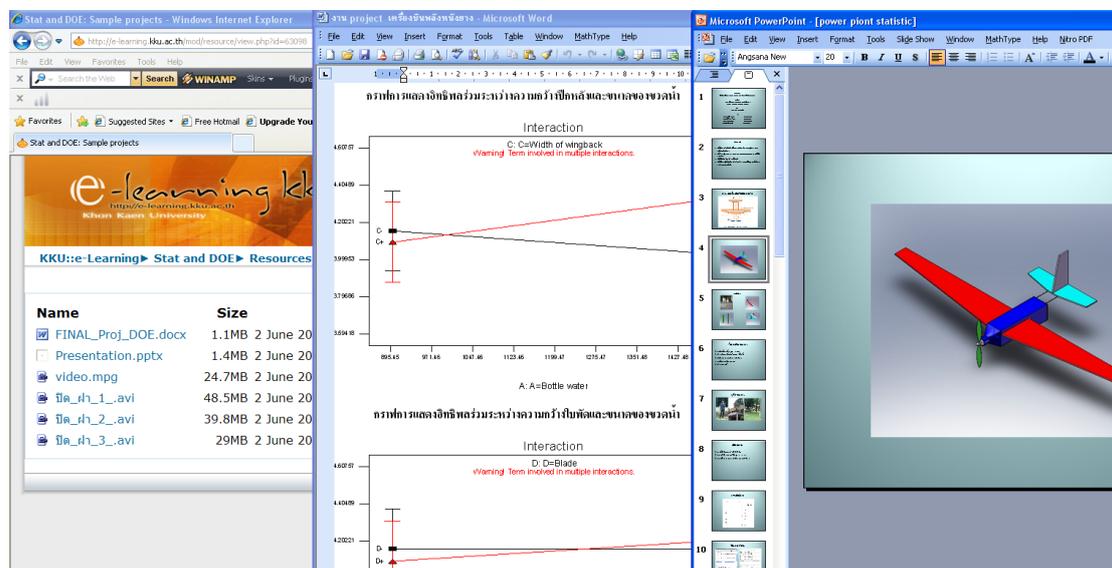


Fig. 3 A sample student's project implemented through e-learning course web site

The instructor assigns semester project and lets the students work in project teams. Each team is assigned to create an innovative teaching material and work on the term report by following the recommended procedure of guidelines for designing an experiment. Each team is encouraged to implement the innovative teaching material through KhonKaenUniversity e-learning course web site as shown in Fig. 3 so that all students can easily learn from each other's different point of views over the semester projects. Each team is welcome to build a toy or any teaching material, conduct experiments, and collect the data themselves. They can use software given by the instructor or downloaded by themselves. The data analyses include normal probability plot of effects, main and interaction effect plots, analysis of variance (ANOVA), etc. Evaluation of the teams' semester project report and presentation accounts for 20% of each student's grade and is based on the following criteria: demonstration of the above in a well written and organized report, quality of the innovative toy or teaching material to conduct a successful experiment through e-learning course web site, and quality of team's presentation and interaction with the audience.

To investigate the learning motivating factors of undergraduate students who enroll this course and to evaluate learning impact before and after doing semester project through e-learning course web site in design of engineering experiment course, all students from mechanical engineering and chemical engineering are urged to participate by answering questionnaire before and after doing semester project. Each student is asked to answer questionnaire before doing the semester project. Note that in the last two weeks of the semester each group is assigned to work on their semester project and each student is asked to answer questionnaire after doing the semester project which is implemented in the e-learning course web site. The questionnaire is composed of a list of five items as follows:

1. I think doing semester project through e-learning system has enhanced my interest in this course.
2. I discussed more with my teammates than what I did in usual class time.
3. I got better understanding on this course after doing semester project.
4. I think doing semester project through e-learning system is applicable to other courses.
5. I think doing semester project is very useful in guiding me how to apply this course in my career after my graduation.

To complete the questionnaire, each student is asked to indicate the possible score value for each item ranging from 1 to 5 (strongly agree = 5, agree = 4, neutral = 3, disagree = 2, and strongly disagree = 1).

## Results

A total of 132 students from mechanical engineering and 75 students from chemical engineering are invited to participate in this study. Researcher needs all students to complete the questionnaire through e-learning course web site. However, 59 students from mechanical engineering (45%) and 48 students from chemical engineering (64%) return the questionnaires. Students' responses to the questionnaire before and after doing semester projects through e-learning system are shown in Table 1 for mechanical engineering students and in Table 2 for chemical engineering students.

**Table 1:** Students' responses to the questionnaire for mechanical engineering students

Item	Before doing the semester project					After doing the semester project				
	5	4	3	2	1	5	4	3	2	1
1.	16	25	13	4	1	31	22	6	0	0
2.	10	17	27	2	3	30	27	2	0	0
3.	3	12	27	16	1	17	26	16	0	0
4.	21	16	18	4	0	29	26	4	0	0
5.	15	15	23	5	1	31	23	5	0	0
Total	65	85	108	31	6	138	124	33	0	0
%	22.03	23.05	21.97	4.20	0.41	46.78	33.63	6.71	0.00	0.00
Sum of %	<b>71.66</b>					<b>87.12</b>				

**Table 2:** Students' responses to the questionnaire for chemical engineering students

Item	Before doing the semester project					After doing the semester project				
	5	4	3	2	1	5	4	3	2	1
1.	13	17	16	2	0	26	16	5	1	0
2.	8	16	22	1	1	21	19	6	2	0
3.	1	11	27	9	0	10	28	7	3	0
4.	15	18	10	5	0	27	12	8	1	0
5.	12	16	15	5	0	27	15	5	1	0
Total	49	78	90	22	1	111	90	31	8	0
%	20.42	26.00	22.50	3.67	0.08	46.25	30.00	7.75	1.33	0.00
Sum of %	<b>72.67</b>					<b>85.33</b>				

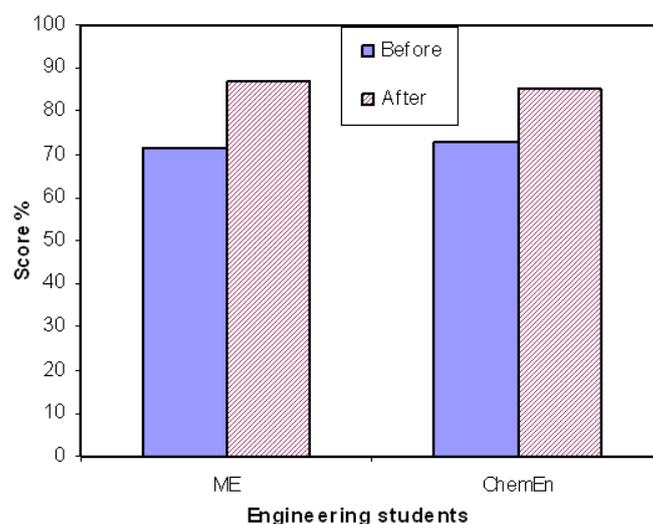


Fig. 4 The students' overall average scores before and after doing semester project for both engineering majors

Comparing before and after doing semester project through e-learning system for each engineering major reveals improvement as shown in Fig. 4. The students' overall average scores of all items after doing semester project for both engineering majors are higher than those before doing the project. The students' overall average score before doing the project for mechanical engineering students is slightly smaller than those for chemical engineering students whereas the overall average score after doing the project for mechanical engineering students is higher than those for chemical engineering students. Under the project-based learning through e-learning system, the overall average score improves from 71.66% to 87.12% for mechanical engineering students while the overall average score improves from 72.67% to 85.33% for chemical engineering students.

To investigate the significant difference in learning outcome before and after doing semester project through e-learning system, a  $\chi^2$  test can be employed in hypothesis testing. The hypotheses are

$H_0$ : Doing semester project through e-learning system does not affect the students' learning outcome.

$H_1$ : Doing semester project through e-learning system affects the students' learning outcome.

For mechanical engineering students, the  $\chi^2$  is 110.42 and the  $\chi^2_{0.05, (5-1), (2-1)} = 9.488$ .

Since  $\chi^2 = 110.42 > 9.488$ , reject the null hypothesis and conclude that there is a significant difference in learning outcome before and after doing semester project at the level of significance of 0.05.

Similarly, for chemical engineering students, the  $\chi^2$  is 61.18 and the  $\chi^2_{0.05, (5-1), (2-1)} = 9.488$ .

Since  $\chi^2 = 61.18 > 9.488$ , reject the null hypothesis and conclude that there is a significant difference in learning outcome before and after doing semester project at the level of significance of 0.05.

Comparing average score of each item of the students' responses to the questionnaire reveals improvement as illustrated in Table 3 and Fig. 5 for mechanical engineering students and in Table 4 and Fig. 6 for chemical engineering students. According to the average score of each item of the students' responses to the questionnaire for mechanical engineering students, it clearly indicates that Item 3. "I got better understanding on this course after doing semester project" has the lowest average score whereas average scores of the other items are higher than 88%. Similarly, Item 3. for chemical engineering students also indicates the lowest average score compared to the other items. Although item 3. has the lowest average score compared to other items, it indicates that there is a much higher score improvement compared between before and after doing the project.

**Table 3:** Average score of each item of the students' responses to the questionnaire for mechanical engineering students

Item	Before doing the semester project		After doing the semester project	
	Score (5)	Score (%)	Score (5)	Score (%)
1.	3.86	77.29	4.42	88.47
2.	3.49	69.83	4.47	89.49
3.	3.00	60.00	4.02	80.34
4.	3.92	78.31	4.42	88.47
5.	3.64	72.88	4.44	88.81

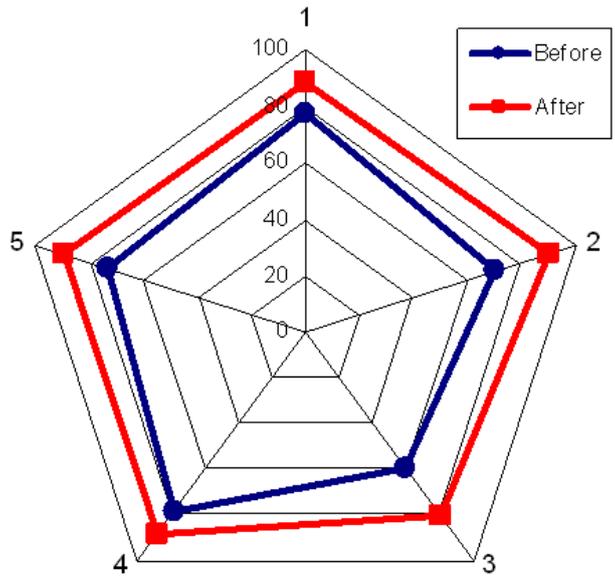


Fig. 5 A comparison of average score improvement for mechanical engineering students

**Table 4:** Average score of each item of the students' responses to the questionnaire for chemical engineering students

Item	Before doing the semester project		After doing the semester project	
	Score (5)	Score (%)	Score (5)	Score (%)
1.	3.85	77.08	4.40	87.92
2.	3.60	72.08	4.23	84.58
3.	3.08	61.67	3.94	78.75
4.	3.90	77.92	4.35	87.08
5.	3.73	74.58	4.42	88.33

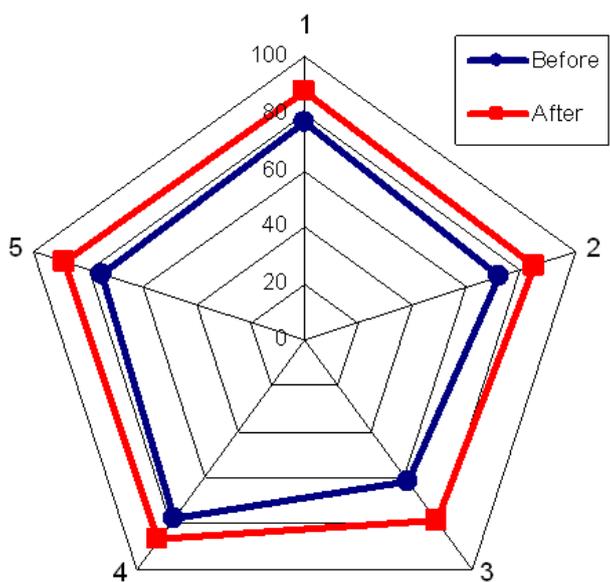


Fig. 6 A comparison of average score improvement for chemical engineering students

## Conclusions

The e-learning course web site is very useful for interactive teaching technique which is a way to improve the students' understanding and achievement in design of engineering experiment course for their knowledge acquisition over traditional teaching techniques that mainly rely on classroom lecture. Undergraduate students in mechanical engineering and chemical engineering participate in this study. The instructor assigns semester project as a project-based learning and lets the students implement the innovative teaching material through the e-learning course web site. To investigate the successful implementation of e-learning system in this course, the students are asked to answer questionnaire before and after doing semester projects. The questionnaire analysis indicates that there is a significant difference between learning before and after doing the semester project through the e-learning course web site.

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# USING FACEBOOK AS A SUPPLEMENTARY TOOL FOR TEACHING AND LEARNING

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**Abstract** - Facebook, a social media web application, is a part of million student lives. Students use Facebook for communicating with friends and playing games. Since they use Facebook frequently and comfortably, we may exploit this entertainment-oriented site as an edutainment tool. Although there are many tools available for eLearning, Facebook seems to be one of the most effective tools because students generally respond to discussions quickly and are comfortable enough in their "space" to share their information and opinions. By using Facebook in learning, the role of students can therefore shift from only receiving knowledge to both searching and sharing their knowledge. Moreover, interactions with teachers can become more instant since teachers and students can respond quickly via Facebook. It is worthy to realize, however, that teachers cannot use Facebook as a single teaching and learning tool. Facebook still lacks features such as file submission and file sharing to support the complete learning process. This paper presents the approach and the experience in using Facebook for both undergraduate and graduate courses as well as for both informal and formal learning. In the formal courses, Facebook is used for discussion, Moodle is used for assignment submission, and Google Docs is used for sharing documents. In the informal courses, Facebook is used for discussion, sharing video and document links. We found that students actively and quickly participated in both asking and answering a teacher's questions. In addition, students also shared their new knowledge even after the classes have ended and grades were assigned. As a result, Facebook has an excellent potential to serve as a lifelong learning channel for teachers and students.

**Keywords** - Facebook, e-learning, innovative teaching, social media, learning tool

## Introduction

Millions of people access Facebook daily to connect with their family and friends, search information, or play games. While students spend more time on socializing with their friends through Facebook, they have less time on self-studying on books or academic web sites. Instead of being

against the usage of Facebook, teachers can constructively employ them as tools for supporting students' continuous learning activities. In this article, we present the usage of Facebook in formal education, such as using Facebook in formal courses in a university, and in informal education, such as using Facebook for learning English, advising students, organizing training courses, and giving knowledge about breastfeeding. We will also present advantages and disadvantages of using Facebook for learning and teaching.

Facebook has been increasingly popular worldwide nowadays. Citi analyst Mark Mahaney reported that Facebook had passed Google in terms of time spent online (Sterling, 2010). Mahaney noted that in August 2010, Facebook, for the first time took the top spot with 41.1 billion minutes followed by Google with 39.8 billion minutes (Sterling, 2010). The number one social network site is Facebook which has 704,130,980 user accounts on June 24, 2011 (Socialbakers.com, 2011a) while 50% of Facebook active users log on to Facebook in any given day (Facebook.com, 2011a) 80 million new user registered in the first 3 months of the 2011. Nearly 30% of the new account registrations have been made by users in the age group of 18–24 years, representing people who are in colleges and universities worldwide. This age group constantly remains the strongest one on Facebook and at this moment represents over 210 million Facebook users overall (Socialbakers.com, 2011).

In Thailand, there are about 10,360,900 active Facebook users in June 2011 which was about 175.75% increased from approximately 3,757,340 users in June 2010 (Bunloet et al., 2010). The age group that represents the majority of users is 18-24 years old, which is about 3,563,000 users (34%, Socialbakers.com, 2011b). Thai Facebook users growth in the last 6 months is shown in Figure 1.

### Users & Demography for the Thailand



Figure 1: Thai Facebook Users Growth in the Last 6 months (Socialbakers.com, 2011b)

The age distribution is shown in Figure 2.

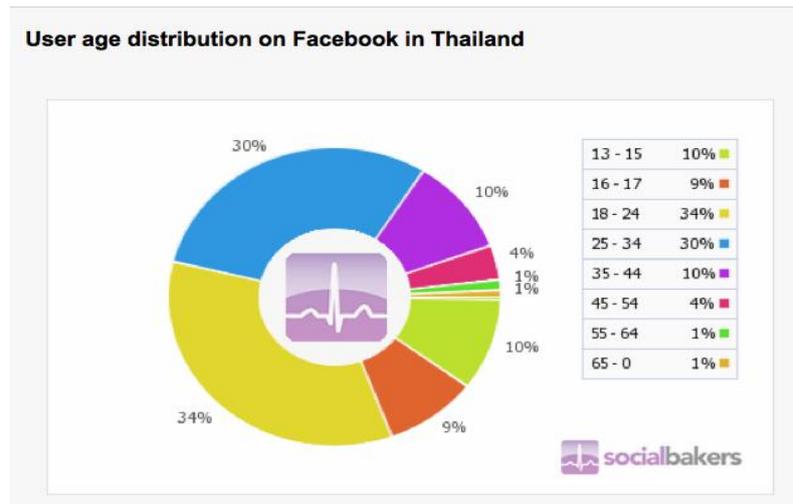


Figure 2: User age distribution on Facebook in Thailand (Socialbakers.com, 2011c)

As a result, Facebook can be a potential tool for learning and teaching that can be used to reach this group of young people, many of which are in Thai colleges and universities. It is also essential to understand the advantages and disadvantages as well as how to appropriately use Facebook for learning and teaching.

In the remaining of the paper, we organize the paper as following. Section 2 discusses related work. Then, Section 3 presents the usage of Facebook in both formal and informal education. Then, in Section 4, we present both advantages and disadvantages of using Facebook for teaching and learning. Finally, we conclude in Section 5.

## Related Work

In this section we consider related work in using Social media in teaching and learning.

One of the most interesting article that discusses how a teacher can use Facebook is “Facebook for Educator”, which suggests 7 ways to educators as follows (Phillips, Baird, Derek, & Fogg, 2011).

1. Help develop and follow your school’s policy about Facebook.
2. Encourage students to follow Facebook’s guidelines.
3. Stay up to date about safety and privacy settings on Facebook.
4. Promote good citizenship in the digital world.
5. Use Facebook’s page and group features to communicate with students.
6. Embrace the digital, social, mobile, and “always-on” learning styles of 21st Century students.
7. Use Facebook as a professional development resource.

Our work differs from the article titled Facebook for Educators (Phillips et al., 2011) in that we focus on how to use Facebook groups to communicate with others for learning and teaching. In addition, we provide a new insight into the advantages and disadvantages of using

Facebook for learning and teaching.

Another related work is the work that proposes 7 best practices for educators using Facebook.

1. Don't Vent On Students
2. Find Out If Your School Has A Social Media Policy
3. Use Facebook As A Backup Tool
4. Don't Log In When You're Upset
5. Avoid The Time Suck
6. Take Advantage Of Facebook's Convenience
7. Only Post What You'd Be Proud To Say In Person

These best practices do not include how to use Facebook groups to communicate with students without requiring a student to be a Facebook friend with a teacher, but in our paper, we will have used a Facebook group so that students and teachers can participate in the same course without being friends to each other on Facebook.

Many teachers have applied social media such as Twitter and Facebook for learning (Block, 2009). Our work from this referred article in the point that we have created and analyzed the survey about the disadvantages and advantages of using Facebook as a learning and teaching tool.

### **Facebook Usage in Formal and Informal Education**

In this section, we describe how we use Facebook in both formal and informal education. Formal education here refers to official courses that students can register in Khon Kaen University, Thailand. Informal education here refers to learning outside classroom and even learning outside school. In this paper, we give examples of learning outside classroom through using Facebook to share information in a research group, and using Facebook to ask and questions about how to breastfeeding.

#### **Facebook Usage in Formal Education**

In formal education, Facebook has been used in both undergraduate and graduate courses at Khon Kaen University. It has been used in XML and Web Services undergraduate course through Facebook group with 73 members. The Facebook group was created on October 26, 2010 while the course officially ended on March 4, 2011. However many students have continued to share useful information related to the course material with others. Figure 3 depicts the picture of the top part of Facebook group of XML and Web Services course.



Figure 3: XML and Web Services Group with the Most Recently Posted

In this course, we sometimes asked the user to submit the assignment via uploading a photo to the group. For example, in the assignment that assigned students to find an application that uses XML, students must capture the screen of the such application. Some of photos that the students have uploaded are shown in Figure 4. In addition, we have also updated useful information about resources related to the course and about course projects assignments using Facebook Doc as shown in Figure 5.

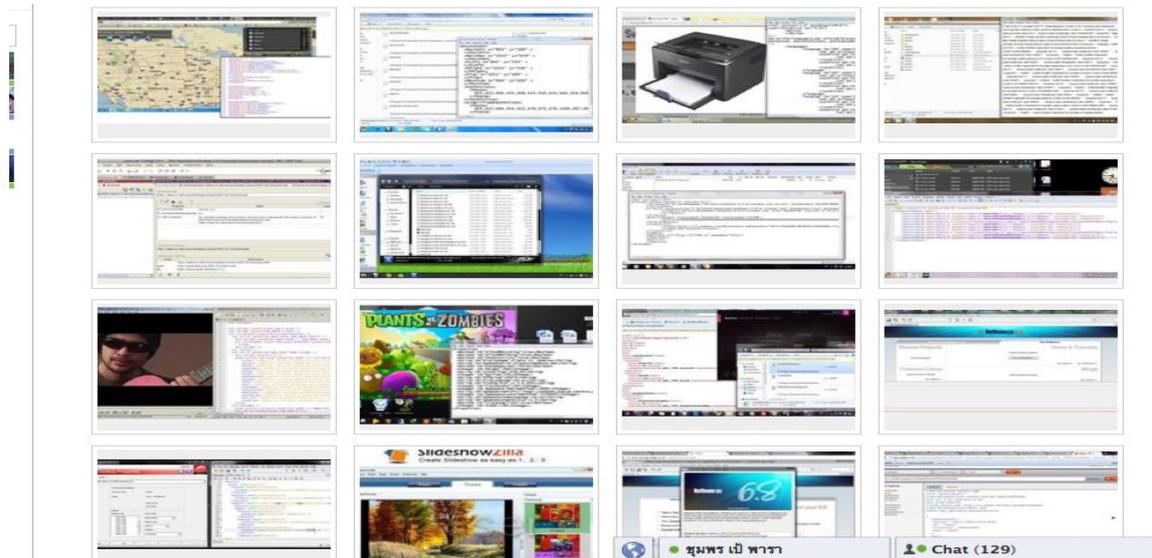


Figure 4: Shared Information via Uploaded Photos

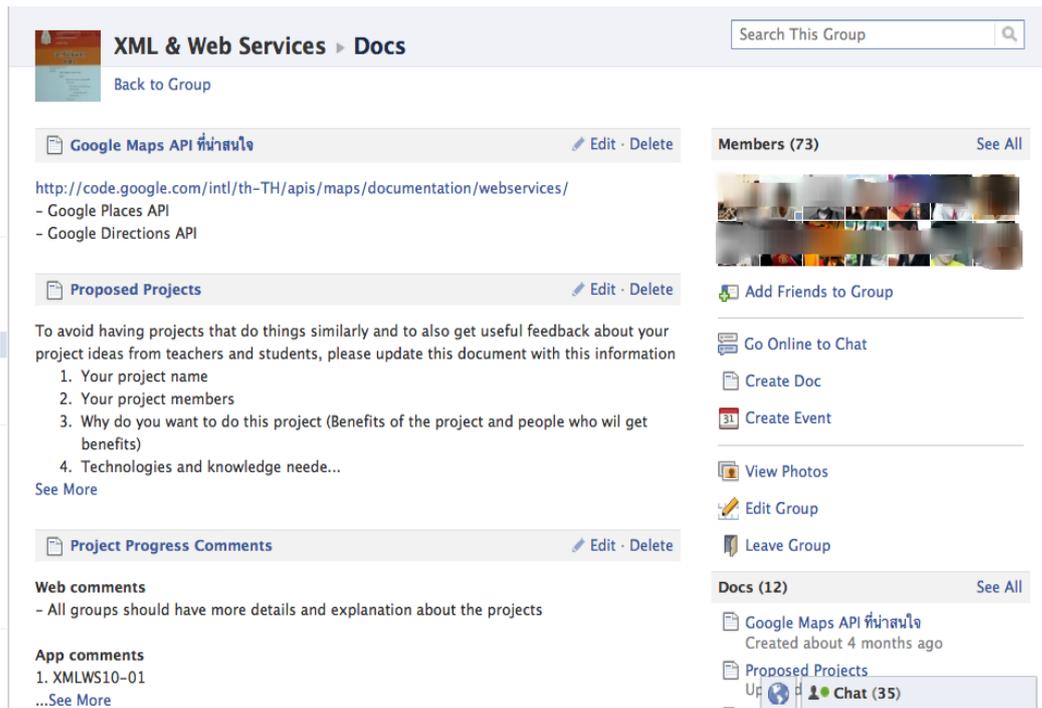


Figure 5: Documents about Useful Resources and Projects

Another course that we have used Facebook for learning and teaching is Programming for Android. Originally, the Facebook group was created for only 10 graduate students who have taken Programming for Android. Later, this Facebook group becomes interesting to many people who did not take the course. In addition, it has recently been reused in an undergraduate course called Wireless Devices Programming.

All assignments are given and checked by having students creating photo albums that contain the captured screens of their mobile applications and then update the links of those albums in Facebook documents. Figure 6 shows a Facebook document that contains the assignment information and the album links of students' assignments. Figure 7 shows a sample album of photos uploaded to fulfill the assignment.



Figure 6: A Lab Assignment with the Links of Students' Photo Albums

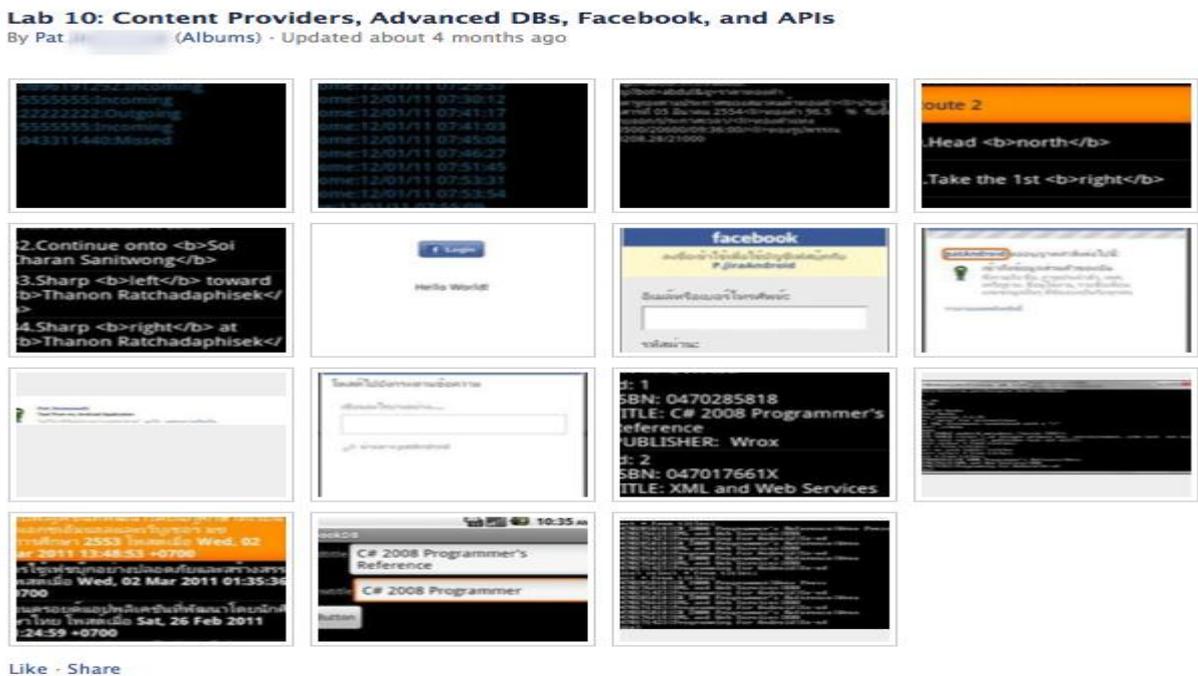


Figure 7: A Sample Album of Photos Uploaded to Fulfill the Assignments

## Facebook Usage in Informal Education

This section describes how we can use Facebook in informal education. We have used Facebook groups in a research group and in guiding new mothers in breastfeeding.

### Using Facebook in a Research Group

Facebook group has been created for using among research group members. Since some discussion ideas should be kept as private, it is usually created in a secret group as shown in Figure 9. It can consist of announcements, setting laboratory meeting dates, posting research questions, assigning and following up tasks. After a few days of creating group,

students responded and got acquainted quickly with all the activities mentioned above. That was counted as the first step of success in integrating research activities into students' personal agenda. From their wall, not only they see their friends' situation but also their research group's. This part of seeing instant wall post is inevitably important to catch students' attention. Since communicating with them needs to be quick and be through the right tool. Facebook is definitely an answer.

In a longer period, the second step of success is counted when students keep the group active. An advisor is the key player in this part since she/he is responsible of announcing, assigning and posting messages. For example, a research question is posted and students have to find an answer and post on comment section. This informal assignment is fast and interactive. Students are already there in front of their laptops serving the web. Thus they can use www to find answer or just analyze based on their research and classroom experience. In a group with a number of students, this activity is fun and open for all kinds of answers. Students have opportunity to express their thoughts and share with the others. The advisor again also plays a major role in guiding the answer in between comments. Such activity could be called virtual exercise.

The final stage, where called the final step of success, is that students are able to post research activity, ask interesting questions, and design their own tasks. The sample of the occurrence of this stage is shown in Figure 8. In this stage, the advisor plays a smaller part, but still needs to guide via comments. Once students naturally post research matters on the group wall, or even on their own wall, Facebook is formally the informal tool in their learning process.

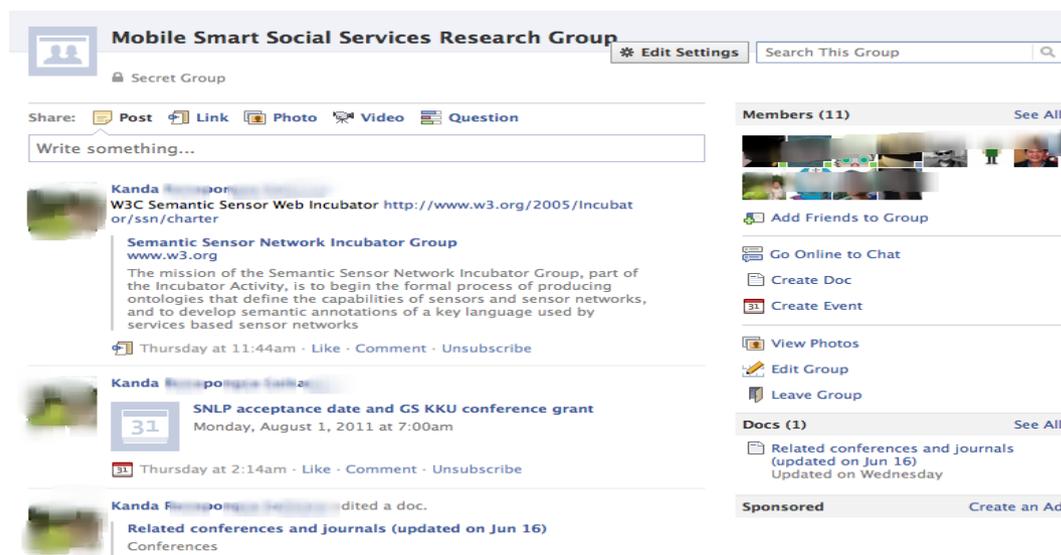


Figure 8: Facebook Group for Research Group

## Using Facebook for Sharing Good Practices of Breastfeeding

For the knowledge and skills that are beneficial to mankind such as information about health, the content should be shared as public and we want many people to view thus it is better to use Facebook page. For example, here we have created the Facebook page to provide useful information and answering questions that mothers who want to give breastfeeding. The Facebook page URL is at <http://www.facebook.com/thaibreastfeeding>. Currently, there are 4,474 people who like this page.

## Survey Result

In order to survey the opinions and receive interesting comments, we have created the online survey page which is available at <https://spreadsheets0.google.com/spreadsheet/viewform?hl=th&hl=th&formkey=dEFESy1FWm9LNVB3NHJJTHJqCtVXSHc6MA#gid=0>. The targets of this survey are teachers and learners who have some experience in using Facebook as a supplementary tool for teaching and learning. We separated the questionnaire into 2 sections. The first section is about general data of the questionnaire respondents and the other section is about opinions of advantages and disadvantages of using Facebook as a supplementary tool for teaching and learning. In this section, we refer to students as learners.

## General data of Questionnaire Respondents

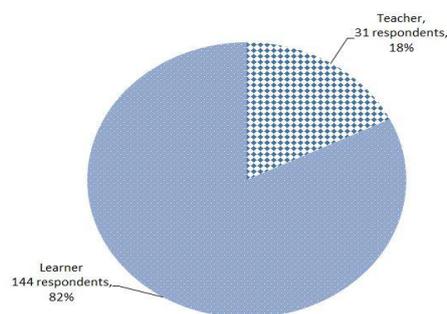


Figure 9: Classified Respondents as Learners and Teachers

The online survey page has specifically sent to teachers and learners who have used Facebook. There are 175 responses. Figure 9 shows the percentage of types of respondents. About 82% is learner or student while 18% is teacher.

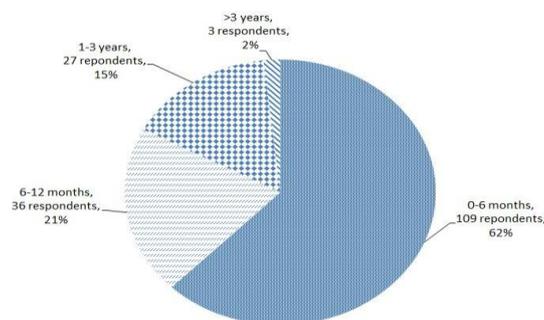


Figure 10: The Length that Respondents used Facebook for Teaching and Learning

Figure 10 shows that 62% have used Facebook for teaching and learning for only 0-6 months,

21% have used for 6-12 months, 15% have used 1-3 years, and only 2% have used it for more than 3 years. This implies that the majority of people have just started to use Facebook for teaching and learning.

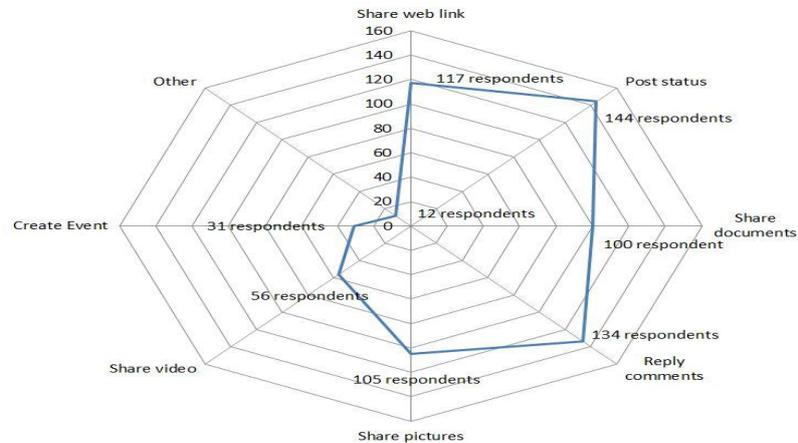


Figure 11 How Respondents use Facebook in Teaching and Learning

Figure 11 shows the results that 82% have used facebook for posting status, 77% have used Facebook for replying comments, 67% have used Facebook for sharing web link, 60% have used Facebook for sharing picture, 57% have used Facebook for sharing documents, 32% have used Facebook for sharing videos, 18% have used Facebook for creating events, and 7% have used Facebook for other purposes. This implies that most of respondents have used Facebook for sharing resources which include status, documents, and pictures.

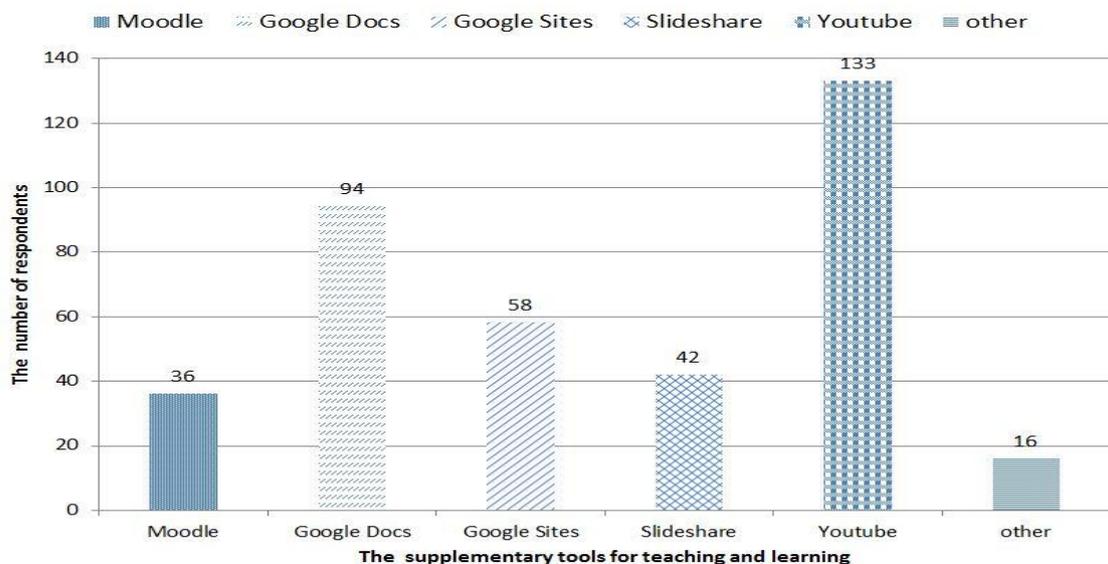


Figure 12: Other Social Media Tools used by Respondents.

Figure 12 shows the other options of using social media tools for teaching and learning by respondents. It was found out that 80% have used YouTube, 57% have used Google Docs, 35% have used Google Sites, 25% have used Slideshare, 22% have used Moodle and 10% have

used other social media tools for teaching and learning. This means that YouTube and Google Docs used by more than half of respondents as a learning and teaching tool. Notice that respondents may select more than one choice, thus percentages may add up to more than 100%

### The Opinions of Advantages and Disadvantages of using Facebook for Teaching and Learning

In this section we would like to investigate about advantages and disadvantages of using Facebook for teaching and learning. The first question is in the term of advantages of using Facebook for teaching and learning which include 1) Instant interaction, 2) Convenience, 3) Easy to use, 4) Courage to share and 5) Comprehensive participation. The degree of an opinion is divided into 5 scales: strongly agree, agree, neutral, disagree and strongly disagree.

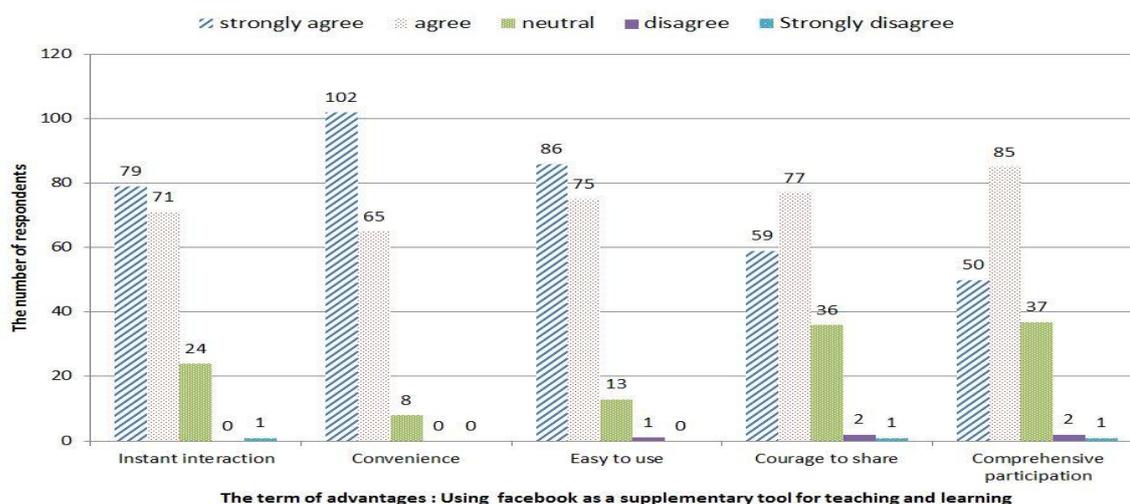


Figure 13: Opinions about the Advantages of using Facebook as a Supplementary tool for teaching and learning.

Table 1: Descriptive Statistics about Advantages of Using Facebook for Teaching and Learning

### : Descriptives

	N	Minimum	Maximum	Mean	Std. Deviation
Instant interaction	175	1	5	4.30	.745
Convenience	175	3	5	4.54	.585
Easy to use	175	2	5	4.41	.653
Courage to share	175	1	5	4.09	.797
Comprehensive participation	175	1	5	4.03	.772
Valid N (listwise)	175				

From Table 1, we can conclude that the distinguished advantages of using Facebook for teaching and learning include convenience, easy to use, and instance interaction

The second question is in the term of disadvantages of using Facebook as a supplementary tool for teaching and learning which include 1) Time consuming, 2) Difficult to find resources, 3) Difficult to keep resources, 4) Too open to public and 5) Disturb personal space. The degree of opinion is divided into 5 scales: strongly agree, agree, neutral, disagree and strongly disagree.

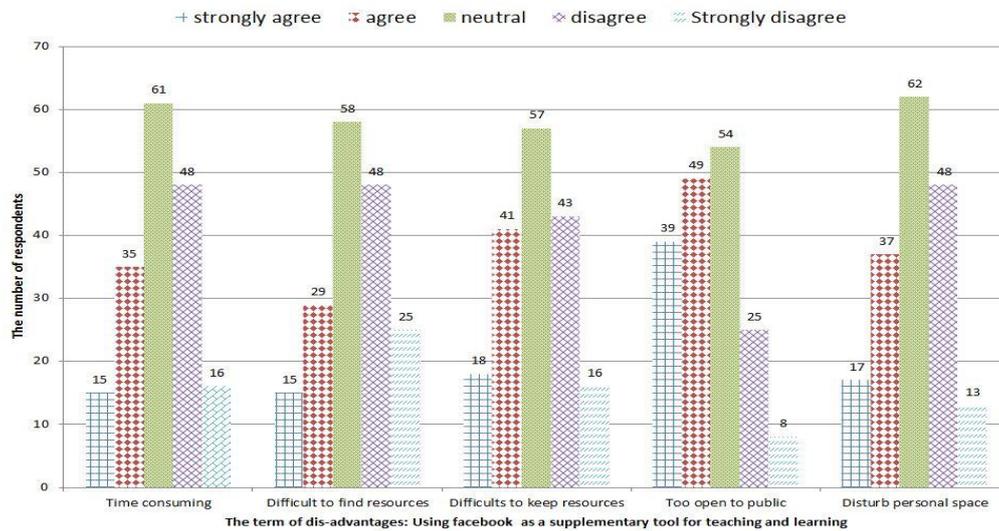


Figure 18: Opinions about the Disadvantages of using Facebook as a supplementary tool for teaching and learning

Table 2: Descriptive Statistics about Disadvantages of Using Facebook for Teaching and Learning

### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Time consuming	175	1	5	2.91	1.087
Difficult to find resources	175	1	5	2.78	1.145
Difficult to keep resource	175	1	5	3.01	1.124
Too open to public	175	1	5	3.49	1.124
Disturb personal space	175	1	5	2.99	1.080
Valid N (listwise)	175				

From Table 2, we can conclude that the many people do not agree about many disadvantages of using Facebook for teaching and learning as the mean for each disadvantage is about 3.0 (neutral). The only disadvantage is too open to public.

## Conclusion

In this paper, we have presented an approach and shared experiences in using Facebook for teaching and learning. It has been shown that many students quickly respond to teachers' posts and they also shared useful information. We have also evaluated and analyzed the result of the survey. It was found out that most people agree that the advantages are convenience, easy to use, and instance interaction while most people view the only disadvantages is too open to public. In the future, we consider developing a Facebook App and analyzing user interaction with it. We also would like to study what features may increase user engagement with web 2.0

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# STUDENTS AND SOME TEACHERS' VIEWS OF USING WEB 2.0 TECHNOLOGIES IN E-LEARNING: FINDINGS FROM A SURVEY AND INTERVIEWS

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**Abstract** - Web 2.0 technologies have brought many changes to the teaching and learning process. What are students' attitudes to the changes? What are their expectations of a Web 2.0 based e-learning system? Students and their teachers' views should help to answer these questions. An online questionnaire and formal interviews were conducted among the NZ tertiary students and some of their teachers. The majority of participants have very positive attitudes towards Web 2.0 based e-learning systems. They display really high willingness and enthusiasm to use Web 2.0. They have a good understanding about Web 2.0 technologies and are familiar with using Web 2.0 techniques. However, they still are not certainly advance user. They do not create new web contents. The majority students consider Web 2.0 is able to improve "interaction and cooperation" and expect that any e-learning system should be "ease of use".

**Keywords** - component, e-learning, Web 2.0, New Zealand, tertiary students, features, knowledge

## Introduction

A traditional web-based e-learning system, for example Blackboard, usually can support basic academic activities such as delivering teaching materials, online communications and simple online assessments. However, these systems are usually more passive rather than active, less creative, reflective, collaborative and personalised. Modern educational theories, for instance, socio-constructivism, argue that knowledge transmission depends on the individual users' participations and reconstructions. Similarly, Bruner (1996) indicated that learning can be considered as a kind of social process and it happens by sharing information and interactions in each user. Teachers should continue to explore new and dynamic ways of providing excellent pedagogical opportunities (Wheeler, 2009). With the arrival of the Web 2.0 technology, web-based e-learning systems become more effective, more creative and more collaborative. The key idea of the Web 2.0 based e-learning systems is collaboration, which allows students collaboratively work on one piece of work or collaboratively participate in one activity (Husband, J. & Bair, J. 2007). For example, a number of students could work on one article collaboratively with the effective communication within a wiki environment. When this is combined with typical Web 2.0 features such as visualisation, real-time synchronisation and artificial intelligence, a Web 2.0 based e-learning system will greatly improve students' learning and significant promote student centred learning (Cui, X. et al. 2004).

Web 2.0 based collaboration can be reflected in several aspects of actual pedagogical scenarios, for example, Blog is able to obtain the feedbacks from others or express personal

own opinions (Yinling, 2011), Social network services (SNS, e.g. Facebook, YouTube) is capable of improvement of communication between each people (Peter & Daniel, 2011). These have brought many changes to the teaching and learning process. For example, students who have mostly been readers in a traditional e-learning system will start authoring content. This is a significant change to the students.

What are students' attitudes to the changes? Are they well equipped to the changes? What are their expectations of a Web 2.0 based e-learning system? Students and their teachers' views should help to answer these questions. An online questionnaire and formal interviews were conducted among the NZ tertiary students and some of their teachers. The questions of online query and interview involve the experiences and perception to use Web 2.0 based applications as well as a couple of traditional e-learning systems on ease of use, advantages and disadvantages, perceived useful or usefulness. These will help to obtain the responds and feedbacks of the degree of familiarity of those people within different Web 2.0 tools, as well as the habits of usage. The findings of this study on students' opinions, attitudes and expectations towards the educational usage of Web 2.0 technique should be helpful for future development of Web 2.0 based e-learning system.

The paper is organized as follows: section 2 presents the context of the study. The findings of survey are described in detail in section 3. Section 4 presents some discussions and lessons learned from our study. And finally, the section 5 concludes with possible future studies.

## **Study Context**

### **Participants**

The online survey was conducted among 282 students from several tertiary providers in NZ. All users were experienced with web 2.0 applications and common learning management systems. 84 participants returned a valid response, with 35 being female and 45 male. Participation in this study was voluntary.

In addition, only participants from one institute were interviewed, including 6 lecturers and 6 post graduate computing students. All of these participants were experienced with BlackBoard, Moodle and common Web 2.0 applications like WiKi, Blog, SNS(Social network service like Facebook, YouTube), IM (Instant message like MSN, Skype) that indicated that the internet was the part of their daily life. More particularly, one of the lecturers was employed in a learning centre, one was doing technical support for Moodle and the rest of the participants were current lecturers. Most participants were computing students, with an age range 21 to 30 and were people whose first language was not English.

### **Method**

Firstly, all the student participants were requested to fill in an online questionnaire in term of their use of Web in general and Web 2.0 applications in their daily life. Meanwhile, formal

interviews were conducted among the computing students and staffs from one institute. This result of interview reflects the experiences of using traditional e-learning system (Blackboard and Moodle) and personal attitude towards to Web 2.0 applications in learning (teaching) areas. Table I-III show the survey results.

## Results

### Student' familiarity with Web 2.0

TABLE I. STUDENT FAMILIARITY WITH WEB 2.0

	Not used	Very poor	Poor	OK	Good	Excellent
Blackboard	16	1	2	37	14	5
Facebook	14	3	4	15	30	8
Google apps	6	0	4	19	33	12
Moodle	31	0	4	23	14	2
MSN	14	3	3	37	12	3
Myspace	36	1	5	18	14	0
Second life	49	0	7	8	9	2
YouTube	15	0	2	19	29	9
Blogging	13	3	4	17	32	6
Forum	8	0	1	14	38	13
Wiki	8	0	2	9	40	15

The applications rated as most useful were Google, YouTube, Blackboard, Facebook and MSN. Myspace is declining in popularity worldwide and Second life is not widely used. As for Blogging, Forum and Wiki, these three Web 2.0 technologies are rated positively by 80% to 90% of respondents.

### Reasons of students to choose Web 2.0 and e-learning system

Most participants believed YouTube, Google Application, Blackboard and Facebook were easy to use, 35 participants thought Google application was good for co-operative learning and 32 participants believed it had a good capability in concurrency control. Facebook had the most respondents in a virtualized environment (21) and had a personalized environment feature (40), and YouTube had the most respondents in "ease of use" feature. Myspace is declining in popularity worldwide. Secondlife and Moodle are not widely used.

TABLE II. REASONS OF STUDENT TO CHOOSE WEB 2.0 AND E-LEARNING SYSTEM

	Not used	Ease of use	Co-operative learning	Free of cost	Concurrency Control	Virtualized environment	Personalized environment
Blackboard	17	41	28	14	9	12	20
Facebook	13	39	35	50	8	21	40
Google apps	11	44	36	49	32	15	29
Moodle	39	22	22	16	10	7	18
MSN	16	35	29	46	10	10	35
Myspace	41	20	16	25	6	8	23
Second life	51	12	11	14	2	12	9
YouTube	11	46	26	52	8	33	20
Blogging	13	42	37	47	9	10	43
Forum	7	44	47	47	13	17	27
Wiki	7	51	40	55	15	17	30

As for Blogging, Forum and Wiki, most participants considered these three technologies were easy to use and free of cost. A clear majority of participants considered that Forum enabled co-operative learning and around half considered that Blogging and Wiki enabled co-operative learning. Only a minority considered that these three technologies provided concurrency control and virtualized environments. Most participants considered that Blogging provided personalized environments whereas about one third considered Forum and Wiki provided personalized environments.

## Reasons of students not to choose Web 2.0 and E-Learning system

TABLE III. REASONS OF STUDENT NOT TO CHOOSE WEB 2.0 AND E-LEARNING SYSTEM

	Not used	Difficult to control information	Lack of technical support	Not compatible with common use application	Not enough functions for academic use	have
Blackboard	21	7	14	26	23	
Facebook	14	34	28	26	34	
Google apps	11	21	28	32	24	
Moodle	42	5	9	19	15	
MSN	15	25	30	20	38	
Myspace	43	12	19	18	22	
Second life	58	10	11	11	12	
YouTube	16	25	23	26	25	
Blogging	15	33	29	27	32	
Forum	10	32	34	26	22	
Wiki	14	30	34	20	26	

In the case of Facebook, nearly one third of the participants thought it was difficult to control information and it did not have enough functions for academic use. The participants also considered that it was “not compatible with common use application”. The main perceived disadvantage of Google application was that it was “not compatible with common use application (e.g. MS Office)” the same as other applications. The participants did not like the technical supports that were provided by Facebook”, “MSN” and “YouTube”. Finally, about 79.5% of respondents had not experience second life before and about one in third respondents had not used Moodle.

However, as for Blogging, Forum and WiKi, most participants selected all the criteria and consider these as the disadvantages. But, Blogging has the highest number of respondents in “difficult to control information” (33), forum and WiKi both are the No 1 in “lack of technical support” (31), and for WiKi has the second score in “difficult to control information” (31).

## Time of spending on Web 2.0 applications

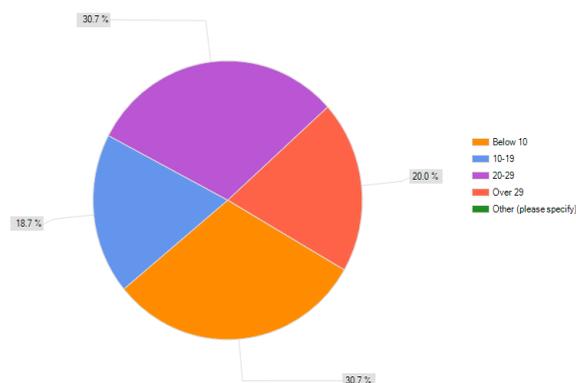


Figure 1. time spend on Web 2.0

More than two thirds of participants spend 10 or more hours on those applications. This can be considered that most of the participants have reasonable familiarity with Web 2.0 based applications.

## The purposes of using Web 2.0

TABLE IV. WEB 2.0 APPLICATIONS AND PURPOSES (IDENTIFIED BY THE INTERVIEWEE)

Web2.0 applications	Purposes
Skype	Communicate with another person
Google applications	Share documents
Facebook	Communicate in the community and public, share solutions, ideas, feelings , thinking
QQ	Communicate with another person
YouTube	Download, uploading and share video files
MSN	Communicate with another person
Forum	Get feedbacks or comments from other person
Blog	Get feedbacks or comments from other person
Skype	Communicate with another person

Instant message such as MSN and QQ were very popular among the respondents, 6 and 5 respectively, 5 people liked to use Google applications in their learning. Forum and Facebook had the same number of people that gave support (4). The results of people who preferred to use YouTube Blog and Skype in their learning was (3, 2, and 2, respectively). All the features in the Figure 2 below have been identified by the interviews.

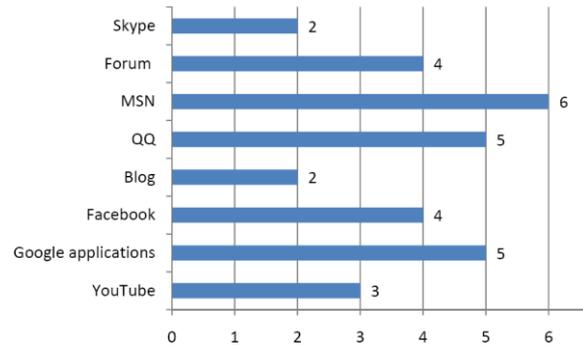


Figure 2 Prefer web 2.0 applications (identified by the interviewee)

## Discussion

This section presents a summary of the main findings of study:

- Most participants can clearly identify Web 2.0 features such as co-operative learning, virtualized environment, personalized environment and etc. This indicates that most participants have a good understanding about Web 2.0 technology. However, they are not certainly advance user. They do not create new web contents. Based on the result of interview, there is no respondents (interview section) mention to use Web 2.0 to produce any Web contents.
- Although most the students are familiar with using Web 2.0 technique like Blog, Forum, FaceBook, YouTube, the entertainments or the ways of keeping in touch with their friends are the main purpose for the students.
- No matter which Web 2.0 applications or technologies are chosen, “ease of use” is the main feature has been identified by most students. It is a common feature for both of the traditional e-learning system and Web 2.0 based application. This may suggest that participants are expecting those good features from traditional e-learning systems to be retained in Web 2.0 based e-learning systems.
- The majority students consider Web 2.0 is able to improve “interaction and cooperation”. These features are able to be adopted into e-learning 2.0. Because “learning 2.0 builds the learning environment and optimize learning for focusing on the theme of ‘interaction and cooperation’.” (Bowu, Shengli, Ruan 2010, p. 332).
- The respondents also identified some disadvantages. Lack of technical support, lack of authority and lack of face to face communication are three major issues have been pointed out by the students.
- Some advantages that related to specific Web 2.0 applications have been found out by the respondents. For instance SNS (social network service) is good method at create the communication channel, IM (instant message) can largely improve interaction between each group member, Blog is really good tool for “sharing the idea”, “obtain feedback” and “ask and give solutions to problems”. Finally Forum is able to facilitate the communication and collaboration among the team members

- Blogging, Forum and WiKi are rated positively by 80% to 90% of respondents. This demonstrates participants' very positive attitudes towards to Web 2.0 technologies. It is highly likely to use Web 2.0 techniques into learning, because the majority of student display really high willingness and enthusiasm to use Web 2.0. Besides, the students are familiar with using the common Web 2.0 applications and technologies like Blog, Forum, Facebook, and YouTube. In this study, Second life fail to been mentioned by the respondents.
- Although Web 2.0 techniques blur the boundary between student and teacher, and then change the way of traditional teaching, teacher still needs to play a guide role in the learning process.
- Two main issues of using of using Web 2.0 system were identified by the participants. One is that "it was difficult to control information", which could be due to that all the users are able to create, edit and update content. This confirms the authoring concern stated at the beginning of this article. Another is that it was "not compatible with common use application", which may suggests that comparing to the traditional systems, the participants still feel challenge to the new features of Web 2.0 based system.

## **Conclusion and Future Work**

This study presents students and a few teachers' opinions, attitudes and expectations towards the educational usage of Web 2.0 applications and technologies. This research explores that the current Web 2.0 applications do have the value of potential education, but this value still needs to be mined. This study finds although the Web 2.0 (Blog, Facebook) are very popular in the students and those students are also very familiar with them, the major problem is that few of them use the Web 2.0 into their learning.

The majority of participants have very positive attitudes towards Web 2.0 based e-learning systems. They show really high willingness and enthusiasm to use Web 2.0 and have a good understanding about Web 2.0 technologies. The majority students consider Web 2.0 is able to improve "interaction and cooperation" and expect that any e-learning system should be "ease of use". These should be integrated with the future Web 2.0 based e-learning system to stimulate reflection, actively involve learners in their own construction of knowledge and achieve better learner engagement.

Web 2.0 has the characters that may restrict into learning for instance lack of authority. Therefore, the future work need to conduct the research about how to trigger the student to be self-conscious to use Web 2.0 into learning their process and how to limit the disadvantages of Web 2.0 during the learning process.

The research instruments used in this study are survey and interviews. Given the small sample size and the technology nature of Web 2.0, the accuracy of the outcomes may be limited.

These outcomes should be combined with an experimental research on the specific e-learning systems for deeper investigation.

The current e-learning-based environments focus on the reusability of learning resources. However these resources are not adaptable to suit learners' needs, they fail to use explicitly stated instructional strategies, and they lack rich knowledge representations (Zouaq and Nkambou, 2008). With the arrival of Web 3.0, a combination of artificial intelligence and web based e-learning systems should help to provide learner oriented adaptive feedbacks, guidelines and instructions.

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# Quality Assured Abstracts

# DEVELOPING AND EVALUATING STRATEGIES FOR PROFESSIONAL LEARNING

Richard Jones  
The Southport School

The Southport School has embarked on a critical phase of its aim to provide students and teachers with access to new pedagogies, one important aspect of which is the use of ICT to enable a more personalized learning approach in the classroom.

The prime vehicle for this cultural shift will be Learning@TSS – a combination of a Course Management System (Moodle) and an ePortfolio (Mahara). One important issue is one of knowing what PL strategies are working and which are wasted time as far as the teachers and the school's expected outcomes are concerned.

A wide range of strategies will be employed and evaluated during the year and include the following:

- One-on-one sessions with an in-house person
- Small group sessions on the use of CMS/LMS and ePortfolios
- Drop-in sessions or clinics held before school
- Formal PL sessions built into the school day using relief teachers
- Formal PL sessions on non-student days
- Sending staff to appropriate national and international conferences.
- Local online or small group f2f meetings among ISQ schools following similar aims
- Online “self-help” resources for teachers.
- Further development of various media: eLearning Blog, eLearning News (brochure) and eLearning Podcasts.
- Development of a “skills grid” which outlines levels of competence required for teachers.

Students have good superficial skills in using mobile and other devices but we do not yet have a learning culture around their use. We have students who are very confident but superficial in their use and teachers who know sound pedagogical strategies but some of whom lack the technical expertise and confidence to use the platform effectively.

Traditional PL is often not “Just in Time” or appropriate to the learning stage of the individual or group thus we need to experiment with other forms of delivery.

# **LEARNING AS YOU GO: PARTICIPATORY ACTIVITIES THAT SUPPORT IN-SERVICE TEACHERS LEARNING TO USE NEW TOOLS**

Karen Haines  
Unitec Institute of Technology

Teachers are lifelong learners. The ubiquitous presence of technology in the workplace constitutes a challenge for higher education generally, as it is 'changing both what we need to know and how we come to know it' (Laurillard, 2008, p. 524). For teachers, there is an imperative to expand one's own knowledge in relation to digital technologies and the implications that technological development might have for students, for their learning and for teachers' own instructional practices. Educational workplaces have traditionally provided support for teachers in the form of 'just-in-time' workshops that demonstrate the latest new technology and how to use it. While for innovators and early adopters (Rogers, 2003) this may be the impetus they need to explore new tools, many teachers require more support if they are to engage students in meaningful pedagogical experiences with technology.

This session outlines results from a recent qualitative research project into the ongoing situated learning of 16 tertiary language teachers in Australia and NZ. Over a period of fourteen months, several interviews were conducted with each teacher and focussed on their learning about a particular new technology which they nominated. There was considerable diversity in the activities that teachers felt had contributed to their learning. While external input was integral to learning about the tool, much of teachers' technological and pedagogical understandings occurred through the use of the tool in the classroom with students. The results highlight the fact that learning in the workplace is socially mediated, but also suggest that there were 'missed' opportunities for these teachers' learning.

Learning about technology for pedagogical purposes is an ongoing process. Identifying participatory activities that support teachers' learning can enhance our own professional development as educators, as well as suggesting ways to support the eLearning futures of teachers in our institutions.

# **EXERCISING THE CAT: A SELF REFLECTIVE FRAMEWORK ENABLING PERSONAL PROFESSIONAL DEVELOPMENT PLANNING FOR OPEN, FLEXIBLE AND NETWORKED LEARNING**

John Clayton & Richard Elliott  
Waikato Institute of Technology

Historically, educators in the tertiary sector have generally been employed for their depth of discipline knowledge rather than their expertise in teaching practice. Success was measured by learner acquisition of discipline knowledge and mastery of identified skills. Change has been driven by fiscal restraints and the need to remain globally competitive. Successive Governments have introduced a raft of educational reforms, focused on improving performance and efficiency and enabling more students to complete higher qualifications at an affordable cost.

Tertiary institutions have widened entry criteria and increased enrolments. The student population is more culturally diverse with associated issues of language, literacy, traditions and practice. Educators must employ new and innovative learning and teaching strategies to meet the needs of this diverse audience by extending their discipline knowledge to include competence in the use of elearning technologies.

The concept of personal reflection as an empowering process has been widely debated in educational circles for a number of years. Reflective-frameworks are designed to enable individuals to make connections and comparisons between their existing experiences and accepted standards. This paper will explore the use of a reflective-framework for developing personal professional development plans. A Competency Assessment Tool (the CAT), is described which assists individuals to critically reflect on their skills and competence in open, flexible and networked learning. How the CAT is used to highlight areas of strength and identify areas where professional development would be of benefit, is discussed in detail . The CAT enables the generation of personal professional development plans that suit individual time-frames, language, culture and location. The use of the CAT has the capacity to enable educators to progressively improve and extend their repertoire of teaching skills and competence with elearning technologies, whilst improving their professional practice and enhancing the learner experience.

# **FROWN GIVES GAME AWAY: AFFECTIVE TUTORING SYSTEM FOR IMPROVED LEARNING**

Abdolhossein Sarrafzadeh  
Unitec Institute of Technology

Many software systems would significantly improve performance if they could adapt to the emotional state of the user, for example if Intelligent Tutoring Systems, ATM's and ticketing machines could recognize when users were confused, suspicious, frustrated or angry they could provide remedial help so improving the service. Research leading to the development of Easy with Eve, an Affective System in the domain of mathematics (an Affective Tutoring System- ATS) will be the focus of this presentation. Eve adapts to users by detecting their emotion through facial expression and gesture analysis, and can display emotion herself via a lifelike animated agent called Eve which was tested in schools in New Zealand.

Following the development of Eve a new agent called Dr. Eve has been developed. Dr. Eve is able to answer questions and understands speech. Dr. Eve is visually superior to its predecessor but not yet as functional as Eve. Dr. Eve is also being nominated as the agent for a video game for diabetic children.

Eve enjoys a facial expression recognition component that was developed in-house. A gesture analysis component has been developed and will soon be integrated with Eve. Eve's adaptations are guided by a case-based method for adapting to user's states; this method uses data that was generated by an observational study involving 3000 video clips of human participants. The observational study, the case-based method, the life-like agent Eve, its predecessor Dr. Eve, the ATS itself and its facial expression and gesture analysis capabilities will be briefly presented in this seminar.

Keywords - Affective Tutoring Systems, Lifelike Agents, Emotion Detection, Human Computer Interaction, Affective Computing.

## **ELEARNING FUTURES FOR PEER FEEDBACK**

Helen Cartner  
Auckland University of Technology

The next decade will be one of considerable change in the use of feedback mechanisms within tertiary institutions (Hattie,2009). This study examines how eLearning can optimise peer feedback mechanisms within a postgraduate hospitality course. Currently, postgraduate hospitality courses are attracting large numbers of international students, many of whom do not speak English as a first language, and a smaller number of native speakers of English. Both cohorts experience difficulties with the academic genre requirements associated with study at postgraduate level, and these difficulties impact on the successful completion of their studies. These difficulties have led to the development of a discipline specific post graduate academic literacy paper which is taught partly online and partly through face to face workshops. Peer feedback appears to be beneficial to student writing and therefore critiquing fellow students' written texts has been incorporated into assessment.

This research project examines current peer feedback mechanisms within this post graduate paper and redesigns a section of the paper to use more constructivist criteria to negotiate feedback mechanisms and to utilise the Learning Management System's peer feedback tool. Initial attempts to implement peer feedback as part of assessment have proved popular with students and it is argued that gaining student insight into the process and eliciting their advice as to the structuring of feedback assessments will be extremely valuable in that students are more likely to take ownership of an assessment task if they have had some input into the writing of the criteria. The research project uses Action Research (AR) as a method which suits multiple modalities such as blended learning of online and face-to-face learning situations. The emergence of AR has paralleled the growth of learnercentred curriculum design and classroom based research and has gained significant ground in the applied linguistics literature.

## **LEARNING A SECOND LANGUAGE IN SECOND LIFE – USING 'HOLODECKS' FOR THE LANGUAGE CLASSROOM**

Clare Atkins & Belma Gaukrodger  
Nelson Marlborough Institute of Technology

In this paper we provide an overview of multi-user virtual environments and how they can be used in education. We then focus on Second Life and its application as a medium for teaching and learning English as an Additional Language (EAL). The use of multi-user virtual environments (MUVES) is on the rise, (Gamage, 2010) adding a new dimension to the use of the Internet where people from different corners of the globe can participate in live synchronous communication in a shared virtual space through their virtual representations or 'avatars'. Language learning relies on role-play, to create situations that are as realistic as possible for the application of communicative practices. Second Life (SL) can be used to create those situations, in the form of holodecks. Possible scenarios can vary from having a job interview for a big corporation to being a supermodel on the catwalk. One advantage of the use of MUVES for such role-play is that the focus is on the avatar not directly on the language learner.

The paper will report on how and why certain scenarios were created and used in an EAL classroom at a regional Polytechnic. Informal feedback from the students and the teachers will be provided, along with conclusions from the authors and suggestions for further development. Overall response from the learners were positive. As in any language classroom, set-tasks and objectives guide and motivate students. SL is no different when it comes to these pedagogical aspects and a well-planned, structured and executed lesson is important in any world, real or virtual. However, issues such as availability of necessary software, time-zone differences, steep learning curve and rate of adaption can create barriers to the adoption of this new medium. The authors will also comment on how some of these barriers may be addressed.

# USING AUTHENTIC MATERIALS AND CORPORA TO DISCOVER FORMULAIC LANGUAGE

Joe Geluso

Kanda University of International Studies

Language, as Sinclair (2008) put it, is: “the phrase, the whole phrase, and nothing but the phrase.” Indeed, language users are extremely sensitive to the frequency of occurrence of a wide range of linguistic constructions (Ellis, Simpson-Vlach, Maynard, 2008). This is the reason native speakers are able to quickly distinguish unnatural from natural sounding language. Learners of English as a Foreign Language (EFL), however, may be familiar with grammar rules and discrete vocabulary, but often struggle to put together natural sounding phrases and sentences. This isn’t too surprising considering the relatively low occurrence of formulaic language, or lexical bundles, in textbooks compared to natural conversation, TV shows, or movies (see, Biber, Conrad, and Cortes, 2004; Wray, 2000). This is where corpusbased language learning can provide valuable insights into high-frequency lexical bundles in the target language (Sha, 2010).

This presentation will outline a semester-long course—created by the presenter for Japanese EFL students—that adopts a unique approach to language learning, by placing interaction with authentic materials and corpus use at the center of the curriculum. The course progresses in a cyclical nature. In each cycle, students are first encouraged to pursue language related to topics that interest them by interacting with authentic materials (e.g., TV shows, magazines, websites, Twitter, etc...). Through these interactions, students identify vocabulary and/or lexical bundles they wish to further familiarize themselves with. Upon deciding on new vocabulary/lexical bundle(s) to pursue, the students are instructed to complete a speaking journal. The speaking journal entails: 1) researching chosen lexical bundle(s) in a corpus to gather information such as frequency and MI value; 2) using the lexical bundle(s) in a conversation with their classmates in a rehearsal performance; 3) and finally using the new language in a “real performance” outside of class with a more proficient speaker of English.

## ENTERTAINMENT LAB FOR THE VERY SMALL SCREEN (ELVSS)

Daniel Wagner  
Unitec Institute of Technology

In this paper, I will present a case study exploring the use of wireless mobile technologies as a way of challenging film students to adapt conventional storytelling skills they're acquiring for emerging delivery platforms.

25 Students at a New Zealand film school have been lent iPhones and iPads to shoot and edit material, and have been creating an interweaving series of very short films, for optimum delivery on mobiles.

Called to question in the teaching are new approaches to creating and packaging narrative, such as:

- What is an ideal length for various types of mobisodes?
- How might story structure be adapted to best suit the realities of the new delivery media?
- How do we best organize and populate frames for the very small screen?
- What effect do video compression and smaller screens have on our choices of :
  - ✧ How we organize and populate our frames
  - ✧ What lenses and shot sizes work best
  - ✧ How busy or simple our frames are
  - ✧ How we move the actors and the camera
- What are the sonic possibilities and how can we further them to create richer environments?
- Potentials for interactivity (such as QR codes and user-enabled hotspots)

By the end of this course, they will have a series of mobisodes, each of which will connect to one another at one or two points, and where the viewer must watch all installments to put the whole story together in their minds. Along the way, they've been guided to grapple with creating their own macro and micro working and learning structures and have learned to negotiate between creative teams. The learning that occurs is not data transferred from a lecturer's head to the students', but is an experiential journey in an unfolding idiom where the outcome is both unfixed and unknown at the beginning of the process. It is the use and recognition of the potentials of the tools that become the learning content itself.

Students in a contemporary best-practice film school, forging a new pathway, are being challenged to apply traditional cinematic methods and sensibilities to newly-developing principles, and new media tools. This paper will therefore explore and illustrate how these two factors blend as a way of generating learning opportunities and innovative creative practices.

# CONSIDERING KAUPAPA MAORI ELEARNING PEDAGOGY - TE AO ROROHIKO

Michelle Lee & Nicoletta Rata-Skudder  
Unitec Institute of Technology

This presentation aims to share lessons, and benefits to learners, from implementing kaupapa Maori eLearning design methodologies and approaches in the creation of online learning environments. From an indigenous perspective, we review the use of open source web 2.0 tools and other technologies in consideration of Maori pedagogy and introduce a kaupapa Maori eLearning framework for informing design discourse and evaluating online course design within the tertiary context.

The Education Amendment Act (Act No. 41 of 1990) embedded Ahuatanga Maori and allowed provision for Maturanga Maori as guaranteed under the Treaty of Waitangi. This has also confirmed that Kaupapa Maori continues to have a place in Tertiary Institutions. Te Wananga-o-Raukawa (2005) has developed a Matrix of ten values of Ahuatanga Maori and requested that NZQA audit the quality of its programmes in accordance with these values. The proposed eLearning framework has utilised this kaupapa Maori Matrix as its foundation and methodology.

The presentation examines elements critical to the success of Maori eLearning communities. Issues and experiences that act as a barrier to the uptake of these technologies, including mis-appropriation of Maori imagery and violation of intellectual property, are also considered. We describe the process of designing online spaces that transport existing customary communication context and protocols to the creation of online environments and content.

# **A DISTINCTIVE BLEND: SEAMLESS INTEGRATION OF E-LEARNING TOOLS WITH CLASSROOM DELIVERY IN A BLENDED LEARNING ORAL SKILLS LANGUAGE COURSE**

Katherine Danaher  
Unitec Institute of Technology

With increasing pressure on language teachers to remain current by using technology in their teaching, it is becoming common for eLearning methods to be patched into existing language courses. This can raise a number of issues for teachers and course designers. How can they avoid being seduced by the „wow“ factor of new technological tools (Sharma & Barrett, 2007), possibly overwhelming learners without increasing the effectiveness of learning? How can a course be retrofitted with eLearning tools to create a blended course whose components truly complement each other?

This session will offer some guidelines to teachers and course designers wishing to design a blended learning course that combines the best of online and classroom delivery. These guidelines will be demonstrated using practical examples from an Upper Intermediate English language course that uses the online learning platform Moodle. The focus will be on ensuring that the use of eLearning tools has a sound pedagogical foundation, and on how these tools can be seamlessly integrated into a language course, to provide a beneficial experience for learners.

As many teachers are aware, incorporating eLearning tools into an existing course is a complex process that often requires teachers to learn new skills and take on new roles. With a roadmap of the process, however, it can become more manageable for teachers, and result in a blended learning course that “thoughtfully [integrates] face-to-face and online learning” (Garrison & Vaughan, 2008, p. 5), providing an enhanced experience for learners in the digital age.

## **TRICKSTERS, PORTALS AND ALTERNATIVE REALITIES: CREATING NEW LEARNING OPPORTUNITIES USING MIXED REALITY GAMES**

Maggie Buxton  
AUT University

My presentation will discuss the potential of augmented and alternate reality mobile games to enhance, and perhaps even revolutionise pedagogy. I will argue that these 'trickster tools' are game forms which bridge the gap between so-called 'alternative' educational pedagogies (e.g. holistic (Nielsen, 2004), transformative (Cranton, 2006; Mezirow, 1991, 2000), transdisciplinary education (Nicolescu, 2005)) and mainstream materialist-reductionist 'schooling' (Ilich, 1970; Senge et al., 2000). They may also assist in bridging the deeper gap between dominant and alternative ways of knowing, an area of educational, and general academic interest (Ladislaus & Kincheloe, 1999; Smith, 1999)

There is already research to show the many learning benefits of using augmented reality location aware mobile applications (Chang, Wang, Lin, & Yang, July/August 2009; de Souza e Silva, 2006; Gordon & Manosevitch, 2010; Kirkley & Kirkley; Klopfer, 2008; Klopfer & Squire, 2007; Klopfer & Yoon) and the transmedia narrative game mechanisms of Alternate Reality Gaming (Colvert, 2009; McConginal, 2011). I would argue that by combining these interrelated game forms there is a possibility for multi-dimensional learning to take place; learning that is simultaneously within and parallel to mainstream education.

In the spirit of game-play, it is possible to see learners as travellers – questing through multiple realms (digital, physical, social, imaginal, spiritual) to discover knowledge about themselves, their environments and each other. At the same time, traditional teaching roles may shapeshift to those of facilitators, guides, collaborators and interdimensional investigators.

These leading-edge e-learning formats allow us to meet the requirements of mainstream education standards and formal processes, while also reactivating spaces and places in our neighbourhoods. It may be possible to combine situation-based learning with more general community development initiatives.

Through the lens of these game mechanisms reality is no longer static, predictable and objective; we have the power to augment and alter it, and to collaborate across boundaries to create alternate realities. Arguably, ways of knowing which support parallel worlds, and which promote place-based, multi-dimensional learning may find affinity and expression through these tools.

By combining mixed reality game forms with a pedagogical framework that supports: meta-reflective and systemic thinking; creativity and imagination; innovation and flexibility it may be possible to foster more resilient, inclusive, 21<sup>st</sup> century learning communities.

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# WEATHERPROOF LECTURES: ENGAGING LEARNERS WITH SCREENCAPTURE

Mushtak Dawood  
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Many educational institutions have deployed enterprise-wide solutions for video capture of lectures (combining voice and computer screen content), enabling faculty to streamline their lecture recording and share knowledge in a multimedia format with students and colleagues. The top decision factors for adoption include ease of use and simple integration with other technology, sensible use of such applications, and measuring whether they enhance the learning process.

Early use of the technology has revolved around the idea of recording a presentation for people who missed the session. The question that arises is "Why should I make a video for when students are absent?" The answer has commonly been that providing a recording also helps attendees to revise session content. Video capture holds far greater potential, however. Additional uses include explaining the "How-to's" behind the content, such as showing students how to use a computer application, or how to find resources or track down references on the Internet, Video capture also creates Re-usable Learning Objects, adding to the resources available in a course. Increased use of video capture technology is now leading to new approaches to teaching.

This paper presents three case studies of video capture in different contexts from the Unitec campus. The first is a use of screen capture to educate staff across the organisation, to provide intranet-based instruction on a new IT process. The second is an example from a staff member, explaining assessment and process. The third presents the use of video feedback as a screen capture.

These three examples demonstrate different uses for video capture of voice and screen delivery, and the value it offers to teachers and students in enhancing the teaching and learning context. Some of the technical barriers to lecture capture are also discussed, and the lessons learned by the case study groups. One of the most engaging training I've seen is manufacturer of a specific product presented his „talk“ to students via a „flip“ class, which means educators are combining lectures and (computer) screen content into a single video, asking students to watch the material before class and engaging students in new ways when they are face to face.

Recording your computer screen and you might record your voice as well. You do screen casting by using a software.. but why would you want to record your computer screen? Many educational institutions have deployed a enterprise-wide solution to capture lectures and that will enable faculties to streamline their lecture recording and sharing knowledge in a multimedia format with students, colleagues and department or campus-wide.

It may not be a time savings, so what is the big deal?

## AUTHENTIC LEARNING AND WEB 2.0 – THE CONVERGENCE

Vickel Narayan & Christopher Lovegrove  
Unitec Institute of Technology

Authentic learning in education is not a new concept, it has been in use for more than a decade (Brown, Collins, & Duguid, 1989; Herrington & Oliver, 2002; Lave & Wenger, 1991). Web 2.0 tools on the other hand have been around for the past 5-6 years and have only started to gather momentum and gain traction in the education sector to enable authentic learning (McLoughlin & Lee, 2007; 2008a; 2008b; 2008c). This paper outlines the findings of a one year long project where authentic learning formed the underlining platform for learning and teaching in a boat building course and Web 2.0 tools were integrated to enhance the process.

While the effects of authentic learning on learner development are well documented (Lombardi, 2007, Newmaster, Lacroix & Roosenboom, 2006), this paper outlines the benefits of integrating Web 2.0 tools in the processes.

A participatory action research method was used where a community of practice was established with the students in class and the lecturer. Learner and teacher reflections were gathered every week via student and teacher blog posts and reflective videos and a post project survey was also used to gather data from the students and the lecturer.

The findings from this research outline that while authentic learning gave learners choice and provided an authentic context for learning, Web 2.0 tools used in the course allowed for the convergences of tacit and explicit learner knowledge. The tools used created a collaborative learning environment and allowed space for critical reflection and thinking. In the process the teachers role was noticed to have changed (instructivist to constructivist) as he became a source for guidance and an agent that recognised learner needs and scaffold required.

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## **MAKING THE 'CASE' FOR THE IPAD**

James Oldfield Thom Cochrane Dawn Duncan  
Unitec Institute of Technology

Love it or hate it, the iPad has had a major impact on the world. It has sparked significant change in mobile computing, causing a shift in focus of computer manufacturers towards the tablet format. While a major success in the consumer market, these devices have also found a home in the corporate, health and education sectors. The potential of the iPad as a mobile learning educational tool is being explored at a tertiary institution. Significant effort has gone into re-invigorating the Law portion of a Diploma of Business and the iPad was identified as one potential piece of the puzzle. This paper explores the impact of the introduction of the iPad as a student-enabling device within the course.

Students in the Introduction to Commercial Law course were given a first generation wifi only iPad in the second week of class to keep for the duration of the 13 week course. They were encouraged to bring and use the devices as much as possible and had access to wireless coverage throughout the campus.

Several objectives for the course were identified at the beginning of the project and these involve integrating the iPad directly into course activities and assessments. The iPads were used by students to blog, encouraging them to reflect on the role of law in society. They supported online media analysis, encouraging critical engagement with external and LMS based materials. The iPads also acted as a medium for the preparation and negotiation of collaborative documents. These objectives all support the final objective of making the law fun and interesting.

The paper evaluates the project and makes recommendations for the potential integration of the iPad as a core student-owned tool for the Diploma in the future.

## **TASK IMPLEMENTATION IN CMC: HOW DOES IT INFLUENCE LANGUAGE LEARNING OPPORTUNITIES?**

Rebecca Adams Nik Aloesnita Nik Mohd Alwi Jonathan Newton  
University of Auckland

Research has shown that computer-mediated communication (CMC) among second language learners can foster attention to linguistic form in ways that may promote language learning (c.f., Blake 2000; Smith 2003, 2005). When communicating via computer, learners may have opportunities to focus on form while communicating meaning, promoting the formation and reinforcement of form-meaning connections (Williams, 2001). However, relatively little research has investigated how differences in the way activities are used in pedagogical settings can influence learning opportunities in CMC. Even fewer have explored this question in the context of English for specific purposes (ESP) instruction.

This study investigates the role of two different implementation features (degree of task structure and provision of language support) in prompting learners to collaboratively attend to language form in a group CMC task. Ninety-six engineering students at a technical university in Malaysia participated in the study. Following a 2x2 experimental design, they were placed in one of four experimental groups defined by high or low task structure and the presence or absence of language support. Each group was subdivided into teams of four. In each team, the students engaged in a 45-minute chat session performing a simulation of a decision-making task on an engineering problem. The chat exchanges were captured and then analyzed to determine whether these implementation factors influenced the way the students discussed language form during the task. Results demonstrated that both task implementation features influenced attention to language expression. The students attended to linguistic accuracy more in their text chat when they had engaged in a pre-task language activity and when they were required to follow a set procedure to complete the task. The findings provide evidence for how collaborative work on learning language structures can be encouraged in a technology-enhanced learning environment.

**E-LEARNING FOR ENGLISH AS A SPECIFIC PURPOSE: A CASE STUDY  
OF A SITE THAT FACILITATES THE LEARNING OF SPECIFIC  
VOCABULARY FOR FINDING WORK AND IN A RANGE OF CAREERS**

T Pascal Brown & Adon Kumar  
Unitec Institute of Technology

The paper analyses and critiques a self-access English language internet site that focuses on job search and twelve careers. The site provides reading comprehension and vocabulary activities at three different language levels.

Practical and pedagogical issues will be discussed such as the development of the site, the vocabulary levels of the activities, the choice of vocabulary used, the use of a job seeking corpus on the site and student feedback. Participants will be invited to discuss ways to enhance the site from the perspective of both English language teachers and migrant students who are focused on employment.

# **APPLYING AGILE FOR INCREASING STUDENTS' PERFORMANCE ON INFORMATION PROJECT**

Sakauwrat Jongpattanakorn  
Faculty of Liberal Arts and Science

This research aims to design an information system model by applying Agile Software development for increasing performance on project, used as a case study in the special problem course at Faculty of Liberal Arts and Science , Kasetsart University Thailand for analysis and setting students activities delivering information system project in time. The sample group was 16 students who studied the special problem course. The key performance indicators in this study included a working software, e-content for information system , the accuracy of work, usability of each component, work and e-assignments, the timely delivery of work and the complement of document. The instruments of learning and teaching; requirement, users' stories, evaluating document, electronic document, assignment or exercise online and agile software development. The statistical methods used are mean values. The findings show that the use instruments of learning and teaching system can design an information system model by applying Agile Software development for increasing performance on project in time and the e-content can develop students' skill in analysis and design system. The students in this study expressed positive attitudes in method at instruments of learning and teaching.

# **E-LEARNING IN INFORMATION MANAGEMENT EDUCATION IN SRI LANKA: AN EXAMINATION OF NEEDS AND ISSUES**

Namali Suraweera  
Victoria University of Wellington

This is an on going PhD research, proposal stage.

Information has become a fundamental resource in developing countries such as Sri Lanka for their development. As provision of information improves there are increasing problem of information overload and timely, accurate retrieval. In this case the responsibility of information managers has increased and the need for educated skilled information managers has risen in order to manage their task. Therefore, learning is a constant need for information managers to keep their professional knowledge current for providing better service for their field.

In Sri Lanka, there are three providers of tertiary level Information Management (IM) education, all in the greater Colombo area. Since IM education is limited to the capital city are, IM students and practitioners face access and equity issues. The tertiary level IM education system of Sri Lanka aims to foster transformative change in IM education with the goals of increasing equality of access to IM education through the use of e-learning. However, it is unclear how e-learning can be utilized to facilitated tertiary level IM education and what factors have an impact on the application of e-learning in tertiary level IM education in Sri Lanka.

The purpose of the proposed study is to explore and understand the students' needs and the various contextual factors that have an impact on the application of e-learning in tertiary level IM education in Sri Lanka. It will be an interpretive case research study using qualitative data collection techniques. A preliminary model of factors that impact on the application of e-learning has been developed based on relevant theories and will be used to guide the proposed research. The preliminary model will be modified based on data from fieldwork to assist IM educators in Sri Lanka to increase equality of access to IM education.

# **“THE SPEAKER SAID TOO FAST” – LEARNER PERCEPTIONS OF SLOWING DOWN AUTHENTIC LISTENING MATERIALS**

Chris King  
Unitec Institute of Technology

Listening comprehension is a central element of communicative competence in a second language, and the use of authentic materials is considered to be of particular importance in the practice and development of listening skills. However when using authentic listening materials, a complaint from learners that is familiar to many teachers is that “the speaker said too fast”.

Recent advances in software technology have provided teachers with simple and straightforward methods to reduce the speed of delivery of an audio or video clip while preserving the pitch and authenticity of the original material. With this practice becoming more common, it is important for teachers to know what learners think of the use of slowed-down listening materials in the classroom.

This paper will report on a study into second language learners’ perceptions of slowed-down authentic listening texts in an intermediate-level classroom. The rationale for using slowed-down materials and the way in which these materials are used in the course will be explained before research methodology and findings on learner perceptions are presented. Discussion and questions will then be encouraged.

The findings of this paper should enable classroom teachers make more informed choices about how authentic listening texts might best be in second language learning and teaching.

# INTELLIGENT E-LEARNING TOOLS AND SYSTEMS

## IAG LMS IMPLEMENTATION

Shaun Sheldrake  
Inspire Group Limited

### **Motivation**

Driven by the advent of the financial advisors act 2008 and the subsequent impact on the iag brand the organisation wanted to insure full compliance with the act, reassure potential customers IAG was a safe place to invest and future employees they would get the right training to progress their careers. We knew we could provide a single system – an LMS with authoring tools, integrated with current business systems and linked into their existing competency frameworks that addressed these issues.

### **What problem are we solving for IAG**

IAG had no centralised or evidence-based learning record within the organisation. They needed to record learning and understand organisational capability to be able to implement their company strategy. IAG identified this need through their own business analysis and then went to market for a solution to solve the problem.

### **Approach/strategy**

Inspire Group's bid was successful. Our first action was to confirm the results of IAG's analysis and their expectations of what our solution could provide. We then implemented our LMS solution, configured, integrated and tailored to their specific requirements. We incorporated historical learning records into the new system so IAG could build on this information.

### **Our solution for IAG**

With the Kallidus LMS we gave IAG an integrated solution; a single source for learning records, competencies based on job role and career pathways and learning needs broken down by location. This would be vital to track legislation-based training and gave the added ability to customise training by role, required competency and geographical location.

### **Conclusion – the implications of our solution**

We delivered a solution that provides IAG with a single source of information on organisational capability. This enables targeted development of their staff to execute on strategy, now and in the future.

## **MOBILE WIRELESS TECHNOLOGY IN EDUCATION**

Shanti Ravi Jacqui Thornley Kay Fielden  
Unitec Institute of Technology

Mobile learning offers richness and depth to e-learning through the affordances of co-created learning space/time continuums, and an exploration of empowered learning domains for students. These affordances are mitigated by the continuing challenge of security and control in technologically-enabled learning domains. Mobile learning provides a flexibility that goes beyond traditional e-learning. In November 2010 the New Zealand Ministry of Education launched the m-learning initiatives to connect rural schools following its announcement to subsidise the costs of ultra fast broadband. This initiative also looks to harness the fact that most students have their own mobile phones. The government has identified broadband as a significant driver for e-learning and equity in education and committed to providing 97% of schools with fibre optic access.

In this paper a multi-dimensional theoretical framework based on an extensive literature review of m-learning is proposed that builds on both the New Zealand Government's initiative for m-learning in rural schools and the ubiquity of mobile phone usage in society. Co-created learning, issues surrounding control of the learner/teacher domain, together with the unique affordances offered by learning 'anytime/anywhere' all contribute to this multi-dimensional framework.

## **ARE INSTITUTIONS READY FOR E-LEARNING?**

Kathiravelu Ganeshan  
Unitec Institute of Technology

Every institution in the world seems to have either invested heavily or are in the process of investing or considering investing in projects and initiatives to include e-learning in their curriculum. More often than not they have dedicated departments and staff driving these projects. These projects face a number of problems and there is often a huge gap between the desired outcomes and the actual outcomes. Even when the actual outcome is close to the desired outcome significant time is lost before the outcome is reached. In this paper, the author looks at the major factors that result in the desired results not being achieved in a timely fashion in the light of the author's experience in a number of situations over a significant period of time and compares his/her experiences with those found in published literature. This paper also suggests ways of addressing these major hurdles so e-learning projects can be planned and executed better in the future.

# **A LEARNING AID THAT LOOKS LIKE A UFO: OR IS IT A DIGITAL SUPER(WO)MAN?**

Kathiravelu Ganeshan  
Unitec Institute of Technology

In this paper, the author describes how he took a somewhat sophisticated but affordable computer controlled toy and converted it into a highly valuable learning aid. Only the imagination of the user, be it learner, facilitator or teacher limits the number of uses for this converted device. Using the device with a handheld device such as an iPod, iPhone or iPad, the user can explore areas that cannot be explored otherwise. Users knowledgeable in computer programming can write all kinds of interactive software to work with this mobile device to create e-learning modules in almost any area of human knowledge. The author reviews some related literature in the area of hardware devices used in e-learning. In the concluding chapter, the author discusses some exciting futuristic applications that he is developing.

# **LEARNING PRACTICAL SKILLS USING E-LEARNING: REAL LIFE EXAMPLES**

Kathiravelu Ganeshan  
Unitec Institute of Technology

Is it possible to learn to learn to play music on a guitar via e-learning? How about using a sewing machine or driving a car? Who provides feedback? In this paper the author describes how s/he used e-learning to acquire some real practical skills and discusses the tools and techniques used. The author argues that careful thinking and planning and a good understanding of the various Web 2.0 and social networking tools and technologies can make e-learning fun, efficient and effective in acquiring practical skills. The author also reviews related literature and considers her/his experiences in the light of published literature. The author concludes with some thought provoking ideas about the future of learning practical skills.

## ENGAGING STUDENTS IN CONTEXTUAL TECHNOLOGY

Penny Cliffin  
Unitec Institute of Technology

This paper reflects on a project engaging students in using an asset management database for Unitec campus trees. The project was developed as an alternative to a standard plant portfolio assignment in order to give landscape architecture students context-aware experience with technology relevant to future professional activity.

Landscape architects have a prominent role in designing and specifying plantscapes across a wide range of project scales, from gardens to urban streetscapes and parks to large-scale conservation revegetation. Planting design is fundamental to landscape architecture and landscape architects require an understanding of the values of plants, and knowledge of a wide variety of plant types in order to design appropriate plantings for components of the vegetated urban landscape (Clouston 1994; Robinson 2004). Three frameworks at different scales are useful to consider here. The first is to understand vegetation as part of global systems and biodiversity (Given 1994). The second is vegetation as a form of environmental infrastructure in urban areas (Robinette 1972). The concept of the 'Urban Forest' contributes to this understanding, as described by American authors (Grey 1996). The third framework is to understand plants in detailed design terms, both in spatial and aesthetic terms (Robinson 2004).

At present there is a gap in the availability of comprehensive and up-to-date Urban Forest data for the new Auckland Super City. Unitec has not updated the tree data in its asset management system for 10 years. Each year, students research and compile plant selection information from a wide range of sources as part of their course requirements. Each year the research leaves with the students, and is not captured or expanded in its use. This database project gave students the opportunity to apply their plant research to a 'real world' scenario on their own campus and use context specific technology.

### Key References:

Clouston, B. (1994) *Landscape Design with Plants*. Landscape Institute, Oxford.

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Robinette, G.O. (1972) *Plants / People / and Environmental Quality*. U.S Department of the Interior, National Park Service, Washington D.C & ASLAF.

Robinson, N. (2004) *The Planting Design Handbook* (2<sup>nd</sup> ed.). Ashgate, Aldershot.

## DESIGNING MOBILE GAMES FOR ENGAGEMENT AND LEARNING

David Parsons & Krassie Petrova  
Massey University

Game based mobile learning is becoming increasingly popular, now that mobile devices provide support for multimedia content, location awareness, augmented reality and connectivity. However just having technical features does not make a game either engaging or pedagogical. The challenge for designers of games for mobile learning is to embed both effective gaming experiences and worthwhile learning outcomes into the same application.

We have been working on a mobile learning game that aims to teach higher level skills (analysis, synthesis, critical thinking) in the context of a simulated business consulting project, where players have to gather, analyse and reflect on various (and sometimes conflicting) pieces of information about a mobile phone manufacturing company that is having some public relations problems. In the game, players are equipped with a location aware mobile device and led through a physical environment that is overlaid by both physical and virtual resources, triggered by reaching locations that represent parts of the company. These resources unfold a series of problems that the players must identify and try to resolve by the end of the game

The design challenge for the game is to try to maintain a state of flow experience in the players. To achieve this, much research was focused around how games are designed to be enjoyable, what elements attract players to games and what encourages them to continue playing them. These factors were then applied to our mobile learning game. For the mechanics of organizing narrative action we have followed a model of classic linear fiction, whereby the game's phases move through teaser, elaboration, conflict escalation, climax and resolution. This narrative path is reflected by a physical path as players move through the campus. In our paper we explain our detailed design and how it supports both engagement and learning.

## DIALOGIC INQUIRY ONLINE

Jennie Swann  
AUT University

This paper presents a theory-based, yet practical means of helping lecturers to facilitate learning through asynchronous dialogue online, whether through discussion forums, blogs, wikis or other social software. The theoretical model was based on Wegerif's (2007) online adaptation of Lipman's community of inquiry model (2003) and Levy's inquiry based learning model (2009). A design research methodology was used to develop and iteratively test this professional development intervention. The three iterations of the testing each informed the refinement of the next version of the intervention. The paper presents the third version of the intervention, which is now ready for field trials.

### Reference:

Levy, P. (2009). *Inquiry-based learning: A framework*. University of Sheffield: Centre for Inquiry-based Learning in the Arts and Social Sciences. Retrieved from <http://www.shef.ac.uk/cilass/>.

Lipman, M. (2003). *Thinking in education* (2nd ed.). Cambridge: Cambridge University Press.

Wegerif, R. (2007). *Dialogic education and technology: Expanding the space of learning*. New York: Springer.

# **TEACHERS' INDIVIDUAL OBJECTS IN ELEARNING-ENHANCED ENVIRONMENTS IN HIGHER EDUCATION**

Khalid Alshahrani  
Monash University

eLearning has had an undoubted impact in higher education institutions worldwide. This has resulted in increasing number of researchers examining how teachers have dealt with it in their teaching. However, less is known about teachers' use of eLearning as individuals in relation to their contexts including their colleagues' endeavours in using eLearning. More specifically, the educational goals that teachers pursue in relation to the collective educational goal of the educational institution they are part of.

To respond to this inquiry, this paper adopts Cultural Historical Activity Theory (CHAT) as its theoretical framework. It specifically uses the notion of "Object-Orientedness" (Leont'ev, 1981) to understand how two university teachers in a Saudi Arabian university used eLearning in their teaching in response to university encouragement to do so while, at the same time, have two different objects in using eLearning. As part of PhD project, data for this study was collected in 2010 through semi-structured interviews, surveys and physical and online classroom observations. Consequently, teachers' uses of eLearning in teaching two different subjects has been analysed in depth using Activity System model developed by (Engestrom, 1987). The preliminary findings showed that while teachers seemed to achieve the collective goal of the institution they belong to in varying levels, teachers' individual objects might not be the same. Hence, considering teachers' objects in using eLearning might lead to a deeper understanding of why certain teaching practices are taking place in eLearning-enhanced teaching environments. Also, using Activity System model in analysing the data revealed the richness of the social context in which teachers are part of. This allows for further reflection and analysis to better understand such teaching practices.

## **CONVERSATIONS WITH ONLINE EFL LEARNERS**

Lynn Ann Deocampo  
Mindanao State University-IIT

This is a study conducted among ten adult intermediate English language online learners who were randomly selected to answer conversation questions in learning a foreign language during one of their speaking lessons over skype. The respondents are Japanese, German, Russians and Turks who are all professionals working in various fields. The questions included the number of languages they speak, when and how they learned these, their opinion on the helpfulness of internet tools in language learning and their reasons for opting to further enhance their English language skills online. The study also probed into how they are benefiting from online learning and what for them are the important criteria in deciding to learn online with a language teacher.

# **THE USE OF THE WORLD-WIDE WEB AND STUDENTS PERCEPTION OF IT IN FACILITATING WRITING**

Lynnie Ann Deocampo  
Mindanao State University-IIT

This is a study on the use of the world-wide web and the perception of university students of its use for extension activities in writing classes. One hundred forty freshmen university students who did not have prior blogging experience and who were enrolled in an English 2 (Writing in the Discipline) class in two different semesters were the respondents of the study. These students were majors of 21 different curricular programs in the Mindanao State University-Iligan Institute of Technology, Iligan City, Philippines. Students were provided links to sources and given guided blogging tasks which required them to define terms or concepts, describe a favorite vacation spot, react to a social issue or give the gist of movie. The study looks into how web sources and blogging motivated students and enhanced their writing ability while it also identifies problems, issues and concerns involved in the use of technology and assessment of students blogs. Furthermore, it suggests effective use of blogging for developing critical thinking, improving learners' ability to organize ideas and increasing their vocabulary.

# **PREDICTIVE ANALYTICS FOR ELEARNING: A MULTI-INSTITUTIONAL INITIATIVE**

Phil Ice  
American Public University System

As the growth of online programs continues to rapidly accelerate, concern over the retention of the online learner is increasing. Educational administrators at institutions offering online courses, those fully online or brick and mortars, are eager to promote student achievement. Retention is critically important, not just for student success, but also for the success of these institutions of higher education. Models for understanding student persistence in the face-to-face environment are well established; however, many of the variables in these constructs are not present in the online environment or they manifest in significantly different ways. With attrition rates higher than in face-to-face programs, the development of models to explain online retention is considered imperative.

This study reports on a \$1,059,000 grant initiative by the Bill and Melinda Gates Foundation, and sponsored by the Western Interstate Commission for Higher Education, to develop predictive modeling techniques to inform issues related to retention, persistence and completion in online distance learning. Over 400,000 unique sets of student data from American Public University System, the Apollo Group (University of Phoenix), Colorado Community College System, Rio Salado College, University of Hawaii System, and University of Illinois Springfield will be aggregated to examine patterns related to student performance in online programs. While developing a comprehensive understanding of online learning outcomes is the ultimate goal of the project, emphasis will be placed on understanding those factors that most impact at risk students.

While conceptualized and initiated in the United States, this is considered a proof of concept initiative that will allow for expansion and inclusion of student data in online distance learning. This includes the potential for international expansion. As such, this findings and methodologies will be contextualized in a manner intended to initiate conversation around how international online distance learning programs might become involved in future iterations of the initiative. Emphasis will be placed on how comparative analytics can be leveraged to produce actionable intelligence to improve student success.

# **NATIONAL RESOURCES TO STRENGTHEN THE LITERACY AND NUMERACY OF ADULTS: PATHWAYS AWARUA AND THE ASSESSMENT TOOL**

Gill Thomas

Strong literacy and numeracy skills are increasingly essential for full participation in all aspects of life – including work, family and the community. In 2008, the Tertiary Education Commission published an Action Plan for Literacy, Language and Numeracy outlining a tertiary education sector work programme focused on improving the literacy and numeracy skills of the workforce. Two components of this work programme are the Literacy and Numeracy for Adults Assessment Tool and Pathways Awaura.

The Assessment Tool was launched in March 2010 to help educators identify the reading, writing and numeracy strengths and needs of learners. In its first 18 months over 130,000 assessments have been completed.

Pathways Awarua is an online, interactive learning system intended to support adult learners strengthen their numeracy and reading skills and understandings. The 100+ learning modules contained within Pathways Awarua are linked to the Learning Progressions for Adult Literacy and Numeracy and learners can use their results from the Assessment Tool to inform where they should begin their learning.

This workshop has two parts:

Part I: Exploring the range of assessments and reports available within the Assessment Tool and examining national data trends.

Part II: Introducing Pathways Awarua and the outcomes for its first 1000 participants.

Workshop requirements

- Internet connection and data projector for the presenter
- Wifi so participants can log on with own laptops to Pathways Awarua (if possible – otherwise participants can use own 3G connections).

## TAILORING LANGUAGE LEARNING TO A WORLD OF SCREENS

Mark Pegrum

We are in the midst of a shift towards a digitised world of screens.

This paper identifies four key trends linked to this shift and considers their implications for language teaching and learning.

Firstly, the trend towards multimedia means we need to help students acquire the multimedia literacy skills to interpret language embedded in a variety of media, as well as to embed their own language production in media tailored to the messages they wish to convey. Secondly, the trend towards networking allows students to build personal learning networks consisting of resources they can turn to for information, and people they can turn to for advice and support, as they begin the process of lifelong language learning. There are especially rich educational possibilities when teachers encourage students to connect and converse across linguistic and cultural borders, practising language use in international contexts at the same time as they develop cultural and intercultural literacy skills. Thirdly, the trend towards mobility, coupled with the development of new tools such as QR codes and augmented reality apps, allows us to promote 'u-learning', or ubiquitous learning, where students can learn in immersive target language environments at the intersection of the web and the world.

The fourth trend, a macro-trend which builds on the first three, is towards customisation. With an understanding of the principles of multimedia, networking and mobility, teachers can help students begin to tailor learning spaces to their individual needs and interests. Such personalised educational spaces may well represent the future of language learning.

# Posters

# **FOREIGN LANGUAGE LEARNING BY ETANDEM BETWEEN GERMANY AND JAPAN: A CASE STUDY OF A LEARNER OF JAPANESE**

Masako Wakisaka  
Graduate School of Letters, Osaka University

It is difficult for foreign language learners to create a learning environment outside the classroom. Tandem learning could help learners to overcome this difficulty. This presentation will report on the use of eTandem in learning Japanese by a German university student, S. participated in an eTandem project between Japan and Germany, in which pairs communicate via the Internet. This project took place outside the curriculum of S's Japanese class at university. S utilised eTandem, which consisted of email exchanges and Skype sessions with R, a Japanese University student learning German, for about 2 months.

This presentation attempts to describe S's Japanese learning environment comprehensively, with the focus on the two following points: 1) how S had learned Japanese during the period of eTandem; and 2) how S changed her attitude towards Japanese learning through the project based on a multiple qualitative data set. Through communicating about "food", "music", "National holidays" etc. with R in eTandem, S was able to expand her vocabulary and the Japanese phonetic alphabet, which she had not practiced in her Japanese class before. Also, she became aware of which grammar points she often made mistakes with, by being corrected on her Japanese by R in email exchanges. She also developed a newfound interest in new Japanese culture. Moreover, S gained some confidence in using Japanese through this project. She had no experience of talking in Japanese with native speakers except for her Japanese teacher before joining the eTandem project. She doubted her ability to talk in Japanese at all before the start of the project, but she realized that she had learned enough Japanese during Japanese class that she could use it for "real communication".

In concluding, I will argue for the significance of Japanese learning using eTandem in current Japanese language education.

# Workshops

## **SCREENCASTING FOR YOU**

Yvonne Hynson & Zane Egginton  
School of Architecture, Unitec Institute of Technology

Screen casts have been around for several years now but this workshop will examine how two lecturers at Unitec have been using them. The workshop about screen casts will be in two parts: First it will cover the literacy support to a range of ESOL learners or those new to computer technology, and second how screen casts can also be used to supplement learning for very computer literate level 7 degree students. It will also include the pitfalls for both departments' use of this technology. My colleague from Landscape Architecture and I use quite different software to create screen casts: mine is free and less flexible and his costs the department but has a lot more possibilities for showing key strokes, editing and embedding other media. Other possible screen capture software will also be discussed.

# **NATIONAL RESOURCES TO STRENGTHEN THE LITERACY AND NUMERACY OF ADULTS: PATHWAYS AWARUA AND THE ASSESSMENT TOOL**

Gill Thomas

Strong literacy and numeracy skills are increasingly essential for full participation in all aspects of life – including work, family and the community. In 2008, the Tertiary Education Commission published an Action Plan for Literacy, Language and Numeracy outlining a tertiary education sector work programme focused on improving the literacy and numeracy skills of the workforce.

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Part I: Exploring the range of assessments and reports available within the Assessment Tool and examining national data trends.

Part II: Introducing Pathways Awarua and the outcomes for its first 1000 participants.  
Workshop requirements

Internet connection and data projector for the presenter

Wifi so participants can log on with own laptops to Pathways Awarua (if possible – otherwise participants can use own 3G connections).

# WEATHERPROOF LECTURES: ENGAGING LEARNERS WITH SCREENCAPTURE

Mushtak Dawood  
Unitec Institute of Technology

Workshop Descriptions, Goals and outcomes:

This workshop will introduce you to Screen Capture and Screen Cast using Camtasia Studio a powerful screen capture program and its most useful features. The workshop will also offer suggestions and case studies for the appropriate use and principles of screen casting in education.

## Goals:

- To create effective tutorials and demonstrations in Camtasia
- To Use Camtasia to create web-friendly PowerPoint presentation
- To identify can screen capture videos can be used in teaching
- To determine the most appropriate content and delivery options for a screencast project implementation
  - ✧ Online orientation
  - ✧ Conference and lecture presentation for people who missed the session or to recap on a session
  - ✧ The "How-to's" behind the content to learn a computer application or navigate through an assessment or to show students how to find things on the net or research a reference.
  - ✧ Re-usable Learning Objects.
  - ✧ Displaying student's work
  - ✧ Video feedback

## Outcomes:

- Develop a storyboard for a project that will achieve desired learning outcomes
- Create a script and narrate a Power Point presentation or lecturers
- Record, narrate and enhance a movie

## Screen Capture – Workshop

### 1. ScreenCapture: Introduction

This is a practical hands-on workshop designed to give participant an introduction to Screen Capture and Screen Cast using Camtasia Studio a powerful screen capture program and its most useful features. The workshop will also offer suggestions and case studies for the appropriate use and principles of screen casting in education.

The focus of this workshop is to enable participants to examine the effectiveness of creating tutorials, web-friendly content and identify the multiple opportunities of implementing screen capture applications in education.

The benefits of using a screen capture application in academia extend from producing Conference and lecture presentation for people who missed the session, to creating online orientation, to recap on a session, providing effective and personal feedback, and creating re-useable learning objects.

## **2. Workshop Schedule:**

This workshop is 3 hours intensive designed to prepare participant to produce short video clips that can be used for a demonstration or a tutorial.

**Session 1:** How is screen capture videos used in teaching?

Duration: 15 minutes

Welcome reception, followed with ice-breaking activity for participants. in this session the audience will explore different use of screen capture in higher education. The examples focus on approach rather than content.

**Session 2:** Principles of creating good Screen Capture projects Duration: 15 minutes

In this session, I will explain the main principles of creating good Screen Capture projects including:

- i. Storyboard: plan in details:
- ii. Recording a ScreenCaptrue movie
- iii. Screen shots
- iv. Movie Production

**Session 3, 4 & 5:** Record, narrate of creating good Screen Capture projects

Duration: 60 minutes

These sessions are on capturing a video clip, narrating and enhancing the clip using Camtasia built-in tools such as callouts, zooms, titles, etc. we will cover also customised enhancement such as mouse highlighting mouse movement and clicks.

**Session 6:** Create a movie from a PowerPoint presentation

Duration: 60 minutes

This session will cover capturing video clips from PowerPoint presentation and highlighting the Camtasia/ PowerPoint add-ins.

**Session 7:** Activity

Duration: 20 minutes

This session will involve an activity for all participants to share views on the potential benefits to learners.

**Sessions 8:**

Duration: 20 minutes

Session 8 is about production. with all participants having experienced capturing a clip, it is time to know how to publish it for different needs.

**Sessions 9:**

Duration: 15 minutes

An open discussion and blue-sky thinking on how to use screen capture in future teaching. This will also cover tips for good screen capture projects. Participants to share views to support a participant-created tips list.

