There and back: Charting flexible pathways in open, mobile and distance education

Conference Proceedings

Edited by Noeline Wright
2016
The University of Waikato
(conference logo by by Donn Ratana)
DEANZ is committed to a belief in making ako accessible for all. What makes us unique is our focus on understanding and improving the ways technologies are used to provide effective education when teachers and learners are separated by space or time, such as occurs in distance, online and blended learning, in open and flexible education settings. Within this focus we have expertise across the spectrum of educational activities, and we apply this expertise to advocate for the field, support members, and provide advice when requested.

Distance, mobile and open learning, and flexible delivery systems use educational and telecommunications technology such as printed materials, video or teleconferencing, radio, texting, e-mail, Internet affordances and television. They aim to give students as much control as possible over what, when, where and how they learn.

The overall aim of this Association is to foster high standards in the practice of distance, open, flexible and mobile education in New Zealand, achieved through:

- honouring the Treaty of Waitangi/Te Tiriti O Waitangi, and its articles
- undertaking activities which are seen by the Association to be in the interests of distance, open, flexible and mobile education in New Zealand
- advising and making representations on matters relevant to distance, open and mobile education in New Zealand
- establishing and maintaining liaison with the international distance, open, flexible and mobile education community
- promoting discussion about research and development in distance, open, flexible and mobile education, disseminating the results of relevant research and identifying areas for future research and development
- organising regular conferences, special interest seminars and workshops
- regularly publishing newsletters, the refereed annual Journal and other publications (such as conference proceedings).
Quality assurance processes for these 2016 conference proceedings

Each submission for the refereed, post graduate and practice papers was blind peer reviewed by two committee members. Each conference committee member was assigned to reviewing one of the categories. Each blind review was entered in a spreadsheet via a Google Form. From there, feedback was sent to each submitter on what to do next.

I am therefore grateful for the efforts of the DEANZ2016 committee consisting of: Amina Adam, Stephen Bright, Garry Falloon, Dianne Forbes, Elaine Khoo, Clive Pope, and Nigel Robertson. Dilani Gedera (Otago Polytechnic) also supported the refereeing process.

Resubmissions were put into a new folder and made available for the programme (abstracts) and the proceedings. Authors are also encouraged to submit their work in expanded form to JOFDL, the journal of DEANZ (soon to be FLANZ) once the conference is over.

Special thanks go to Amina Adam who has cross-checked with the programme to ensure we haven’t missed anyone. She’s also been instrumental in organising the texts for the blind review process. Nigel Robertson has put the conference programme together and made sure the abstracts are also available for viewing.
Conference theme

There and back: Charting flexible pathways in open, mobile and distance education

Sub-themes

THEME 1: Ako: Reclaim the Kingdom: reclaim teaching and learning as ‘king’; this positions technology as its servant not its master; Context rather than content is also highly relevant in any purposeful and deliberate use of technologies

THEME 2: Rings Around Practice: examples and possibilities in collaborative learning, culturally responsive pedagogy supported by technologies, communities of practice, social justice and equity issues

THEME 3: Surprising Journeys: innovations, any surprises of/in practice and theory, such as challenges, dilemmas or outlier ideas

THEME 4: Emerging Stories: future-focused/blue-skies thinking and practice; developments or trends in the mobile, open, flexible and distance education field; research in progress

THEME 5: Twin Pillars: organisational aspects; management/leadership issues; infrastructure, logistics and policy issues and challenges; LMSs; systems; technology issues; intractable or enabling systems; isolation/access for distance learners


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The challenges related to offering of online teacher education programmes: A study in a Maldivian university

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Abstract

The Maldives with its geographical uniqueness (a chain of islands spread out and far from each other), could place e-learning in a central position to offer higher education opportunities for teachers. This paper explains challenges associated with offering of online teacher education programmes in a Maldivian university context. The study adopted an ethnographic approach, gathered data from eleven teacher educators through interviews, focus group conversations and hanging out approaches. The findings highlight a number of challenges related to geographical, infrastructural and cultural. These challenges were analysed via Bourdieu’s (1986) three forms of capital (economic, social and cultural) attempting to understand the aspects involved in the practicality of offering e-learning programmes in this specific context. The paper contributes to understanding the limitations related to online programmes in small island communities and specific cultures. While using three forms of capital to examine these factors, this study provides a new theoretical understanding for designing e-learning in various contexts.
Introduction

The Maldives is a small country, which consists of a chain of 1196 coral islands from the north to south in the South Asian Region. It is known as one of the most dispersed countries in terms of its geographic nature. The islands of the Maldives are divided into atolls, as seen in Figure 1. Its culture represents two aspects: the religion, Islam and the language, Dhivehi (has limited uses via digital technologies due to its special alphabets). The religious principles and practices have been deeply embedded in Maldivian traditions over centuries including education and social lives. This also means that a certain traditional model of teaching (teacher-centric) being established due to this religious influence (Adam, 2014; 2015).

The Maldives taken the lead in terms of e-government readiness, ranking among South Asian countries (Rahman, 2010). However, the use of technology in the education sectors is still limited. More specifically, the people who live in other islands use these facilities sparingly. Hoque, Samad, Siraj, and Ziyadh (2012) claim that technology infrastructure designed in schools is mostly used for administrative work purposes such as preparing reports and searching for teaching resources. Often, this is difficult due to slow Internet speed and the lack of technical support (Riyaz, Rijal, Shrestha, & Nashfa, 2012). Given the unique Maldivian context with the geographic, cultural and technology infrastructure, it is crucial to understand how e-learning programmes could be offered in this context.

E-learning is defined as “instructions delivered on a digital device such as computer[s], or mobile devices that is intended to support learning” (Clark & Mayer, 2011, p. 8). Bates (2005) argues that the main development of e-learning occurred through the rapid expansion of the Internet, in which it allowed to offer a range of digital materials to be embedded with the e-learning contexts. This raises questions about the practicality of offering e-learning in the Maldivian context. This paper describes Maldivian teacher educators’ views on challenges associated with offering of online teacher education programmes.

The problem being addressed

The term e-learning and online learning are used interchangeably due to the similarity between the two ways of communication (Bates, 2005). E-learning has been around higher education sector over two decades. Primarily, it was introduced by Etienne Wenger in the 1990s. According to Wenger, it is a community of practice, characterised by shared interests and intended for supporting learning (Wenger, 2000). E-learning mainly takes the form of online courses, ranging from using a variety of learning management systems (LMS) such as Moodle, WebCT, Blackboard, and Desire2Learn. Generally, the e-learning programmes are offered through specific
course, divided into modules and lessons, supported with quizzes, tests and discussions (Downes, 2005). Clark and Mayer (2011) identified four promises in e-learning context: 1) allows to customise learners’ needs, 2) puts great emphasis on learner’s engagement, 3) uses a range of multimedia tools including text, audio, and motion visuals to communicate with the learner, and 4) offers opportunities for the learner to immerse themselves in the learning process while bringing their own problems and situations to the learning scenarios. They however comment that often these promises fail to support the learning due to the complications encompassed in the learning context itself. This brings our attention to how these e-learning programmes could be effectively functioned in specific cultures. More specifically, how an e-learning setting could be contextualised considering the cultural aspects and the geographical nature of specific contexts.

In a Malaysian context, Mohammad, Mamat, and Isa (2012) reveal that several factors such as student support, flexibility, learning activities, and localisation of course-content are highly crucial when designing online learning for developing countries context. In an analysis of technology-related pedagogies in Asian countries, Tsai and Hwang (2013) recommended to re-examine the pedagogical theories, consider regional factors, and seek for area-representative educational applications such as language. They further emphasised on the importance of understanding the specific cultural impact when implementing technology-related pedagogies. As this area has not been investigated in the Maldives per se, these researchers suggest to explore the challenges, in order to address the contextual factors when designing e-learning programmes in the Maldives. This study seeks to answer the following question. What are the challenges that are associated with offering of online teacher education programmes in the Maldives?

**Study design/Approach**

The study adopted an ethnographic methodology approach focusing on understanding the influence of the specific Maldivian culture and the institutional context on their formed views on e-learning. Hesse-Biber and Leavy (2011) define ethnographers are researchers who “go inside” stories through the ‘hanging out’ approach in order to provide “thick descriptions” (Geertz, 1973, p. 10) about individuals’ social context. Berg and Lune (2012) suggest that the qualitative descriptions of how things are happening in the context can be understood when researchers immerse themselves in the context.

The study gathered data through interviews, focus groups and hanging out with eleven teacher educators in a university, located in the Maldives. The essence of my understanding centred on exploring both the pedagogical context (what influences their views on e-learning) and technological context (what influences their formed views on challenges) in order to generate a holistic understanding about my participants’ lived experiences (Serrant-Green, 2007) in their workplace context. The main themes for reporting the findings were generated through various strategies adhering to grounded theory, linking it with Bourdieu’s (1986) three forms of capital (cultural, social, economic), as discussed further.

**Findings**

The findings of this study identified three themes related to challenges associated with offering of online teacher education programmes in the Maldives, as illustrated in Table 1.
• **Geographical challenges:** Teachers who live in the islands face great difficulties moving to the capital city (Male’) or to the big cities for upgrading their qualifications. Study leave is only given for one year. Study loan is not enough for covering the cost of the living in these cities. Most teacher education institutions are located in the capital city or other campuses in a limited number of cities.

• **Infrastructural challenges:** Island communities have limited infrastructure for using the Internet for their everyday uses. Teacher educators’ limited uses of the available infrastructure due to many technical problems associated with their use of computers and the Internet.

• **Cultural challenges:** The general perceptions about the learning and teaching among Maldivians. The sub-themes generated were that teaching is content oriented, students’ over dependency on teachers, teacher educators and students’ familiarity with the uses of digital technologies for learning and teaching purposes. Language barriers, the Maldivian language (Dhivehi) has limited uses in Microsoft office applications only.

**Discussion and conclusion**

The findings of the study identified three types of challenges to online teacher education programmes that were associated with the geographic nature of the Maldives and its culture. These challenges represent within the three dimensional aspects (technology, pedagogy, culture), as synthesised via three forms of capital in Figure 2. The three forms of capital are interrelated with each other when understanding the challenges in the Maldives.

Economic capital for example depends on the wealth, the affordability and the quality of resources available (physical and virtual) (James, 2011). This includes what was available for teacher educators and how they use them, which also depends on how they understand these tools and resources within their professional lives. Bourdieu (2006) argues that economic capital is the “root of all other types of capital” (p. 288), which means that it provides immediate access to many resources through which individuals obtain both cultural and social capital in the context. This also means that their perceptions about online leaning and teaching perhaps may also have been influenced by the affordances in their past and present practices. Cuban et al. (2001) argue that unattended technical difficulties in the workplace lead to unsuccessful implementation of technologies in pedagogical practice and this idea links to Bourdieu’s (1993) argument that individuals form dispositions within a field depending on their struggles and experiences. In the case of these teacher educators, since they experienced various technical difficulties when experimenting with tools such as Moodle, GEM or Self-service, they avoided using them if they could, instead opting for easy-to-use facilities that fitted with the content orientation of their teaching. The economic capital in this regard represents both geographical and infrastructural challenges to offering of online teacher education programmes in the Maldives.
Figure 2. Understanding the challenges to e-learning possibilities in the Maldives, via three forms of capital (economic, cultural, and social)

Teacher educators’ early learning experiences (social and cultural capital) have influenced their views of pedagogical practices as well as how they used digital technologies; for example, number of teacher educators repeatedly explained their classroom experiences were rote learning and content-oriented. This confirms the reasons behind their views about online learning or distanced learning being not appropriate for their students. The literature suggests that individuals’ early learning and thinking forms certain beliefs about pedagogy, hence their understanding and conceptualisation of pedagogical practices (Dixon & Senior, 2011; Kisiel, 2013; Randi & Corno, 2007). The findings demonstrated that teacher educators’ understanding of pedagogy and their views about online learning was influenced by their context of practice in the Maldives. Some of these influences were associated by the nature of students they teach, the nature of the examination-oriented system where they work, and the nature of content-heavy modules they teach. The context of practice plays a vital role in the forming of certain routines and pedagogical practices among teacher educators. Barton and Berchini (2013) confirm that a context is a place where teachers often shape their views and practices depending on its history, culture, geography and politics. This means that when teaching is done in specific contexts, the nature of students, the history of the context, and religious values could be considered as part of their pedagogical practice. This understanding aligns with Bourdieu’s (1986) argument regarding the influence of social and cultural capital on people’s views, perceptions and practice. This therefore, represents a cultural challenge to offering of online learning teacher education programmes in the Maldives.
In short, it is crucial to consider the three types of challenges identified above, when designing e-learning programmes in the Maldives. While examining these challenges through the forms of capital provides practical implications of Bourdieu’s theorisation for e-learning contexts.

References


Shifting practice in teacher preparation with a poutama and an ePortfolio: Charting our journey

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Abstract

What initial teacher education programmes for 2022 should look like and why remains an important topic in Aotearoa New Zealand (Fickel & Mackey, 2013). This paper charts the beginning of research into a new programme that situates the learning of beginning teachers in a community of practice blended across locations (university, school and community) and media (paper, LMS, Cloud-based ePortfolio). This contemporary learning environment is a purposeful blend of face-to-face and e-learning. The vision that informs our ongoing negotiation of this programme is ‘Collaborative engagement in the professional preparation and continuing development of highly effective, culturally competent teachers who can meet the learning needs of students for today and the future.’ Our inquiry oriented methodology is conceptualised as a journey on a noble quest. The indigenous cultural tool at its centre, Te Poutama Kaiwhakaaro, informs the purposeful application of e-learning tools to respond to the diverse needs of participants. Te Poutama Kaiwhakaaro was co-constructed with the programme’s Ngaī Tahu Rūnanga Education Advisory Group. One of the biggest challenges is to blend the innovations of the programme in ways that model the development of initial teacher ‘adaptive expertise’, for our students as well as colleagues in collaborating schools. This challenge is shared by all exemplary programmes and leaders internationally (Darling Hammond, 2014). Comments and critique at the DEANZ conference will be welcome to inform our work.

Introduction

Mā te whakaaro nui e hanga to whare; mā te mātauranga e whakāū
Big ideas create the house; knowledge maintains it
(Whakataukī – Māori proverb)

What initial teacher education programmes for 2022 should look like and why remains an important topic in Aotearoa New Zealand (Fickel & Mackey, 2013). Abbiss and Astall (2014), as programme coordinators and co-designers, provide their view of the place of flexible and open learning in initial teacher education that is inclusive and incorporates culturally responsiveness to the needs of indigenous people in this part of the world:

In our model we have situated ITE student learning in an intentionally co-constructed community of practice blended across locations and media. The programme is constituted as a contemporary learning environment, that is a purposeful blend of face-to-face and online learning. We have an explicit focus
on working with Partner Schools with high populations of learners who are Māori, Pasifika, speakers of languages other than English, and those who experience particular learning needs (i.e. priority learners). We’ve designed embedded professional practice learning experiences, including experiences that go beyond the school walls to engage with families, whānau, hapū, iwi, aiga and the wider communities that support young people’s well-being ….

Within the programme model we pay explicit attention to the development of “adaptive expertise” (Hatano & Inagaki, 1986) through the interweaving of the centralising constructs of “learning to practice” principles (Timperley, 2012) and “central tasks” of initial teacher education (Feiman-Nemser, 2001) that align with research-evidence on high-quality initial teacher education programme design (Darling-Hammond & Bransford, 2005, p.2). (Abbiss & Astall, 2014, p. 2).

Our goal is to chart the beginning of our research into this ‘purposeful blend of face-to-face and online learning’ to serve the needs of schools in our nation in a way that will inform developments worldwide. Having completed the first offering of this innovative one year programme, we are only at the start of our journey to describe ‘Rings Around Practice: examples and possibilities in collaborative learning, culturally responsive pedagogy supported by technologies, communities of practice, social justice and equity issues…’ (Quoted from the description of theme 2 of the DEANZ 2016 conference, see http://conference.deanz.org.nz/.)

The problem being addressed

There is extensive research on the development of initial teacher education and critique of beginning teachers’ practice in schools. Darling-Hammond and Bransford (2005) describe key design features of high-quality initial teacher education programmes and, in Aotearoa New Zealand, Timperley (2012) explores the principles of ‘learning to practise’, including adaptive expertise. However, such practice is necessarily culturally responsive in ways that respond to local needs as well as global challenges including economics. We are fortunate that in New Zealand teacher educators include those with a strong understanding of the impact of language, literacy, identity and culture, along with the world views of indigenous people (Macfarlane, Clarke & Macfarlane, 2016). As a result the task of preparing teachers adequately today can appear impossible and it is one of the more pressing ‘wicked problems’ faced by societies worldwide in the 21st century. Could digital tools applied purposefully become part of the solution?

In October 2013, our University responded to the Ministry of Education’s call for the design of exemplary Masters programmes. In keeping with the mission of the College, a programme was proposed to “prepare teacher graduates who are critical pedagogues, action competent and culturally responsive. They will be distinguished as beginning teachers by their action competence, cultural competence and responsiveness to learners (with particular attention to Māori, Pasifika and students with special needs), critical engagement with educational issues, relationships with community, de-privatising practice and ways of working in learning communities.” (Fickel, 2013).
Study design/Approach

As described in our proposal to the Ministry of Education (Fickel, 2013, p. 39):

This proposed research and evaluation framework reflects a knowledge translation process, which is conceptualised as “the practice, the science, and the art of bridging the know-do gap, or the gap between the accumulation of knowledge and its subsequent use or application” (Davidson, 2009, p. 76). It also draws from the theoretical frameworks of the utilisation-focused approach (Patton, 2008) and participatory, collaborative and empowerment models (Fetterman & Wandersman, 2005) of program evaluation – adapted to a bi-cultural context and kaupapa Māori principles and methodologies (Smith, 2012).

The programme has five major interwoven innovations for research two of which are relevant to this paper: (1) Blended learning and digital learning spaces, and (2) Culturally responsive practices.

Findings

The emerging evidence is that the programme design, although still evolving, is fit for purpose. While we expect to find various challenges of flipping classrooms identified by Fraga and Harmon (2014), some of which are inevitable within the innovation process, it is too early to report on that aspect in detail.

More important, as we chart our journey, is the poutama. The poutama is the central feature of the programme which already provides reference points that inform the design of the courses and mentoring of pre-service teachers. The programme leaders and the MTchgLn Nga Tahu Rūnanga Education Advisory Group co-constructed Te Poutama Kaiwhakaaro through an iterative process of development and review (Abbiss & Astall, 2014; Abbiss, Astall & Brown, 2016). The poutama, which is organised around the programme’s four core values now has descriptors that define pre-service teachers’ development and growth from kia mārama (developing understanding) through kia mōhio (knowing and applying) to kia mātau (leading and engaging) for each core value. This progression represents pre-service teacher development of adaptive expertise (Hatano & Inagaki, 1986; Timperley, 2012) and action competence. The steps represent advances in knowledge, through incidents of shifting understandings (the vertical riser) and periods of knowledge consolidation (the horizontal tread). We research these through observation and analyses of the normal programme processes, including those archived in our flipped classroom’s e-learning tools, an ePortfolio and the Learning Management System. At a recent meeting of the staff involved in the programme it was noted at the start of the year the poutama was offered as a wero (challenge) but it is now “touchstone” to the programme’s commitment to bi-culturalism.

The ePortfolio development is based on the Teacher Work Sample (TWS) methodology, which is a research-based reflective framework for an exhibit of teaching performance that demonstrates the ability to facilitate student learning (Denner, Norman, Salzman, Pankratz & Evans, 2003). The TWS uses seven components to document the process of planning, teaching, and assessing an instructional unit and provides direct evidence of a teacher’s ability. Colleagues led by Astall and Cunningham
(see for example Cunningham 2014) have implemented the ePortfolio as a OneNote Class Notebook (see https://www.onenote.com/classnotebook), overcoming a number of innovation challenges connected with this first implementation within this University’s infrastructure. The ePortfolio is complemented by the programme and course resources that support the flipped classroom and other aspects that can be accessed online at any time by both students and staff in the University’s Learning Management System (LMS), which is an instance of Moodle. This multi-purpose innovation extends on the already innovative approaches that are deployed within preservice teacher education (Davis, 2010; Hunt, 2015). Feedback from students and staff for this year indicates that OneNote has been a powerful tool for enabling evidence-based practice conversations and has added a richness to student assignments not seen prior. However, adequate training is a key to unlocking its full potential.

Discussion and conclusion

This is a journey on a noble quest that aims to serve Aotearoa New Zealand. It is unusual that, in having an indigenous cultural tool at its centre (Te Poutama Kaiwhakaaro) within a OneNote cohort collection of over 24 individual ePortfolios, these emerging professionals can continue to develop as they pursue their teaching careers. Originally designed and set up by two teacher educators, a few of the students can now also be recognised among the leaders of this flipped pedagogy that fits comfortably in the modern learning environments that are growing in New Zealand schools. In a recent observation of the programme in action, students and their mentors, including school staff, celebrated achievements in multiple media. They also recognised that social media, including Facebook, could keep the community of practice alive while distributed across their first teaching posts. The importance of relationships was a recurring theme throughout the day.

The use of communication technologies can enable two or more people to be engaged on a personal level even when they are geographically distant; Durie (2011) clarified that while Māori value engagement of learners and teachers on a personal level, this has little to do with the physical distance between the people involved. Hunt (2015) describes the deployment of a wider range of tools in another UC course, including increased access to a network of experts.

One of the biggest challenges on this journey will be the purposeful positioning of digital tools in ways that model adaptive expertise for our students and colleagues, while responding to the rapidly changing agenda of collaborating schools and their diverse populations. While this challenge is shared by all exemplary programmes and leaders internationally (Darling Hammond, 2014), charting this progress will be particularly valuable in the context of the longer journey involved with the Christchurch rebuild following the 2010 and subsequent earthquakes. It is also relevant overseas, particularly in environments that recognise the strengths of indigenous cultures (Jester & Fickel, 2013).

Acknowledgements

We acknowledge the Ngāi Tahu Rūnanga Educational Advisory Group for the MTchgLn programme and colleagues in the UC College of Education who are part of the MTchgLn development team. The programme development has been a collaborative effort, and the structures developed for the operationalisation of the broad goal to prepare adaptive and action competent pre-service teachers reflects the knowledge and wisdom of the group.
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Growing resilience with social media and e-learning: The case of the University of Canterbury

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Abstract

A university set on a beautiful spacious landscape had little need for e-learning until it was stimulated by crises to become more innovative. This case study research provides a rich picture of rapid adoption of social media and e-learning as the ‘tide’ of e-learning rose in waves, both rising and falling as changing needs were addressed over five years (2010-2015). The overarching research question was: How has the University changed with e-learning in the wake of seismic activities?

The co-evolution of digital technologies and education in this ‘late adopter’ (Rogers, 2003) university is linked with organisational development. Social media does support communication of organisational responses to crises, including increased adoption of e-learning. This paper shows there is a place for social media alongside e-learning tools and that their combined use also fosters resilience for students and academic staff (Dabner, 2012; Mackey, Gilmore, Dabner, Breeze & Buckley (2012). This case study of one University’s journey “there and back” from a major seismic event has charted only one aspect of the journey to increase resilience. Ayebi-Arthur (2016) describes more aspects that are relevant to DEANZ conference’s theme of Twin Pillars including infrastructure and e-learning support. Universities in Aotearoa New Zealand cannot dodge the likelihood of natural disasters that can close one or more buildings on a campus (Seville, Hawker, & Lyttle, 2012). The findings are also relevant to other crises such as those caused by weather and digital infrastructure.

Introduction

At times an organisation that would be considered to have characteristics of a ‘late majority’ (Rogers, 2003) in its university-wide adoption of e-learning can be stimulated by crises to become innovative with rapid changes to its structures and practices, including increasing its adoption of open, flexible and distance learning. This paper reports research on one such university. The first author arrived in 2012 to research the phenomenon for his doctoral studies (Ayebi-Arthur, 2016). The remaining authors in this paper began to work for the University of Canterbury (UC) before 2010, except for Cunningham who joined in 2013. The writing of this paper is thus informed by both research and experience.

In 2008, with its beautiful spacious Christchurch campus, four of the five colleges in the University had little need to develop e-learning. Therefore, in terms of Rogers’ (2003) adopter categories with regard to e-learning, UC at that time was a member of the ‘late majority’ or even a ‘laggard’, when benchmarked against the eMaturity Model (eMM) developed by Steven Marshall (Marshall, 2009). In 2008 only the College of Education made extensive use of technology enhance
learning as it built on the innovations that took place before the teacher education college had merged with the university (Hunt, Mackey, Dabner et al., 2011).

In 2010 and 2011 a series of earthquakes stimulated rapid adoption of social media, including Facebook and websites, by the executive leadership to enhance their communication within and beyond the University and a directive to increase e-learning in all colleges. In addition, all colleges of the university increased their adoption of open flexible and distance learning to enhance education.

The problem being addressed

In the event of a disaster/crisis in an organisation it is important for the organisation to communicate with its members and the wider society on how the disaster/crisis is being resolved. Communication can contribute to the empowerment of citizens in crisis situations by supporting preparedness, enhancing societal understanding of risks and increasing co-operation (Vos, Lund, & Reich, 2011). Spicer (2008) established that, in an emergency, the ability to communicate – internally and externally – becomes a key service for an organisation. Social media and websites have become important channels of communication to students as well as other stakeholders (SchWeber, 2008; Seville, Hawker, & Lyttle, 2012). Social media can support any educational organisation and the voluntary responses of its students and staff (Dabner, 2012).

However, little is known of how social media may fit with the adoption of e-learning. The overarching question for the first author’s doctoral thesis was: How has the University changed with e-learning in the wake of seismic activities? The use of communication channels that students were familiar with, and were already using, was implemented as a means to aid the dissemination of the information. As well as a strong need to communicate with their community about actions to mitigate earthquake related crises at UC, the use of e-learning was increasing as a response to the crisis (Monti, Tull & Hoskin, 2011). That UC would be using e-learning as one of the options to complete the academic year in 2011 was one of the messages to be communicated via social media. Moreover, those already studying in an e-learning mode were easier to reach electronically because these tools were already part of their everyday life.

Study design/Approach

A qualitative intrinsic, nested single case study design was chosen for the study (Gray, 2009) and research conducted from 2012 to 2015 on data from 2010 to 2015. Sources of data included interviews and documents and the University’s websites. Non probability purposive sampling was employed to select the sample for the study (Cohen, Manion, & Morrison, 2007). It began with a search on archived websites UC Restart and UC Progressive Restart. The websites were setup after the seismic events of 2010 and 2011 respectively to provide information on how the University was responding to the seismic events as they continued to occur. Key informants for the University case identified the first key informant in each of the two nested case studies of colleges, who then identified other academics in the College who used e-learning, both before and after the earthquake of 2011. A total of 29 participants were purposively selected and interviewed, including academics who used e-learning, e-learning support staff and executive leaders. These participants also identified relevant documents (totalling 66) such as UC policy documents and reports from Units and Working groups in the University as well as publications by UC staff, including some of the authors of this paper.
The responses from all sources were coded and analysed into three deductive categories before further inductive analysis into themes, and a final deductive analysis. The challenges relating to the ease of participant identification have been carefully managed to maintain the mana of the University and enable the voices of multiple participants to be heard. Descriptive content and thematic analyses was used to describe processes of increasing resilience with e-learning in the aftermath of the seismic events in 2010 and 2011.

**Findings**

The six themes that emerged from the data were: communication about crises; IT infrastructure; e-learning technologies; support in the use of e-learning technologies; timing of crises in the academic year; and e-learning strategy. There is only space to discuss the first theme in this paper.

Communication was essential for propagating the message across the university community, including the use of web sites and the introduction of social media; ‘very early in the response process, our leadership team made a conscious decision to invest a lot of effort in communications’ (Seville et al., 2012 p. 32). With so many sources of information, the University created a policy that its website, UC Progressive Restart, would be the single source of “truth” (Healey, 2011). The communication that began with the first seismic event in September 2010 involved reassuring students, staff, other stakeholders, both local (e.g. students’ parents) and national (e.g. Ministry of Education) that the University was taking the necessary steps to ensure that teaching, learning and research would continue in the aftermath of the crises. The Vice Chancellor was prominent in many of the communications. Announcements included directives that e-learning was to be considered as one of the viable options.

**Discussion and conclusion**

UC communication through Facebook began shortly after the first earthquake in 2010. According to Dabner (2012, p. 75) ‘the university communications team worked on the site for 18 [hours] a day over the initial 2 weeks and at all hours of the day’. Seville et al. (2012) reported, that social media was a 24/7 operation and took a huge amount of resource and energy to sustain. The mode chosen for this instance of Facebook lacked administration tools, making it difficult to track, categorise and sort discussion threads into a more coherent format (p. 34).

In 2011, the design of the flow of information on Facebook was improved to become systematic and well-managed and there appeared to be greater emphasis upon providing a broader range of support for students from different organisations via the Facebook site (Dabner, 2012).

The use of social media and dedicated websites to inform the University community of the UC response to the seismic events confirmed Bird, Ling, and Haynes’ (2012) Australian study of the importance of disseminating effective and rapid emergency information in times of natural disasters. Dabner (2012), an academic in UC College of Education, confirmed that the Facebook community enabled “on-going dialogue and information sharing between staff and students from the Institution as well as the wider educational community (p. 69). Seville et al. (2012), another UC academic, reported, “we found social media to be very effective, particularly in keeping staff and students...”
engaged and interested, not only in what the University was doing, but also how it was going about reopening campus” (p. 34).

Social media was one of the communication channels the University used to inform staff and students that UC would be using e-learning as an option for students to complete the first semester in 2011. There was increased use of the University Learning Management System to support learning and teaching. In 2011 the gift of ECHO360 lecture capture was added including initiatives that have embedded it within the university (Tull, 2014). This e-learning journey continues to proceed in waves (Mackey et al., 2012) so that the ‘tide’ of e-learning adoption continues to rise over the years as evidenced in the embedding of UC’s current Learning and Teaching strategy. UC’s journey provides evidence that social media does support organisations to respond to a crisis, or series of crises. Evidence also suggests that enhanced e-learning practices in response to a crisis can improve the learning experiences for students and enhance the resilience of both students and academic staff (Mackey et al., 2012) and as evidenced in a 2012 DEANZ award for resilience.

This case study of UC’s journey ‘there and back’ has charted only one aspect of the journey to increase resilience. Ayebi-Arthur (2016) describes more aspects that are relevant to DEANZ conference’s theme of Twin Pillars including infrastructure and e-learning support. Universities in Aotearoa New Zealand cannot dodge the likelihood of natural disasters that can close one or more buildings on a campus (Seville, Hawker, & Lyttle, 2012). The findings are also relevant to other crises.

Acknowledgements

The authors would like to thank all the participants and the University for their support of this research.

References


Mentoring Māori business students: Mentors perceptions and experiences

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Abstract

This paper provides an insight into why Māori students in the Massey Business School chose to become peer mentors to Māori students studying in distance mode. While all of the findings haven’t been analysed yet it is clear that they all felt involvement in the Māori mentoring programme was beneficial to both them and to the students who participated in the programme.

Introduction

Education is vital to enhancing the capability and capacity of the workforce. The benefits gained by Māori participating in education have a direct effect on employment, standards of living health and income. Low educational achievement is associated with poor health, high rates of unemployment, and lower standards of living. Ongoing education is necessary for recruiting and sustaining Māori across the various workforce sectors. However, a major consequence of commencing or continuing study is the additional stress placed on whanau and work commitments. Balancing these factors and other components linked with study can also determine whether students study full-time or part-time or continue to withdraw, fail, or succeed (Koia, 2015).

There are some Māori mentoring programmes established within main stream universities like Vision 20:20 at the University of Auckland, Te Rau Puawai Workforce Development based at Massey University (Ratima et al., 2007) and Ngā Kaiārahi Mātauranga at the University of Waikato. More recently a study about various Māori mentoring programmes of students in tertiary education by Te Puni Kokiri and Aotearoa National Centre for Tertiary Teaching Excellence (2010) found that Māori students enrolled and receiving support from Māori mentors completed a qualification while many of those who did not complete were not enrolled in the mentoring programme.

The main body of research on Māori mentoring programmes has focused on the pass rates of students and the importance that Māori cultural value shave on the student’s educational success. (Durie, 2005; Hemopo, 2004). However, little research has been undertaken on the perceptions and experiences of the mentors involved in the programmes. In this research we undertake kanohi-ki-te-kanohi interviews to explore the perceptions and experiences of the Māori student mentors. Themes will be extrapolated from the data collected and discussed in this paper. Conclusions will be drawn and recommendations made which will provide an insight into the development of future Māori mentoring programmes in universities.
The problem being addressed

Massey Business School (MBS) has the second highest proportion of Māori students enrolled at Massey University (30%, second only to Humanities and Social Sciences at 39%). Of these 70% (570) are enrolled in distance papers. The Māori Mentoring Programme (MMP) for distance students in the MBS aims to align with Massey University’s ‘Kia Marama’ objectives to consider and realise Māori student achievement. The programme also signs with Massey’s Road to 2025, the Tertiary Education Strategy, The Māori Education Strategy and broader priorities for Māori development (White & Wiata, 2014).

Unfortunately, Māori student pass rates in the MBS are well below those achieved by other student groups (with the exception of Pacific Peoples). In 2013, the pass for Māori students (internal and distance) in the eight core Bachelor of Business Studies (BBS) papers was below 48% and in two of these papers it was below 36%. The pass rates for Māori students studying at a distance are even lower than these reported here. However, targets for Māori student (internal and distance) pass rates have increased from 50% in 2014 to 62% in 2017 (White & Te Wiata, 2014).

In order to meet these targets, urgent action must be given to achieving improved Māori student outcomes in the coming years. One proven method to Māori student retention and success is a mentoring programme such as Te Rau Puawai which has been operating at Massey University since 1999 and has achieved a range of critical success factors (Gillies, 2006). A similar initiative undertaken by the MBS to increase pass rates of Māori distance students in the core BBS was to establish the MMP and this has been now operating for three semesters (Koia, 2015).

Study design/Approach

A mixed methods approach will be used in this research which evaluates the mentors perceptions and experiences of the MMP. Initially Māori student mentors will be interviewed kanohi ki te kanohi about their experiences and perceptions of the mentoring process. Staff, those employed to co-ordinate the programme and those who co-ordinate the core BBS papers will be interviewed about their involvement and experiences with the programme. Last but not least, Maori distance students who self-selected to participate in the MMP will be surveyed to gauge their experiences of the mentoring process. We also have been tasked with identifying the strengths, limitations and areas for improvement of the MMP and examining the viability of expanding the MMP to internal Māori students enrolled in the core BBS papers.

Findings

Maori students who had achieved a B+ or higher grade in any of the eight core BBS papers were approached in mid-2014 and invited to apply for a position as a peer mentor for Māori distance students. No empirical data was gathered from this group of mentors although the co-ordinator of the programme did write a report stating the successes and raising issues which would need to be addressed to ensure the continued success of the programme. The success of the programme was measured by the pass rates of the distance students who participated in the programme. The main issues identified related to the training mentors received before the programme went ‘live’ and a myriad of problems around access to the student database.
At the end of 2014 the current mentors were asked if they wished to continue in 2015 and students who had achieved a B+ or higher grade in semester 2 2014 were invited to apply for a position. Ten students were employed as mentors for 2015, four current and six new mentors, they worked two-three hour shifts on a Tuesday and Wednesday evening. A training manual was developed by the programme co-ordinator and mentors attended a two day training course prior to the beginning the semester. Mentors were given scenarios which illustrated questions the might be asked and they learned where to look for information and who to refer students too if needed. A small as a call centre was made available and mentors were given training in how to use the Student Management System.

At the end of semester 2 2015 the mentors were interviewed and asked to about their perceptions and experiences of being involved in this programme. They all spoke about being apprehensive when they began the training but felt that the training provided was comprehensive and gave them a good sense of how to call distance students and enter into a conversation with them. They all gained confidence as they began the actual calling process and realised that they didn’t have to answer all questions but could refer the students to other staff at Massey. ‘Hate cold calling, but after the first few calls started to overcome apprehension’. The biggest problem continued to be the Student Management System which they found to be complicated and not ‘user-friendly’.

The next question asked why they had applied to be a student mentor and the main themes centred around: helping others achieve their goals; make …studying less stressful and more enjoyable; and make study less isolating for students. Some mentioned altruistic reasons like – ‘putting something back’ and ‘to help others’. They also mentioned personal reasons for applying and these included: ‘looks good on CV’; ‘develop leadership skills and confidence’; and ‘learn better communication skills’.

On the whole the mentors reported they had developed a range of skills which they felt would be useful in future employment. ‘It has definitely helped me a lot, with only my interactions with students but people in general’. Four of the mentors who completed their study at the end of 2015 are going into full-time jobs and they were all extremely supportive of the programme continuing. Once commented: ‘If I could list all the positives about the programme I would be writing until the cows came home. I will just keep it simple and say that I would recommend the programme to anybody who wants to be a leader, to be able to work as a team, to be able to help someone out’.

Not all of the data collected in the interviews has been analysed but the findings will add to the growing body of knowledge surrounding peer mentoring (see for example: Heirdsfield et al, 2008) but more importantly will begin a discussion in indigenous communities about the benefits of becoming a peer mentor.

Discussion and conclusion

Massey Business School (MBS) is in a good position to contribute to enhancing the Māori workforce, whether it is in the financial, economic, health, education or other sectors, particularly as Māori contribution to the economy was approximately $11 billion in 2013 and continues to grow (Nana, Shan & Schulze, 2015). The Māori Mentoring Programme established in 2014 by the MBS has shown some positive outcomes for Māori enrolled in in the distance offerings of the core BBS papers. The statistics for semester 1, 2015 show a pass rate of 75% - a significant increase on both the actual pass rates from 2013 (below 48%) and the target (62%) for 2017 (White & Te Wiata, 2014).
While the programme has been successful in improving Māori student pass rates we are less informed about the perceptions and experiences of the Māori mentors. While we know they have (generally) enjoyed their engagement with other students through their mentoring process, there have also been issues which need to be explored.

For example, mentors were phoning the students in their own time as they couldn’t reach the student in the time allocated on Tuesday and Wednesday nights. We are also unsure about how the ‘mentoring job’ impacted on the mentor’s study time and their subsequent grades. However, we can report that all mentors felt they had gained some valuable skills e.g. leadership, confidence and better communication as a result of being involved in the MMP.

References


ePortfolios, social constructivism and assessment: A match made in heaven

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Abstract

This paper is a concept paper rather than a research report. It seeks to explore the potential relationship between a well-known theoretical pedagogical framework (social constructivism) and a particular eportfolio software tool (Mahara). The paper proposes that the congruence between these two elements can then provide a framework for teaching and learning activities involving eportfolios, and in particular, designing quality learning and assessment activities using eportfolios. Note however, that although this matching exercise has been referenced to a specific software tool, the principles may also be applied to other software tools which are used for creating eportfolios.

Introduction

When considering the use of any software tool for assessment purposes it is important to understand the pedagogy which underpins the software. This understanding can then provide a framework for designing assessment activities which best suit the affordances of the particular software. Analysing educational software in terms of underlying pedagogy is not frequently undertaken although there is at least one existing useful analysis framework (Reeves, 1998). This paper analyses the eportfolio software Mahara (Myportfolio) to evaluate whether it is consistent with a social constructivist pedagogical framework. Note that a search for documentation to support the hypothesis that Mahara was specifically and consciously developed on social constructivist pedagogical principles did not find any results.

Social constructivism has been part of mainstream educational theory and practice for a number of years (Anderson & Dron, 2011). Social constructivism moves us away from the idea of an ‘instructional episode’ to the idea of designing a learning environment where learners can act and have authorship, as well as interact with each other and the teacher in order for learning to take place. Wilson (1996) has some useful ideas on this idea of a learning environment: “Thinking of instruction as an environment gives emphasis to the ‘place’ or ‘space’ where learning occurs. At a minimum, a learning environment contains:

- the learner;

- ‘setting’ or a ‘space’ wherein the learner acts, using tools and devices, collecting and interpreting information, interacting perhaps with others, etc” (Wilson, 1996 p4).

The learner-centred locus of control of both social constructivism and eportfolios is in contrast to the LMS (Learning Management System, e.g. Moodle) type of environment, where the control and authorship of learning activities are mainly located with the teacher or lecturer. This social
constructivist framework can then be used as a key design framework to formulate high quality assessment activities which take advantage of the affordances of eportfolio software.

The problem being addressed

Eportfolios are not a new phenomenon in the educational landscape, having been used in tertiary institutions across the world for more than a decade. Indeed the ‘grandmother’ of eportfolios, Helen Barrett, reports starting her eportfolio explorations in the early 1990s (H. Barrett, personal communication, February 12, 2015). A recent literature review of the research literature on eportfolios (Bryant & Chittum, 2013) provides a helpful summary of the range and focus of current research on eportfolios. This review noted that “Evidence suggests that ePortfolio use at the postsecondary level has tripled since 2003, and a little more than 50% of public colleges and public and private universities make some use of ePortfolios (Clark & Eynon, 2009)”. So eportfolios are definitely not a new feature in the educational environment, and their use is increasing.

My interest in eportfolios in relation to pedagogy was to assess whether there was a match between social constructivist pedagogy and the eportfolio tool (Mahara) my institution was in the process of adopting. If this was so, then education lecturers and teachers could use their (often existing) knowledge of this pedagogical framework to guide their use and assessment design when using eportfolio technologies with their learners. It may also help education lecturers and teachers avoid using eportfolios in less than optimal ways, particularly inappropriate ‘cut and paste’ of existing assessment activities into the eportfolio environment. For the learners, this could mean improved engagement with the eportfolio itself, as well as set activities and create a better learning experience.

Existing research for this specific relationship between pedagogical frameworks and eportfolios did not feature in the most recent literature surveys (Clark & Eynon, 2009; Bryant & Chittum, 2013) that I could find, so I concluded this was a useful task to undertake.

Study design/Approach

The key theory used for this analysis is social constructivism. There are papers which provide a detailed analysis of the different ‘flavours’ of social constructivism (for example, Kanuka & Anderson, 1999). This paper includes outlines of variations of social constructivism such as situated constructivism, radical constructivism, cognitive constructivism, and co-constructivism. However I have opted for a simpler approach and used the summary of constructivist theory provided by Anderson & Dron (2011):

Although there are many types of social constructivism (see Kanuka & Anderson, 1999), all the models have more or less common themes, including the importance of:

- new knowledge as building upon the foundation of previous learning,
- context in shaping learners’ knowledge development,
- learning as an active rather than passive process,
- language and other social tools in constructing knowledge,
- metacognition and evaluation as a means to develop learners’ capacity to assess their own learning,
- learning environment as learner-centred and stressing the importance of multiple perspectives,
- knowledge needing to be subject to social discussion, validation, and application in real world contexts (from Honebein, 1996; Jonassen, 1991; Kanuka & Anderson, 1999).

Findings

The main findings are represented by Table 1 below, which is a relational analysis between the key social constructivist elements provided by the summary outlined in Anderson & Dron (2011) and some of the affordances of the Mahara eportfolio software.

<table>
<thead>
<tr>
<th>Social constructivist themes</th>
<th>Mahara eportfolio affordances</th>
</tr>
</thead>
<tbody>
<tr>
<td>new knowledge as building upon the foundation of previous learning</td>
<td>the range of artefacts including reflection on evidence of learning can show progression in learning and skills over a longer period of time (e.g. multiyear undergraduate programmes) and much more comprehensively than a single assignment</td>
</tr>
<tr>
<td>context in shaping learners’ knowledge development</td>
<td>different eportfolio pages or collections can be contextualised for different purposes (e.g. teaching practicum report cf. human development assignment)</td>
</tr>
<tr>
<td>learning as an active rather than passive process</td>
<td>the portfolio is student-centred, the student controls what is collected as evidence, who it is shared with, for how long, and what the other person(s) can view, and whether they can give feedback or not</td>
</tr>
<tr>
<td>language and other social tools in constructing knowledge</td>
<td>ability of the student to use a range of media - podcasts, video and images as well as written text - as artefacts contributing to knowledge construction.</td>
</tr>
<tr>
<td>metacognition and evaluation as a means to develop learners’ capacity to assess their own learning</td>
<td>the journal tool incorporated in Mahara provides an opportunity for the student to reflect on the learning that is evidenced by the artefacts displayed on the page.</td>
</tr>
<tr>
<td>learning environment as learner-centred and stressing the importance of multiple perspectives</td>
<td>it is easy to share and comment on pages with peers, tutors, lecturers, and other non-portfolio account holders outside the university. group forums and page creation spaces provide the opportunity for group discussion and collaboration</td>
</tr>
<tr>
<td>knowledge needing to be subject to social discussion, validation, and application in real world contexts</td>
<td>the eportfolio can be used for academic, employment-related and vocational certification purposes as well as learning development there is a ‘friends’ role (like facebook) so learners can quickly and easily interact with close associates the feedback link on each artefact and at the bottom of each page provides opportunities for others to comment and dialogue</td>
</tr>
</tbody>
</table>

Table 1: relational analysis of key social constructivist elements (Anderson & Dron, 2011) and some affordances of Mahara eportfolio software
Discussion and conclusion

I want to make it clear that I am not an advocate of ‘eportfolios for everything’. If the best way to assess whether learners understand a particular concept or set of concepts is an expository essay, then that should be the assessment task they are asked to do.

I set out to explore whether there was any relationship between social constructivist theory and the affordances of a particular eportfolio software tool. My conclusion, drawn from the comparisons in Table 1, is that there is a significant relationship for these two items. The implications that flow from this relationship relate particularly to the types of learning activities and assessment tasks that teachers should set – they should be congruent with the social constructivist approach and they should take advantage of what eportfolios do best. For educators working in the tertiary context, this is a useful guideline in terms of the types of activity and evidence of learning that characterises the optimal use of eportfolios. Considering the relationships implied by Table 1, my extrapolation to learning activities, assessment items and other authentic activities suggests that the following types of activity will be well suited for implementation using eportfolios:

- **Group work assignments** involving collaborative learning and critical evaluation, with tasks allocated for each group member requiring discussion and consultation before a final ‘product’ using a range of text items and other media is submitted for evaluation

- **Learning journals** which encourage an ongoing personal connection with learning and link theory to practice in relation to the learner’s knowledge and experience. This type of assignment helps develop the reflective practice necessary in many professions including teaching

- **Field work/practicum reports** – such as practicum placements in a relevant workplace – these provide a rich source of learning in an authentic context and an eportfolio provides a useful way of gathering a range of evidence which shows what learning has occurred during the practicum placement, as well an opportunity for analysis and reflection post-practicum

- **Problem solving assignments** with peer feedback these focus on an issue or challenge relevant to the field of knowledge and allow the student to suggest multiple solutions, evaluate solutions and recommend and justify a particular optimal solution for the problem. Peer feedback provides for some discussion and space for affirming or disputing the learner’s solutions and conclusions, particularly if the peer(s) are working on the same challenge or issue

- **Resource portfolios** – these are collections of a range of digital media resources created by the learner, or found and curated by the learner from the Internet. These portfolios could be focussed on an issue or learning area, with evaluations of the efficacy of the resources

- **Showcase portfolios** created using a collection of resources to show evidence of skills, knowledge and attitudes relevant to a particular workplace, often forming part of an extended CV to be presented to an prospective employer. The items in this portfolio can also be mapped to graduate attributes or transferable skills, if these form part of the documentation of the particular qualification.

There are two key messages from this analysis. Firstly, as elearning teacher practitioners we need to be mindful of any underpinning pedagogical theory that is overtly or covertly supported by particular software. Secondly, once we are aware of the underpinning pedagogies we can use these frameworks to create learning activities and assessment congruent with both the framework and
the functional features of the chosen software. If we do this, we will provide a more theoretically congruent and creative learning experience for both the teacher and the learner.

References


Collaborative use of an e-portfoli: How students managed the process

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Abstract

There is a growing emphasis on supporting students in developing collaborative problem-solving skills with an associated increase in student decision-making and acceptance of flexible pathways. However, this is often offset by a reluctance to involve students in group work, particularly when it is linked to assessment. We can identify specific skills relevant to collaborative learning situations and support student learning of them but it is not always clear how students apply them to produce a successful outcome. This paper investigates possibilities in collaborative learning through exploring the range of strategies employed by groups of initial teacher education students in an open-ended collaborative design task presented as a group e-portfolio. One class of 20 students (6 groups) formed the sample. Student responses were collected by a series of semi-structured focus group interviews and interviews with individual group members. Inductive coding was used to identify themes and patterns. Students used a variety of strategies and tools to facilitate both the collaboration and the problem-solving. Some of these reflected guidance provided in class while others were not anticipated but nonetheless effective. Underpinning effective collaboration was a mutual commitment to a successful outcome for all group members. The results suggest that, given the opportunity and responsibility, students are able to collectively use digital technologies to support their own learning without those technologies dominating.

Introduction

The value of group work for learning is well recognised (Gillies & Ashman, 2003; Jaques & Salmon, 2007) and yet is often regarded as problematic particularly when associated with assessment (Kagan, 1995; Koretz, 1998). However, recent thinking about the kinds of skills students will need in the future has placed an emphasis on collaborative problem-solving (Binkley et al., 2012; OECD, 2013) and on the development of tools and approaches to support this. For effective collaboration students need a range of skills that they are able to apply in specific contexts. Among these are skills in collaborative decision-making and in the use of digital tools to support the process.

In the field of design and technology education this is particularly relevant as technology itself is inherently concerned with solving problems for which no solution yet exists (de Vries, 2012). Technology in this sense refers to “intervention by design” (Ministry of Education, 2007) to solve practical problems or meet needs and opportunities rather than a narrower and unfortunately common definition that focuses simply on the use of digital technologies. The complexity involved in solving design problems commonly requires ideas from a range of fields and so technological practice is mostly collaborative (Poggenpohl & Sato, 2009). As a result, for students to develop technological capability, they need to be engaged in authentic collaborative design problems. Assessing the
development of technological capability is challenging as it needs to focus on both process and outcome and involves collecting evidence of knowledge and skills that are not easily represented in traditional formats such as pen and paper tests (Williams, 2013). Recent developments in digital technologies have enabled a much more diverse range of forms of evidence to be considered and more effective ways of presenting this evidence including the use of e-portfolios (Kimbell, 2012; Williams & Newhouse, 2013).

In spite of this however, while students will often work in groups on design projects, virtually all assessment is done individually and does not take into account the collaborative nature of the project. Grading usually involves the same group mark being assigned to all group members and is often based on how well the group worked together rather than on what was learnt as a result.

The problem being addressed

Performance in collaborative design and technology projects is characterised by the diversity of ways of approaching the task and of solving the problem. This, combined with a sense that reported concerns about group work (e.g. (Kagan, 1995; Koretz, 1998) may not be as applicable in technology education and may be able to be addressed using digital technologies, led to the development of a research project exploring the assessment of performance in a collaborative design task. A key element in this is understanding how students manage their collaboration using the range of digital technologies available to them. This forms the focus of this paper. In particular, the research addressed the question: How do students manage their collaboration in a collaborative design and technology project?

The research aims to provide a clearer perspective on how students tackle collaborative problem-solving in technology education and to identify important considerations in supporting teaching and assessment in this area. While offering useful practical guidance for teachers, it also points to some important theoretical ideas underpinning an understanding of collaborative problem-solving.

Study design/Approach

The research was conducted with a class of first year primary undergraduate initial teacher education students enrolled in a compulsory technology education curriculum course. The course focuses initially on developing a shared understanding of the concepts of technology and technological practice that is consistent with the intent of the New Zealand Curriculum (Ministry of Education, 2007). As part of this students work in small self-chosen groups (3-4 students) to identify a small-scale design problem and develop a response to it. Each group submits an e-portfolio record of their development process and outcomes for assessment. The provided assessment schedule identifies specific elements to be included but groups have considerable freedom to represent their project as they choose. The e-portfolio software supported group portfolios with all members having access and editing rights. In this study Myportfolio, a variant of Mahara designed for use in schools, was used.

The research used an interpretive qualitative methodology with group interviews and the e-portfolios as the data source enabling the researcher to gain a clearer picture of the decisions made and the processes adopted by group members to get the task completed. It also recognised that the e-
portfolios on their own can’t illustrate all of the thinking that occurred in the development process, particularly for elements that were not included in what was submitted. Six groups were involved. They were interviewed using a semi-structured format before embarking on the project and again once the project had been completed and results returned.

Data were coded using an inductive coding scheme developed iteratively through the analysis process. This highlighted key themes and sub-themes found in the data that were relevant to understanding the strategies and processes adopted by the groups. It allowed a rich description of both practices in common and of diversity in approach.

Findings

Two clear themes emerged. The first was that while there were some clear commonalities, there was considerable diversity in the ways each group managed the process. The second was the nature of the relationship between members of the group and the importance each group placed on this.

All groups took some time to get going on their project. Learning to use the e-portfolio software did not intrude on task completion. While some expressed initial anxiety, all groups reported that working with the e-portfolio posed few problems and that it was much better than having to produce a paper portfolio. Initial support provided was considered useful but most groups didn’t engage seriously with the software until close to the end and said they worked out how to use it largely by trial and error. Each group distributed the workload so that individuals had responsibility for specific aspects of the project. In some cases a group had one person upload material while in others, all group members would contribute. However, in all groups everyone reviewed material as it was put up and contributed to decisions about what to include/exclude and about formatting. The more collaborative the group, the more confident each member of the group felt in their learning of all aspects of the project. Each portfolio contained all the necessary elements but there was considerable diversity in the way they were presented.

Group members communicated using a variety of formats both digital and face to face. Informal conversation regarding progress, decision-making, and general organisation was often through Facebook or other mobile messaging platforms. While some of this was in response to task and teacher guidance, groups also took the initiative and found communication pathways that suited their ways of working. The ability to communicate freely was seen as instrumental in effective collaboration and getting the project completed. However, all groups found face to face meeting important and not something that could be replaced using digital technologies.

All of the groups in this study expressed a high level of commitment to the success of the group that was related to a sense of responsibility for the final grade that the rest of the group would receive. The greater sense of engagement afforded by an increased range of communication pathways and opportunities to contribute was seen as instrumental in this.

Discussion/conclusion

The two main themes identified above raise some important issues and implications for digitally supported group work, especially in open problem-based learning situations. In particular they highlight the benefits of providing a flexible environment through available digital technologies
that encourages both greater student responsibility for outcomes and the importance of careful task design that offers a good balance of guiding structure and flexibility.

A commitment to flexibility implies a view of learning in which the learner is actively involved and capable of assuming some degree of responsibility for their own learning. It is well suited to open problem-based learning where outcomes cannot be predetermined. For students to do this successfully, the teacher needs to provide a supportive environment that encourages risk-taking, supports decision-making, and welcomes creativity. Tools that facilitate student engagement and decision-making need to be part of this environment. The research reported here is a good example of how students can take advantage of the affordances of collaborative platforms such as a group e-portfolio and social media when they are given the opportunity. It suggests that giving students more flexibility in a semi-structured task enables them to focus more on their learning than on the digital technologies used to represent it.

The students in this study responded positively and competently to having to organise themselves to complete the task. The emphasis in this task was on developing technological capability rather than on learning to work together in a group which meant that the group processes themselves had to be managed unobtrusively. Greater scope for decision-making however means a greater range of possible approaches and outcomes particularly in open-ended problem solving situations where the outcome cannot be predetermined. This can be problematic for assessment. Careful task design is therefore important to maintain flexibility while clarifying specific needs in terms of intended learning, how this learning will be supported, and what guidance will be provided for related aspects such as group function and software use. These require a good knowledge of the students involved.

A clear commitment to mutual success was important in establishing a positive attitude and appeared to be enhanced by the scope for ongoing engagement and communication possible using digital technologies. To some degree this was related to the relationship the students had established as a class through the year. When tensions arose, they were managed effectively which suggests that mutual commitment works to counter concerns identified in other studies (e.g. Kagan (1995); Koretz (1998)).

The results presented here provide a more positive view of group work in open learning situations than is often reported. The affordances provided by digital technologies, particularly the use of the e-portfolio, clearly contributed but the importance of careful task design, particularly with respect to learning focus, and quality of relationship were also highlighted. This example of possibilities in collaborative learning supports a view that students are quite capable, both individually and collectively, of using digital technologies to support their own learning when given the opportunity.

References


Social media and communication within distributed design education

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Abstract

Distributed design education is increasingly important in the education of designers. However, there is persistent concern about the ability of distributed design education to facilitate the rich communication necessary for the critiquing and collaboration that normally occurs within a design studio. This paper examines the use and potential of social networking sites to facilitate communication within an introduction to landscape architecture course. The study found that while a modest increase in the number of social interactions occurred, the social networking site failed to produce any measurable improvement in the depth of interactions that occurred between students. The results suggest that social networking sites are less effective if they are unable to utilise the student’s existent social network, and that there may be insufficient time within a single online course for students to build a new social network based on their course peers. The study concludes that emphasis should be placed on how pedagogical decisions might foster improved communication between students, and suggests that pairing social networking sites with additional pedagogical requirements could produce substantial gains.

Introduction

Distance education has steadily grown in popularity and importance across higher education. However, despite rapid advances in pedagogy, technology, innovation, and demonstrated efficacy of online education, the design fields of landscape architecture, architecture, and interior design have been slower to widely adopt online education (Li, 2007; George, 2014). At the same time, there is increased demand for landscape architects in the global market, but recent assessments note that the educational system is unable to meet these demands (Commission for Architecture and the Built Environment, 2010; Landscape Architecture CEO Roundtable, 2007).

Online education can provide part of the solution to this training shortfall, but a persistent criticism of online design education, hereafter referred to as distributed design education (DDE), is difficulty with social interaction between participants. Kvan (2001) noted that students collaborating at a distance had difficulty trusting each other in the design process, and problems with communication and building social trust between users in digital environments has been noted by other researches (Kahai, Carroll & Jestice, 2007; Saghafi, Franz, & Crowther, 2012). Face-to-face interaction facilitates communication and trust building through the immediacy of feedback that provides efficient social negotiation and clarification (Dutton, 1987; Kvan, 2001; Schön, 1985).

Despite these difficulties, there has been hope that new technologies and platforms, such as social networking sites (SNS), will provide the means to overcome these problems (Ham & Schnable, 2011; Wang, 2011). SNS grew out of the advent of Web 2.0 technologies, which enable fluid interaction and collaboration between users (Greenhow, Robelia, & Hughes, 2009). SNS help
reinforce the social nature of learning by providing a sense of connectedness with others, even across physical space. An SNS might be used to mimic the social character of the design studio, with professors and students freely interacting (Boyd & Ellison, 2007).

The problem being addressed

Schön’s (1985) theory of design, which is heavily reliant upon the physical setting of the design studio, recognises the unique contribution of social interaction in giving impetus and drive to creative ideas. The social aspect of an SNS is of particular importance to the creation of new material and aligns closely with the interests of design pedagogy. The collaboration that happens in the design studio can be mimicked online through SNS, which enable individuals to meet, interact, and develop a relationship, and then “create, consume, and share” material developed through a collaborative process. Social networking sites also democratise the design process by giving voice to individuals who may otherwise not be able to participate in a physical setting, or participate to a lesser degree, because of the “low barrier to artistic expression” of an SNS (Greenhow, et al., 2009).

These features of an SNS suggest that the medium might be used as an effective means of facilitating the rich social interactions that have been lacking in previous instances of DDE. Demonstrated efficacy of an SNS for design and collaboration could further encourage widespread adoption of DDE, and could also create opportunities to expand collaboration between design students and practitioners, clients, and the public. Therefore, SNS could potentially impact design education not just through expanding DDE but by also enriching the educational experience for traditional face-to-face students as well.

To evaluate an SNS, the social interactions between students were tracked when using an SNS to complete a design assignment. This performance was then compared to the same data from students utilising the Canvas learning management system currently in use at the university. This comparison will provide a base level of understanding of the ability of an SNS to improve social interactions within DDE.

Study design/Approach

For this research, an SNS was created using the Ning platform, which enables individuals to create an SNS that is customisable to their particular needs and produces a highly polished site. Ning was selected over an established SNS, such as Facebook, because of the ability to create a closed network and customise the features available to students. Students enrolled in an Introduction to Landscape Architecture course (n=30) utilised the SNS from the first week of class, and were given an assignment to familiarise themselves with the functions and use of the site. Students were required to post their design exercises on the SNS and post a critique of no fewer than two of their peer’s projects. This requirement was intended to instigate communication between students and provide a starting point from which social interactions would organically progress. Further interaction was not required, primarily because the purpose of the study was to determine if the nature of an SNS would encourage students to interact in a meaningful way.

Following the completion of the assignments, the social interactions between students were analysed in an effort to determine if students were engaging in significantly more social interactions.
on the SNS, which is specifically designed to facilitate social interactions, in comparison to the LMS, which is primarily meant to facilitate learning. Specifically, there was an analysis of the number of interactions that occurred on each post, the levels of interactions (level one being an initial response, level two being a reply to the response, etc.), and the degree of immediacy of feedback with the interactions. These findings were then compared to the same data from the Canvas LMS to determine if there was any substantial differences in the social interaction between the SNS and the LMS.

**Findings**

The results found that student interactions on the SNS and LMS were comparable. There was a modest increase in the average number of student responses per post on the SNS, with 2.59 responses per post on the SNS and 2.4 on the LMS. Very few of the conversations advanced into multiple levels of interaction on either system. Only two social interactions (of 160 possible interactions) advanced beyond the first level on the SNS. Likewise, only two social interactions (of 188 possible interactions) advanced beyond the first level on the LMS. In all four of these instances the original post had garnered a high number of total responses from peers, and all were in the upper quartile of responses per post. The immediacy of feedback was very inconsistent in both the SNS and the LMS. The results suggest that there is little difference in the inherent ability of the SNS and the LMS to encourage social interactions between students.

**Discussion and conclusion**

The results of the study were somewhat surprising. SNS researchers have suggested that the social framework created by an SNS would encourage students to interact and collaborate with each other at an elevated level. While the large majority of students in this study used Facebook, it does not appear that any enthusiasm for the medium translated into the course. This is contrary to the expectations of DDE researchers who were optimistic that SNS could act as a model, or gateway, to improved collaboration in DDE (Ham & Schnable, 2011; Wang, 2011).

It would appear that SNS work because of their reliance on the existing social network of an individual, and without these pre-existing social networks individuals do not engage in a high level of interaction. Therefore, it is unlikely that an SNS will work effectively as a social solution within DDE unless students are able to build rapport with each other first, which then serves as the basis for future interactions on an SNS. This suggests future experiments with SNS would be better done with advanced students who have had time to create a social network. But this does not provide a solution for how DDE might be utilised earlier in a design curriculum, or in cases where students are geographically distributed and unable to previously build rapport. Were social interactions on the SNS scaffolded into the course in these settings, it is possible that students would eventually develop rapport with each other, however; even then it is likely to take some time. Even still there is concern if an SNS will provide the type of sustainable social environment necessary for design education to flourish (Zhang, 2009).

It was hoped the use of the SNS would improve student collaboration by increasing both the number of social interactions and the depth of interactions that occurred between students. While the results of the study found a modest increase in the number of interactions, very few conversations moved beyond the first level of interaction. This suggest that technology can only go so far in impacting student behaviour, even in this case where social media technology was utilised because of
its demonstrated efficacy in facilitating social interaction. It was apparent that most students did the minimum amount of interaction required by the assignment. This suggests that pedagogical solutions are potentially a more potent force in encouraging students to interact, and that requiring higher levels of interaction between students as part of a graded assignment could be more effective. It is recommend that researchers continue to experiment with SNS within design education, but pedagogical incentives need to be integrated for success.

References


Incorporating ePortfolio into one undergraduate nursing programme

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Abstract

Registered nurses today are required to maintain a portfolio of evidence of their competence to practice. This portfolio can be requested at any time from the Nursing Council of New Zealand as part of a random audit of individuals on the nursing register. Alongside this ‘portfolio’, assessments are common in undergraduate nursing programmes and, have to date, been traditionally submitted in hard copy. Is it time to move into the 21st century and explore the use of electronic portfolios for students in undergraduate nursing programmes? This ePortfolio would follow the student through their degree study, and could then be used in their post registration practice to support the documentation required for maintenance of competency to practice.

This action research study will follow a small group of tutors as an ePortfolio is introduced into an undergraduate nursing degree. It will reflect the issues that arise in implementing this change to a curriculum, to improve understanding of ePortfolios and their use in practice. Lessons learnt will then be used to develop a plan for implementing ePortfolios as a key component across four different nursing programmes.

Introduction

This research has provided an opportunity to explore the process for selecting, introducing and supporting the use of ePortfolio in educational practice. The research is significant as there is a developing body of literature on the use of portfolios and this research will add to this body of knowledge, particularly from a tutorial perspective on the process of introducing ePortfolio into one undergraduate nursing programme. In health degree education, ePortfolio use in increasing, with ongoing debate regarding the electronic platform to best support the ePortfolio and how the ePortfolio intersects with assessment processes.

To date the research has identified literature to support the rationale for using ePortfolio in health degree education, as well as some things to consider in regard to their introduction and support. Literature also highlights the usefulness of ePortfolio in supporting the student to develop critical reflection and writing skills. The aim of the research is to identify educationally sound strategies for supporting tutorial staff with the integration of ePortfolios into health degrees, using an action research methodology. This paper outlines the research, discuss key issues explored at the commencement of the research and identify areas for further evaluation as the research progresses.
The problem being addressed

Portfolios are a common assessment tool used in undergraduate nursing education (McMullan, 2005; Oermann, 2002). Portfolios have to date been used as a collection of artefacts such as competencies, reflections and attendance sign offs, which are usually been submitted in hard copy (McMullan, 2005). This is also true within our health degree programmes, where students are required to maintain a record of their clinical placement attendance, objectives and achievements. This has previously been done through the use of a folder, in which documents are stored and handed in at the end of the semester for tutorial review. These folders are then reviewed by the tutor, a grade allocated and then the folder is returned to the student. Some programmes, mainly those postgraduate courses that are delivered by distance, have started to use electronic portfolios, which has been effective for both students and tutorial staff. However there is no consistency across programmes and some general confusion in regard to how to use the ePortfolio most effectively for student learning and/or assessment.

The purpose of this research is to introduce an ePortfolio into an undergraduate nursing programme, while identifying strategies for implementation that supports students’ learning. Lessons from this research will then inform planning for educationally sound strategies for supporting tutorial staff with the integration of ePortfolio into health degrees in the future.

Study design/Approach

With the aim of the research being to identify educationally sound strategies for supporting tutorial staff with the integration of ePortfolios into health degrees, action research, as a reflective process, was the research method chosen. Action research is open ended, developmental and cyclic in nature and is described as a process for understanding and improving practice (McNiff & Ferguson, 2011; Waters-Adams, 2006). The research sought and was given ethical approval through the organisation’s Research and Ethics Committee.

Tutorial staff working across the selected nursing programme, plus the researchers, were recruited as participants (n= 8). The research is being carried out through three reflective cycles:

1. Researchers worked with the tutorial team from the programme to introduce ePortfolios as a concept, facilitate training on the Mahara platform (that students and staff will be using), and then plan the introduction of ePortfolio’s to the students (two weeks).

2. Researchers delivered the ePortfolio training to the students in year one and year two, purposely informed by the reflections from the first reflective cycle (three weeks).

3. The final and longest cycle is monitoring the use of ePortfolio, undertaken through tutorial staff reflections on their interaction with students, as well as their own ePortfolio use (12 weeks).

Thematic analysis (Saldana, 2012) will be used to analyse the data at the completion of each cycle. This process will identify factors that emerge from the researcher’s and participant’s reflections, and with further analysis these factors will be combined into overarching themes that will inform the planning for further implementation into undergraduate nursing programmes.
Discussion

The use of technology in undergraduate nursing education can be stressful for both students and tutorial staff and ePortfolios need to be introduced carefully with clear guidelines and good support structures. There are many variables that impact on the introduction of ePortfolios into nursing undergraduate education and it is important to ensure that the implementation is well planned, supported by sound pedagogy and well evaluated (Andrews & Cole, 2015; McMullan, 2005). As part of planning the introduction of ePortfolio, it was necessary to identify the platform that would be used. There was, and continues to be, debate within nursing and between the researcher and the wider organisational eLearning support staff around this. The organisation has Mahara as its ePortfolio platform. However, other nursing schools nationally reported mixed experiences with the use of Mahara and were either looking at, or had chosen to use, other options which confused the picture initially. Andrews and Cole (2015) recommended only introducing small components of Mahara at one time rather than all at once, as the platform can appear complex when initially used, and to ensure there is good technical support for students and staff (Andrews & Cole, 2015). The researchers decided to use Mahara mainly as it was free to students and supported through the wider organisation. Technical support and guidance was obtained from within the organisation during the initial participant training on how to use Mahara, with participants then supporting students.

The portfolio is an excellent repository for recording professional development, career advancement and planning, as well as evidence for performance appraisal and competency assessment (Andrews & Cole, 2015; Curtis, 2012; Green, Wyllie, & Jackson, 2014). Internationally ePortfolios are being introduced to students during their undergraduate education, with many and varied benefits such as a repository for documents, artefacts and information, reflective journaling, resume, and professional development records (Curtis, 2012; Garrett, MacPhee & Jackson, 2013; Green, Wylie & Jackson, 2014). Curtis (2012) discusses how the ePortfolio can be used not only as a platform for storing information, but provides "transparency of the learning process and facilitating visibility of learning and formative assessment" (p. 66), with tutorial feedback supporting student’s development and critical reflection skills. The process of preparing the components contained within the portfolio promotes active learning (Garrett, MacPhee, & Jackson, 2013). Nielsen, Pedersen, and Helms (2015) discuss how important the use of ePortfolio can be in supporting the student to develop alternative learning styles, in particular the power of learning through writing. Writing in a portfolio, particularly as a journal, is a powerful tool in support of 'reflection-on-action' (Green, et al., 2014; Nielsen, et al., 2015). McMullan (2005) suggests that ePortfolios should not be used for purely summative assessment purposes, as this can cause conflict with learning, and reduces the student’s potential for development.

Taking the above literature into account, the student introduction to ePortfolio was purposely linked to current course requirements. The researchers focussed on the journal section of the ePortfolio, asking students, who were about to go into a clinical placement, to use the ePortfolio for regular reflections throughout their placement and then use those brief reflections as preparation for their summative reflective assessment. Tutorial staff supporting students while they were in clinical placement were able to discuss these reflections and provide students with initial formative feedback. In addition to this the students competency sign-off sheets were made available to students as
One issue that has already been identified in the early reflections is the lack of a shared understanding of the place of summative assessment and portfolios, as with the literature identified above there is some contradictory understandings and as we move forward with the research this will need to be further explored and an organisational position agreed prior to the wider roll out of ePortfolio’s for learning. Both the choice of Mahara as a platform and the process for introductions and support to use will be further evaluated as the research progresses, along with ongoing conversations regarding updating the current version of Mahara, ongoing hosting and access for student’s when they complete their studies. These are all areas that need to be reported on as part of the final research findings and are integral to successful achievement of the research aim.

Conclusion

The benefit of introducing the ePortfolio into an undergraduate health degree is that the ePortfolio can follow the student to subsequent years of education, building one repository to show the student’s development over time. This ePortfolio can than follow the student once they graduate and into their employment, where portfolios evidencing competence are, and will continue to be, required. Literature supports this, along with supporting the student to develop critical reflection and writing skills through the use of an ePortfolio. The aim of the research is to identify educationally sound strategies for supporting tutorial staff with the integration of ePortfolios into health degrees, using an action research methodology. This paper has outlined the research, discussed some of the key issues explored at the commencement of the research and identified areas for further evaluation and exploration as the research progresses. More detailed findings and conclusions will be available at the time of presenting the research as these are not available at the time of writing this paper.

References


The carbon-based environmental impact of learning at the University of Waikato

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Abstract

In a world where man-made carbon emissions are exacerbating the natural warming of the earth, with serious consequences, it is beholden on universities to show leadership by accounting for, and mitigating, their carbon emissions. This research accounts for the carbon-based environmental impact of the face-to-face and online delivery of higher education at the University of Waikato. Drawing on an existing environmental assessment methodology, data was gathered by web-based survey on the key sources of carbon emissions associated with a student’s university study, namely: travel, place of residence, and use of Information and Communication Technology (ICT) and paper. As part of updating and localising the methodology, new calculations were made for internet, textbook, residential and campus site energies and an improved method for computing the impact of printing was developed. The data were analysed, allowing for comparisons to be made between online and face-to-face students’ carbon emissions, and with some care the limited previous research. The main sources of carbon-based environmental impact were travel, campus and residential energy. Online students’ emissions were, on average, one-third of those of their on-campus peers.

Introduction

Levels of greenhouse gases (GHG) in the earth’s atmosphere are increasing and amplifying the earth’s natural greenhouse effect. This will have serious implications for life on earth. The scientific consensus is that the increase in GHG emissions is due to anthropogenic sources (IPCC, 2013). Given the amount of GHG emitted into the atmosphere needs to be sharply reduced, then it is beholden on all sectors of society to mitigate their emissions. Carbon footprinting is a useful strategy to understand and manage those emissions (Williams, Kemp, Coello, Turner, & Wright, 2012). The higher education sector is growing worldwide, as is its carbon footprint. Many higher education institutions have been measuring their carbon footprints, but comparisons are few and difficult to make because of the lack of one standard approach (Vaughter, Wright, McKenzie, & Lidstone, 2013).

E-learning is often assumed to be an environmentally sustainable, or an “inherently green” mode of education provision (Bourke & Simpson, 2009) thus the use of e-learning has long been identified as a potential way for institutions to reduce their environmental impact (Eneroth, 2000). This is primarily based on the substitution of carbon-intensive travel for, what is assumed to be, lower energy intensity ICT. Few studies move beyond single issues to consider both the impact of travel, as well as the confounding issues of ICT energy intensity, embodied energy and rebound effects. Of those studies that have quantified the level of GHG emission reduction the adoption of e-learning makes possible, none have been carried out in the New Zealand context. The SusTEACH
methodology (Caird, Swithenby & Lane, 2012), with its 12 year history, represents the most comprehensive and well-tested approach to understanding the carbon-based environmental impact of teaching and learning in the United Kingdom. This study adapted the SusTEACH methodology for the New Zealand context.

The problem being addressed

This research addressed the following question: What is the carbon-based environmental impact of the face-to-face and online methods of delivery of higher education at the University of Waikato?

Intuitively, online teaching’s reduced dependence on regular travel to campus compared with traditional on-campus delivery should result in a commensurate reduction in carbon emissions. However, the digital technologies that make online learning possible also have their own, less obvious, environmental impact. Just as the geographical boundaries are blurring as a result of digital technologies’ affordances, these same technologies have an environmental impact that is widely debated and similarly blurry, and often geographically dislocated from where they are being used. With an emphasis on growing the number of tertiary students being educated, understanding the environmental impact of tertiary education becomes of strategic importance. Fortunately, this imperative for growth aligns with a rising awareness of environmental issues among tertiary education suppliers, as increasingly they monitor their environmental performance at the institutional level.

This study aimed to account for the carbon-based environmental impact of one paper taught at the University of Waikato, using a bottom-up approach. Bottom-up approaches are commonly used to measure the carbon footprint of a process (education) used to produce an individual product (graduate). The criticism of this approach is that it is time-consuming and that inconsistent application of boundaries or scope can lead to incomplete footprints.

The fact that the paper investigated, a compulsory 20 point second year undergraduate paper, is delivered in two different modes allowed comparisons to be made between the environmental impact of the delivery method. In answering the research question a methodology appropriate to the New Zealand context has been made available for others wanting to explore the carbon footprint of their tertiary teaching.

Study design/Approach

This interpretive case-study adapts the SusTEACH methodology of Caird et al. (2012) to deliver an online questionnaire to students designed to solicit travel and energy and material use data associated with their study of an second year undergraduate paper. Responses were compiled using spreadsheet software and calculations made to estimate the carbon footprint of a student’s studying.

The interpretivist position considers reality as subjective and socially constructed by participants. As defined by Yin (2014, p.14), a case-study “investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.” In this case, where different cohorts of students are studying under different conditions, the “…contextual conditions… [are] …highly pertinent” (Yin, 2014, p.14).
This study is exploratory in nature, that is, it sets out to investigate the phenomenon of carbon-based environmental impact of teaching and learning in the real-life context of the University of Waikato. While the data are self-reported, the empirical data is being collected from real people in order to understand their environmental impact within a real-life organisational context. The participants’ interpretations are in turn being interpreted by the researcher (Walsham, 1995) and in this case the plausibility or trustworthiness of the overall interpretation is more important than the positivist concepts of reliability, validity and generalisability (Myers, 2009).

The choice of methodology provides a rationale for the method used. This limited exploratory study collected quantitative data using a survey method. While most survey questionnaires are based on positivist epistemology and objectivist ontology, the quantitative data they collect “are perfectly valid inputs for an interpretive study” (Walsham, 2006, p.323).

Survey methods are prone to question misinterpretation (a validity issue) and, unlike interviews, do not provide an opportunity for clarification. The survey was piloted to identify potential interpretation difficulties. Confidence in the validity of the survey was also increased because it was based on a tried and tested instrument, the SusTEACH survey developed by Caird et al. (2012). However, surveys rely on participants’ interpretations and memories and because of this there may be issues of reliability.

Findings

Online students’ total emissions are, on average, 72% fewer than those of on-campus students. When the travel and residential emissions contributed as part of the online students’ block course attendance are removed the re-calculated emissions reduction of 87% is in close agreement with the 85% reduction reported by Roy et al. (as cited in Caird et al., 2012).

The area of most significance is that of travel, where on closer inspection it becomes clear that travel to campus has the largest single impact for on-campus students. Perhaps less foreseeable is the large contribution of travel to permanent residences for those students residing in term-time accommodation. Travel home is responsible for one third of on-campus students’ travel-related carbon emissions; their second single largest source of carbon emissions.

Campus and residential energy use and the associated carbon emissions are the next most significant contributors to the overall emissions profile for on-campus students. Combined they represent 36% of emissions for on-campus students.

Printing represents a relatively small component of a student’s overall impact, and emissions vary little between cohorts. As a proportion of total emissions, however, they are more significant for online students. Likewise ICT-related emissions represent a larger proportion of online students’ total emissions. Surprisingly, on-campus students’ ICT-related emissions can exceed those of online students’ because of the impact of the embodied energy of ICTs on total emissions.

Discussion and conclusion

Student travel to campus associated with a 120 point academic year of study creates, on average, emissions of 360 kgCO2e per student, or 52 tonnes of carbon annually for the campus-based cohort studied. Therefore strategies that reduce travel will have the greatest effect on reducing the carbon-based environmental footprint of teaching and learning. However, as Williamson (2012) points out, strategies for reducing travel-related (mobile) emissions have traditionally received less
attention than those interventions that mitigate (stationary) campus energy-related emissions. In part this is because, as acknowledged by this study, the accurate measurement of travel behaviour is a complex undertaking and the behavioural changes required to reduce that travel are relatively unpalatable to many individuals. However, it is also because there are immediate and significant financial incentives for institutions to reduce their energy use (Williamson, 2012).

From the perspective of travel reduction, ideally campuses should be sited as close as practical to students’ permanent residences. Residential housing policies can have a significant effect on emissions profiles of higher education institutions (Williamson, 2012). While existing campuses cannot be easily shifted and any changes to housing policies would manifest change on a longer timeframe, a timelier and more practical consideration might be to encourage the use of public transport. Other potential measures include charging for parking spaces. As at the time of writing, the University of Waikato is in the process of introducing parking charges in line with other New Zealand universities.

Another approach to mitigating the carbon impact of travel is to encourage the use of ICT. If the embodied energy of the device is discounted, the emissions of online students as a result of their ICT use are twice those of their on-campus peers, but they are still a magnitude smaller than the emissions caused by travel. Therefore it is in the substitution of ICT for more carbon-intensive travel that the largest reductions in GHG emissions can be won.

Although the order of the factors influencing the carbon-based environmental impact of teaching and learning is in agreement with the SusTEACH study, that is travel, campus and residential energies, the magnitude of their impact is much smaller (around 60% less). This reduced impact is largely a result of a national energy mix that, as a result of a large proportion of renewable sources, has a much reduced carbon intensity. It is also likely a result of climatic and geographical factors that result in reduced energy demand and shorter commutes respectively. These findings illustrate the importance of the study’s context. It seems safe to conclude that, independent of context, travel has the greatest influence on the carbon-based environmental impact of teaching and learning.

References


Technology bridging the Middle Earth between pedagogy and feedback

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Abstract

Within the typical teaching and learning model in university settings, the orthodox way of providing feedback tends to be through assignments and exams. It enables evaluative, summative feedback about students’ level of learning and functions primarily as a measurement and accountability tool (Vardi, 2012). In contrast, this paper presents an alternative view of assessment that suggests that technology can be the ‘servant’ of good pedagogy by deliberately and purposively enhancing feedback opportunities from not only the teacher to student but also, from student to teacher.

The project we report on in this paper is part of institution-wide initiatives in a large Faculty of Education, to promote the use of technology alongside a move to the use of large interactive teaching spaces capable of seating 70+ students. Four of us as lecturers have supported one another to develop a professional learning community (Alton-Lee, 2003), and to document our evolving pedagogical practices. We are committed to retaining and practicing powerful teacher education pedagogy whilst being early adopters of technology innovations. In this paper we discuss some of the ways that we have used mobile technologies to facilitate open communication between lecturers and students to make feedback about learning visible to all. We have harnessed technology to give and receive feedback and in so doing we have made rich learning an integral part of our everyday practice.

Introduction

It has been argued that although student-centred approaches to learning have led to shifts in conceptions of teaching and learning, ‘a parallel shift in relation to formative assessment and feedback has been slower to emerge’ (Nicol & MacFarlane-Dick, 2006, p. 200). Assessment tasks such as assignments and exams, are typical in most higher education settings. Less common however, is the use of assessment to provide the kind of formative feedback that bridges the gap between the actual level of performance and the desired learning goals (Hattie & Timperley, 2007; Lizzio & Wilson, 2008; Poulos & Mahony, 2008; Sadler, 1989) and facilitates students’ development as independent learners who are able to monitor, evaluate, and regulate their own learning (Ferguson, 2011).

In his synthesis of some 800 meta-analyses of 52,637 individual quantitative studies Hattie (2009) concluded that providing formative feedback was one of the strongest single factors impacting on student learning. However, providing such feedback in traditional tertiary education settings can be problematic, particularly given the large size of classes and the short duration of courses.

There is a substantial and growing body of research in higher education contexts considering feedback and its importance in student learning, and a concomitant growth in the number of articles
focusing on technology assisted feedback learning possibilities. Frequently cited benefits of technology assisted feedback for students include higher achievement and retention rates (Nicol, 2008) through the provision of more relevant and authentic assessment feedback experiences (Gilbert et al., 2011) and collaborative learning opportunities (Nicol, 2008). It is contended that technology affords immediacy and ‘anytime, anywhere, anyhow approaches’ and is suitable for use with large numbers of students (Gikandi et al., 2011; Juwah et al., 2004). This use of technology assisted feedback can fit well within a co-constructivist perspective of feedback which emphasises the dynamic nature of learning where the lecturer also learns from the student through dialogue and participation in shared experiences (Carless, Salter, Yang, & Lam, 2011).

The problem being addressed

Providing feedback in traditional tertiary education settings can be problematic, particularly given the large size of classes and the short duration of courses. We set out to ameliorate this tension, underpinned by our conviction that effective feedback made a difference. Research has identified several attributes of effective feedback. For example, Shute (2008) examined specificity, complexity and length, and timing of feedback (pp.157–163). Evan’s (2013) guidelines for effective feedback design centred around the timing, student follow-up, feed-forward, and sources of feedback as well as interactions about the feedback. Van den Berg, Admiraal, and Pilot (2006) identified that feedback from multiple sources, rather than a single source, enables students to make more informed decisions about how they act on the feedback. However, even when feedback is well crafted it is ineffective unless students act upon it (Duncan, 2007; Gielen, Peeters, Dochy, Onghena, & Struyven, 2010); and unless it impacts on learning (Draper, 2009; Wiliam, 2011).

Within our community of practice we are aware that even when ‘good’ feedback has been given, the gap between receiving and acting on it can be wide (Taras, 2003) for students and teachers alike. The solution to address this gap, was to situate the use of technology within a ‘conversational framework. Such positioning provides alternative forms to give, seek and respond to feedback, casting teacher and students alike as active agentive learners. Our focus was to enable both ourselves and students to become agentive, purposeful co-participants.

Study design/Approach

Our teaching and research covered a range of teacher education programmes and across different subject specialisations. Students used mobile devices during lectures/workshops to share learning and understanding in response to questions or tasks, using software platforms which included Piazza, GoSoapBox, Socrative, EduCreations, Padlet, online practice tests, PeerWise, and Google Docs. They were able to connect with course content, question their own and others’ understanding and reflect on their peers’ responses, thus making feedback and learning visible to the lecturers and to themselves, often instantly. Data were gathered from student submissions on these platforms, and from surveys, questionnaire, assessment artefacts and focus group interviews.

The theoretical lens of this project framed learning as “the process of coming to know through conversations across multiple contexts amongst people and personal interactive technologies” (Sharples, Taylor, & Vavuola, 2007, p. 225). These conversations follow Laurillard’s (2002, 2007) definition of a conversational framework for learning—the dialogical process between teacher, learner and technology. This implies a view of the pedagogical process that goes beyond the
transmission of knowledge from teacher to learner to a co-construction of knowledge through negotiation and exploration, where “[t]eaching then can be likened to a conversation in which you listen to the speaker carefully before you reply” (Clay, 1985, p. 6).

Within this conversational framework, we explored the use of mobile technologies. In this paper we specifically we consider how their use could make feedback about learning more visible to students and lecturers.

Findings

Based on a preliminary analysis of the data sources we have found that we were able to utilise the affordances of technology to foster feedback dialogues. Generating feedback from multiple sources was not a problem. We could also each cite examples of students’ use of feedback to improve their learning; and examples of feedback enhancing student engagement. A range of examples, using different generative tools, will be presented in the full paper.

There was rich feedback data generated through these multiple technology enabled means – both synchronous and asynchronous. However, analysis of our data showed that where feedback collected from the students indicated that they were confused, struggling or not in accord with the rest of the class, as lecturers, we sometimes struggled to respond appropriately in the moment. We were surprised that when faced with the challenges of integrating technology–and although we wanted to follow our ‘best pedagogical’ instincts–we would handle the situations by reverting to what we felt was a transmission style of teaching.

So we were disappointed to find that while there was evidence that we responded to some of the feedback that we received, there was also evidence that the way we made sense of the situation was, at times, through a set of discourses associated with the teacher being the only expert in the room.

Before these reflections and subsequent discussions, we had maintained beliefs that our teacher education pedagogies had overcome the propensity to be ‘the expert practitioner’. These situations challenged us to reconsider our roles, and how we coped when feedback disrupted our self-efficacy and perceptions of teaching competence. Analysis of the data is on-going.

Discussion and conclusion

Coming together as a professional learning community (Alton-Lee, 2003) has framed the way we worked together to use technology in our teaching in order to to make learning visible. The advantage of thinking of ourselves as a learning community was that it respected the knowledge each participant brought to the project regardless of expertise in using technology for teaching. Inquiry and professional learning were critical in this approach.

Intuitively, we have used technology as a tool to enable powerful feedback between students and ourselves which has operated in both directions - them to us and us to them. As eager early adopters of technology we have trialled different means to generate feedback –identifiable or anonymous, immediate or delayed, individual or collective.

Students have used feedback to evaluate their own progress, as in the online practice tests where working through the questions gave each student instant feedback. Students have also provided feedback to inform the learning of others. For example, using a platform such as PeerWise
was an opportunity for students to give feedback to one another about the quality and relevance of
their contributions to the developing repository of content-based questions. Furthermore, PeerWise
also enabled students to compare their contributions with other students via the leaderboard and badge
credentialing system which is another means of using technology to provide feedback.

Students also provided feedback to us. They provided feedback about what they were learning,
for example, using Padlet to contribute during class sessions. They also gave feedback about what we
were teaching when we utilised Critical Incidents Questionnaires on Google Docs. As teachers we
have been cognisant of the feedback students have been providing, and have sought to respond and
act on it in pedagogically sound ways. We have monitored students’ engagement with tools at a basic
“time on task”, number of attempts level. We have also analysed students’ feedback during the course
and not only acted upon it but also fed it back to our students as we make a point of making our
practices transparent.

In each of these examples of the generation and use of feedback, we sought to bring a future-
oriented approach to teaching and learning, not by upgrading to, or foregrounding, a concept of “e-
assessment” (through machine marking or other adaptations of modern technology) but by creating an
‘architecture of participation’ that made it easy to connect, share learning and provide feedback, and
that improved as more people became involved (Elliot, 2008). Within this architecture of participation
students and teachers alike have taken increased responsibility for seeking out and acting on feedback.

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Factors impinging on educational service delivery to distant and remote places: A voluntary organisation perspective

A. H. Higgins

Abstract

This paper examines how a voluntary organisation can provide a service to remote and rural students. It relies on a theoretical model derived from historical, social, economic and educational factors concerning educational provision to isolated communities. The model allows observers to identify which factors a voluntary organisation can influence to achieve its goals and which issues operate in the wider social and political arena of which it needs to be aware. (Darnell & Higgins, 1983).

Introduction

The model identifies the following factors: types of isolation, ways of coping with the isolation and conditions affecting potential for change among the isolated. Each factor is further subdivided into elements that can be inter-related one to the other. This model has been used in past doctoral work by scholars in the area of rural education. The model itself has been published in a prominent scholarly textbook. (Browne & Foster, 1983). This model provided the working idea for the doctoral study by Griffith at James Cook University in Queensland through the Rural Education Research and Development Centre, it might be described as follows: he developed a detailed methodology for quantifying accessibility to a particular service or a defined group of services by combining population, economic resources and a composite element of distance, time and cost. (Griffith, 1994) and (Griffith, 2007). It has not been used to examine how a voluntary group can align its goals to meet service needs to remote and rural people. The work is currently being used to repurpose a history of a voluntary organisation in New Zealand.

The model is applied here to The Distance Education Association of New Zealand, founded in 1984 had the following kinds of purposes, namely:

• advising and making representations on any matter relevant to distance education in New Zealand,
• establishing liaison with related organisations in New Zealand,
• promoting discussion about research and development in distance education,
• disseminating the results of relevant research and identifying areas in which research and development is particularly needed,
• establishing liaison with the international distance education community,
• organising regular conferences for the discussion of distance education,
• organising special interest seminars and workshops in distance education, and,
These aims, with the addition of a lead section honouring the principles of the Treaty of Waitangi became the raison d’être for the organisation.

Voluntary organisations such as DEANZ change through time as different context emerge, for example, as changes in technology occur. Consequently, there is a possibility that goals the organisation sets for itself change or some goals are not pursued. Whether or not these changes are beneficial to the remote and isolated students requires continuous organisational reflection and tactical adjustment. Hence, this model can assist voluntary educational organisations adjust their work.

The original study and the model derived from it examined policy and practice towards the provision of education to remote and isolated students, using techniques of historical geography to see how factors such as social, political, economic and technological changes affected that provision over a specified period of time. A more recent and current work looks at the origins, purposes and performance of a voluntary organisation serving distance education. This paper combines both the model and the historical developments to illuminate one way of assessing how an organisation could reflect on its operations. The study uses theoretical modelling and original historical documents sourced principally from archives.

**Applying the model**

**Table 1: Three dimensional model for assessing the inter-relatedness of factors impinging on education in isolated places**

**Section One: Types of isolation**

The DEANZ constitution is clear that the organisation’s aims are consistent with the geographical definition of isolation, i.e., in seeking educational service provision for people (students...
and adults) to those living in places where normal educational services cannot be delivered. For example, the following list is suggestive of students who cannot easily access educational services.

- Those living at a distance beyond a services’ capacity to deliver (for example, the community in which they live is too small to sustain a school or suitable secondary or tertiary facility).
- Some people travel overseas because of work and need to access education.
- Some people travel for work or vacation purposes within the country and wish to remain in the study loop and need an education service, for example itinerant families.
- Some students, often quite young ones, are confined to hospitals or medical facilities for extended periods of time and need access to school-level services.
- Some home schooled students use Correspondence services to ensure that their children experience the national curriculum.
- Some students, for example incarcerated adults require access educational services as part of rehabilitation programmes.
- Perhaps least well identified are those students who are approved for correspondence education by a Minister for Education, such as those excluded from regular schools for various reasons.

For many students in the above categories who have no easy access to education, an association proclaiming to support distance education, DEANZ ought to be the principal organisation advocating for their needs and it is a prime feature of its constitution. DEANZ founding members originate from the sectors mainly concerned with isolated students. These included:

- Michael Childs, Correspondence School
- Judy Southworth, Correspondence School
- Dave Nicholl, Technical Correspondence School
- Donald Bewley, Massey University
- Janet Williams, Extra Mural students, Massey University
- Maureen Williams Extra Mural students, Massey University
- Atholl Forrest, Advanced Studies for Teachers
- Peter McMechan, University of Otago Extension studies
- Jens Hansen REAP, Hokitika
- Beverley Elder, Waiairiki Community College
- Heather Mulholland, Trade Union Postal Education service.

The meeting agreed that it would create a constitution and interim executive (ASPESA, 1984). This constitution largely followed the standard model acceptable to the Ministry of Justice at the time.

*Geographic*
Ormond Tate, the then Principal of the Correspondence School recognised the value of this teaching strategy’s outreach to isolated students and teachers. Tate took care to suggest that students in conventional institutions could benefit from distance education if their participation in school was hampered by health issues such as asthma, for example. Correspondence materials could be used for the education of gifted students or for special education, through carefully coordinated support programmes. At the secondary level, correspondence materials supported the viability of small rural secondary education, expand the range of subject offerings, and maintain continuity of study for students who changed schools. Significantly, Tate encouraged education through the correspondence methods for prisoners, armed services personnel, children in hospitals, and of course young women forced to leave school because of pregnancy. It is significant that Tate identified many of the benefits of using distance education methods could bring to schools and institutions more generally. Over the next 10 or 15 years many of the strategies were implemented both in New Zealand and Australia. For example the Walton and McShane “Think Tank on Research into Rural Education” demonstrated these issues (Miriam McShane, 1990).

**Ethnic/cultural**

In 1996 The Association began to translate its constitution into Maori to meet its treaty obligations but there was no record of his having been finished. The records do not show that DEANZ played any major role in Marae-based education for isolated or remote Maori communities. It might be concluded, from an ethnic/cultural perspective, that DEANZ did not address this matter as fully as it might have.

**Language**

Language isolation arises where groups of people within a culture, for example, New Zealand, use another one. For example, immigrants living in fairly closed communities where the dominant language is not English or Maori. Although Maori is one of the two official New Zealand languages, DEANZ did not use it to any great extent. Nor did DEANZ communicate with other language groups in New Zealand in the relevant language.

**Social**

Social isolation in the rural context might recur through status levels attributable to circumstances of birth, employment, wealth and class grouping (F. Darnell, 1981). For example, young and unemployed rural youth can become isolated socially in small communities because of the narrow economic base or because of economic depression. Skill training might be a way of overcoming the effects of this kind of social isolation. Similarly, professionals living in rural communities may be isolated socially from their peers because of either distance or difficulty in travelling. For example, religious leaders in small communities who are unwilling or unable to leave their communities may become isolated. The data for the University of Otago during this author’s time there indicated quite a high distance education enrolment of religious leaders in Theology courses.

**Economic**
Economic isolation often arises from poverty where in rural places a low-income base deprives student residents of the opportunity to expand their horizons towards other employment they might seek but is not available or even visible in small places.

**Professional**

This kind of isolation is alluded to above but is often reflected in students’ attempts to maintain professional qualifications and upgrades from an isolated location, for example, Chartered Accountants, Pharmacists, military personnel serving overseas or on ships.

**Exceptionality**

Among isolated or rural people there are always students whose needs and abilities are difficult to service. For example, those with special needs for learning or whose subject choices cannot be met because of a lack of suitably qualified teachers or inflexible timetabling in schools.

These categories of types of isolation can be expanded, but, in terms of meeting educational needs and enhancing service provision, the main ones are covered. DEANZ’ composition recognised the main service entities for overcoming the effects of isolation so long as its executive and it members contained those who had Correspondence School, The Open Polytechnic, and the Rural Education Activities Programme experience (REAP) (Hansen, 1985). Earlier DEANZ conferences appeared to include substantial numbers of members who came from these organisations or had close contacts with them. Later conferences tended to include more academic members from the tertiary sector. It might be argued that this change reduced the impact DEANZ had on educational provision for non-tertiary students in the rural sector.

**Ways of coping with isolation**

Among DEANZ’ major purposes are:

- advising and making representations on any matter relevant to distance education in New Zealand,
- establishing liaison with related organisations in New Zealand,(DEANZ, 1984a)

These two items coincide with the first three ways of coping with isolation identified by Darnell and Higgins. (Darnell, 1981). These were:

- Increase understanding of living in isolation by non-isolated,
- Develop a sense of community among the isolated, and,
- Develop awareness of options among the isolated.

During its early years DEANZ conducted some regional meetings focusing on educational provision. For example, it applied for and received support from the National Council for Adult Education to conduct its 1985 conference.(DEANZ, 1984b). Ormond Tate, however noted that distance educators were unable to influence the Picot Report even though New Zealand (and
Australia) were the only countries in the western world to conduct “cradle to grave” educational opportunities (DEANZ, 1988).

The organisation sought to establish a model for improving understanding of the isolated learners when in 1994 it conducted a joint ICDE / DEANZ conference. Despite the success of this event, the President reported that DEANZ activity had reduced, perhaps as a consequence of additional workload adding a burden to the executive workload within a voluntary context. The meeting contemplated moving to a biennial DEANZ conference with regional meetings being conducted in alternate years. DEANZ published the first edition of the Journal of Distance Learning in 1994. Also DEANZ made its first DEANZ Award for an investigation in two how distance education approaches could be integrated into staff development needs of Art and Design teachers. For its international outreach, DEANZ sought the support of the Commonwealth of Learning for a New Zealand Fellowship in distance education. Despite a detailed submission there was no evidence that this proposal succeeded.

Communications technologies

Distance education communities have been among the first to adopt relevant technologies to reach out to students. For example, some itinerant teachers used the first motor cars to replace horses and buggies in the early twentieth century. Later, they used the one-way radio systems to enhance their written correspondence lessons. During the 1960s distance teachers used the Flying Doctor radio systems to create Schools of the Air in Australia. It is no surprise therefore, to note that distance teachers were among the first to use fax machines and then the internet to support better teaching and access to learning. In 1995 DEANZ conference focused largely on the use of the emerging communications technologies in distance education (DEANZ, 1995).

The same theme emerged again in 2000 (DEANZ, 2000). DEANZ collaboration with the various Australian organisations who faced similar technological challenges provided not only stimulus to use the technologies but also a source of support and expertise. Some of the seminars attended by DEANZ members at that time recognised that the teaching strategies used in distance education would be applicable to classroom based teaching because of the lesson detail and the learning resource materials available to off-campus students. In 2001 the Government recognised that open, flexible and distance learning would transform school and tertiary teaching. The Minister for Education created an educational advisory group to provide him with advice on the future of e-learning as well as distance education, flexible learning and open learning across the entire educational spectrum in New Zealand. Shona Butterfield of the Open Polytechnic chaired this group which also consisted of a number of DEANZ members including the Past President, Prof. Prebble, past President Dr. Andrew Higgins, and Nola Campbell of Waikato University. It was this group who produced the Highways and Pathways Report which led to a substantial quantity of funding be made available to the whole sector, something in the region of $35 million, for advances in using e-learning strategies in learning and teaching. (Butterfield, 2002). Thus not only did DEANZ have a raised international profile it also proved its value to educational developments in New Zealand (DEANZ, 2001a). In keeping with the e-learning theme DEANZ organised its forthcoming 2002 conference in Wellington on the theme involving e-learning. Prof. Frederick Lockwood of the Open University agreed to give a keynote speech. DEANZ executive members met with the Secretary for Education
from Hong Kong giving additional evidence that DEANZ profile was remaining high internationally and in the Pacific region (DEANZ, 2001b; 2001c).

The DEANZ conference of 2002 proved to be most successful. Prof. Lockwood's address and after that, the Minister for Education, and other presenters ensured that the Wellington venue exceeded the organisational committee's expectations. Once again DEANZ profile helped it represent those whose the educational needs were different and could influence mainstream provision using technologies.

DEANZ sought input from Māori and other communities that could be brought into the Highways and Pathways process. The marae based Māori educators did not substantially engage in the debate and the decision making processes concerning the use of the learning technologies. Some argued that the independent learning practices common in this mode of teaching did not accord with Māori learning principles. There is no evidence that this was the case or that Māori students themselves held this view. Nevertheless, it took several more years before a major Māori institution took up the technology challenge through Te Wānanga o Awanuiarangi. Te Wānanga o Aotearoa did conduct correspondence education but did not use the emerging technologies. Overly large enrolment figures and small staff based did not foster changed educational approaches concomitant with using digital technologies.

Members of the DEANZ executive became involved in a project taking on worldwide significance, (DEANZ, 2006). The e-learning research fund and the innovation fund generated a recognised need for an e learning portfolio suited to New Zealand's students across the whole educational sector. A team of mostly DEANZ members applied for and attracted funds to develop an e-learning programme portfolio called Mahara, (https://mahara.org). The open source software e portfolio was later adapted not only by the Ministry of Education for all schools but also by New Zealand tertiary institutions and by many international bodies. This product won industry awards in 2008 and 2010 for its learning impact and innovative use of the Internet.

**Decision making and technology**

The cube model proposed that there could be some devolution of decision making from the centre (a Ministry) to local communities. The Picot Report, through its creation of School Boards sought to give them some autonomy to make educational decisions relevant to local communities. However, a simultaneous political move drove schools to engage in common reporting mechanisms. This had the effect of ensuring that schools remained very much with the national reporting and performance standards and diminishing the opportunity to create local initiatives. DEANZ members supported initiative such as the Cantatech Area one and other similar groups in the school sector. The tertiary sector adopted digital learning and teaching through use of learning management systems. DEANZ members played substantial roles in fostering the use either of BlackBoard or Moodle as the main (reliable) LMS devices in New Zealand.

- A study conducted by Jeffery and supported by DEANZ members found that the rise of the Internet being used as a teaching medium but without the use of distant strategies. The Help or Hinder project identified this issue clearly (Jeffery, 2012).
- The devolution of financial authority to small units within departments and faculties so distance education was reduced because it seemed to be merely peripheral to on-campus core business.
• The staff development units did not explore or advocate for distance teaching strategies in the e-learning environment. On campus teaching staff using e-learning strategies further reduced the importance that people saw in being members of DEANZ, where computer user groups seemed to be more relevant than ones focused on teaching.

• The increasing academic position of DEANZ, which brought it into national repute, also excluded, accidentally and without intention, those school-based teachers who saw themselves as practitioners of teaching and not persons who would be writing academic papers.

Consequently, it might be argued that the focus on technology rather than using the technology for teaching reduced the impact distance teaching strategies could have had on tertiary teaching. The Australasian Society for Computers in Learning in Tertiary Education (ascilite) initially concentrated on the technology and computing aspects of technology in the tertiary sector. The use of the internet and learning management systems expanded and many possible DEANZ members moved their focus towards the technology. This changed as academics began to enhance their teaching with technologies. DEANZ members often spoke at or attended ascilite meetings and spoke of alternative teaching strategies arising in the distance context but many academics remained wedded to the standard paradigm of learning and teaching. Electronic whiteboards, rostrum cameras and recorded lectures used technology but did not change teaching. It might be said that many academics migrated towards ascilite because it was “non-threatening” to standard modes of teaching.

Conditions affecting potential for change among the isolated

One of the most important factors concerning the education of rural and isolated students is the social climate. The various Education Acts of the 1870s made it clear that education for all citizens became not a privilege but a right at the school level. This meant teaching students who could not attend a school. The top face of the cube describes who those students might be. It has since become an economic belief that an educated workforce is more competitive internationally than an ignorant one. In this climate the Correspondence School and the Open Polytechnic could flourish but they did so within their own context and not as part of overall educational provision. The social climate and the political climate were always co-dependent. The Hon. P. Fraser former Minister for Education and Prime Minister wrote:

> government education policy, broadly expressed is that every person what ever his kind of academic ability, whether he be rich or poor, whether he lived in town or country, has a right as a citizen to a free education for which he is the best fitted and to the fullest extent of his powers.

This statement provides a very clear expression of the confluence of the social and the political. DEANZ sought as often as it could to influence the political climate for remote learners in the schooling and tertiary sectors. For example, towards the end of 2000 the Minister for Education presented Andrea McIlroy with a lifelong membership of DEANZ in recognition of her contribution to distance education generally and particularly for her contribution to the DEANZ Journal which had become a leading international journal of open distance and flexible learning.
Similarly, the strong representation of DEANZ members on the Highways and Pathways committee allowed the distance education perspective to be heard (Butterfield, 2002).

The issue of pedagogy remained one of contest and contention in the distance context. It might be argued that the traditional correspondence learning materials were produced with a “one-size-fits-all” philosophy and overly prescriptive teaching methods. This is the “Fordist” production line criticism as espoused by Peters. These critics failed to recognise that parents and home tutors delivered the lessons, not trained teachers, therefore the more guidance they had, the better the outcome. (Keegan, 1994). On the other hand there is the paradigm view that for education to occur, there must be the conjunction in time and space of teachers, students of similar age and interest, in a place, with adequate resources, that is, a school. Here are shades of Plato and Aristotle. In this paradigm, should any of the elements be missing, then learning would not occur.

It is because distance education clearly demonstrated that students could learn away from an institution, in the direct absence of a teacher and not at an institution, it challenged the accepted paradigm and therefore was both radical and dangerous. Many teachers saw it as a threat to their professionalism and others discounted it as “second-rate”. Distance education was not a threat to learning or to learners, but more to teachers, particularly those in the tertiary sector, most of whom had little or no teacher preparation.

Financially, the Correspondence system had high front end materials development costs and needed specialised buildings for teaching and materials storage. Teaching costs remained somewhat similar to those in a school. The advantage of distance materials was the capacity to amortise their costs of the development over both numbers and time.

The use of learning management systems presented a much greater challenge, not so much to schools but to the tertiary sector because teaching became a much more visible activity, with materials placed on websites. It also challenged how teaching could be undertaken and the associated costs of retraining staff and additional staff development. The costs of learning management systems (BlackBoard and Moodle) were similar. Moodle required the employment of in-house staff to maintain it, whereas the BlackBoard licensing system needed upfront costs but much less internal maintenance. In both cases, the real costs lay in staff development and not technology. In some cases though, integrating learning management systems into whole of operation information technology costs (Library, administration, enrolment etc.), did have a cost.

**Incentives for reform**

It often happens that changes in education are driven by events arising elsewhere. In this instance, the development of the internet, driven by researchers needs to communicate, resulted in major changes in the school and tertiary sectors. Teachers and academics realised that the internet could used to achieve the ‘anywhere, anytime and anyplace’ mantra of distance education. Students in particular saw the benefits of the internet. Not only could they access learning materials form anywhere in the world, but could do so from their homes, workplaces or leisure centres, and they could do it at anytime. It was they who became both the main beneficiaries and drivers of the changes. Their response to using the internet satisfied Ormond Tate’s question asked right at the establishment of DEANZ, namely, ‘What do Students Want?’ (Tate, 1985).
Conclusion

DEANZ’s constitution asked the organisation to attend to the following matters:

- advising and making representations on any matter relevant to distance education in New Zealand,
- establishing liaison with related organisations in New Zealand,
- promoting discussion about research and development in distance education,
- disseminating the results of relevant research and identifying areas in which research and development is particularly needed,
- establishing liaison with the international distance education community,
- organising regular conferences for the discussion of distance education,
- organising special interest seminars and workshops in distance education, and,
- publishing a newsletter at regular intervals and such other publications as the Association shall determine from time to time.

This analysis demonstrated that the organisation achieved each one of its aims to a considerable extent. However, in a more complex analysis DEANZ had had only a partial success. It focused its attention on geographic isolation and to some extent on social and professional isolation. It did not demonstrate success in challenging Ethnic/Cultural and Language issues. It did not, despite some efforts, address itself to Māori and Pacifica students’ needs, nor did it deal with issues of exceptional students well. These matters were left to the Correspondence School and the Open Polytechnic and to Wānanga separately.

DEANZ work, through its research, helped raised issues of education in isolation and by its existence, created a community of people concerned about education and isolation. For example, DEANZ sponsored and conducted a Commonwealth of Learning Conference (PCF3) that brought New Zealand into the greater Commonwealth discussion on the United Nations Millennium Development goals (Commonwealth, 2004). Its research also raised some awareness of educational options for isolated students, more particularly through the use of technologies in teaching. One of its main influences arose through its advocacy for the use of technology in teaching, for example at the Ministerial level and on various Ministry committees concerning e-learning.

DEANZ biggest contribution lay in its the advocacy of technologies in learning and teaching. The much more widespread use of these technologies eventually led to DEANZ to reconsider both its name and purpose in the technology world. Many teachers and academics focused on how the technologies could enhance access and equity but gave very little emphasis about how distance education could transform teaching. The strength of the standard paradigm of education remains too strong.

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Professional development across the islands of the South Pacific

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Abstract

Information and communication technologies (ICTs) are having remarkable effects and promise potential solutions to many of the South Pacific islands’ geographic, economic and social challenges. Access to ICTs is also an increasingly important factor for education and training in the region. While the Pacific eLearning Observatory, supported by the University of the South Pacific, has been monitoring the development and access to ICT in education across the 12 university’s campuses, studies that specifically examine the attitudes and understanding of educators working on the islands of the South Pacific towards the use of ICT in their profession, as well as for their professional development, are rare. This study aims at addressing the gap in the literature by examining the professional development of facilitators working in blended learning environment across the remote islands of the Cook Islands. The research outcomes of this study are based on the analysis of in-depth, semi-structured interviews, and the theoretical foundation of this thesis is grounded in the social and situated theory of learning. By closely examining the facilitators’ perceptions, the project sheds new light on the still little recognised concept of online communities of practice in teaching and learning. The central finding of the study is that participation in online communities of practice offers on-going opportunities for learning, development and support, and reduces the feeling of remoteness and isolation associated with the geographical conditions of the South Pacific region.

Introduction

The idea of professional development has come to the forefront of the current debates on adult education and training. Individuals often see professional development as a way to move forward and thrive in their careers. Employers view it as means for enhancing competitiveness and productivity, while governments view it as a way to sustain regional growth and political expansion (Milana, 2012). Yet, the term itself remains vague and often refers to a wide range of formal and informal learning opportunities generally directed at promoting skills development and transformation.

Some view professional development as a “one shot”, classroom-based passive process of knowledge acquisition aimed at the development of lacking skills or correction of “deficiencies” (Guskey, 2000). Others challenge such an approach by arguing that while short-term learning may indeed foster one’s interest, it is not sufficient to bring long-lasting change and improvement to one’s practice (Vanderbilt, 2008). Effective professional development is the ability to continuously and intentionally develop and transform in order to bring positive change and improvement (Billett & Pavlova, 2005).
While face-to-face development formats, such as individual or group coaching, experiential, on-the-job learning, or the creation of learning communities, remain valuable and offer on-going opportunities for professional development, the increase in access to the ICTs and online learning creates opportunities for those without easy access to the traditional face-to-face forms of learning. Given this potential, this paper is an attempt to understand the professional development of practitioners enabled to work and learn predominantly through access to ICT formats. The study focuses on a small group of facilitators working in blended learning environment across the islands of the Cook Islands. It argues that professional development is a dynamic and complex process of learning, identity formation and participation in both online and offline communities of practice.

The problem being addressed

Use of ICT in education and training fulfils diverse learning needs and provides opportunities for the professional development of educators. While many studies have examined online and blended learning environments and the factors that supported and hindered professional development of educators working in such environments, there are few publications that deal with these matters in the socio-economic and cultural context of South Pacific islands states. Furthermore, there have been few, if any, studies that have examined the perceptions of educators working remotely in blended, secondary school environment on the islands of the South Pacific.

An in-depth examination of the facilitator’s perspective of their work environment, professional roles, and factors that support and hinder their professional development and practice, will reveal implications that could be used for the future design, development, implementation and evaluation of online courses for educators working across the South Pacific region. I hope that this study will contribute to the field of online learning and development, and will provide new insights and better understanding of what it takes to facilitate and develop professionally while working on the remote islands of the South Pacific.

Study design/Approach

This research was driven by the desire to understand the professional development of facilitators working in blended learning environments on the remote islands of the Cook Islands. The aim of this project was not only to analyse the facilitators’ work environment and professional roles, identify what supported and hindered their professional development, but also to examine what role an online community of practice played for their professional development.

The study was undertaken using a qualitative research approach. There were several reasons a qualitative approach was deemed the most suitable to answer the research questions. Unlike the quantitative method, qualitative research design employs an inductive orientation to the research data in order to understand, interpret and explain the social phenomena and the meaning people have constructed (Bryman, 2012). Such a qualitative inductive approach permits in-depth and experience-based investigation, and generates richly descriptive findings (Merriam, 1998). It was therefore deemed the most suitable approach for the study, as it provided opportunities for the comprehensive reconstruction of the ‘multiple realities’ of the participants’ perceptions and understanding of their work context. What is more, by grounding the study within situated and social theory, it did not seek to test, but to elaborate and add to the field’s understanding of the adopted theoretical concepts.
The study duration was six months during which data collection, analysis and writing took place. The collection method included the use of semi-structured interviews with five purposefully selected participants. Participant selection was based on the basis of their expertise and experience in the area of blended learning and their diverse locations. Data obtained from the five interviews was then analysed using thematic analysis which enabled to find patterns and encode the interview data into themes. It also helped to arrange the key findings and relate them to the context of Lave and Wenger (1991) and Wenger (1998) theory of the social and situated theory of learning.

Findings

The research has led to a number of conclusions. It demonstrated the variation of the participants’ personal and professional backgrounds, experiences and aspirations, but also showed similarities when it came to the facilitators’ passion for education, challenges they have come across and support they have received in their daily profession.

The findings indicated the complexity of the facilitators work environment and their professional roles. The blended learning environment of the programme has led to the creation of shared tools and routines around which the facilitators’ online and offline practices have evolved. The research also revealed that such learning and working environment has required the facilitators to perform a number of roles which they all viewed through fine different lenses: local island representatives, mentors, coordinators, learners and team members.

Finally, the findings also indicated the dynamics of the facilitators’ professional development, which was divided into two distinguishing themes: online participation and on-the-job learning, and the importance of the daily online interactions with other facilitators for their professional development. The findings revealed that online participation and collaboration has provided the facilitators with continuous opportunities for learning and support, but also with a feeling of comfort and belonging to a team of blended learning professionals.

Discussion and conclusion

The aim of this research was to understand and describe professional development of facilitators working in blended learning environments on the islands of the Cook Islands. By applying the situated and social theory of learning (Lave & Wenger, 1991; Wenger, 1998), the study provided useful context on how facilitators learn and how their professional identity is constructed.

The literature suggests that belonging to an online community of practice provides its members with opportunities for sustainable and continued learning and development (Dede, Breit, Ketehult, McCloskey, & Whitehouse, 2005; Holmes, Signer, & Macleod, 2010). In this study professional development of TKU facilitators began when the facilitators participated in an online training course and started interacting on a daily basis using both asynchronous (Learning Management System and email) and synchronous (Skype) communication tools. This led to the emergence of the online TKU community of practice which has given the facilitators support and opportunities to share their experiences, learning and expertise on an on-going basis. Wenger (1998) stresses the significance of physical and conceptual tools, artifacts and routines that turn common understanding into practice. As such, members of the TKU community of practice have adopted, developed and used tools and artifacts around which they have built their history and organised their participation. For example, the
participants highlighted how they communicate, collaborate and ‘meet’ both formally and informally using Skype, sometimes even after hours. The findings thus indicate that Skype is a meaningful and essential tool and an artifact that enables the members to participate in their shared practice, cultivate their routines and build their history.

The study also demonstrates that learning can nevertheless be self-motivated and does not always require a new member to be introduced to a community as opposed to viewing learning as the process of legitimate peripheral participation, a relationship between the newcomers and old-timers (Lave & Wenger, 1991; Wenger, 1998). This study, similarly to the Hodkinson & Hodkinson (2003) revealed that learning is something that continuously takes place and may also happen when old members engage in new practices within the same community.

Furthermore, the research indicates the facilitator’s professional evolution can also be seen as a dynamic, on-going and complex process of professional identity formation (Billett & Pavlova, 2005; Hodkinson & Hodkinson, 2003; Nyström, 2011). Such identity formation is importantly affected by 1) interaction and belonging to various communities of practice, such as the facilitators’ local islands schools communities, and 2) the facilitators’ increased professional knowledge, experience, aspirations, perceptions of their professional roles, as well as the relationship between their professional, private and personal life spheres.

The key conclusion that can hence be drawn from this research is that the facilitators’ professional development is a continuous process of learning, participation in online TKU community of practice and process of dynamic identity formation and renegotiation affected by facilitators’ belonging to a number of different communities, as well as professional and personal experiences and aspirations. Such online participation reduces feelings of isolation associated with the specific geographic conditions of the South Pacific region and offers on-going opportunities for learning, development, support and reflection.

The findings hence provide valuable data for researchers studying issues of professional development in relation to blended learning environments, designers of online training courses and policy makers debating the importance and impact ICT has for the region of the South Pacific island states.

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High possibility classrooms: Emerging stories in design based learning in Australian secondary schools

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Abstract

High Possibility Classrooms (HPC) is a framework for technology enhanced learning drawn from research (Hunter, 2013). It arose from a study of exemplary teachers’ knowledge of technology integration in Australian classrooms of students aged 6-16. Conducted at four schools, the original study is being added to with a body of further research. Hailed as a framework of design based learning, this paper reports on an investigation of HPC in the teaching spaces of a group of mainstream teachers at two secondary schools in New South Wales (NSW). Understanding how this group of teachers deployed a theoretical model developed in particular classrooms builds a bridge between knowing what tech savvy teachers do and how mainstream teachers respond when using an explicit pedagogical scaffold. The framework of HPC (Hunter, 2015) has five conceptions and 22 underpinning themes; mainstream teachers in this study used HPC in powerful ways to create more engaging classroom communities. For example, students in the teachers’ classrooms expressed gratitude for how they learned content using project based approaches while concurrently articulating a desire to revert to traditional learning approaches as the senior years loom. Using case study research methods involving observations, interviews and focus groups with support from a head teacher, six teachers co-created innovative learning sequences involving the HPC framework in various subjects. Analysis of data from the study demonstrates that HPC is a pedagogical scaffold mainstream teachers can use to reimagine pedagogy; it also suggests an urgency for jurisdictions to re-think models of assessment in the latter years of schooling.

Introduction

In a recent keynote presentation at the EduTECH 2015 conference in Brisbane, Australia, Professor Eric Mazur from Harvard University claimed students “are more asleep during lectures than when they are in bed”. His proclamation resonated with comments made by secondary students in focus groups in new education research conducted in NSW schools who pleaded with teachers to “stop lecturing them”.

Technology has transformed our work and daily activity. However what is clear in some secondary schools is that progress is slow in what students experience in terms of technological transformation in teaching and learning in classrooms. The book Most Likely to Succeed (Wagner & Dintersmith, 2015) argues that for young people to live well in the world now and into the future requires recreating school education.

This position resonates with the report A Rich Seam (Fullan & Langworthy, 2014) that offers consideration of how new and emerging pedagogies require students to create new knowledge and
connect it to the world by using the power of digital tools. Not merely a set of instructional strategies, the High Possibility Classrooms (HPC) framework emerged from Australian research (Hunter, 2013) on exemplary teachers’ knowledge of technology integration in classrooms of students aged 6-16 years old. Teachers in the study (Hunter, 2015a; Hunter, 2015c) conceptualised their knowledge of technology integration based on theory, creativity, public learning, life preparation and contextual accommodations; the conceptions are supported by 22 underpinning themes of processes and practices. In each of the classrooms, students expressed a zeal for learning involving a myriad of activities involving technology. The examples of deep learning (Fullan & Langworthy, 2014) offered in this paper propose a fresh pedagogical slant to the conduct of schooling that bids necessity to develop ‘creating, doing and expansive’ dispositions in young people. New research in the classrooms of a group of mainstream secondary teachers demonstrates how new and emerging pedagogies are feasible.

The problem being addressed

Gaining an appreciation of what mainstream secondary teachers do when they use a pedagogical framework (in this case HPC) to design learning that focuses on technology integration is important. In Australia, the Digital Education Revolution (DER) was the largest digital technologies policy ever initiated by government (Moyle, 2015). The 2008-2011 $2 billion initiative placed a mobile device in the hands of every young person in a public secondary school from Years 9-12. Reportage of the policy effect (Master, 2014) and its impacts are inconclusive (Arthur, 2013; Buchanan, 2011; Howard & Giglioitti, 2013; Howard & Mozejko, 2013). However, what the DER did achieve was provision of equitable access to a technological tool that had “significant catalytic impact on secondary schools across Australia” (Danolo Partners, 2013, p.5). It disrupted the status quo.

In the original study (Hunter, 2013) secondary students in one of the classrooms used mobile devices distributed during the DER. Three years after the conclusion of the DER the study reported in this paper sheds light on how pedagogical scaffolds like HPC support or otherwise mainstream teachers’ technology integration. The research adds to a similar study conducted at a NSW primary school site in 2014: Big learning for the future (Hunter, 2015b).

Many Australian secondary schools increasingly require students to ‘bring their own devices or bring their own technology to school’ (Moyle, 2015). The study examines whether secondary school teachers focus on different HPC conceptions in particular disciplines when students use mobile devices and technology applications more generally. It distinguishes which HPC conceptions are prominent in mainstream teachers’ practices and how the framework presents new opportunities to teach in a different way. And, finally it identifies how students experience learning when technology is integrated. Benefits of the research are twofold; one, it provides pedagogical refinement of an existing design based learning model; and two, it facilitates how all teachers might begin to reimagine pedagogy in secondary school classrooms.

Study design/Approach

The research used a qualitative design involving case study data collection methods of observations, teacher interviews, field notes, document analysis and focus groups with groups of students from the teachers’ classrooms. Approved by Western Sydney University Human Ethics
Research Committee, the research was also agreed to by the State Education Research Approvals Process, as the study was conducted in two NSW Department of Education secondary schools.

The main research question was consistent with the 2014 study (Hunter, 2015b): *What HPC conceptions and themes dominate classroom learning when mainstream teachers integrate technology?*

The two sub-questions were narrower to capture the nature of teaching specific subjects in secondary schools:

- What HPC conceptions are most effective when teaching content in secondary schools?
- How can mainstream teachers in secondary schools make learning more engaging and motivating for students using the HPC framework?

In June 2015 data was collected across a two-week period from teachers (N=6) who volunteered to participate in the study. School principals called for interested teachers to contribute and all teachers including the head teacher teaching and learning (HTT&L) attended a HPC workshop conducted by the author. Each teacher worked with the HTT&L to determine the particular HPC conceptions they would use in two lesson observations. Collected data was transcribed, member-checked then managed using NVivo 11 qualitative software.

The prime purpose of data analysis is to make sense of out of the data (Merriam, 2009). Data analysis in this study involved a conscious method of selection, consolidation, reduction and interpretation of what was collected and collated from the actions of the research participants. These simultaneous processes are associated with the main stages in Strauss & Corbin’s (1997) grounded theory method: open coding, axial coding and selective coding. The first teacher interview was initially read without specific coding. The goal was to promote familiarity, jotting notes in margins, summarising idea or potential themes at a macro–level. Each step in the process of analysis was designed to ‘reduce’ or break the primary data down into ‘more manageable chunks’ (Merriam, 2009). The data from teacher 1 generated over 20 codes; the names assigned to the codes were created from the original study (Hunter, 2013) and included the five HPC components. The number of codes was reduced at this point prior to the importation of the remaining five data sets into the qualitative software to commence open coding in earnest.

Case summaries were prepared and presented to the teachers and adjusted further after a conversation with each participant involving cross-case analysis. These form the basis of the case study; this research method is based on interpretation, and within qualitative study, the researcher plays the dominant role in the interpretation (Corbin & Strauss, 2008). The lens is a contested space, and therefore defining exactly the type of study this is, may speak volumes to some and to others it may be treated as simply words on a page, which gets to the root of the problem: subjectivity and interpretation (Abma & Widdershoven, 2011). Questions concerning subjectivity on behalf of the researcher are easily heard: ‘why was that observed and not that’; ‘why was this considered more important than that’; and ‘was this really the way things happened’ or ‘would I have seen it differently?’ The point of raising these hypothetical questions is to illustrate some of the strengths and limitations associated with qualitative data and case study more generally to provide some understanding as to the rationale for framing the research in this way.
Findings

Six secondary teachers at the two school sites, Melton and Bally, taught English, Heath & Physical Education (HPE), Science, Design and Technology (DT), History and Visual Arts (VA) to students in Years 7-10 (N=135). No senior students (Years 11 and 12) were involved in the study.

The research location was a Sydney selective school split across two campuses; one is co-educational, and the other, an all boys school.

This research forms a second case study of mainstream teachers perceptions and practices of technology integration using the HPC framework (Hunter, forthcoming). Technologies used by teachers and students ranged from various mobile devices to desk top computers loaded with Weebly, Google Drive, CAD and Edmodo programs.

Key emerging trends from the data explains how all conceptions in the HPC framework are equally viable in the support they offer teachers to adopt a design based approach to technology integration in secondary school classrooms, for example:

- conceptions of theory, public learning, life preparation, creativity and contextual accommodations lead to closer pedagogical attention when teachers integrate technology, and
- there is increased pedagogical flexibility for teachers from a design based scaffold that focuses on the integration of technology to facilitate the type of learning students prefer.

Furthermore the HPC framework was effective for teachers and changed the dynamics of their pedagogy when:

- project based learning in a subject like DT required students to complete week long tasks in small groups
- it was used to encourage team work in Science enabling students to create rich digital artefacts to reinforce understanding how the human body functions
- it targeted purposeful teaching that focused on providing students with the means to search more efficiently for information
- it was employed in English for teaching satirical texts involving opportunities for students to respond using innovative digital formats; and
- it framed the inclusion of blogging tools to facilitate real world responses from students to understand healthy lifestyle issues in HPE.

Findings from the research are reported in a forthcoming case study: Reimagining education in Australian secondary schools requires more than just tinkering at the edges.

Discussion and conclusion

OA History teacher in the study made this comment: “HPC is about actions and new methods of teaching but the focus of the scaffold is really on its wider impact on pedagogy”. It is reflective of statements made by the other five teachers. In discussing emerging findings, the HPC framework supports making teachers’ pedagogical approaches more student centred. Such practices are driven by technology that students find engaging and motivating in ways that lecturing or didactic teaching are not.
In many secondary schools, teachers recognise that the ‘fall back’ pedagogical position is “you listen and I will fill your head with what you need to know and then you will be able to produce that information in a test/tests” (Interview 1, Teacher 5). One comment from a student in a Year 10 focus group in English recognises that using technology is distracting but it acts to engage them if they perceive “the teacher or what they have to do in class as boring”. This was not an issue in English at Melton campus but a comment about what the student perceived occurred in other classrooms. In qualifying the previous statement the student recanted: “even if the lesson is engaging people will still prefer to play games…teachers need to know about the alt tab”. Another added: “even the best students in a class will have dropped out of what they are meant to be doing and spend whole lessons playing games on the internet”. This response was widespread across student responses in Years 7-10.

The data was replete with claims of poor connectivity and the unreliability of the internet on most school days and there were persistent calls by students, especially by the time they reached Year 10, for teachers to foster hand writing skills in preference to going completely online: “technology must be an extra not replace books…you absorb more when you write notes in class by hand”.

In conclusion, the research raises dilemmas about deep learning practices that pedagogical frameworks like HPC invite. Teachers find design based scaffolds useful for reimagining personal pedagogy. On the one hand there are countless reports, national assessments, documents, policy statements, professional development bodies, education conferences and academic research papers that demand how teachers must prepare, and are not yet preparing, students for the future. Yet we still have an industrial model of schooling that is bound by a rigid model of assessment that values individual achievement, written responses and fact recollection. The two worlds clash and teachers (and students) will not ‘risk teaching (and learning) in other ways’ while one is privileged. Until that reality changes for more Australian teachers and there is widespread establishment of deeper evidence–based pedagogical approaches…secondary schools will remain ‘tinkering at the edges’ in enhancing student learning using technology.

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Life integrated learning and assessment: Strategies to connect mature-aged distance students with the course content

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Abstract

Nearly a third of mature-aged students (over aged 24) in New Zealand study by distance so they can fit study into their full lives. Past research suggests these students enjoy and cope well with distance learning, but also have a high first year attrition rate. More is needed to identify better ways to engage these students to ensure their retention and success. Part of a wider project on student engagement, this paper explores how older distance students connect with the course curriculum. Nineteen first year distance students, aged from 26 to 59, took part in pre and post semester interviews and completed weekly video or email diaries throughout their first semester at a New Zealand university. Findings indicate that life integrated learning and assessments are key tools to engage these students. Students were enthusiastic about course content when they saw connections with their past, present, and future selves. This triggered a positive spiral, motivating them to spend time on study and making it easier to understand and learn content. These connections were not limited to work, suggesting that the current focus on work-integrated-learning is missing important opportunities to engage students. Assessments were a second key trigger for cognitive engagement. While enjoying learning for its own sake, the students were strategic and prioritised assessment tasks. Effective assessments do not just grade the students, they also engage them. The use of digital tools for content delivery and discussion was beneficial at times and problematic at other times. The findings highlight the need to design courses carefully and to enable students to find connections with their interests, experiences, and skills.

Introduction

Thirty-two percent of bachelor degree students in Aotearoa New Zealand universities are mature aged (over 25) and over a third of those students choose to study by distance (Ministry of Education, 2013).

Older students who stay at university have key strengths and generally do well (Sheard, 2009). They tend to be more motivated and committed than their younger counterparts (Kasworm, 2010). They also tend to use deeper learning strategies and are motivated primarily by the desire to learn rather than assessments and grades (Burton, Taylor, Dowling, & Lawrence, 2009). Distance study suits older students as it offers the flexibility necessary to fit study around family and work, and research suggests they are satisfied with online learning (Ke & Xie, 2009) and handle it better than younger students (Ransdell, 2010).

However, despite these strengths, this population has a high attrition rate with more than a quarter failing to complete or return after their first year (Ministry of Education, 2013). Two common
reasons are financial challenges and role pressure (Cantwell, Archer, & Bourke, 2001). Other less tangible challenges faced by older students centre on a lack of belonging (Kasworm, 2010) and the difficulties of taking on a student identity (Askham, 2008). In addition, the increasing use of technology for course delivery means that lower computer self-efficacy can be a challenge for older distance students (Garcia & Qin, 2007).

Student engagement, a student’s connection to their study, is an important predictor of retention and success at university (Kuh, 2009) and is therefore a useful construct for exploring the experiences of mature-aged distance students. Engagement is a contested term; this study uses Kahu’s (2013) conceptual framework as the underlying theory of engagement. Here engagement is seen as a multidimensional construct: Emotional engagement is the student’s interest and enthusiasm for course content; behavioural engagement includes time and effort as well as other behaviours such as class participation; and finally cognitive engagement is the student’s self-regulation and use of deep learning strategies. The framework recognises that engagement is embedded within the sociocultural context and influenced by a wide range of university and student factors. In distance learning, one important influence is the digital tools used in course design and delivery with mixed findings as to the benefits and risks for different students (Chen, Lambert, & Guidry, 2010; Holley & Oliver, 2010). A recent comparison of student engagement by age and mode of study found older distance students had high levels of satisfaction and learning, but a different pattern of engagement than younger campus-based students (Kahu, Stephens, Leach, & Zepke, 2013). In particular, for both older students and distance students, work integrated learning and deep learning strategies were identified as strengths.

This literature suggests that a key strategy for engaging this cohort may be through the curriculum – the course content. The current paper aims therefore to explore the experiences of a group of mature-aged distance students in their first semester to discover how they cognitively engaged with the course content, the material they were learning. Understanding how content triggers engagement can lead to a better understanding of how institutions and teaching staff can better connect with, and therefore retain and graduate, these students.

Study design

Nineteen first year distance students, 15 female and 4 male, were interviewed prior to the start of their first semester at university, completed weekly video or written (two students) diaries throughout the semester, and then were re-interviewed after the final exams. The students were varied in terms of: age, from 25 to 59; ethnicity, 15 European New Zealanders, 6 Māori/Pasifika, 2 Asian; family structure, 12 had partners and 12 had children; study load, 4 full time, 12 half time, and 3 doing a single paper; and paid workload with 9 full time, 3 part time and 7 with no paid work. Their final results were also varied: nine successfully passed all their papers, four withdrew from study, four failed all their papers, and two had mixed results. The initial interviews focussed on expectations and motivations and in their diaries participants talked about their thoughts, feelings, and behaviours in relation to their study, and commented on things that were influencing their engagement.

The students were enrolled in courses from a wide range of disciplines. The course designs ranged from predominantly print materials to a mix of print and digital resources including a few with synchronous webinars. All courses had asynchronous discussion forums, although the level of usage...
by staff and students varied. A few courses included an optional two to four day campus based session.

The interviews and diaries were fully transcribed and returned to the participants for approval. Analysis was a theoretical interpretive approach, identifying themes from surface meanings, viewing language as a simple expression of people’s experience, but paying heed to social context (Braun & Clarke, 2006). A range of themes were identified with the focus of this paper on how students talked about their engagement with the course curriculum, the material they were learning.

**Findings**

Two key elements triggered cognitive engagement for these students: life integrated learning and assessments. Students’ emotional engagement, interest and enthusiasm, was triggered when they saw connections between course content and their past, present, or future selves. This triggered behavioural engagement: motivating them to do the learning tasks; and cognitive engagement, deep learning which made the material easier to understand and retain. The connections were sometimes work based, for example theory illuminating work experiences; sometimes interest based, a topic they found intrinsically fascinating such as Daniel who loved history; or sometimes life based, such as Melissa applying rehabilitation theories to her family situation. Melissa explained: “I’m getting to integrate what I’m learning with my life first hand… I find it quite fascinating and interesting and certainly helps me with my learning.”

Assessment practices also connected students to the curriculum. Students prioritised assessment tasks above course reading. At times this resulted in a shallower connection, rote learning facts and figures, but at other times assessments triggered that life integrated learning by enabling students to apply theory for example. For instance, Bernadette found essay writing invaluable: “The essay actually gave me more insights about financial reporting. If it were plain textbook and lectures it will be really hard to comprehend. Too theoretical. But after doing the research and writing the essay, it improved my understanding of the topic.”

The use and perceived value of technology to deliver the course content (videos, discussion forums, online readings etc.) varied dramatically by course and by student. Discussion forums in particular triggered contrasting responses. Other people’s questions could be either useful for clarification and or could cause confusion. Many students felt forums were filled with trivial questions and so a frustrating waste of time. One was disappointed there was not more active discussion of course content. The use of other digital tools varied across the courses. Those with access to recorded or synchronous lectures found them valuable for understanding the content. At times however, technology was a barrier; through not knowing how to use the tools, disliking working online, problematic internet access, sharing a computer with family, and fear of posting and being seen as “stupid”. These all caused frustration and inhibited cognitive engagement.

**Discussion and conclusion**

These findings highlight strategies educators have available to cognitively engage these students. Student engagement occurs in what Kahu and Nelson (2015) term the educational interface, the dynamic space between the students’ personal identities and experiences and those of the institution. Both life integrated learning and assessments occur in that interface and are more
effective when there is alignment between the interests, skills, and experiences of the student and the learning, be it a course reading or an assessment.

The benefits of work integrated learning are well established in higher education: enhanced learning for the student and work-ready graduates for employers (Patrick et al., 2008). The current findings highlight that life integrated learning may be a more valid term, recognising that students connect to their study not just through work applications but also through life experiences and personal interests (Kahu, 2014). Life integrated learning is an example of how positive learning occurs in the educational interface. When the student’s past, present, or future self aligns with the curriculum, interest is triggered. Interest involves concentration, attention, and alertness (Ainley, 2006). It is a central component of emotional engagement and the findings of this study highlight that it triggers both cognitive and behavioural engagement. This aligns with other evidence that interest predicts persistence (Sansone & Smith, 2000) and intrinsic motivation (Bye, Pushkar, & Conway, 2007).

Assessments also occur within the educational interface. If a student has high self-efficacy for the task and they find it interesting or relevant, they will be more engaged and therefore will work harder and learn more. Assessments are a useful way to trigger life integrated learning for distance students. Campus based students have opportunities to make these connections through examples and discussions in lectures and tutorials but distance students are often limited to course readings. While distance students can theoretically share thoughts and experiences in discussion forums, as discussed below this can be problematic. Despite their love of learning, lack of time means mature-aged distance students need to be strategic and so assessments are still given the highest priority. Educators therefore need to design assessments that engage students through encouraging them to connect the learning with their own experiences or plans, reflective blogs or reading journals for instance (Andrusyszyn & Davie, 2007).

The impact of technology on students’ cognitive engagement was variable, highlighting the need for course designers to exercise caution. Some students are not comfortable with technology, some do not like to learn that way, and some do not have access to the right tools. Previous experience with computers and online learning predicts success at distance study (Sitzmann, Kraiger, Stewart, & Wisher, 2006) and this is potentially particularly challenging for older students (Garcia & Qin, 2007). The design of forums is also important. Older students post more substantive comments and questions in forums (DiBiase & Kidwai, 2010) and staff need to encourage and support this type of discussion to enable deeper learning, while providing a separate space for more trivial procedural questions.

Overall these findings highlight the critical importance of connecting students with the course content. It reminds us of the importance of communicating the relevance of what students are reading or doing and of giving students structured opportunities to apply the learning to situations of their choice.

References


Developing instruments to measure perceptions of technical vocational education and training (TVET) model programme provision

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Abstract

The growing need for a skilled competitive workforce, the associated demand for change and responsiveness in Technical Vocational Education and Training (TVET) provision, has led to the development of stronger links between New Zealand (NZ) and the People’s Republic of China (PRC). This collaboration, the model programme project, includes curriculum development, joint programme design and the delivery of quality New Zealand qualifications in China. A key activity of the project is to identify and measure the impact change (for example in curriculum design, assessment, learning and teaching approaches) will have on the quality of the teaching and learning experience of participants within the two countries. Given the multi-national distributed locations of potential model-programme partners, agreed collaborative collection, storage, manipulation and analysis of information and data from dispersed sites are critical issues to be addressed. This paper reports on the preliminary design, development and validation of a dynamic web-based learning environment instrument for use in TVET settings which incorporate a range of modalities embracing traditional as well as e-learning (on and offline), distance and mobile student learning environments. As well as exploring the effectiveness of the learning environment instrument in measuring the impact of change on participants in the various environments, it will describe how an online version of the instrument will be tested and validated. It will explain how the provision of feedback to the multiple stakeholders involved in the change process (learners, teachers, institutions and governments) will be achieved along with the expected outcomes. The paper concludes by suggesting this web-based instrument will allow conclusions to be drawn about student perceptions on the changes occurring in distributed TVET environments, across national borders, in an economical and efficient manner, thus providing valuable data for change management in a range of TVET learning environments.

Introduction

There is broad agreement between the governments of the Peoples Republic of China (PRC) and New Zealand (NZ) that the ability of individuals, industry and nations to meet the competitive challenges of an increasingly global economy is irrevocably bound to an adaptable, highly-skilled and knowledgeable workforce. To maintain, or improve, their current economic position, the government of each country has demonstrated its commitment to workforce development - the on-going extension of the workplace skills and abilities of both employees and trainees (Clayton, 2015). In 2010, NZ and PRC began investigating strategies to develop stronger links between the two countries that could develop the capabilities and capacities of teaching staff and support
stronger institutional relationships. At the same time, China’s changing attitude towards vocational training, and a broader recognition that vocational study was an acceptable educational outcome, opened up model polytechnics for partnership opportunities (MOE PRC/NZ 2015).

The New Zealand – China Vocational Education and Training Model Programme (also known as simply “The Model Programme”) was agreed to as a commitment in the Strategic Education Partnership Arrangement, which was signed during Prime Minister Key’s visit to Beijing in 2013. Since then, Technical Vocational Education and Training (TVET) institutions in NZ and PRC are actively collaborating to learn from each other’s experiences. This collaboration includes curriculum development, joint programmes and the delivery of quality New Zealand qualifications in China. A key activity of the Model Programme project is to identify and measure the impact these changes have on participants, this includes tutors and learners (MOE PRC/NZ 2015)

The problem being addressed

In times of educational change it has been noted there is a gap between individual policy rhetoric and actual classroom reality (Atai, & Mazlum, 2013). With multi-nation initiatives it is anticipated this gap will be the same, if not greater. One of the key issues to be addressed is efficient and effective ways to gather, store and analyse evidence from distributed sites and in multiple countries.

The performance of the proposed changes to TVET actual classroom practice will be measured by grades allocated, credits earned, test scores, and other valued learning outcomes. However, these quantitative measures, focused on educational outputs, mean reports will be somewhat limited. They will not adequately measure the details of the learning and teaching process or the impact of change on participant’s participation (Fraser, 2012). The interactive perspective in psychology places a dual emphasis on both the person and the environment (Fraser, 1983). This focus indicates that behaviour, attitudes and well-being are determined jointly by the person and environment. A core premise of this Person-Environment fit (P-E Fit) theory is that findings are not generated from the person or environment separately, but rather by their fit or congruence with one another (Edward et al, 1998). The investigation in, and of an educational learning environments is based on the formula, B=f(P,E). This formula identifies that behaviour (B) is considered to be a function of (f) the person (P) and the environment (E). It recognises that both the environment and its interaction with personal characteristics of the individual are ‘potent determinants of human behaviour (Clayton, 2009). The increasing availability of user friendly electronic databases and the development of simple user interfaces has enabled researchers with limited technical knowledge to generate web-forms. The interconnectivity of dynamic web-forms with relevant databases has made the collection, storage, manipulation, analysis and reporting of data generated from multi-nation sites possible. (Clayton, 2009).

Therefore, to economically and efficiently gather evidence of participant perceptions from multi-nation distributed sites and to ensure the multiple stakeholder’s involved in the Model Programme project receive consistent information within agreed time-frames, information and communication technologies will be used extensively. The development of these online instruments and associated databases and the processes and procedures established to collect, investigate and report on can be seen to contributing greatly to understanding and evaluating the impact of changes made to, design, delivery and assessment of TVET in dispersed locations.
Approach

This project’s primary purpose is to use information and communication technologies (such as web-forms, databases and management systems) to systematically evaluate the impact of changes made to learning environments and institutions through the introduction of Sino – NZ TVET model programme provision and make recommendations to inform future changes to programme implementation. Four key work-streams have been identified to support this purpose:

• **Work-stream One**: Identification of salient dimensions and items related to the changes made to teaching and learning through the introduction of TVET model programmes (for example changes to curriculum, design of assessment, approaches to teaching, approaches to learning…). This work-stream will involve face validation of scales and items to ensure they are adequate, suitable and relevant.

• **Work-stream Two**: Design a flexible framework were instruments developed and can be designed to investigate the impact of specific changes. This flexible framework will ensure sufficient dimensions and items are included in all instruments developed to interrogate the three general categories of human environments (Personal Growth, Relationships, and Systems, Maintenance and Change).

• **Work-stream Three**: Field testing and analysis. This theme involves the piloting of the online instruments and databases. This will ensure the framework developed is economical in terms of time needed for completion, administration and reporting.

To complete the work-streams five interwoven and overlapping phases have been identified:

• A desk-top information review of using learning environment research to measure the impact of change will be undertaken.

• Critical change features to the learning environments of SINO – NZ model programme provision identified.

• Scales and items identified and flexible online modifiable instruments developed and validated. Database procedures will be confirmed.

• Pilot programmes are identified and online learning environment instruments and databases tested.

• Reports and presentations submitted for commentary and publication.

Method

In the identification of salient scales and individual items to be used in the construction of the SINO-NZ TVET model programme provision instrument, two common strategies will be used. First, an extensive literature review of the field, guided by previously developed scales and items considered to be relevant, will be undertaken and second, this literature review will be enhanced by extensively engaging with TVET specialists. Following these two steps will ensure dimensions and individual items, regarded by TVET specialists as salient, are covered (Clayton, 2009; Fraser, 2012).

These scales and items will be arranged as assets in an interactive web-form. The provision of manipulative web-assets will provide researchers with limited technical ability, the flexibility to design and deploy learning environment instruments to measure a specific change quickly and
Researchers, while cautious in using web-forms to gather data, agree that there is no significant difference in the pattern of responses received from online surveys and traditionally-administered forms (Baron & Siepmann, 2000). The advancements in connected-computer technologies and statistical software applications will offer TVET researchers a simpler, more streamlined method for the collection, storage and manipulation of data. For example,

- Using dynamic web-forms using friendly “what you see is what you get (WYSIWYG)” software applications web-pages and associated databases can be created quickly and efficiently
- With effective integration of web-forms and database software, the tedious data entry stage is eliminated providing greater assurance data acquired is free from common entry errors.
- Since there is no separate data entry phase, tabled results can be available for analysis soon after the data collection phase.
- The costs in terms of both time and money for publishing a survey on the web are low, compared with costs associated with conventional surveying methods.

Discussion

In responding to government demands for a highly skilled workforce, TVET institutions in NZ and PRC are actively collaborating to learn from each other’s experiences. One of the outcomes of this collaboration will be establishing the foundations for joint model programmes to be collaboratively designed, developed and delivered. To ensure the success of model programme provision, institutional decision makers in both countries must be provided with reliable evidence of the impact this provision has on learner achievement. They need to have the right information, at the right time to make the right decisions.

It appears logical those features explored in learning environment research, the perceptions of learners and teachers of the environment and the social and psychological factors, will be equally as important to research in TVET environments. The development of an online perceptual measure investigating aspects of the TVET environments is timely and can make a significant contribution to teaching, learning and research in this area.

- First, TVET educators developing joint courses for delivery should be careful to ensure participants, both learners and tutors, are comfortable in and benefit from, the learning environment created. The availability of an interactive modifiable TVET instrument, and the speedy assess to data generated by its application, will serve to highlight those practices which assist learners and tutors to adjust to the changing environment and those which create barriers to learning.

- Second, the availability of changeable web-assets within the TVET instrument will enable researchers to target specific changes introduced and then economically monitor these identified changes for effectiveness.

- Thirdly, as the instrument progresses through validation procedures it could be viewed as contributing significantly to the larger research field of learning environment studies and TVET provision.

Conclusion

The growing need for a skilled competitive workforce, the demand for change and responsiveness in TVET provision, the growing demand for continually upskilling, lifelong learning workforce are
making vocational education and industry training increasingly more viable, attractive, cost-effective and valued. This continued growth of TVET provision needs to be matched by a similar growth in educational research focused upon the specific learning environments created for these TVET worlds. The development, validation and refinement of an online flexible learning environment instrument will go some way to address these research needs.

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How to develop a GROOC: Establishing group dynamics in MOOCs

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Abstract

The term GROOC has recently been defined, by Professor Mintzberg of McGill University (McGill, 2015), to describe group-oriented MOOCs, based on one he has developed on social activism. He has also made it clear that he sees no requirement to provide additional support to address group dynamics, stating that groups should be able to handle losing a few members and still function appropriately (Poets & Quants, 2015). However, the existing research in this area, building from a massive research base in traditional group work theory (Cohen & Lotan, 2014), has identified that group formation and maintenance require considerable extra planning and support. The authors have recently completed the first instantiation of a MOOC, on Entrepreneurship and Innovation in IT, as part of the dCCD-FLITE (distributed Concurrent Design Framework for eLearning in IT Entrepreneurship) research project (dCCD-FLITE, 2015), and their research has confirmed the difficulties in both forming and maintaining groups, and student reluctance to engage in group-based activities. In this paper we discuss the existing research on establishing group dynamics in MOOCs, identifying the key factors influencing success and failure, and then consider the outcomes from the dCCD-FLITE MOOC. The authors have already reported on this work, and have now further analysed the data gathered from the MOOC to consider alternative approaches to establishing Group Dynamics in MOOCs, and are currently planning to run the course once more utilising social media as a catalyst for group formation and maintenance.

Introduction

Existing research in group work theory has long established the importance of group formation as a key arbiter of the success of the group (Cohen & Lotan, 2014), and has identified characteristics of the roles played by group members to achieve that success (Belbin, 2012). In recent research, the advent of MOOCs has led to the consideration of group formation and role issues in that environment, with particular consideration on the issues raised by cohort size and massively distributed locations. While some MOOCs have been successful in establishing and running activities in groups, predominantly this has been where the students have the option to self-select their group, including opting-out and operating as an individual, (Mackness et al, 2010) or where efforts have been made to create co-located groups with the option for face-to-face interaction (Beaven et al, 2014). Where there has been a mandated requirement for students to work in groups, especially from the commencement of the course, the results have been much less successful (Wen et al, 2015). Additionally, we know from research on group work in education that students are often resistant to working in groups, citing variability of effort and levelling of outcomes, inter alia, as reasons for wishing to avoid it (Pfaff & Huddlestone, 2003), and this applies even more
forcefully in MOOCs. Another significant issue in MOOCs is the unfamiliarity of the students with one another, there is no cohort effect to draw on, students may come from widely dissimilar backgrounds, demographics and experiential levels, and they may be affected by cultural and linguistic differences, all of which make it more difficult to work together.

For the dCCD-FLITE (distributed Concurrent Design Framework for eLearning in IT Entrepreneurship) MOOC, the consortium had a number of these issues to address. The target audience was intended to be a mix of University students, staff from the IT industry, and unemployed people, both from the IT industry and looking to move into IT. There was also a mandatory group work component, requiring groups to be formed early in the course, around business ideas.

The Problem being addressed

The dCCD-FLITE project was funded by the EU, through the Erasmus Lifelong Learning initiative, to provide a means through education to develop entrepreneurship activity, particularly in IT, throughout the EU. There is a growing demand for entrepreneurs and innovators, particularly as IT is now seen as one of the most important drivers for business success and product development. However, the EU has also identified a significant skills gap within the IT industry, and within the EU population as a whole, which they are seeking to address through the development of projects such as dCCD-FLITE. There is also a growing issue of unemployment, particularly amongst the young, and initiatives such as this were seen as a route to developing more EU companies to challenge US domination, and hence more jobs (Gareis et al, 2014).

The project consortium chose to focus on the development and delivery of an online course on Entrepreneurship and Innovation in IT. They also provided a novel combination of tools to support collaborative activity online, the distributed Concurrent Design process (dCCD) (Strand & Staupe, 2010, Strand, 2012), and business plan development, the Osterwalder Canvas and Business Model You (Clark, 2014), running initially in the Pearson OpenClass VLE (Pearson, 2015). The course developed involved 50 hours of student work, over 8 weeks, and the project ran a small pilot involving 12 students selected by the consortium partners in late 2014/early 2015. The pilot results were mixed, less than half the students completed and the groups did not function well, but the students who completed were enthusiastic about both the course and the materials (Stamatis et al, 2015). Following this the authors took the decision to run the large pilot of the course as a MOOC, the results of which are described below.

Study Design/Approach

In developing a MOOC, the authors sought to take the lessons learned from the small pilot, revising the course to address those issues. The course was moved to the CANVAS MOOC platform (Instructure, 2015), and joint advertising was used to attract over 1500 students worldwide. To address issues of motivation and independent learning capability amongst the students, far greater levels of advice and study support were offered, and a detailed guide through all the materials, combined with a mindmap that had been successful in the small pilot, was provided. To establish the groups early, students were initially assigned to a group, and asked to discuss a business idea within that group, but were given the freedom to move between groups, or to form their own, to find a business idea that they wished to develop.
From their research, the authors were aware that the issues highlighted in the small pilot were common in MOOCs. A cMOOC model was followed (Clarke, 2013) as this provides a disruptive, constructivist, student-centric approach (Jacoby, 2014), which was the preferred approach of the dCCD-FLITE consortium. However, for novice online learners the sheer complexity of such an environment can be overwhelming (Kop et al, 2011), and the workload can also be too onerous (Zutshi & Rodafinos, 2013). MOOCs were originally established to attract audiences of experienced, metacognitive adult learners, who could successfully manage their own learning in a heutagogic environment, but the reality is that the majority of learners in MOOCs require considerably more support than envisaged in that model (Beaven et al, 2014).

The key research questions to be answered in the dCCD-FLITE MOOC were: firstly, could CCD provide an effective collaborative model for learners in an online course; and secondly, could the dCCD-FLITE course bring together students, those working in industry, and unemployed adults, to discuss and develop entrepreneurial ideas in IT.

Findings

When considering the outcomes from a MOOC, it is worthwhile to suspend normal academic judgement related to traditional courses, and to consider them from the perspective of student intentions. In common with other MOOCs, approx. 50% of our students who registered never engaged, they had the aspiration, but clearly needed the right combination of time, motivation and trigger to do so. Of the remaining 50%, a further 49% had no intention of completing the course, but wished to use it for information and some experience, so their engagement with the course would be considered successful if they achieved that. This leaves only 24% of registered students who started with an intention to complete, and, from our student survey, only 12% of those still engaged by week 3 expressed a desire to interact with their peers, preferring to work alone.

Most MOOCs report successful completion rates of less than 10%, which is easily explicable from these statistics (Ref), although higher rates can be achieved for shorter courses with less time requirements. For the dCCD-FLITE MOOC, the completion rate was 2.5% and although well over 100 groups were created, both by the authors and by the students, none of them actually returned a business plan, although submissions were made by 19 students individually.

Discussion and Conclusion

From the point of view of the dCCD-FLITE project, the MOOC outcomes were mixed, although only a small number of students completed the course, feedback was positive from a larger number of students. The course attracted students from a wide range of backgrounds, from many countries, and some group activity did take place. A detailed analysis of the outcomes has already been published (Bacon et al, 2015). Here we are focusing on further analysis carried out to address the issues of group formation and maintenance, and to consider how we might revise our approach for future instantiations of the course.

Perhaps the key message to be drawn from the research and our experience is that, if you want to achieve higher completion rates and a greater level of group engagement and submission in a GROOC, you really need to prepare properly and preferably pre-engage with the students. It may be that this is the norm in social activism, which is why Professor Mintzberg sees no need for such
preparations, but if not he may find his GROOC hitting the same problems we have described above. In studying the feedback we received from the students in our MOOC, we could determine a clear delineation between different types of participant and the way in which they wished to engage with the MOOC. We have already identified the 50% who registered but never engaged as aspirational, and any attempt to address that group has to be at the point of registration, seeking to get them to make some commitment and early engagement that might provide the trigger for them. The 49% of the remaining group who have no intention of completing the course, but want to find information and/or gain some experience, we can think of as shoppers, and perhaps the best methods to encourage them to take more of the course will be to use marketing techniques, making special offers with short-term availability to draw them into further engagement. However, perhaps the hardest problem we have to address is the significant rejection of group work, with only 12% of those still engaged at week 3 expressing themselves willing to work with others in a subject area that really demands an ability to develop teams. Indeed one of the key concepts of the course is the students working together on a shared business idea. To address these issues the authors have decided to investigate the use of social media, instigated at registration, where students can choose to opt in to social media groups that reflect their intentions for the course, with the potential to move between them as they engage with the course. We will use social media messaging and updates to enhance the MOOC experience throughout the course, and we believe that the inherently group-based nature of social media, combined with the widespread acceptance it has achieved, will have a positive impact on our MOOC Group Dynamics.

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Insights for future assessment policies and procedures planning and design by open access online higher education providers

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Abstract

We argue that current online education assessment policies and procedures are based on the premise of the traditional student. The traditional student is typically studying full time, accessing campus facilities, and their studies form the main commitment in their lives. However, as student cohorts have evolved in the online teaching space it is no longer appropriate for institutions to base policy and procedure planning and development decisions on redundant learner characteristics. This paper provides the results of a thematic analysis undertaken with 226 online open access students. Top line results suggest strong connections between work commitments and the inability of online students to successfully complete their studies, due largely to outdated and inappropriate assessment policies and procedures. This research offers recommendations for higher education online assessment policy and procedure design, which should improve learner satisfaction and help to reduce online student attrition.

Introduction

We know that student attrition is a serious concern around the globe and particularly high attrition rates, exceeding 20%, have been observed for online degree units (Greenland & Moore 2014). Attrition rates in online courses are frequently disparate with their on-campus classroom taught equivalents (Sener and Hawkins 2007). While the differences between online and on campus learners have been acknowledged in the literature (Rovai & Jordan 2004; Summers, Waigandt, Whittaker 2005; Liu 2007; Lim, Morris, Kupritz 2014) and there is a considerable volume of literature regarding online pedagogy, the design of online degree policies and procedures has received less attention and is more likely to have been based upon on campus traditions rather than practices developed specifically for online units.

Imagine if we could address attrition from within our online cohorts. What would this look like? What do our students think? We therefore decided to ask our attriting students their main reasons for not completing their studies. Some of our findings are shared here in this paper.

The problem being addressed

Drivers of attrition in online learning environments are not fully appreciated and the literature acknowledges the need for further research concerning persistence in online education (Burns 2013; O’Shea, Stone, & Delahunty 2015). Understanding the reasons why more students drop out of online studies is essential for informing effective institution retention strategies (Simpson 2013).
Given the significant proportion of students dropping out of online units, even a small reduction can have a significant impact upon online program profitability.

Student attrition has a considerable literature base identifying many key factors. Some factors identified recently by Azarcon, Gallardo, Anacin, & Velasco (2014, p. 110) include: quality; facility; faculty; service; campus; policy; and fee; several of these factors are campus and learning environment based. The main concern that we have, is that this literature base is largely focused on traditional face-to-face students. Our focus pinpoints open access online undergraduate students.

**Study design/Approach**

Due to the nature of attriting students, i.e. their experiences, a positivist approach underpins this paper’s methodology (Silverman 2010). For example, here we are interested in the reasons or facts about why students did not complete their online studies, i.e. a pragmatic lens; rather than emotional, feeling based perceptions of a learning environment, i.e. factors related to isolation (Berenson, Boyles & Weaver 2008; Wenger 1998; Stacey, Barty & Smith 2005; Leong 2011).

Thematic analysis (Braun & Clark 2006 & 2014) was applied to a qualitative data set derived from in-depth telephone interviews with attriting students. Semi-structured questions, guided with strict research standards, received a high response rate during the data collection, i.e. 226 students studying open access online undergraduate education agreed to share their experiences and reasons for not completing their studies during the years 2013-2014.

**Findings**

The findings from the thematic analysis, revealed the following detail for attrition (Figure 1):

![Figure 1. Reasons for open access online student attrition: Main reason (n=226 respondents) and overall reasons (n=565 responses) for not completing a unit.](image-url)
• Online learner context (for example: isolation) and Online learning resources (for example: web sites, learning management systems) are no longer contenders for main reasons for student attrition in online learning;
• Employment related commitments presented too high a hurdle for online students;
• When combined, personal and family commitments have significant influence over decisions to drop study;
• The majority of reasons shared by our attriting online students are uncontrollable from a learning institution’s context.

Discussion and conclusion

A key insight gained from the results to-date revolves around the employed characteristic of online students. For example: 81 respondents (35.8%) indicated their main reason for dropping study was employment related. Within this theme several sub-themes were identified: ‘over estimating their capability or unable to manage work and study’; ‘work changed or changing work role’; and ‘work related travel’ were the top three reasons provided.

Our analysis of the three reasons above, has revealed several issues for providers of online education to consider in their policy composition in relation to assessment. These are:

1. Online students are interested in goal attainment, however are subject to over committing their time;
2. Cognitive load is too high, in context of learning challenges presenting both within the work place due to changing roles or work function; and presenting with new knowledge and content requirements through studies if temporally aligned; and
3. Time away from the office and virtual class room, through work related travel, impacts study momentum and progression.

We posit, that the above findings provide valuable insights for future assessment policy and procedures planning and design by online higher education providers. For example, we observe policy and procedures for assessment practices are focused on the characteristics of traditional students. We know that our online student cohorts are generally working. We argue, that work related commitments should be considered in assessment policy making, especially for those students who are working while endeavouring to study. We believe that changes to assessment policy acknowledging the working characteristic of online students will impact significantly on attrition rates. As illustration, implementing flexibility around assignment submission deadlines, as well as allowing students to withdraw part way through a semester, or study period, with the option of continuing where they left off the next time the unit runs would enable online students to fit in their studies around less flexible work commitments.

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Reshaping the learning experience in mathematics: The potential of the Math Shake app

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Abstract

With the recent proliferation of mobile devices and apps in the primary mathematics classroom there is a need to consider how their use is reshaping learning experiences. As part of a co-inquiry study on the use of apps by practising teachers and researchers, this paper focuses on the use of one app, Math Shake, which is used to support students in solving word problems. The app combines the use of digital tools to support calculation strategies with screen casting. The dynamic, visual and haptic affordances of the app, along with the screen casting feature, enables students to record their mathematical thinking and processes. Responses from teacher and student interviews were analysed in relation to an emerging theme on affordances. Their responses related not only to affective aspects such as motivation, risk-taking and confidence, but also to the creation of a dynamic, visual and aural representation of the students’ thinking that would not be possible otherwise. The process of verbalisation along with the manipulation of images, drawing and writing in a safe environment that the student controls would suggest a change in the learning experience.

Introduction

There has been an increase in the availability and use of mobile devices such as iPads in education settings over the last five years. Their low instrumentation and ease of operation make using them intuitive for young learners. Linked to this increase is the growth in educational apps, but questions have been raised regarding the appropriateness of the content and pedagogical approaches of apps (Philip & Garcia, 2015). As mobile devices become increasingly used as a teaching tool in primary mathematics classrooms we need to understand how they can change pedagogical experiences and how these changes can enhance student learning.

This paper reports on an aspect of a research project, funded by the TLRI, to examine the ways iPads are used to enhance the teaching of primary mathematics. In particular we focus on the use of an app called Math Shake that uses screen casting; the digital recording of the computer screen with voice recording. In a similar way to apps such as Explain Everything, Math Shake allows students to record individual or group presentations of mathematical processes, strategies and solutions. Further to this, Math Shake generates word problems at different levels, and provides a range of digital pedagogical tools (e.g., empty number lines, counters, ten frames), that students can select to help with their calculation strategies in finding solutions. We consider how the use of this app might be seen to reshape learning experiences in primary mathematics.
The problem being addressed

Mobile devices have the potential for introducing new ways of engaging with and facilitating understanding of mathematical concepts and processes (Borba & Villareal, 2005; Calder, 2011). In relation to Gibson’s (1977) notion of affordance and to Brown’s (2007) acknowledgement of the relationship between user and artifact, the visual, auditory, and dynamic affordances of digital technologies have been seen to fashion the learning experience in distinctive ways and so reposition students’ engagement with mathematics. The glass interface of an iPad presents a further haptic affordance. In touching the screen, there is a direct interaction that enhances the relatively high agency of the medium. The student interacts directly with the phenomena rather than being mediated through a mouse or keyboard (Sinclair & Heyd-Metzuyanim, 2014).

Much of the discussion regarding the ways iPads and apps transform the learning experience is centred on the notion of student engagement afforded by the visual and interactive characteristics of the pedagogical medium (Carr, 2012). Furthermore, the affordances of interactivity and instantaneous feedback foster the learner’s willingness to take risks with their learning (Calder & Campbell, 2015). The use of screen casting, and its ease of use on an iPad, introduces new dimensions to the visual, auditory, dynamic and haptic characteristics of the medium. In creating their own recording, students create a dynamic visual and aural representation of their mathematical thinking and reasoning that can be rehearsed and replayed. The screen casting feature of the Math Shake app, along with its range of digital tools, has the potential to change learning experiences in ways that would not be possible with use of pencil-and-paper or manipulatives. In this paper we investigate how teachers and students perceive the learning opportunities offered by the characteristics of the Math Shake app.

Study design/Approach

The project was based on an interpretive methodology through collaborative analysis and critical reflection of classroom practice and student learning. The research design was aligned with teacher and researcher co-inquiry whereby the university researchers and practising teachers worked as co-inquirers and co-learners to build knowledge and develop research capability (Hennessy, 2014). Three teachers, all experienced with using iPads in their mathematics programmes, were involved in the study. One teacher taught a year-4 class using a BYOD approach. The other two teachers team-taught in a year-5 and 6 class with one-to-one provision of iPads.

Data were obtained through different sources (focus group interviews, classroom observations, interviews with teachers, and blogs) and were analysed using NVivo via a mainly inductive method to identify themes. Refinement of the identified themes occurred through joint critical reflection between teacher practitioners and academic researchers in research meetings. One of the identified themes related to affordances and how an app could enable a learning experience that would not be possible otherwise. In this paper we present extracts of data from the teacher and student interviews concerning use of the Math Shake app. Their responses were analysed in relation to the emerging theme on affordances.
Findings

One teacher explained how screen casting was a powerful agent in learning as the students were “explaining their own thinking, creating their own content, their own language.” Another teacher noted how screen casting enabled less confident students to explain their thinking in a “nonthreatening environment” with “no teacher staring at them, no other kids waiting for them to hurry up.” Another comment noted “They’re in a safe place where they can just record their thinking without any pressure.” One teacher also made reference to the students interacting directly with the content of the mathematics, “like a physical object that they’re interacting with.”

The students referred to direct interaction by drawing on the screens and tapping to select a tool. The students also saw the screen casting as enabling. “It’s just like making a movie for maths.” The ability to record both on the screen and orally seemed important. “You can write it down as well as explaining it while you’re recording.” “The cool thing is that you can actually pause it and then think about what you’re going to do.” Students also commented on the assurance that they had a correct solution, and so were confident in recording their strategies.

Discussion and conclusion

Both teachers and students acknowledged the visual, dynamic, and haptic affordances of the iPad. The teachers spoke of students acting directly with the mathematics and the students related to tapping and drawing on the screen. Students also commented on using the different digital tools of the app to solve their problems, and so engaging with multi-representations dynamically through touch and sight. The use of screen casting, including voice recording, was seen as powerful by the teacher and as enabling by the students. The screen casting had advantages in motivating students and in increasing confidence. As such the use of the app related to previous research findings regarding visual and dynamic affordances and affective aspects such as motivation, risk-taking and confidence.

Further to this, the screen casting feature of the app introduced a new representation of the students’ mathematical thinking and processes in solving word problems. The recording on the screen (drawing, manipulating digital tools and writing), with the simultaneous voice recording, created a new representation of a student’s thinking. This new representation is afforded by the dynamic, aural, visual, and haptic features of the iPad and the app and would not be possible otherwise. The students noted how they were “making a movie”, hence creating a representation that was dynamic, visual and aural. The teacher commented on the students “creating their own content, their own language,” and so were making decisions in how they represented their mathematical thinking. In addition the pause feature enabled the students to reflect on what had been said and think about what to say next. So, not only did the app provide a way to show the students’ thinking processes in solving a word problem, it seemed that, through pausing and editing, the students could prepare, rehearse and perfect their recordings. These recordings were then available for the individual students to refer back to as a dynamic aural-visual representation of their own thinking as well as a representation to share with other students for discussion and with their teachers for assessment and feedback.

Previous research suggested that the affordances of mobile technologies can reshape the learning experience. Through a more immediate and explicit interaction students can manipulate and create dynamic images on the screen to explore mathematical objects. The use of screen casting along
with voice recording introduces the potential for students to create their own dynamic, aural-visual representations of their mathematical thinking. The process of verbalisation along with the manipulation of images, drawing and writing in a safe environment that the student controls would suggest a change in the learning experience. Further study of this changed experience is needed to understand how it might also be reshaping the learning of mathematics.

References


Facing down dragons and discovering gold: A tale of virtual mentoring and coaching

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Abstract

The ‘learning journey’ has become a bit of a cliche. Nevertheless, it is a useful way of capturing the multiple pathways and adventures involved in learning, the mentors and comrades you choose to collaborate with along the way, and the decisions you make that can change the course of your professional narrative. One common thing about all such journeys is their differences; even people on the same journey will experience it differently because of their previous experiences, beliefs and values. So, how can we ensure that professional learning and development provision is flexible, mobile, and personalisable? How can we find the ring that makes the provision itself invisible by foregrounding and meeting the needs of learner?

This paper explores how virtual mentoring and coaching (also known as distance, remote, tele-, cyber- and eMentoring) makes use of the affordances of technology to provide a way for professional practitioners to have someone walk alongside them on their journey, who encourages robust discussions, helps with the exploration of alternative points of view, and helps with the identification of the next place to head toward on the professional learning ‘map’.

The paper describes a Virtual Professional Learning and Development programme that has been offered in Aotearoa New Zealand from 2009 to date and discusses findings from the associated research study, including benefits that can be specifically equated to the virtual nature of the mentoring / coaching and access to the online Community of Practice. Also reported are shifts in mentees’ self-efficacy and perceptions of changes in professional practice.

Introduction

“None of us should wander alone….There are other ways...other paths we might take”
Fellowship of the Ring, JRR Tolkien

Learning is, ideally, lifelong. It might be compared with a journey, where the journey is the focus, rather than endpoint. Each ‘learning journey’ will be different - different companions, role(s), tools, speed of progress, and ways of seeing. With the growing awareness that all learning experiences need to recognise these differences (Bolstad et al, 2012), it is no surprise that Professional Learning and Development (PLD) is being reconceptualised (Owen, 2015).

For today’s educators, demands on their time are ever increasing. Also, for educators in rural and isolated locations distance can be prohibitive to providing PLD on location, or for the educator to travel to participate. One of the authors of this paper recounts that as a PLD facilitator he had one school that “was a ten hour round-trip, sometimes for a one hour PLD session”. In contrast, virtual mentoring uses readily-available technologies to enable educators to participate at a time and in a space that suits them. Mentees and mentors can work together in an online session and be back in the
classroom or office within minutes of signing off. As such, when PLD combines virtual mentoring with an online Community of Practice (CoP), educators can be supported to build and apply their knowledge and skills (Cranefield, Yoong, & Huff, 2011). Face-to-face generic workshops are being superseded by flexible, personalisable approaches that provide a heterogeneous system accessible through a variety of mobile devices (Cochrane, & Rhodes, 2013).

While many studies explore the potential of face-to-face mentoring and CoPs (Kidd & Murray, 2013), there are fewer studies that investigate effects in a virtual environment, especially in the Aotearoa New Zealand context. This paper describes a PLD initiative that has been offered from 2009 to date. It also discusses findings from the associated research study, providing evidence of the unique benefits of virtual mentoring.

**The path less travelled - virtual mentoring**

Mentoring, either face-to-face or virtual, has many definitions. In this paper we use Hay’s (1995) definition: “Mentoring is a developmental alliance between equals in which one or more of those involved is enabled to: increase awareness, identify alternatives, initiate actions and develop themselves” (p. 3). Virtual mentoring is based on mentoring practices developed for face-to-face circumstances but involves two people in different geographic locations working together. Virtual mentoring should not, however, be seen as the ‘poor cousin’ of face-to-face mentoring - or as a more cost-effective option because this is likely to result in a relationship that is driven by needs of an institution rather than the PLD requirements of the mentee (Brockbank, & McGill, 2006).

Our aim in 2009 was to develop a model of PLD that was scalable, sustainable and replicable. We wanted to offer educators an opportunity to learn by participating in virtual mentoring and an online CoP. In the process, we hypothesised that participants’ sense of self-efficacy would be more positive, and their professional practice would be impacted. In turn, this may have an influence on student wellbeing and achievement. Therefore, we designed the Virtual PLD (VPLD) programme to provide multiple ways to participate, and to support mentees to identify areas of professional growth based on their own needs, as well as those of their students, school and community (Owen, 2012). The programme had no formal 'content', associated accredited institution, or formal assessment.

VPLD mentors meet online with their mentees, using Adobe Connect, Skype, or Google Hangouts, once a month for an hour. Notes from the session are typed into a Google doc by both the mentor and the mentee. Mentoring strategies are customised, and during meetings subjects range from pedagogy and learning theories, to challenges, successes, and what the mentee has been working on (Owen, 2012).

**Study design/Approach**

A research study of the VPLD programme has been conducted to “discover how things work in a particular learning context, using a mixture of qualitative and quantitative sources of data” (Phillips & Gilding, 2000, p. 2). We interpreted qualitative as “any kind of research that produces findings ... not arrived at by means of statistical procedures or other means of quantification” (Strauss & Corbin, 1990, p. 17). The data generated were mainly qualitative because they are more appropriate for studying adult learning in a virtual environment (Reeves, 1993). The quantitative data were useful in identifying trends and changes, in particular within the online CoP, which could then be studied in more depth (Yin, 2009).
The case study method was used to aid understanding of a select subset as a distinct whole within its particular context (Merriam, 1998): in this case a programme that used virtual mentoring to provide professional development for education practitioners in Aotearoa New Zealand. Case studies are sometimes considered to be a qualitative technique, but may use quantitative information (Yin, 2009). One drawback of the case study approach is loss of overall interrelation and effectiveness of processes (Yin, 2009). To help provide breadth eight ‘stories of change’ were developed about mentees and findings compared. One aim of these stories was to explore the embedding of new professional knowledge, practice and beliefs, as well as how participants constructed knowledge and made sense of their learning (Owen, 2015).

Every year between 2010 and 2014 all (155) VPLD mentees were sent an invitation to participate in the study. Participation was voluntary, and there was no additional incentive offered to participate.

Data were generated using a range of methods and tools including:

- three online surveys per year (January, June, and November/December),
- recorded discussions / notes,
- contributions to the online CoP,
- Webinar recordings, and
- emails.

The quantitative online survey responses were exported into Excel, analysed and interpreted. The respondents' pre- and post pilot survey data were analysed separately. A qualitative approach was used to interpret the open-ended survey responses, as well as other forms of data collected from virtual meetings and online interactions. Recurring words were noted as possible emergent themes and used as codes. Comparative methods of analysis were used during coding (Charmaz, 2008).

Findings

There are a range of findings from the research, including eight emerging themes. Due to the constraints of word count we focus on the qualitative data and only two of the themes in this section.

Differences between face-to-face mentoring and virtual mentoring include a greater reliance on oral / aural communication to build relationships, plus it is less likely that mentor and mentee are familiar with each other’s contexts. Although these may appear drawbacks, findings indicated that they were benefits. Although the virtual mentoring relationships were a little slower to develop, trust formed because virtual mentors and mentees were less able to make assumptions based on demographics (such as ethnicity, age, and physical appearance), as well as environmental influences. Some mentees also found the virtual environment a more comfortable medium to converse candidly, a place where they could be “honest about what they are experiencing” (Mentee four, mentor notes, 2011).

An analysis of two of the stories of change, as well as data from the annual evaluative cycle, suggests that the individuals developed a sense of self-efficacy that motivated them to:
• identify aspirations, develop goals and plan how to attain them, and
• develop a deep sense of what they wanted to change - to have “time to try ... ideas, to make ... mistakes and to reflect upon our success” (survey response, 2010).

When encountering challenges some reported that support from their virtual mentor made all the difference when considering options and strategies, although it was not like flicking a switch, and mentees described ongoing crises of confidence.

Discussion and conclusion

Metaphorical dragons, such as physical distance, can be a barrier to accessing PLD, especially in a country where many people live in small rural communities, and public transport is limited or non-existent. Isolation is not confined to geography; educators in large schools/institutions or cities can also feel professionally isolated. By offering the VPLD programme it meant that:

• issues with professional isolation were addressed (Mentee one, for example, reflected that “I ... realised ... how massive and pervasive professional isolation could be” (blog post, 2013), and felt she was ready to leave the teaching profession),

• PLD was portable,

• mentees could tailor their participation so that they “don't feel overburdened. Everything works alongside things I am already doing” (survey response, 2012),

• timing was flexible - “[I] can do it at a time that suits...usually evenings” (Mentee seven, mentor notes, 2011), and

• costs were kept low because there were no travel requirements, few administrative needs, and no premises. One mentee observed that they saw this “as the ... most accessible ... professional learning for these current times” (2011, survey response).

As with most PLD there were challenges (some of which were beyond the programme team’s control). Every year between one to three participants dropped out in the initial stages for various reasons including:

• ill-health,

• family commitments,

• a promotion or change in role,

• unsupportive leadership; or

• reliable access to a computer and the Internet - or at least a phone.

Virtual mentors worked to create online spaces, and used approaches that recognised factors that influence the development of strong self-efficacy. The PLD ‘came to’ the mentees, had duration, and fitted within mentees’ existing professional (and personal) lives, while also challenging them (Owen, 2015). Mentees were supported to be more open to learning, taking informed risks, and seeing non-achievement as formative. The VPLD programme not only increased mentees’ ability to cope with change, but also to celebrate and embrace change (Owen, 2012) - “I've learned ... and
been inspired over time, without pressure of instant results. That’s what PD should be about” (Mentee six, end of year reflection, 2010).

The mentoring fitted alongside other forms of PLD that mentees were involved in, helping to ensure a more complementary, consolidated experience that built toward a mentee’s goals. Ongoing access to a mentor and online CoP also (and this was the gold!) provided support to pursue promotion and alternative roles or career pathways, and at least twenty VPLD participants have been recognised through external awards (for example, eFellowships). Other mentees have chosen to become Developing Virtual Mentors, thereby offering a model for sustainable scalable support with education practitioners taking on roles as ‘change agents’ and leaders. (Owen, & Dunmill, 2014).

While some of the findings are likely to have been similar in a face-to-face mentoring context, others can be attributed to the virtual nature of the PLD, in particular those that are reliant on trust, regular and easy access, social modelling, and social persuasion from a wide range of practitioners that extends beyond a mentee’s immediate professional context. The VPLD programme illustrates that PLD provision, which combines access to a virtual mentor and a supportive online CoP is able to provide opportunities for social influence, feedback and modelling, build a culture of trust, support success and use approaches that positively impact personal cognition (Owen, 2014). As such, it is likely that demand for models such as that offered by the VPLD programme will grow, and in turn increase momentum behind the reconceptualisation of PLD.

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**Acknowledgements**

The Virtual PLD (VPLD) initiative was instigated in October 2009 by the eLearning Division at the New Zealand Ministry of Education, who also funded the project. The initial concept was conceived by Eddie Reisch (Senior Analyst MoE) in consultation with ePrincipals Carolyn Bennett, Trevor Storr, Ken Pullar, Robin Ohia, Helen Cooper, Merryn Dunmill. Te Toi Tupu Leading Learning Network consortium took over the overall management of the project in 2011.
Learning threshold concepts in an undergraduate engineering flipped classroom

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Abstract

Given that the current goals for tertiary education is to better prepare students to apply their disciplinary knowledge in the real world and novel situations, it is imperative that students master the necessary disciplinary threshold concepts and competencies. Building on the findings of our pilot study of a partly-flipped undergraduate electronic engineering course, a version of a fully flipped is implemented in an intensive six-week version of the course involving in-class collaborative problem solving and continuous assessment. Data collected from the 32 students enrolled in the course include student surveys, video analytics, weekly student assessments, class observations and a focus group interview. Although data collection is still underway, the emerging findings indicate that students are watching the recommended weekly videos prior to coming to class and are solving online tutorials problems much more diligently, resulting in higher levels of in-class student collaboration compared to the pilot study. The results are discussed in regard to the effects of the fully flipped class model and the continuous assessment on students’ learning of threshold concepts and competencies.

Introduction

Within each academic discipline there exists concepts, threshold concepts (TCs), that once grasped can reveal new and previously inaccessible ways of thinking about that subject (Meyer & Land 2003). These concepts are hard-to-grasp, troublesome, and are often where students ‘get stuck’ (Harlow, Scott, Peter, Cowie, 2011) yet students need to master them in order to think and act like subject specialists. There is a growing evidence that structuring tertiary curricula around TCs can help students learn more effectively (Wolf & Akkaraju, 2014, Peter & Harlow, 2014) and that a flipped classroom model of teaching and learning can foster more active student learning (McLaughlin et al., 2014).

In a flipped class, lecture materials are assigned as take-home tasks that students are required to do prior to coming to the class. The class time is thus freed up for active in-class student inquiry and collaboration, such as small group problem-solving and discussions, and to address student questions and misconceptions (Strayer, 2012). These activities have been shown to help students master TCs (O’Toole, 2013). By flipping the class the lecturer’s role changes to that of a facilitator of learning through observing and monitoring areas in which students need help with; providing students with different ways to learn content and demonstrate mastery; giving students opportunities to actively participate in meaningful learning activities; scaffolding these activities and making them accessible to all students through differentiation and feedback; and conducting ongoing formative assessments during class time (Hung, 2015; Chen, Wang, & Chen, 2014; McLaughlin et al., 2014, Kim, Kim, Khera, & Getman, 2014; Halili et al., 2013).
Our study addresses these recommendations through an emphasis on students watching pre-recorded videos, solving online tutorials problems, attending in-class mini-lectures and participating in continuous assessment and collaborative problem-solving tasks. These provide a variety of ways for students to learn and demonstrate mastery of TCs and related concepts.

The problem being addressed

The Introduction to Electronics course is a core undergraduate engineering paper compulsory for all engineering students. The organisational model for this course has traditionally consisted of three one-hour long lectures, an hour-long tutorial session, and one three-hour laboratory session each week of the semester. Each student was expected to attend all of face-to-face lectures and tutorials and one of five laboratory streams which run once a day on each day of the week. The course is regarded by many students to be a conceptually challenging one with a relatively heavy conceptual load. Earlier studies by our research team (collaborations between two educational researchers and the two engineering lecturers teaching the course) evidenced the effectiveness of refining the course curriculum to emphasise student learning of TCs (Scott, Harlow, & Peter, 2012) and the implementation of an online tutorial system to replace the face-to-face tutorials (Peter, Harlow, Scott, Balsom, & Round, 2014). As the online tutorial system was well received by students, the team decided to extend the research to incorporate more online learning resources and active student participation as recommended through the flipped class approach. It is expected that a TC-based flipped-class approach to teaching and learning would enhance students’ learning of threshold concepts and competencies.

Study design/Approach

The current project builds on our pilot study (Khoo, Peter, Cowie, 2015). Over three weeks, three 50-minute lectures were replaced with a suite of short lecturer-created videos focusing on TCs. The videos, (4-13min) were created. These were designed using recommendations from cognitive models shown to be effective in online learning (Sorden, 2005) and resembling khanacademy.org-style videos. Students accessed these from the course using Moodle as the LMS.

The results of the pilot showed that students’ achievement in the flipped class section of the course could not be predicted from their viewing of the video materials. Although over 90% of students found the videos helpful, only about half of students thought the videos’ content was well matched to the lab’s activities (48%) or that it helped with practical application in the lab (54%). These results suggested that the strategies for motivating students to watch the videos and be prepared for the class needed to be reviewed and that stronger links between the video materials, in-class activities and laboratory work needed to be established.

In the current study, the partly-flipped course in the pilot study was replaced by a fully flipped course which incorporated more explicit connections between course elements, enhanced in-class collaborative problem-solving tasks, continuous assessments, and student postings of questions, from their video-watching, in the Moodle forum to inform the in-class mini lectures. It is expected that these refinements would increase the number of videos watched prior to each face-to-face class and more timely use of online tutorials to support learning in general and the learning of TCs in particular. Qualitative and quantitative data are being collected from student focus group interviews, surveys, observations, video-watching analytics and online tutorials completion rates. The weekly assessments are being collected and will be analysed for the indicators of students’ learning of TCs.
Findings

It was anticipated that current refinements to the flipped class and especially the introduction of continuous assessments would increase the average number of videos that students watch prior to each face-to-face class. Emerging results seem to support this expectation. Students have reported that the continuous assessments have encouraged them to diligently attend to all learning materials and make connections between various educational resources in the course.

An increase in the quantity and the quality of in-class discussions and efficiency of student problem solving attempts is also expected. Classroom observations and lecturer reports thus far suggest that this is the case. Informal reports from the lecturer indicate that students are using the Moodle forum to pose questions and also to share resources with one another. These observations will be further examined during the focus group interview.

Overall, we expect that better learning outcomes will be achieved in terms of TCs and higher overall grades than the previous cohort of students in the pilot study. We also expect that students will experience greater satisfaction with learning through the flipped class approach than students in the pilot study (Khoo, Scott, Peter, & Round, 2015). The outcomes of the data analyses will be reported in our conference presentation.

Discussion and conclusion

In this study, students in a fully flipped class can draw from a variety of teaching and learning resources—pre-recorded videos, online tutorials, mini lectures, posting questions on Moodle, continuous assessment, group problem solving, and practical lab work—to help them learn TCs.

By incorporating continuous assessment to encourage prior class preparation and by making more explicit the connection between the different course elements (online tutorials, videos, weekly tests and practical group work), students are more motivated to continuously learn and can see the “whole picture” within the course. This also confirms findings from others who have trialled continuous assessment as part of the flipped class approach (Kim et al., 2014). We argue that when assessment is continuous and formative, it becomes part of mastery-based learning (Gagné, 1988; Hernandez, 2012; Khan, 2012; McNabola & O’Farrell, 2014) and that it is this aspect of the flipped class that can contribute considerably to students’ learning of TCs. In our study continuous assessment served three main goals: (1) to reinforce students’ timely video materials viewing and practicing using online tutorials, thus assisting in pacing learning, (2) to reinforce or correct learned responses, and (3) to improve the quality of students’ learning of TCs. Further examination of the effects of the continuous assessment in a fully flipped class may identify additional ways to refine and improve this approach to teaching and learning in the next phase of the project.

Offering students the opportunity to post questions related to their video watching helped to inform the lecturer about the areas where students needed specific help. The in-class mini lectures addressed these areas and provided opportunities for further questions and enhanced collaborative work and solving online tutorial exercises. Through in-class mini lectures students’ concerns are addressed in a timely manner to benefit their and their peers’ learning. In successful blended or technology-supported learning environments there is a need for different levels of interactions between student-content, student-teacher, and student-student (Bonk & Khoo, 2014; Moore, 1989). Our work indicates this to be the case. It also dispels common misconceptions and tendencies to think
that all that is needed for a flipped class to work is to prepare videos and relevant resources for students to access before attending a class. Our findings, as well as those of others, indicate that a focus on both before-class preparation and in-class work are essential (Chen et al., 2014; McLaughlin et al., 2014; Roach, 2014). A coherent course design, continuous assessment and feedback, and more explicit connections between course elements are all necessary to enhance students’ understanding and application of ideas concerning TCs.

To conclude, it is expected that the findings from this study will deepen our understanding of the ways and extent to which a flipped class model can foster a more meaningful learning of TCs, and inform pedagogical practice and theorising in engineering and potentially in other disciplines.

Acknowledgment

The authors gratefully acknowledge funding support from the Teaching and Learning Research Initiative, New Zealand Council for Educational Research, Wellington, New Zealand.

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Analytics in higher education: The ethics of assessing individuals on group risk

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Abstract

Higher education institutions can use analytics to better predict which potential students are at greater risk of dropping out or failing, and impose some form of intervention. Institutions can employ analytics to categorise individual students using factors correlated with higher failure risk across a group, such as, for example, ethnicity, first-generation student and part-time student status. Institutions offering distance education have strong reasons to pursue risk analytics, with online learning providing increased access to data to facilitate analytics, and institutions desiring to improve retention for distance learners. Drawing on group-based risk analytics to propose or impose interventions for ‘risky’ students is an ethical concern if individual students are burdened solely due to group risk, without regard to them as individuals. Philosophers (Schauer, 2003; Lippert-Rasmussen, 2007, 2011, 2014) have argued there is little or no substantive difference between assessing individuals on group risk statistics and using more ‘individualised’ evidence. This paper examines and rejects these arguments, identifying the (potential) compromising of individual agency and autonomy as distinctive ethical concerns with the use of group risk analytics. These concerns are discussed in the context of the emerging use of analytics to screen students in higher education. The paper proposes several measures that may mitigate the distinctive ethical concerns with analytics-based screening. These involve the transparency of the screening; the static or dynamic nature of the factors used in analytics; the use of statistics specific to individuals, and the distribution of responsibilities between the student and the institution.

Introduction

Institutions offering higher education are interested in identifying the individuals at greater risk of not completing their course of study and intervening in their study. Computer tracking and analysis of large amounts of data from applicants to higher education can identify risk factors and predictive risk modelling can be used to identify individuals at high risk (see e.g. OAAI, 2012; Jia, 2014). Risk factors might include, for instance, number of years of prior education, highest level of educational qualification, age, gender, ethnicity and employment status. Institutions can then treat high risk individuals differently, with the aim of ensuring they do not end up counting as negative statistics for completion. Online distance education learners tend to have poorer retention rates than class-based learners (Lokken & Mullins, 2015), and online distance education provides huge opportunities for computer tracking and analysis of student data, which suggests distance education institutions have strong motivations to use group-risk analytics to screen students.

Ethical concerns raised by this practice, and how to deal with them, have recently been the subject of increasing discussion (see, e.g., Simpson, 2009; Kay, Korn & Oppenheim, 2012; Slade & Prinsloo, 2013; Johnson, 2014; Pardo & Siemens, 2014; Prinsloo & Slade, 2014; Willis & Pistilli,
2014; Willis, 2014). These discussions tend to take existing ethical/legal principles surrounding use of data, such as transparency, consent, choice, accountability, privacy and security, and tinker with them to fit them to the education analytics context. There is much less analysis of ethical questions distinctive to the practice of assessing individuals based on group risk statistics. These questions are addressed and challenged in the philosophical literature, most notably by Schauer (2003) and Lippert-Rasmussen (2007, 2011, 2014). Responding to their challenges guides my analysis of these questions in the context of the future use of analytics in higher education.

The problem being addressed

This is a paper applying theory to current and future academic practice, namely the use of analytics in higher education to identify individual applicants at risk of not completing courses or programmes and intervene in their study. This practice is being investigated, proposed and implemented in distance education institutions (see, e.g. Open University, 2014). Institutions and academics are discussing the ethical concerns raised by this practice, and how to deal with them (see, e.g., Kay, Korn & Oppenheim, 2012; Slade & Prinsloo, 2013; Johnson, 2014; Pardo & Siemens, 2014; Prinsloo & Slade, 2014; Willis & Pistilli, 2014). These discussions tend to be based in the ethics of data use. Their focus on issues of transparency, consent, choice, accountability, privacy and security of data covers a lot of ethical ground. There is less analysis of the basic question of the ethics of subjecting an individual to intervention on the basis of information about group risk. This paper aims to provide this analysis in the context of the use of analytics in higher education, thus contributing to the ethical assessment of analytics.

Study design/Approach

This paper is a theoretical paper in applied ethics. The paper takes a pluralist approach (Dittmer, 2013) of applying moral principles at multiple levels to assess a real-life practice, namely the use of analytics in higher education. Salient moral principles are determined partly through the analysis of the practice, in keeping with Rawlsian ‘reflective equilibrium’. The paper outlines current thinking on the ethics of analytics in higher education, drawing on recent education literature. This sets the context for the resulting discussion and shows the lacuna in existing education literature regarding the ethics of subjecting an individual to intervention on the basis of information about group risk. This topic has had some discussion in the philosophical literature on discrimination. This paper outlines and critiques some relevant arguments from philosophers Frederick Schauer (2003) and Kasper Lippert-Rasmussen (2007, 2011, 2014), and relates this analysis to the ethics of the use of analytics in higher education.

Findings

In future, higher education institutions, particularly institutions offering online learning, will be assessing students on the risk they will fail or drop out of courses, using group-based risk analytics. This paper’s critical exploration of using group-based risk statistics to classify and intervene with ‘risky’ students has identified some distinctive ethical concerns for students’ agency and autonomy. This paper proposes approaches that may better support the agency and autonomy of students, thus mitigating these ethical concerns with the use of analytics by higher education.
institutions. These include considering the nature of the factors used in analytics (static or dynamic); the transparency of the process for students; the inclusion of statistics specific to individual students; and the distribution of responsibilities between students and institutions.

**Discussion and conclusion**

Discussion of the ethics of the use of analytics in higher education is important given the increasing emphasis on this. Using analytics to identify and intervene with students at greater risk of not completing their course of study is seen, and will increasingly be seen, as an economic and pedagogical imperative for education institutions, particularly for online learning. The interventions for higher risk individuals applying to tertiary education could simply provide additional support, such as extra phone calls to encourage engagement, or referrals to academic (or other) support services. They could also be restrictive for students: restrictions on the level of course studied; restriction on the number of courses studied, or imposition of prerequisites, which might mean taking extra courses (such as a requirement to take a bridging course). At the extreme, an institution could try to avoid enrolling a student in his or her choice of study, or avoid enrolling the student at all.

In the education literature, current discussion on the ethics of the use of analytics has focussed particularly on principles drawn from existing ethical guidelines on general institutional use of data. The discussion covers many of the ethical concerns that higher education analytics raises, especially the issues of transparency, consent, choice, accountability, privacy and security of data. This discussion has produced some excellent recommendations for ethical practice, including detailed policy recommendations (see, e.g., Open University, 2014).

One concern that has been less well-covered is that of treating individuals differently on the basis of group categorisation, particularly where individuals are burdened due to group-based risk statistics. Philosophers Schauer (2003) and Lippert-Rasmussen (2007, 2011 and 2014) argue there is little or no substantive difference between judgements based on ‘individualised’ evidence, and judgements based on statistics on group risk. This paper has explored and challenged their arguments. This critical exploration has resulted in the identification of distinctive ethical concerns regarding agency and autonomy. As higher education institutions have reason to statistically assess students on risk, this paper proposes approaches that may mitigate the ethical concerns by supporting the agency and autonomy of students. These include considering the nature of the factors used in analytics (static or dynamic); the transparency of the process to students; the inclusion of statistics specific to individual students; and the distribution of responsibilities between students and institutions.

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Developing tutoring craft through cross-institutional peer exchange: Reflections on the inaugural Waikato-York programme

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Abstract

This paper reports on outcomes from a cross-institutional peer observation programme for distance learning tutors - a joint initiative between the Universities of York (UK) and Waikato (New Zealand) - launched for the first time in 2015. The programme was conducted fully online and offered an opportunity for tutors from different institutions and national teaching contexts to address challenges in their practice and share innovations in online tutoring techniques.

Participants were paired up and encouraged to collaborate through use of synchronous discussion tools and the mutual sharing of course sites within their institutional LMS platforms.

Evaluation of the participant experience revealed that the cultural and institutional differences between York and Waikato tutors were not insurmountable obstacles to effective peer exchange online and could be minimised through adequate preparation up front in defining respective programme cultures and ways of working. Partners who mastered this ‘norming’ phase in their relationship were able to move beyond agreed objectives for the observations to address deeper pedagogic discussions, challenging their views on institutional norms to assessment design and online support for student learning. Emergent themes for discussion between partners ranged from the merits of actively managing student learning online to the formality and tone of the tutor’s voice, focusing on language and modes of interactions with students. The study highlights the potential of cross-institutional peer observation to shine a light on institutional and personal ‘blind spots’ in tutoring techniques, stimulating deeper personal reflection on tutor identity and related strategies in managing student learning online.

Introduction

In recent years we have seen a steady growth in online distance learning course delivery both within the UK higher education sector and worldwide, with digital learning methods now accounting for the most common way in which tutors and student interact. The online environment presents tutors with fresh opportunities to engage with learners through interactive media, but at the same time challenges them to keep pace with technological change and adopt pedagogic methods that are well matched to this environment, supporting effective facilitation for student. For some tutors accustomed to traditional teaching methods, this requires an ‘unlearning’ of traditional pedagogy (Bennett & Marsh, 2002; McWilliam, 2005) to embrace the full affordances of learned enabled through technology; arguably for all it requires regular reflection on teaching methods and tools and their alignment in support of student learning.
Professional development opportunities tend though to focus on ‘how to’ approaches to teaching with a ‘technology first’ mindset - offering little space for staff to reflect on pedagogic values and their approach to supporting student learning. Research tells us that tutoring craft requires differing strategies and dimensions of instructional support to facilitate effective group learning and participant-led activities (Danielsen & Nielsen, 2010; Harper & Nicolson, 2012). Reflection on tutoring identity is therefore a key element in helping staff to make meaningful choices over the strategies they will employ to manage online learning. Peer observation may present a solution to this challenge, offering an opportunity for tutors to define their tutoring approach and address development needs through critical dialogue and the sharing of perspectives. It is within this context that this paper is situated, reflecting on the launch of an online peer observation programme, bringing together distance learning tutors from the UK and New Zealand to share practice.

The problem being addressed

The University of York in the United Kingdom currently offers 17 distance learning programmes, which are delivered by local departmental teams as fully online courses. As an alternative form of activity in fulfilment of the University’s peer support for teaching scheme, an internal peer observation programme for tutors was trialled in 2011 and subsequently run in 2012 and 2014, bringing together participants from programme teams with contrasting tutoring approaches (ranging from asynchronous group discussion to one-to-one tutoring), disciplinary backgrounds (from Haematopathology to Public Policy and Management) and uses of technology (Blackboard and Moodle learning platforms). The diverse range of backgrounds has offered great opportunities for peer exchange, enabling experience sharing and critical observation of strategies for discussion management, activity design, as well as inquiry into the effective use of technologies - albeit within a small pool of tutors: 24 tutors participated across the three programmes with seven of those participating in more than one programme (Walker, 2015).

In a bid to sustain this initiative and draw on fresh perspectives and examples of tutoring expertise, the programme was opened up to external participants in 2015, with York tutors joined by 7 tutors and programme leaders from the University of Waikato, with which the University of York has a long-standing agreement of co-operation and a staff exchange programme. The programme remained true to its original values though, offering a development opportunity for individual tutors, focusing on the ‘mutual exchange of practice’ (McMahon, Barrett & O’Neill, 2007) with non-judgemental and constructive dialogue on tutoring practice. Participants were free to set their own objectives for the observation and to determine whether they wished to be observed or engage in a reciprocal arrangement experiencing both roles as observer and observee.

Study design/Approach

The opening up of the programme to external participants offered new opportunities for peer exchange on a number of levels, addressing organisational, national and cultural differences in approaches to tutoring craft. It also presented a number of challenges - not least in terms of the logistics of bringing individuals together in a virtual partnership, who are situated in different time zones working to different institutional calendars in the performance of their academic duties.
A research study was designed around participants’ perceptions of their experiences, with the aim of learning about the conditions influencing the effective exchange of practice between tutors from different institutions. All participants were approached for feedback on their experiences at the end of the observation cycle (March – September 2015). Semi-structured interviews were used to elicit feedback on how participants viewed the matching process, approached the negotiation of their observation ‘contract’ with their partner and the observation and feedback processes. They were also invited to reflect on lessons learned from the process and comment on the impact, if any, on their professional development and personal learning.

The evaluation interviews were led by the York and Waikato programme coordinators with participants from their respective institutions. Transcripts of the interviews were shared with participants for validation purposes. The recorded reflections of participants on the learning outcomes were then cross-referenced with the declared objectives for each observation (which had been previously documented in a pro forma completed by participants at the outset of the process), as a sense-checking measure and way of reviewing the evolution of the learning exchange for each pairing. Interview transcripts for the whole cohort were then combined together and a qualitative content analysis performed of the recorded comments for each of the six discussion topics as part of an inductive evaluation approach (Hsieh & Shannon, 2005).

**Findings**

Ten tutors and programme managers from the University of York participated, collaborating with seven colleagues from the University of Waikato’s Faculty of Education. Nine pairings were matched, with one Waikato participant engaging in two observation arrangements with different partners. One York tutor requested to be paired with a fellow York participant, as he was new to online tutoring and wished to learn about the institutional way of doing things before branching out to cross-institutional peer exchange.

The other 8 pairings were matched as closely as possible by experience and discipline between York and Waikato participants. Due to time constraints, one pairing focused on a ‘one-way’ observation arrangement, with the remainder engaging in reciprocal observations. Participants were presented with guidance on how to set objectives and manage the observation and feedback processes, but were essentially free to determine how and when to complete their observations and the return of feedback to their partners. Distinct engagement models emerged across the different pairings, ranging from instrumental (task-focused) modes of engagement to collaborative (rapport-based) models focusing on shared objectives or evolving objectives as the discussion and exchange of teaching practice developed through regular meetings and conversation.

**Discussion and conclusion**

The key distinction in the engagement models was in the way that pairings approached their first synchronous conversation, which was used either as a ‘get to know you’ to build rapport, or approached simply as a procedural dialogue to confirm arrangements for how the observation would run. The frequency of synchronous meetings were also important: one pairing conducted three online meetings which were used to build rapport, negotiate a framework and guidelines for how they would approach the peer exchange, and then to discuss the feedback received. For another pairing the relationship was the focus of the exchange, rather than the individual objectives.
for a specific course, with multiple meetings addressing issues that they were facing in their day-to-day practice. The strength of the bond established between partners at the outset appears to have had a bearing on the extent to which partners explored issues beyond the objectives agreed and recorded in the pro forma.

The frequency of conversations in rapport-based pairings enabled participants to circle back and develop themes of interest, leading to more detailed questioning and challenge on personal tutoring styles and institutional tutoring norms. Themes ranged from the relative autonomy of tutors to manage assessment to the merits of actively managing student learning online – with York tutors favouring a more ‘hands on’ approach which appeared at odds with the academic freedom that Waikato students enjoyed to direct their own learning. Discussion also touched on the formality and tone of the tutor’s voice, with differences perceived between York and Waikato partners on communication style, provoking a deeper personal analysis of tutor identity and authenticity by one Waikato tutor: “The different experiences and perspectives of interactions were valuable for thinking about my teaching. X helped me to reflect on how we interact”.

Whilst acknowledging the limitations of this study – specifically the small number of participants engaged on the programme and experienced core of tutors already familiar with peer observation techniques - the research highlights the potential benefits of cross-institutional peer exchange for online distance learning tutors. The programme offered participants a window into a different institution’s tutoring practice, with the opportunity to observe different tutoring techniques and technologies in use. Evidence from the study suggests that cross-institutional exchange can encourage participants to reflect more deeply about the cultural and institutional values influencing their tutoring practice, going beyond the established operational themes of discussion management, activity design and technology usage which are typically addressed in internal programmes (Walker, 2015). The findings indeed highlight the scope for ‘rapport-based’ pairings to use the discursive process to challenge personal and institutional blind spots and consider new possibilities for tutoring and assessment practices – formulating a change agenda to share with their institutional colleagues.

References


Developing digitally: A secondary school’s progress to BYOD

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Abstract

In order to work out how to become a BYOD school, at least one New Zealand secondary school has developed a BYOD implementation plan in order to trial a variety of tools and technologies to discover what works and what doesn’t to suit its educational context. In a fast-changing educational digital landscape, schools increasingly grapple with what it means to learn and teach in a digital context, and the eLearning group in this school decided to experiment with a small group of staff. The subject contexts consisted of foreign languages, sciences, music, mathematics, and Art. A key aspect of the trial was working with an external researcher to support the investigation. The project was in its third year in 2015. During the third year, volunteer teachers incorporated Chromebooks or iPads and had free rein on how these devices were used with students. Experiments included Google Classroom, Edmodo, online interactive physics simulations, music Apps on iPads, or combinations of Apps and web-based tools.

This presentation focuses on this third year of the project and fits with the conference theme of Rings around Practice in that it centres on a school wanting to close the gaps between the goal of BYOD and its implementation. Key findings broadly include: greater confidence in using unfamiliar tools, greater student concentration, greater collaboration among students, and faster learning particularly in the physics classroom and music. Students expressed greater confidence in learning content when learning occurred with these technologies, and teachers felt a guarded sense of satisfaction.

Introduction

BYOD, or bring your own device, is a consequence of greater mobility and connectivity. In New Zealand, schools will have become connected to Ultra Fast Broadband network. Schools will then have unlimited and uncapped internet access. This feature means that schools can no longer ignore what Pachler et al (2010) call the ‘mobile complex’. With so much public money invested in connectivity, the urgency for addressing students’ mobile learning needs in secondary schools is pressing. Around the world, schools are adopting BYOD. There is anecdotal evidence that at least a few schools have leapt into BYOD without much preparation or thinking, leading to some unexpected problems, such as the ability of the IT infrastructure to cope with large numbers online simultaneously, teachers knowing how to integrate mobile technologies into practices, and the availability of cross platform resources such as Apps that work as well across Android and IOS devices. Then there is the issue of equal access to the devices themselves.

The large urban secondary school decided that it would develop a plan to implement full BYOD in 2017. To that end, they devised a plan to trial a class set of iPads and later Chromebooks to
examine the value of either across aspects such as ease of use, technical competence and support, teaching and learning, and anything else that they didn’t yet know.

The problem being addressed

The purpose of this paper is to present a snapshot of what the teachers experienced, what they learned and what they make of their developing expertise. Questions guiding this paper include: How do their experiments with digital technologies inform their practices? What do these mean for the wider school’s provisions, policies, practices and infrastructure?

In taking a snapshot of the project and examining what has been learned, this presentation provides a window into a school’s approach to embedding digital technologies into learning. To this end, it may illuminate or suggest common issues and solutions for other schools travelling a similar path.

Study design/Approach

The longitudinal qualitative study began with a focus on iPads - the school wanted to investigate what using a class set of iPads would mean for the school. How do iPads work as a shared device? (Wright et al, 2013). This project expanded from the initial three staff in 2013-2014, to seven in 2015. The mathematics teacher, however, one of the foundation group, experienced severe connectivity issues and could not use wifi in her usual classroom, and continually swapping classrooms to get wifi connectivity was untenable and unsustainable, and so she was unable to develop her knowledge and practices in 2015. Her connectivity issues, however, point to potentially damaging effects on potential learning for her students.

In order to examine the use of digital technologies with the group, each staff member identified a digital focus and an inquiry question to guide their experimentation. On a regular basis (fortnightly) the researcher observed what happened in their chosen class using a protocol developed for the study. Data were then analysed thematically and coded according to the categories of pedagogical design, tool, student learning and teacher learning. The latter list was defined during the post-lesson debriefs.

Findings

Important findings include the management of the technology itself (fitness for purpose, connectivity, device provision) and the level of experimentation, especially in terms of how risky it might be for teachers and learners. Of major importance however, is how students responded to using these digital tools. In the music theory class for example, some students were adamant that the iPads helped them learn faster and more easily than by pen and paper alone. They agreed that they concentrated for longer and made greater connections with the theory. Another key finding for this group was the affordance of meeting individual needs. One student used the iPad to compose music, while another recapped notation. In the physics class, students manipulated elements to test formulae and the action of forces (molecules, weights etc). This helped identify the implications of certain actions and their relationship to particular theories. The languages classes (French, Spanish) used combinations of browser tools (specifically Google ones and websites in the target language, such as TripAdvisor, travel destinations, or film reviews) for improving language facility and skills in making sense of unseen texts. Students quickly learned to be comfortable sharing
their work with their peers through peer critique. They also increased their vocabulary while using authentic contexts (such as the Spanish Trip Advisor site) to write in the relevant language. Without the digital tools, such lessons would not have been as authentic. Neither would these senior students have been exposed to native speakers’ authentic language use. These kinds of practices made for challenging but interesting learning, for students, knowing their translations were visible to each other, supported and critiqued each other’s work and strived for accuracy.

For the Science classes, some of the tools (such as the physics simulations) were browser-based, but some were made with Flash instead of HTML5, so the Chromebooks and iPads were unable to access these resources, seriously compromising the lessons. This cross-platform issue is important when students are using a range of tools to access resources the teacher has included in class activities. The tablet device scenario is also implicated here - Android and iOS do not always share the same kinds of Apps, or they may not work the same across both platforms.

A further finding is what students said about bringing their devices to school, identifying some key issues for them. The most important of these was how vulnerable students’ devices were to theft when, for example, they were in a physical education class. This highlighted the need for the school to consider some safety measures, such as lockers that could be placed near the physical education area of the school, where students could safely store and possibly charge their devices while they were doing PE.

A second problem is for the school itself. If students bring their own devices, what will be the implications for sharing and access resources, especially across platforms? One of the options the school is pursuing is considering mandating a browser, since this may make it easier to access resources across platforms. If tools are cloud-based, this may mitigate the effects of potential device differences.

An additional issue was the problem teachers had on moving the class sets of devices from storage to classrooms. This might involve long distances around the school, heavy baskets, and uneven terrain. This also meant valuable time out of the classroom to collect and return the devices. These problems added unnecessarily to teachers’ work, for it also involved, booking the devices in advance and checking that devices were charged and functioning properly.

On the positive side, a key feature of these classrooms was the evidence of adaptive help-seeking behaviours (Jarvela, 2011). When students struck problems, they sought help from peers first, then the Internet, then the teacher. This willingness to problem-solve collaboratively was a key feature of all classrooms using these digital technologies.

Discussion and conclusion

While the OECD report on digital technologies in education (OECD 2015) caused a media stir, the details suggest otherwise - that the pedagogical decision-making and lesson design that teachers plan for, are as crucial to learning as ever. The evidence from the teachers’ experimentation suggests that mobile digital technologies can enhance existing good practice and make it easier to connect students to authentic text types to meet deliberately designed learning goals. The affordance of robust wifi has been critical, as well as students’ ready access to suitable devices to facilitate such learning opportunities. However, sharing class sets of devices can provide access for all students, but can also unnecessarily add to teachers’ workloads, particularly in terms of the organisation, collection and return of these digital resources.
A key implication from this is that the school’s move to a fully BYOD system is likely to be inevitable, but that the school will need to create a set of specifications for devices students own and bring to school for learning purposes. Another is that even if the school is fully BYOD, there remains a likely need for loaner-devices to support students from financially struggling families.

Finally, the slower process of engaging in trials with volunteer teachers over a reasonable time period has been highly valuable for both the individual teachers and the school. A range of infrastructure provision issues to device choices and safe storage options might not otherwise have been known without this trial. Knowing these issues in advance can help the school close the provision gaps. It may mean fewer stop-gap solutions once BYOD is fully launched that might not be sustainable and unplanned for in the annual budgeting. Lastly, the skills of the teachers in integrating digitally-mediated learning into their classroom practices remains a highly significant component, and will continue to be so (Koh, Chai, & Tai, 2014; Mishra & Koehler, 2006; Wright, 2015). Existing good pedagogical practices are enhanced by teachers purposefully using digital technologies. At the same time, students’ levels of concentration, task completion and feelings of learning satisfaction can add to positive classroom relationships.

Acknowledgements

Wilf Malcolm Institute of Educational Research (WMIER) partially funded this project, and the school (the site of the research) was unfailing in its support

References


Using a coagulation simulation software to learn a complex dose-response relationship

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Practice paper outline

Coagulation is a complex physiological process where a balance is maintained between clot formation and dissolution. The process involves complex interaction of clotting enzymes and proteins and includes numerous feedback and feedforward reactions. In the Bachelor of Pharmacy (BPharm) programme at the University of Otago, this physiological process (termed the Coagulation Network) is taught in the context of pathology and therapeutics. Several therapies exist which interact with the Coagulation Network and a few examples are taught throughout the programme. However, while the coagulation process is dynamic and non-linear, the teaching examples used in lectures and scenario-based workshops are static. This may preclude a deeper understanding of the complexities that underpin the pharmacokinetics (time course of drug concentration in the body) and pharmacodynamics (the concentration-effect profile) of the drugs taught (notably the anticoagulant drug warfarin).

We used a computer simulation of coagulation (CoaguSim), developed in-house, in a hands-on class setting. The learning experience of students and their understanding of the pharmacokinetics (PK) and pharmacodynamics (PD) of warfarin was assessed before and after class in a qualitative and
quantitative manner. Students’ understanding of warfarin PK and PD improved and they learnt by generating and testing their hypotheses through the interaction with the computer simulation.

Introduction

Coagulation is a complex and important physiological process involved in haemostasis where a balance is maintained between clot formation and dissolution. In the BPharm programme at the University of Otago, this physiological process is taught in the context of pathology and therapeutics. However, while the coagulation process is dynamic and non-linear, the teaching examples used in lectures and scenario-based workshops are static. This mismatch precludes a deeper understanding of the complexities that underpin the pharmacokinetics and pharmacodynamics of the drugs taught. We hence developed a computer simulation of coagulation (CoaguSim) to address some of these teaching and learning challenges.

There is a scarcity of literature evaluating similar curricular efforts in improving students’ understanding of coagulation and drugs that perturb this complex system. One example is Garwood, Bishja, and Smythe (2010) which describes a new course to teach students the principles of anticoagulation management with the drug warfarin. Their course is comprehensive and includes learning aspects of warfarin therapy that are important to future patients (such as drug-drug interactions, drug-food interactions, and dosing and monitoring compliance). However, the course relegates dosing to evidence-based medicine and anticoagulation clinics.

In the current study, students interact with CoaguSim to test their own hypotheses in regards to dosing requirements, variability in dose-response, and the sources of this variability. Furthermore, because CoaguSim simulates coagulation in a dynamic and non-linear way, students gain a deeper understanding of complex physiological systems, non-linear dose-response relationships, as well as pharmacokinetic (PK) and pharmacodynamic (PD) variability.

The practice under scrutiny

The learning objectives of the new workshop were for students to (1) differentiate the effects of genetic variation and non-compliance on the time course of warfarin effect; and (2) apply their understanding of the PK and PD of warfarin to achieve the desired for a virtual patient.

Before attending the CoaguSim-enabled workshop, all students attended a lecture on the pharmacology and clinical use of drugs working on the Coagulation Network. Among these students were 115 participants who gave their consent to participate in this research project. The workshop lasted 50 minutes and, using the simulation, students were able to manipulate variables including warfarin dose, patient compliance, and genotype (patient's genetic sensitivity to warfarin). In the session, the clinical case used involved a virtual patient, suffering from a blood clot and requiring treatment with daily doses of warfarin.

To understand the influence the new workshop had (if any) on students’ understanding of the time course of warfarin effect, a case study was conducted. Two sets of data were collected:

1. The 115 students took a pre-workshop and a post-workshop test, each comprising five MCQs related to warfarin PK and PD. A paired samples t-test was run to compare any within-group differences in pre- and post-test scores.
2. Eight volunteers were sought for a 45-minute focus group interview. The interview served to further understand what the students learnt during the new workshop and their learning process (eg, how students used the computer simulation).

The paired samples t-test also showed that the workshop resulted in a significant improvement in student scores and that the students’ mean scores improved from 45% to 81%. These results indicate that, through the new workshop, students significantly improved their understanding of the dose-response relationship of warfarin.

During the focus group interview, the following learning outcomes were mentioned frequently:

3. Students learnt that two distinct enzymes are involved in the dose-response of warfarin. They learnt that CYP2C9 metabolises the drug and hence affects its PK, and that VKOR is inhibited by the drug and hence affects its PD.

4. Students learnt that variants of CYP2C9 are less effective in metabolising the drug compared to the wild type, and that variants of VKOR are more sensitive to warfarin.

5. Students learnt the influence of various non-compliance patterns on the dose-response of warfarin. They learnt that warfarin is a relatively forgiving drug given its long half-life and long effect-life.

Discussion/conclusion

While our students’ understanding of the time course of warfarin effect did significantly improve after the CoaguSim-enabled workshop, their improved understanding was expected, regardless of their attending the new or old workshop. We did not compare student understanding with and without CoaguSim because of the conceptual flaw in such media comparison studies and because decades of research have found that technology’s impact on student achievement (versus no technology) tends to range from low to moderate. We hence opted for a within-group quasi-experimental research design.

In terms of revisions to the CoaguSim-enabled workshop, we plan to increase the level of guidance prior to the workshop, namely in clarifying the meanings of the various genotypes/alleles. Some students in the focus group interview expressed that there was initially confusion in their groups regarding the meanings of the different genotypes/alleles and that they ended up making “random” predictions. Students’ lack of prior knowledge is a typical obstacle to the effective instructional design of more open-ended constructivist learning environments.

Building on students’ suggestions during the focus group interview, we plan to display the different groups’ simulation outputs via the overhead projector. This would allow students to compare other groups’ simulation outputs with their own.

Take home message

This research paper describes the use of a computer simulation to improve the learning of a complex system model. The model describes the physiology of blood clotting and the drugs that are used to perturb the system. These drugs are routinely used in clinical practice. The model and the drugs’ effects are taught to pharmacy students but the examples used in lectures and scenario-based workshops are static. This precludes deeper understanding of the complexities that underpin
the dose-response of the drugs that perturb the system given the dynamic and non-linear nature of the coagulation process.

The simulation-enabled workshop improved pharmacy students’ understanding of the pharmacology of warfarin, the non-linear nature of the dose-response relationship, and the influence of patient non-compliance patterns on the dose-response. Further development of the simulation to include other drugs is underway.

References
The evolution of CATs: The development of an embedded support model for learning and teaching technology

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Practice paper outline

After a 2010 report into the use of technology in learning and teaching at Victoria University of Wellington showed significant issues with university-wide practice, a Vision and Strategy for Digital Learning and Teaching was developed. This document identified a need for more staff to support academics with their use of technology in teaching. Initially, this lead to the recruitment of several post-graduate students from across the various faculties of the university as part-time ‘Contacts for Academic Technology’. The CAT programme showed the importance of embedded support staff with strong relationships and specialised knowledge in the fields they were supporting. At the end of the three year programme, the roles were extended to full-time and two recent post-graduates were hired in February 2015 to support their former faculties. This support model has proved successful, with increasing numbers of staff supported, increased usage of key teaching technologies, and the expansion of support beyond the transactional level.

Introduction

In 2010, a report on the use of technology in learning and teaching at Victoria University of Wellington (VUW) was produced by a working party formed from a group of academic and Central Service Unit staff. The report signposted significant issues with university-wide practice. Technology was being adopted in an unstructured and reactive manner, with too many decisions being made at an individual level to be managed. The university’s LMS was used mostly as a data management system for the purpose of administration and content delivery, not effective pedagogy. From a leadership level, there was a lack of funding and strategic support for effective technology use in learning and teaching.

In response to the report’s recommendations, senior leadership commissioned the creation of a Vision and Strategy for Digital Learning and Teaching at Victoria (Victoria University of Wellington, 2012). This document outlined two overarching goals: to enhance contextual, faculty level understanding of technology to enhance teaching and learning, and to increase staff and student capability for using technology in teaching and learning.

One proposed action to implement this vision document was to provide sufficient staff to support and train faculty staff in their engagement with technology for learning as well as for their own personal development. In 2012, Victoria University had the lowest ratio of eLearning staff to academic staff of all major Australasian universities at 1:202. For comparison, the next lowest for New Zealand was Massey University with 1:153 while Auckland University had the highest ratio in the country with 1:67. At the same time, these VUW eLearning staff were already juggling other
duties and could not sufficiently support all staff adequately. Thus the ‘Contacts for Academic Technologies’ (CAT) project was created in order to provide specialised, embedded faculty specific support for Academic staff. This is the practice under scrutiny in this paper.

The practice under scrutiny

The CAT project recruited post-graduate students from each of the VUW faculties to become support staff for learning and teaching technology. These staff were hired by the university’s academic development unit on a part-time basis of approximately five hours per week. Complementing ITS’ traditional support model, their tasks were to provide one-to-one support, build relationships, provide consultation about technology and liaise with other branches of IT support services to solve client issues.

This first iteration of the CAT model had many strengths and was a successful proof of concept. It showed that staff were receptive to the model and the assistance available. CATs who already had a strong presence and relationships within the faculty were utilised heavily, with some often working over their allotted hours. As post-graduates from within their designated faculty, the CATs brought specialised, subject-specific knowledge into their roles, which was important in enabling the success of the programme.

There were also a few drawbacks due to the lack of working hours that the CATs were available for. Often, CATs were over utilised during their allotted hours and unavailable when they were needed in ‘emergencies’. Likewise, CATs had little time to build on their level of expertise in technology, both in terms of support knowledge and in more generalised expertise of how technology can be effectively integrated into pedagogy. The role was found to be variable between the different schools and faculties. Some CATs were highly utilised and added significant value to their assigned faculty, whereas others were barely utilised and spend little time interacting with academic staff. This was due to a number of factors, such as the strength of each CATs’ relationships within their faculty, the different levels of technological literacy of both the CAT and faculty staff, and the varying receptiveness of academic staff to further incorporate technology into their practice.

This first iteration showed a clear need for roles like the CATs and thus the decision was made to hire full time staff who would work in faculties in a similar manner. Thus the roles of Learning and Teaching Technology Specialists (or as they are colloquially known, the Super CATs) were created. Initially, two staff were hired to fill these roles – Liam Atwood and Sarah Hoyte. Again, they were recruited as recent post-graduate students from within their respective faculties, ensuring that they had the vital subject knowledge and existing relationships that were important for the original CAT programme.

Discussion/conclusion

In its short time in operation, the ‘Super CAT’ model is proving to be effective. Because of the full-time nature of the roles, we are able to spend time more developing relationships with staff in our allocated faculties than was possible for the original CATs, for example by attending their meetings and events. We are able to develop a more comprehensive knowledge of the technology systems we support and a deeper understanding of technology-based pedagogy.
The range of our work is expanding beyond the simple transactional support of technology. Some examples include supporting the creation and operation of MOOCs, facilitating and advising on course redesigns and involvement in research projects as technical consultants. These roles have the flexibility to go well beyond the traditional model of IT support, allowing us to engage with these projects and add significant value in liaison with the rest of the ITS team.

Evidence of the success of the ‘Super CAT’ model is growing. Anecdotal evidence from academic staff thus far has been overwhelmingly supportive of the model. Similarly, support log data shows that we are engaging with an increasing number of staff due to our visibility and established relationships which generate word-of-mouth recommendations of our services. Utilisation of recommended teaching tools is also on the rise with tools like Echo360 video capturing and streaming increasing significantly relative to the hiring of the ‘Super CATs’. Due to the success of this support model, it has been expanded to include a third role at the personal request of the Vice Chancellor.

Take home message

The CAT program has shown that embedded faculty support and expertise in technology can be successful in engaging with academic and faculty staff to use technology in teaching. It is built on the creation of strong relationships with staff and allows specialised assistance which considers the needs of the context and learning area. Key to success in this model of support is full-time roles which allows for further specialisation and an ability to complement existing traditional support models to provide agile support and expertise. In doing so, it allows the ability for the roles to become more versatile and act as a point of liaison and advice in high value, strategic projects. Likewise, the roles have increased the uptake and effective use of technologies in teaching practice, thus improving the use of these services for the benefit of students and therefore leading to enhanced pedagogical practice.

References
The two towers: Appraisal and leadership development for ‘middle’ leaders

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Practice paper outline

This paper sets out to examine school middle leaders and their quest for effective appraisal and leadership development - the Two Towers. Recent research focusing on the role of middle leaders, alongside appraisal and leadership development, suggests a crisis in the ‘Middle’. Currently, middle leaders do not have access to a specific national programme that focuses on leading from the middle. Moreover, they are not supported by those who are able to assess the ‘gap’ in their leadership needs and provide the appropriate development. A lack of appraisal of middle leaders, and significantly deficient leadership development, suggests a call to action is required. This paper aims to present an online middle leadership programme which provides accessibility within the unique context of their school and kura.

Introduction

The role of school middle leaders continues to increase in both scope and workload. Middle leaders are responsible for the pedagogical leadership that impacts on student learning, yet often feel unprepared for this complex role. In the absence of a national middle leadership development programme, appraisal and leadership development combined, have the potential to equip leaders to carry out their role more effectively. Recent research highlights neither appraisal nor leadership development are being used to either evaluate middle leaders’ ability, or develop their practice. Although middle leaders are expected to appraise and develop their own teams, they are not receiving appraisal or development themselves.

The purpose of appraisal is to provide accountability and development (Cardno, 2012), for the improvement of student outcomes. This proves challenging when appraisal is ineffective, or worse still, not happening at all. Missed opportunities for ongoing professional conversations, and leadership development, alongside conflicting purpose of appraisal, result in the perception that appraisal is an undervalued and ineffective practice. To ensure that appraisal is meaningful and empowers middle leaders, ideally it should be embedded within the culture of the school (ERO, 2014), have a clear purpose, and provide coherence between policy, process and the practice itself. Whilst middle leaders conduct appraisals of their own teams, principals need to ensure that appraisal and development occurs for those leading in the middle.

Leadership development is a specialised form of professional development focusing on building the capacity of leaders (Cardno, 2012). Leadership development can take the form of training, education, or support and should be context specific (Bush, 2008). Although middle leaders’ role has expanded (Fitzgerald, 2009), there is still a lack of leadership development equipping them with the required skills. Due to the challenges and complexity of middle leadership, it is imperative
that middle leaders are provided with leadership development to enable them to effectively perform their role.

The practice under scrutiny

Two separate qualitative research studies undertaken by Bassett (2012) and Robson (2012) examined leadership development of middle leaders and appraisal of middle leaders, respectively. As experienced middle leaders, neither had received leadership development, nor effective appraisal in their tenure. This was the impetus for conducting research examining middle leaders’ experiences, or lack of experiences, of appraisal and leadership development. Middle leadership has the potential to significantly impact on student learning outcomes, yet it is a role fraught with many challenges. These challenges include, but are not limited to, a lack of allocated time to enact increasing expectations, a lack of leadership training and preparation, and a lack of personal appraisal. The purpose of this paper is to explore the notion of a specific national middle leadership online programme to enable middle leaders meet these challenges.

Appraisal’s dual purposes of accountability and development have the potential to mutually benefit individuals and educational organisations. In a qualitative study conducted by Robson (2012) in three large secondary schools, 26 respondents completed an online questionnaire, and five middle leaders participated in semi structured interviews. Concurrently, each school’s personnel policy and appraisal process was analysed. Using an interpretive approach, findings of this research exposed middle leaders perceive that they are not effectively appraised by their senior leaders. Rather than addressing both purposes of appraisal, a tick box, compliance approach has resulted in an undervalued, ineffective practice. This research emphasises the need for principals to develop and implement appraisal policy and practice that specifically targets middle leaders. Building a school culture of improvement, where professional conversations are formalised, and provision made for middle leadership development, will lead middle leaders feeling valued, developed and empowered.

Bassett’s (2012) research set out to examine middle leadership development practices in five secondary schools. Using an interpretive approach, eight Boards of Trustees, 15 senior leaders and 35 middle leaders were surveyed using a qualitative online questionnaire. Respondents were asked their views on the role and challenges of middle leadership in their schools, and the purpose and provision of middle leadership development. Findings reveal middle leaders are expected to perform an extensive range of leadership functions including: leading the curriculum, developing staff within their teams, and implementing school wide goals. Respondents in this study expressed the need for specific, contextualised and supported middle leadership development to enable middle leaders to face the challenges of their role.

Discussion/conclusion

Since these research studies were conducted in 2012, the perception that a crisis in the middle remains. Recent OECD (2011), ERO reports (2013) and PPTA (2015) working paper, reiterates the need for robust school improvement measures, including effective leadership development.

A continued lack of leadership development programmes specifically targeting middle leaders, creates the need for an online programme to equip middle leaders with the requisite skills required to enact the ever increasing demands of the middle leadership role. This national programme is
envisaged to be a foundation for middle leaders, underpinned by theory, whilst focusing on actions within the leaders’ schools or kura. Subsequently, middle leaders could undertake Postgraduate studies, a Masters programme, the National Aspiring Principals Programme (NAPP) or the First Time Principals programme. The online programme of 20 weeks, will have four modules. Within each module, there will be four topics, including a challenge. The programme will be delivered to a community of leaders, with opportunities for synchronous and asynchronous sessions. This proposed national programme will locate effective leadership development within the practice of meaningful appraisal, to ensure middle leaders are valued, developed and empowered.

Take home message

Middle leaders believe that whilst their role is rewarding, it is multifaceted and demanding. Therefore, a balanced approach to middle leadership appraisal and development will ensure that at the crux of the matter, there is improved student outcomes for all. Leading from the middle is currently an undervalued, undeveloped and unprepared practice. Middle leaders need to seek opportunities to ensure they are both held accountable and professionally developed. A specific, contextualised national middle leadership programme is the answer. The onus is on school leaders to realise the value of those leading in the middle. The challenge is there for the taking.

References


Using the magic of a live online classroom to enhance distance counsellor education

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Practice paper outline

Gradually adding the features of a live virtual classroom resulted in a three-in-one strategy: students took up roles as observers, reflective practitioners and conceptualisers in the same synchronous event. Three features were combined. The audio and visual features enabled a live demonstration in which one student was the ‘client’ discussing a real challenge. Observers were also participants in that they contributed possible reflections and questions as well as voicing their curiosity about or critique of the therapeutic direction. Another group used the electronic whiteboard to conceptualise the conversation in terms of the guiding model. 84% of the student participants said the live online tutorials were very or extremely useful. Gradual competence with, and combination of, the features of the technology, coupled with a trust in the process skills gained as an educator, are the key learnings from this exploration.

Introduction

Enquirers began asking to be able to study counselling at a distance with us a decade ago. Adult learners with families and jobs were not able to relocate to our area and rural applicants were not able to relocate to any city-based counselling programme. Learning management systems made that distance learning of counselling possible but relied on asynchronous activities. Live virtual classrooms have introduced the possibility of synchronous activities in recent years.

Florence Martin and Michele Parker (2014) outline the features of virtual classrooms (i.e. audio, video, text chat, whiteboards, screen sharing, application sharing, file sharing) and describe the increased social presence that these achieve. In an earlier piece (Martin, Parker & Deale, 2012) they had shown that virtual classrooms facilitate greater levels of interaction and provide more immediate feedback for students. Amanda Rockinson-Szapkiw and Victoria Walker (2009) describe the use of Second Life and Web conferencing (e.g. virtual live classrooms) specifically for counselling skills education. The ability to practice skills, discuss case studies, receive live supervision and archive sessions for self-review were praised. Utilising these possibilities has enabled 10 new forms of interaction with counselling students in my teaching. But it was the combination of features that opened up a new possibility.

I wanted students to be able to practice developing questions and reflections, but also to do this with increased intentionality. I wanted them to keep a dynamic conceptualisation in view as they developed their responses to clients. Combining audio, visual, chat, whiteboard and file sharing features enabled the three-in-one strategy presented in this paper.
The practice under scrutiny

As I became competent with the virtual classroom features, I became more confident in combining them. Rather than just demonstrate a counselling approach with other attendees simply observing, I began inviting them to use the chat feature to suggest questions and reflections. From these offerings my client or I could choose one and respond to that. This engaged all attendees in one mode or another. This was the two-in-one step. This enabled students to experiment with different questions, angles and reflections as well as to hear the questions without being in the hot seat. To invite students into a more reflective stance on the practice, I also welcomed questions and observations about the practice and interaction itself. Using the chat box, attendees were able to enter these and at a suitable point in the conversation, I could break and pay attention to these wonderings about process. Possible therapeutic directions were able to be discussed, and critique of certain questions or directions was also made possible.

I then experimented with having an image of the guiding counselling approach loaded on the virtual classroom whiteboard and giving a small group of students writing access. This meant that they could write directly onto the whiteboard superimposed on the guiding approach. In this way they could conceptualise the client issue as it unfolded in the conversation that I was having with the student/client. By doing this we were able to have three processes going on simultaneously. This is something that would be very difficult to achieve and a face-to-face classroom context.

I noticed students then suggesting questions in the chat box that had much more visible connections between the guiding approach and the client’s words. Those doing the conceptualisation were incorporating the client’s explanations of meanings into their analysis of the issue. These two observations suggested that students were making sense of the client’s words through the lens of the guiding approach and were also guided by it in the framing of their therapeutic reflections and questions. My reading of student engagement was that they were more intentional in both analysis and question-crafting. 84% of students ranked these tutorials very or extremely useful on a 1 to 5 scale in the end of course evaluation.

Discussion/conclusion

Utilising three features of the virtual online classroom enabled students to engage in three different ways within one interactive conversation. Within a counselling demonstration they were positioned as observers, as reflective practitioners and as conceptualisers. The conceptualising prompted more intentional and theory-guided questions as well as process enquiries that could be attended to at an appropriate time.

Further developments of this strategy have included the inclusion of another course tutor who prompts the observers to pay attention to certain aspects: words the client used, voice tone or body language and to nudge them to make further links between the guiding approach and the unfolding conversation. Positioning attendees in different ways could be further enhanced by assigning other roles and changing these around in subsequent sessions so as to develop students’ awareness of considerations within the therapeutic engagement.
Take home message

Counselling, interpersonal or ‘soft’ skills can be taught and learned at a distance by utilising the features of synchronous live online classroom in a creative and generative combination.

Once the key features of the technology as mastered, educators can employ and trust their own process skills to develop a combination of features that advance student learning.

References


Ten ways to use online live-class wizardry

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Introduction

Virtual classrooms and other forms of webinar presentation or web conferencing, concocted in the realm of technological wizardry, allow for live synchronous engagement with students in a class from anywhere in the world – and for this to be recorded for later viewing. Second year students in a counselling degree programme report in end of course evaluations that these magical online connections in cyberspace actually reduce their sense of distance and increase their sense of presence. Is counsellor education something that must be done face to face? This presentation will demonstrate how a WizIQ online live classroom can be utilised to not just develop students’ practical counselling skills by including two audio and visual streams, but simultaneously to engage others in reflective practice and critique via the online classroom whiteboard and the chat box – all in real time. Thus, unlike the physical classroom, three modes of engagement are possible simultaneously. Ten uses of this approach are presented. Student feedback on the use of the online classroom is surveyed and possibilities for further development of this approach are outlined. Engaging students in these multiple roles increases the pedagogical possibilities beyond those that can be utilised in a face to face classroom. Previous research has shown that a blend of face to face and online learning has the best learning outcomes in higher education. The use of online live classroom wizardry for counselling, and potentially other skills-based education, could provide the means to educate using the best of both worlds.

The practice under scrutiny

In our work at Bethlehem Tertiary Institute in Tauranga, ten uses of the magical technology “the virtual classroom” have become apparent. By placing these ten uses in a professional development sequence, they provide a pathway for educators wanting to add this form of presentation to their teaching repertoire.

The ten progressively complex uses begin with a pre-recorded introduction to a week or module of work and progress through to eventually be able to facilitate multiple groups using multiple roles and tools within the virtual classroom application. These steps would equally apply to other virtual classrooms like Blackboard Collaborate or Adobe Connect. Inducting staff into the use of the WizIQ platform has brought forward their nervousness in front of a camera, their desire to have control over the finished product and concerns over the amount of time it takes to prepare for and conduct these live sessions. This pathway helps staff to tackle the challenges more progressively.

Student feedback indicates occasional technological issues, but overwhelmingly affirms the use of the live online tutorial through the virtual classroom. For those who cannot make the allotted time, feedback still emphasises the impact of these explanations, demonstrations and skill building activities because they are each recorded.
Discussion/conclusion

By starting out in the WizIQ virtual classroom with pre-recorded introductions, staff can make several attempts without students being live on the other end. This has encouraged several staff to progress to live sessions around assignments or specified topics as their confidence grows. Others have mastered that and gone on to utilise the live classroom for skill building and discussions in breakout groups.

This developmental sequence provides a series of steps with new functions to master at each step. Each offers more immediate engagement with students than the last and scaffolds staff through the use of this technology for the range of pedagogical interventions they may wish to make.

Take home message

Distance education does not have to be distant. Live online classrooms provide a range of tools to enable a range of interactions that students strongly affirm, and educators, once their nerves are calmed, actually enjoy using.

References


Moodle Passport: Learning the basics of Moodle online

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Practice paper outline

Moodle is the Learning Management System that is used at the Waikato District Health Board (WDHB) to assist in the education of a large and dispersed workforce of over six and a half thousand employees and was in place before I was employed.

I started work at the WDHB in October 2015 as the Instructional Designer and found that with only one person supporting Moodle in the institution for the past 3 years, there were only a handful of courses available to staff of varying quality. There was also a list of “priority courses” that dated back up to 2 years. I also discovered that there had also been little or no formal education for staff creating or managing courses in Moodle and not very much information available for any users at the WDHB about how to use Moodle effectively through the Intranet or in Moodle.

The staff who create and manage Moodle courses are the Nurse Educators and any interested staff within the hospital who see this as a more efficient way to educate their staff.

This paper explores how we are addressing this imbalance at the WDHB.

Introduction

Moodle does not conjure up many positive responses from users at the WDHB. Courses vary in their look and content but Moodle is used to keep nurse registration current as well as many other innovative learning opportunities. There are over 40 nurse educators with varying skills with Moodle and online teaching.

With such a large dispersed workforce, we cannot conduct face to face courses to bring staff up to speed with using Moodle. A better use of my time would be to create a Moodle course, in Moodle so staff could experience and learn about Moodle at the same time. By creating a self-directed learning course that staff can do anytime and anywhere, the process of educating our Moodle Teachers will help get more traction with using Moodle. I have been using learning management systems for over 15 years now so I have some idea of what is needed in an introductory course to help people with the basics of using Moodle.

My approach was the creation of a Moodle passport for all “Teachers” so they have the basics of how Moodle works so they can manage their own courses without always having to seek support for the basics of using Moodle and exploring the rudiments of Moodle. For someone to receive a Moodle Passport, they undertake to step through specific elements of the Moodle course. Another course is being created to explore the Moodle Activities and Resources that can be added to a course.
The practice under scrutiny

The course has been developed and is now available to staff for 2016. It will initially be just for the Waikato DHB but could be used in the wider Midland Group that consists of 5 District Health Boards: Waikato, Taranaki, Bay of Plenty, Lakes and Tairawhiti. There is interest from staff who manage Moodle courses to learn more and to be able to be more self-sufficient with what they are doing.

Because DHB staff use Moodle to keep their certification current, there is a lot of work to do in making the process a learning one rather than just a compliance tick-box exercise. One of my aims is to get Moodle viewed as the place where they can go to learn new things, find the right information and enjoy the experience. Hopefully, staff will then use and value Moodle as their way of keeping their practice current. The process to make this happen is that staff request a Moodle Sandpit Course where they can “play” with all the activities provided at the bottom of each Topic in the course.

To receive their Passport, they complete a Moodle quiz and upon achieving a pass of 80% they can print off a Certificate of Achievement. A pass of 100% and they also get a virtual chocolate fish.

I have had the opportunity in the past month to introduce a Moodle Passport to a number of nurse educators in a face to face context and it has been received favourably from them. A handful of requests have been received by staff to have a Moodle Sandpit Course where they can try out the activities in the course in a safe and private space.

This presentation outlines what the Moodle passport is, how we use it, and what staff say about it. Other educators may find this valuable for their contexts. The first page of the Passport is shown in Figure 1:

![Moodle Passport - Fully Online](image)

**Figure 1. Passport introduction**
Most pages also have an activity that they do in their Sandpit Course. Figure 2 shows this:

![Figure 2. Sandpit](image)

There is also the option to ask questions in each Topic, as shown in Figure 3:

![Figure 3. Asking questions](image)

The use of discussion forums in Moodle is sadly lacking at the WDHB, so by introducing them in this course, and promoting them whenever I can, we are on the road to creating some very important communities of practice, not just at the WDHB but within the wider health service. Successful completion of the course results in a Certificate, as shown in Figure 4:

![Figure 4. Certificate of Completion](image)
Discussion/conclusion

The key outcome of the Moodle Passport is to educate our staff on making Moodle a better and more effective learning tool for staff, especially since we are in the process of moving lots of education and training online to Moodle. The intention is to make our learning platform a place that is fun, informative, easy to use and where staff go to find out information that they need, so that they use it with confidence and ease.

Take home message

The Moodle Passport is proving to be a useful tool in equipping staff with basic tools to become agents of their own continued certification as health professionals beyond compliance to real learning.
Supporting instructors’ facilitation of online case discussions: Development and use of a digital tutorial

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Practice paper outline

Case-based instruction is a powerful strategy for inducting students into professional practice. However, because of the inherent ambiguity of a case, the method’s effectiveness generally rests on the facilitator’s skill in guiding/scaffolding the case discussion. Particularly in an online environment, scaffolds are considered integral to the meaning-making process. However, providing appropriate and effective scaffolding can be a challenge for instructors.

In an effort to promote intentional use of scaffolds, we designed a digital tutorial to increase the application of scaffolds by instructors responsible for facilitating graduate level, online, case-based courses. Hannafin, Land, and Oliver (1999) classified instructional scaffolds/strategies into four types: conceptual (those that support learners’ understanding of key knowledge), metacognitive (those that guide learners’ thinking processes), procedural (those that prompt appropriate use of available tools and resources), and strategic (those that provide response-sensitive guidance at key decision points). Each of these scaffolds is designed to serve a different purpose and typically appears at different points throughout instruction. In general, these strategies are designed to meet learners’ differentiated needs with the pedagogical goal being to increase their understanding of the course content (Stavredes, 2011) and to transfer responsibility for learning from teacher to learner (Puntambekar & Kolodner, 2005).

In this tutorial, we refer to these scaffolds/strategies as prompts and outline four types similar to those described by Hannafin et al. (1999), as well as one additional type (e.g., logistical, subject-matter, application, process, and affective). The tutorial presents each type in more detail and provides examples of what these might look like in the context of an online discussion.

We developed the tutorial using Articulate Storyline and incorporated interactive elements to allow users to practice selecting different prompts, based on different student needs, followed by feedback. To illustrate the specific nature of the five types of scaffolds, the tutorial also provided examples of best practices for scaffold integration. This presentation focuses primarily on the design, development, and implementation of the digital tutorial, but also includes instructors’ responses to, and preferences for, the different types of scaffolds.

Introduction

Case-based instruction (CBI), if facilitated effectively, can engage students in significant disciplinary content (Ertmer et al., 2014). Although the affordances of a specific case study determine the overall potential for learning, case facilitators bear major responsibility for prompting students to actually engage in the afforded problem space (Hmelo-Silver & Barrows, 2006). Recent research has demonstrated that instructor facilitating during CBI impacts not only what gets covered in a case discussion, but at what level (Ertmer & Koehler, 2015). Lu and Jeng
(2006) noted that when the instructor participated in a discussion as both a facilitator and co-participant, students tended to post more high-level responses. One way instructors can support students’ efforts during case discussion is through the use of scaffolds. Instructional scaffolds comprise the tools, strategies, or guides that enable learners to perform at higher levels than is possible without them (Wood et al., 1976). Using the early classification scheme proposed by Hannafin et al. (1999), we examined the different types of prompts that a group of instructors posted during a series of case-based discussions in an online master’s program. As the result of our analysis, we modified the classification scheme to include five types of prompts, which were observed most frequently among our instructors: logistical (help learners manage the tasks and activities within the online course), process (prompt learners to consider their approaches to learning), subject-matter (focus learners on the content under study), application (prompt learners to consider how the content knowledge applies outside the course), and affective (help connect learners to the learning community and strengthen instructor’s presence).

**The practice under scrutiny**

In fall 2013, the first author served as the course coordinator for six sections of an online case-based course. During the semester, she observed how different instructors approached facilitation, as well as how intimidated many were by the process. At least half of the instructors assumed a “hands-off” approach, while others participated, but not in a very strategic manner. It became apparent that additional supports were needed to promote instructors’ intentional use of effective facilitation strategies.

In fall 2014, materials were developed to support instructors’ efforts in the case discussions. These included, among others:

- An introductory video to help instructors understand the responsibilities of case facilitation
- A facilitation tutorial incorporating video from a case-based face-to-face course
- A set of instructor notes for each case study used in the course

Despite these efforts, facilitation strategies still varied greatly with most instructors continuing to take a hands-off approach. Analysis of instructors’ posts from 2014 showed that the most frequently used scaffold was procedural (how to navigate the course, reminders of due dates), while the least used was conceptual (how to understand the nuances of a specific case). Implementation of the various types of scaffolds was not very strategic, but rather corresponded to instructor’s preferences for, and comfort with, specific types of scaffolds. Given these results, a more explicit effort was made, in the form of the development of a digital tutorial, to promote the intentional use of relevant scaffolds during case discussions in the fall 2015 course (still underway).

The digital tutorial was developed using Articulate Storyline and incorporated interactive elements to allow users to practice selecting different scaffolds, based on different student needs, followed by immediate feedback. To illustrate the specific nature of the five types of scaffolds, the tutorial also provided examples of best practices taken directly from instructor interactions from previous semesters. Specific attention was given to the intentional use of each type of scaffold. By
encouraging online instructors to systematically implement their use of scaffolds, we hoped to positively impact the effectiveness of the CBI course. Figure 1 provides a screenshot of the title slide.

![Figure 1. Screenshot of title slide of the digital tutorial, “Post with Intentionality.”](image)

**Discussion/conclusion**

Andersen and Schiano (2014) noted, “The core of case teaching – and most of the art of it – lies in managing students’ discussion” (p. 66). Yet, case facilitation does not come naturally to many instructors. Although instructors have a vague sense of how to support students’ efforts during case discussions, they are unsure how to strategically implement different types of scaffolds. For example, although conceptual scaffolds have been noted as having the biggest impact on learning (Belland et al., 2015), online instructors often spend the majority of their time providing procedural scaffolds (Lewandowski et al., 2015).

Recent research has demonstrated how a facilitator’s actions can impact case-based discussions. For example, Ertmer and Koehler (2015) found that discussions facilitated by an instructor who used a large number of conceptual scaffolds covered more of the afforded problem space, and at a greater depth, than discussions with no facilitation or in which instructors focused primarily on social connections – making sure students felt encouraged and comfortable in the online environment.

These studies suggest the need to help online facilitators become more adept at using scaffolds to support students’ case-based discussions. Our development of the digital tutorial represents the first step in systematising these efforts. Future efforts will focus on analysing the results of these efforts and revising our tool until positive change in instructors’ comfort with, and use of, relevant scaffolds is obtained. Our ultimate goal is to make the tool available to all online instructors.
Take home message

Effective facilitation of online case-based discussions (i.e., that which keeps students focused on the afforded problem space) is an acquired skill that takes a keen understanding of what students need, at all points during a discussion, as well as how to support those needs. A digital tutorial, focused on the intentional use of five types of scaffolds (logistical, process, subject-matter, application, and affective), is currently being piloted with seven case-based instructors. In this presentation, we will demonstrate the digital tutorial and discuss the results obtained, to date (The course is scheduled to end mid-December). We will end with implications for revisions to the tool, encouraging feedback and suggestions from the audience.

References


An unexpected journey: Refreshing the Massey BA

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Practice paper outline

The BA, like the Shire has remained largely unchanged by time. This way of life is under attack from evil wizards, also known as politicians, who question the value and relevance to society of the BA. BA allies are rallying to the cause with academics worldwide espousing the virtues of the BA to reclaim a position of importance in the kingdom. At Massey University (Massey or MU) we have gone a step further and embarked on an unexpected journey towards refreshing the BA to provide “an exceptional and distinctive learning experience at Massey for all students” (MU, 2015, p. 11) with an emphasis on “enhance[d] learning interactions through media-rich learning environments” (MU, 2015, p. 17). This paper reports on our emerging story - of a strategic, whole organisation, co-curriculum approach distinct to Massey that will enable BA students “to be creative, innovative and connected contributors to society” (MU, 2015, p. 5). The approach builds on best practice in learning design, delivery and support to ensure the Massey BA meets the needs of students who will be engaging in learning in different ways and increasingly demanding flexibility “in the pace, place and mode of their learning” (Gordon, 2014 p.3).

Introduction

The BA refresh has emerged from the combination of an external review, a volatile political environment questioning the relevance of the BA to society and a commitment from senior leadership in the College to secure the future of the Massey BA. The refresh, which began in 2014, is a large complex project that will introduce substantial change across the College.

From 2016 MU will unveil a refreshed BA that delivers an enhanced learning experience to our students, helps them to acquire the transferable skills that employers are demanding and ensures that Massey graduates are better placed to transform their world and contribute to society in positive and meaningful ways. This new direction embeds key elements of the University’s and College of Humanities and Social Sciences’ strategic goals, particularly the notion of active citizenship, into the BA programme. This approach aligns with international practice (see for example Kezar & Kinzie, 2006) that argues linking academic programmes to “a university’s mission and the fostering of active citizenship qualities among students can result in more enriching learning experiences and more positive levels of student engagement” (BA Core Papers Working Group, 2014, p.9). Indeed, student engagement to ensure an enhanced learning experience is another strategic imperative of the refreshed BA. This is being achieved through learning design, curriculum development and delivery and “build[ing] the capabilities and integration of our student support services” (MU, 2015, p. 17) into the BA programme. This paper charts our journey reporting on a strategic, whole organisation co-curriculum approach to teaching and learning that seeks “innovative pedagogies, assessment models and programme design tools” (MU, 2015, p.15) to enable us to offer “innovative curricula and extend...
our reach beyond physical and geographical boundaries” (MU, 2015, p.15) and secure our reputation as a leading distance educator.

The practice under scrutiny

There are three key components to the refreshed BA – a core, graduate profiles and, a student engagement project. The core is a set of five compulsory interdisciplinary papers for all students. This is a significant deviation from the traditional BA programme and Massey is the only New Zealand University that has adopted this approach. Auckland University do have compulsory elements however students choose from a list of papers rather than complete a core.

The core creates a more structured and coherent programme while also maintaining flexibility and choice, which are the hallmark of a BA. The interdisciplinary nature of the core ensures that students are exposed to all the disciplines in the College. The new core papers have also adopted “innovative pedagogies, assessment models and programme design tools” (MU, 2015, p.15). Flexible pathways are featured and this provides an opportunity for the core to model good practice for others teaching in the BA. As part of this process opportunities for regular reflexive practices have been created and standards and guides have been produced to “build comprehensive capabilities among our academic staff to: develop high-quality courses that embrace sophisticated pedagogies and technologies; and deliver them to learners in all modes and locations (campus, online and blended models) (MU, 2015, p.16). Of particular importance is our service to distance learners. Massey has a long and respectable reputation as a distance educator and a large proportion of BA students study by distance. There are differences in academic achievement between internally based and distance students suggesting that distance education is much more challenging than learning in a physical classroom. As part of the BA refresh there is a deliberate focus on developing strategies to support distance study particularly through online learning environments.

Another key element of the refresh is that every major and minor in the BA now has a graduate profile and has undergone an extensive curriculum mapping exercise. This approach sets out specific attributes, competencies and capabilities that students will acquire. The mapping exercise informs curriculum decisions and ensures a clear structure and progression through an academic programme. This approach reflects good practice in curriculum design.

Key to facilitating student success in the refreshed BA is the creation of BASE+, a physical and virtual BA student engagement project that connects students to each other, the College and critical student support services. There are a range of initiatives that will be offered through BASE+. In the first year of operations initiatives will target the first year experience particularly priority learner groups including Māori, Pacifica, distance and international students. This decision responds to evidence indicating preparedness for university is an issue, particularly for specific cohorts, and that support programmes and pedagogy can assist to mitigate this (see for example Kahu, 2013; Scevak et al, 2015). In time initiatives will be expanded to target support for progression through a programme.

Discussion/conclusion

Massey has been involved in distance education for some time now however there is always a need to renew and reinvigorate teaching practices and respond to advances in learning design, pedagogy and demands for greater flexibility in delivery. The refresh exercise has provided an opportunity to revisit these aspects of teaching and learning and engage in “dialogues concerned
with rethinking the nature of the university and the value of learning” (Ryan & Tilbury, 2013, p.4). Furthermore, this exercise has assisted us to think through how to build systems and process at the institutional level to deliver enhanced learning experiences. We are only at the beginning of this journey and there is still a ways to go. However, the project has already introduced considerable change across the College as it has challenged staff to rethink what they teach, how they teach and how as a College we support students and work collaboratively. Change of this scale does not just happen. It has required strong academic leadership, champions and extensive engagement. Also, not everyone is convinced that the new direction is the best way forward and here are several risks. How will the market respond to a BA with compulsory elements? What will be the impact of the core on electives or smaller programmes? How will non-completions in the large compulsory core papers be kept to a minimum? The strategic, whole organisation, co-curriculum approach will assist to mitigate some of these concerns.

**Take home message**

Since 2014 the College of Humanities and Social Sciences at Massey University has been considering how to deliver an exceptional and distinctive learning experience supported by technology for students who engage in learning in different ways. Our response was to refresh the BA, to engage in curriculum mapping and create a core and BASE+, the BA student engagement project. This strategic, whole organisation, co-curriculum approach is distinct to Massey and seeks to enhance the learning experience and optimising academic achievement for BA students.

**References**


Finding your virtual fellowship: Developing an online professional learning network

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Practice paper outline

This paper presents an online collaborative pilot project that was carried out by three educators located in different cities, across Australia and New Zealand, representing practices from the compulsory, tertiary and professional development sectors. The overall aim is to report on the findings and suggest some approaches to promote further collaboration and to encourage building of communities of practice in the education networks.

The collaboration amongst the educators was conducted entirely online, using web-based tools and social media platforms. Whilst juggling a number of priorities, and different time zones proved to be challenging at times, the flexibility of online meetings and asynchronous sharing of resources provided the means to develop an online professional learning network (PLN) for the contributing educators.

Introduction

Professional Development for educators, which provide ample opportunities for support without too much strain on the time and budget allocated by the individuals and the institutions concerned, can be an ongoing struggle. Whilst in-house workshops and informal discussions around the learning and development needs of the educators should be encouraged on a regular basis, the knowledge and expertise that is shared amongst individuals representing a variety of educational settings, subject areas and cultural diversity can be highly significant in the design, development, and delivery of flexible, online and blended learning strategies.

This paper aims to provide an outline for a number of approaches that have been trialled by a group of educators who are located in different physical locations, and representing learners from the compulsory, tertiary and professional development sectors. The main purpose of this practice paper is to present a framework in which a project-based approach is conducted predominantly online, in order to implement the ‘lessons-learned’ with staff and students at the authors’ respective institutions.

The impetus for this pilot project came from authors’ engagement in professional discussions that took place on the various Social Media platforms. The overarching inquiry is to investigate the opportunities that online platforms and web-based tools provide to educators for both teaching and learning in open, distance, and flexible settings. The presupposed outcome is to promote online collegiality amongst the educators, based on this pilot project’s findings, and to provide some suggestions for further development.
The practice under scrutiny

Disrupted technologies are defined as “... those that disrupt established practices, often starting with a small number of users, but growing over time to the extent that they displace a previously dominant, incumbent technology” (Flavin, 2012). The investigation of the use of disrupted technologies form the underlying basis of this practice paper. The professional conversations that took place over Twitter™, using the hashtag #deanz16, set the foundations for the subsequent online collaboration activities. It is important to highlight that the authors initially met each at a conference that was previously held in a physical location. The informal ‘disruption’ both technologically and professionally, especially on a public arena, provided the encouragement needed to pursue the discussion.

The public exchange online was transferred to a private domain. The private platforms, namely Skype™ and Google Drive™ still provided the means to discuss the project collaboratively, without saturating the public social media platforms, and the risk of leaving a long line of ‘digital footprint’ (Fox, 2015).

The kick-off meeting on Skype provided the opportunity to brainstorm the online options. The ideas and the items of discussion were collated on an online document in Google Drive™, and were followed up and edited as required. This was essential to digest the ideas in order to analyse the points that were raised. This process was also in-line with Fink’s recommendation of ‘creating significant learning experiences’ by creating the appropriate situational factors, authentic experience and the opportunity to digest the learning that takes place.

Initially, the scope of the project proved to be large. Hence the authors split the project into two major categories, consisting of preparing for a submission for a practice paper, namely the current paper: “Finding your virtual fellowship”, and a workshop entitled: “Crafting your virtual fellowship”, both incorporating the overall theme of the conference. This split enabled authors to focus on their areas of expertise and preferred methods of contribution.

The original purpose of the project, which was to investigate the use of a number of specific web-based tools such as Twitter, IFTTT, Trello, proved to be too large a scope to cover in detail, and it is recommended as a topic of further investigation. However, the actual practice and the process of developing a sustainable professional learning network (PLN) became the underlying aim of this practice paper due to the online discussions and reflections.

Discussion/conclusion

Developing an online Community of Practice both online and offline requires a combination of a number of factors. One of the main contributors is participating in the existing professional bodies and engaging in the networking opportunities that are provided. This could be in the form of organising and attending conferences, conducting webinars or even engaging on online social media sites, such as Twitter™. Both platforms, online and offline, can provide the medium necessary to establish a professional presence in the community, namely the education sector.

The online environment provides the technological tools to enhance and develop the professional connections that educators initiate. Authors believe that professional conduct in both environments encourage and support the development of collegiality on a global scale. Reaching out
to educators from different institutions, sectors and time zones, contributes to the synergy of expertise, resource-sharing and collaboration.

The pilot project also provides an opportunity to trial a number of selected tools with peers, and gain a deeper understanding of their usage by sharing and exchanging tips. This can consequently be implemented in the classrooms, both physical and electronic nature.

It is highly recommended that such collaborative practices, especially involving participants from different locations, are investigated further, and disseminated both formally and informally on professional development circles. This can be initiated, but is not limited to, the Social Media platforms.

**Take home message**

Organising and participating in Professional Development activities can be expensive and time consuming, both for the participants and the organising institutions. Whilst the significance of ‘in-person’ meetings such as conferences and workshops that are held in physical spaces is highly relevant; participating in virtual learning networks can enhance the learning and teaching experience by providing ample flexibility and resources for those who engage in a globally-rich community.

The use of disruptive technologies can provide the initial encouragement, and even become the actual learning point, for example the use of social media tools such as Twitter, and web-based tools such as Google Drive and Skype. It is important to keep to the scope, like in any project-based learning, and to keep the communication channels open.

The initial collaboration can be formed among colleagues within the same institution or organisation to investigate the outcome or impact of a specific tool, platform or a method. Practitioners from wider a field can be invited to participate or provide invaluable input to the research. While conferences and seminars provide an ideal environment for exchanging of ideas, the online environment such as online discussions, meetings, and webinars can enhance and sustain the development of these communities of practice. Online platforms offer the flexibility and autonomy to set challenges and goals, and a means to achieve them both independently and collaboratively, hence improving performance. The process of collaboration among colleagues can also be used as a model in the classroom for students as part of project-based learning.

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Designing for learner success (D4LS) at Otago Polytechnic: Through an e-learning designer’s eyes

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Practice paper outline

Otago Polytechnic (OP) is currently involved in redesigning and redeveloping its programmes and courses under an institution-wide project – Designing for Learner success (D4LS). This project has aimed to improve the overall learner success rates, to enhance learner satisfaction with learning experience, and also to better integrate development of learner capabilities within programmes at OP. D4LS uses a robust and systematic structure which involves several phases. As an e-learning designer in D4LS project, I will focus on the development phase and discuss how using an agile approach facilitated the design and development of high quality products (e.g. learning activities and assessments). In this article, I will also outline some of the challenges and limitations encountered in this process.

Introduction

Otago Polytechnic has previously provided central support for programme development. However, the previous development work has not included instructional design input. Taking this into account, OP in their D4LS project, consciously design and develop all the programmes and courses ensuring the instructional design input is included.

D4LS comprises several key phases including preparation, design, development, and delivery. These phases are followed by an evaluation process in which the user experience of both learners and facilitators is appraised. In the next several years, all the programmes and courses at OP will go through D4LS process.

The practice under scrutiny

Focusing on the development phase, in this paper, it is beneficial here to bring other phases of the D4LS project in order to contextualise their links between the phases in practice. Below are the various stages of the D4LS process.

Preparation: In preparation for the D4LS process, lecturers as Subject Matter Experts (SMEs) gather all the information about their programmes and learners to ensure that any relevant issue will be addressed in the redesign and redevelopment process.

Design: The design phase includes a number of workshops that focus on the programme as well as individual courses. At these workshops, The SMEs examine and redesign the learning activities and assessments that build learner capability of the course learning outcomes within programmes. The details of the modules, topics and activities are compiled as a document called blueprint by the
SMEs. As the next step, the learning and teaching facilitators and the SMEs examine the blueprint of the redesigned programme and courses to ensure that the course learning outcomes are aligned with the graduate profile outcomes, the activities and assessments. OP’s strategic frameworks are also taken into consideration in preparing the blueprint at this stage.

**Development**

Next, the blueprint of the designed programmes and courses is handed over to OP Online. During the development phase, the SMEs work with OP Online team to develop the programme’s Moodle courses as well as all online activities and resources. OP Online utilizes an agile methodology to create standards, templates and procedures in order to make sure the development of courses runs smoothly.

Agile methodology or agile process management is an iterative and flexible method of managing the design and development of products. There are different types of agile methodologies, and the most popular one is Scrum which is simple and flexible. In Scrum methodology, projects progress via a series of iterations or sprints that are usually 2-4 weeks long.

Once the SMEs provide high-quality, robust development information to OP online, following scrum methodology, the team uses a series of sprints to design and develop activities and assessments as well as Moodle course interface. Also, opportunities for feedback are provided to the SMEs in each sprint and the actions required might be rolled over to the next sprint. As the e-learning designers are working through several programmes, a record of risks, challenges and limitations encountered are entered into D4LS risks/assumptions register. I will analyse and discuss these entries in the longer version of this paper.

**Delivery:** Programmes are delivered with a support system provided in the first semester. An evaluation process takes place during the first semester of delivery. Apart from the phases above, an evaluation and an ongoing upskilling process are in place.

**Discussion/conclusion**

Based on D4LS assumptions/risks register, this section outlines some of the challenges and limitations encountered by the OP online team in the development phase of the redevelopment and redesign process. As E-learning designers, some of the challenges encountered so far are related to under-staffing, limited budget, SME unavailability, SME attitude toward change in general and technology in particular; and SME capability with learning design. In spite of these challenges, all the redesigned and redeveloped blended and fully online courses result in a variety of high-standard activity-led, collaborative, learner-centred and experiential learning opportunities for the learners. The new Moodle shell, the underlying pedagogy behind the new Moodle shell, some sample activities and assessments will also be outlined in the longer version of this paper.

**Take home message**

In the long run, OP anticipates that the successful implementation of the new programmes and courses will result in improved outcomes and success rates for the learners, enhanced learner capability and a sustainable model of educational delivery. Based on some of the challenges and
limitations discussed above, some recommendations and strategies to mitigate those issues will be included in this section.

References

iPad-mediated talk in young children’s learning and exploration of interests

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Practice paper outline

Emerging evidence highlights the potential of mobile and tablet technologies such as the Apple iPad in facilitating more productive learning processes and outcomes in formal contexts. Very little research has however been conducted in the New Zealand context, especially in early childhood settings. This study is aimed at understanding the nature of the talk young children (3 and a half to 5 year olds) engaged in while using the iPad for free exploration and play in small group settings with teacher guidance. Data was collected from eight observations (one hour to one and half hours long) of child-directed iPad use (video and audio recordings and photographs). Analysis of the data was based on an adaptation of Mercer’s (1994) ‘talk types' framework which discriminates between cumulative, exploratory and disputational talk. Findings indicated that children used different kinds of talk to support one another’s attempts to work through an app on the iPad. The iPad further afforded a unique potential as a shared, public learning device, and enabled young children's ease of sharing content and working together. Additionally, teacher-child talk was crucial in children realising the iPad's potential, reminding ground rules for working with the iPad, supporting developing literacy and numeracy ideas when working on iPad apps, and acknowledging children’s success. Teachers therefore play an important role in scaffolding young children's ability to develop talk strategies valuable to their learning and exploration with the iPad in the ECE contexts.

Introduction

Mobile and tablet technologies are increasingly prevalent in society today. They are captivating, entertaining, and can be educational for young children. Most of the studies investigating the effectiveness of incorporating iPads into educational environments have focused on formal compulsory schooling and tertiary contexts. Systematic studies on the educational potential of the iPad in the early childhood setting are beginning to surface to show that young children can indeed benefit from using the device (e.g. Hatherly & Chapman, 2014; Kucirkova et al., 2014). Zevenbergen (2007) reminds educators to persist in identifying ways to ensure quality learning experiences for young children as digital technologies become increasingly prevalent and important in their lives. The iPads and opportunities for teaching and learning for young children (iPads n Kids) project was initiated for this purpose, with the aim to understand the educational affordances of iPads for teaching and learning with children, from the perspectives of teachers, young children and their parents/caregivers (Khoo et al., 2015). It is underpinned by a sociocultural perspective of learning which emphasises the interaction between people, the tools they use to achieve particular purposes, and the setting in which their interaction was occurring (Wertsch, 1998). That is, merely making an iPad (tool) available to children on its own is
inadequate for learning to occur. What is required is a meaningful and appropriate integration of a tool directed at enhancing learning. Examining the nature of talk between teachers-children and amongst children to understand how this can impact on learning and cognitive development has been found to be a productive approach in informing and enhancing teacher practice in face-to-face (Mercer & Howe, 2012; Molinari & Mameli, 2013) and even digitally-mediated teaching-learning environments (Falloon & Khoo, 2014).

This presentation reports on the findings from a study focused on the nature of the talk young children (4-5 year olds) engage in while using the iPad in interaction with one another and their teacher. Specifically, it unpacks the following questions:

- What is the nature of children’s talk when taking up opportunities for iPad-supported learning and exploration?
- How might teachers use the iPad to foster talk that can encourage young children’s learning and exploration?

It is intended to inform early childhood educators’ practice on the ways and conditions for engaging young children productively to foster their learning and exploration of interest when using the iPad.

The practice under scrutiny

This exploratory qualitative study was conducted in an early childhood education (ECE) centre within Hamilton. The research team collaborated with two teachers in a preschool environment which has an enrolment of 35 to 40 children who are between the ages of 3 1/2 to 5 years. In the centre, iPad use was child-directed with a teacher present to guide and facilitate children's participation within group contexts. Children took turns exploring an app (s) of their interest (free choice of pre-loaded apps) within a group (observed by other children). The apps ranged from a focus on literacy and numeracy, to art (drawing) and music (songs) in games and puzzles format.

Data was collected through eight observation sessions (videotape, audiotape and photos) (1-1/2 hr long each) with the two teachers. Using Nvivo software to code the data, analysis of talk was based on an adaptation of Mercer’s (1994) ‘talk types’ framework and Fisher, Lucas and Galstyan’s (2013) analysis of the iPad’s ‘private-public work space affordance’. Mercer’s (1994) ‘talk types' framework distinguishes between cumulative, exploratory and disputational talk. These talk types and their specific talk types are detailed and coded according to the descriptors summarised in Table 1. Disputational talk is ‘argumentative’ in nature, where children challenged each other’s ideas, but without necessarily justifying or offering alternatives. Cumulative talk was more conciliatory, and typically represented agreement or continuance of previous utterance without the argumentative elements of disputational talk. Finally, exploratory talk supported reasoning, and displayed children’s capacity to interact with “the reasoned arguments of others when drawing conclusions, making decisions, and so on” (Mercer, 1994, p. 27).
<table>
<thead>
<tr>
<th>Talk type</th>
<th>Sub-talk type</th>
<th>Description/characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative</td>
<td>Affirmation/agreement</td>
<td>Talk that is supportive and affirming. Non-critical Agreement with what was suggested without cause to review or challenge. passive and compliant</td>
</tr>
<tr>
<td></td>
<td>Consensus/clarification</td>
<td>Talk that builds understanding or suggestions or ideas in a non-critical, non-challenging and non-expansive way. Developing common understanding by talking about ideas. Working towards general agreement on course of action.</td>
</tr>
<tr>
<td></td>
<td>Elaboration</td>
<td>Talk that is more expansive and focused on building the finer detail of how to go about producing or deciding on content. Questions asked seeing further detail about how to do things or charity why a partner is suggesting a particular course of action.</td>
</tr>
<tr>
<td>Disputational</td>
<td>Competitive/defensive</td>
<td>Talk that emphasised person-focused conflict, argument or disagreement, detracting from collaborative effort. Competing for time on device (‘my turn, your turn’), verbally interfering with or negatively critical of other’s input. Emotive response is triggered by personal notion of ‘unfairness’.</td>
</tr>
<tr>
<td></td>
<td>Individualised</td>
<td>Talk that indications possessiveness of own contribution. Unwilling to consider others’ suggestions for improvement or change.</td>
</tr>
<tr>
<td>Exploratory</td>
<td>Critically constructive</td>
<td>Talk indicating respectful cognitive engagement with and consideration and ritual review of others’ ideas that leads to improved decision-making or content. Constructive critique focused on the ideas or suggestions, not the person.</td>
</tr>
<tr>
<td></td>
<td>Negotiated/debated</td>
<td>Talk that demonstrates tentative ideas being offered and debated. Student(s) receptive to change if reasonable supporting case made by others. Different perspectives acknowledged and synthesised into collective response. Compromise negotiated.</td>
</tr>
<tr>
<td></td>
<td>Justifications sought/given</td>
<td>Talk seeking justification of perspectives or ideas offered, with a focus on how they improve decision-making or output quality. Reasons for suggestions pursued through probing questioning or offering alternatives.</td>
</tr>
<tr>
<td>Teacher-Student</td>
<td></td>
<td>Talk between the teacher and student pairs; responding to student requests for help; formative feedback based on teacher’s observation during monitoring group progress. Whole class teaching at session start or feedback/review at end, or formative during work session.</td>
</tr>
</tbody>
</table>
A summary of the findings indicated:

- There was a higher percentage of teacher-child talk (60%) compared to child-peer talk;
- The overall proportion of child-peer talk were Cumulative (36%), Other (30%), Disputational (18%), Working (14%) and Exploratory talk (1%) types;
- The proportion of specific child-peer talk types revealed the following: Affirmation or Agreement (31%), Consensus or Clarification-building common knowledge (27%), Competitive or Defensive (21%), Individualised (15%), Elaboration (4%), and, Justification (2%);
- When teachers interacted with the children around the iPad, the kinds of teacher-child talk consisted of supporting children in terms of technical skills (37%), literacy or numeracy (31%), reminder about ground rules/ managing turn taking (27%), and, acknowledging children’s achievements (5%); finally,
- Apps with open design (e.g. Puppet Pals) allowed for more children participation and diverse talk types.

These findings will be elaborated on in our presentation, with examples of video clips to illustrate the different kinds of talk and apps useful to fostering talk.

**Discussion/conclusion**

The iPad is appealing and can support children’s developing literacy, communicative and participatory learning skills and sense of fun, wonder and exploration. Although it can be used on an individual basis, the iPad has the unique potential as a shared, public learning device and enables young children's ease of sharing content and working together or with their teacher. The children in our study used different kinds of talk, the most common of which was ‘cumulative’ in nature to support one another while working through apps on the iPad. The ‘Other’ category children talk type also emerged to be a valuable part of children’s learning about iPad use and appropriate ground rules and facilitated children sharing of their learning interests and a sense of belonging at the centre.
Teacher-child talk was also crucial in children becoming aware of the iPad's affordances, understanding ground rules for its appropriate use, its value for scaffolding of ideas and affirming children’s success - thereby contributing to realising its full potential. Teachers can use iPads to enhance children’s talk quality by:

- being sensitive and responsive to children’s emerging interest while keeping valued ECE learning outcomes in mind;
- modelling the kinds of valued talk that can help children become aware of and in turn model and apply their talk meaningfully to contribute to and extend the group’s learning;
- establishing ‘ground rules’ regarding expectations and ways of working together;
- choosing iPad apps that are more open than closed in design, and,
- encouraging iPad use as public learning devices to enhance young children’s constructive talk and collaboration.

Take home message

Young children easily pick up the skills to use the iPad through their own exploration and trial-and-error. However, the real potential for learning and exploration of children’s interest lie in using the iPad as a shared resource where children have opportunities to use the iPad in small group contexts with teacher guidance. Our study highlights the value of understanding the kinds of talk that children partake in with their peers and teachers when they work together in such contexts. Quality child-peer and teacher talk is a valuable resource and central to children's developing skills, confidence, and dispositions for meaningful and productive engagement with iPads. Teachers therefore play an important role in scaffolding young children's ability to develop talk strategies valuable to their learning and exploration with the iPad in the ECE context. The findings of this study are expected to inform more innovative iPad-supported teaching-learning practices and the conditions for shaping these practices, as more educators consider adopting mobile and tablet devices in their contexts.

References


ODFL course design: Lessons from the development process at OPNZ

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Practice paper outline

For an large institution like The Open Polytechnic of New Zealand (TOPNZ), ensuring that course development is as efficient as possible is of great importance. The initial phase of development is an important step in this process. The interaction between a subject matter expert (SME), a writer and an educational designer (ED) should result in a clear plan for the ongoing development of the course.

This paper will explore the initial phase of development at OPNZ. Lessons learned from the process will be discussed and an emphasis will be placed on those aspects which are relevant to practitioners in a wider context.

A survey of 16 educational designers at TOPNZ will be conducted, and the results of this survey will be used as the starting point for the project. This paper will report on the findings of the survey as well as the development process.

Introduction

The Open Polytechnic of New Zealand (TOPNZ) has over 1000 courses available for students. TOPNZ offers courses primarily on a Moodle-based platform (Online Campus) although the organisation is moving all courses on to the Open Polytechnic’s own, purpose-built learning platform, iQualify. TOPNZ is also taking the opportunity during this move to enhance courses, and along with new developments, this has resulted in a significant number of writers working for the first time for the institution.

Writers who work for TOPNZ are required to be knowledgeable about a subject, good at writing for online distance learners, able to write creative, valid, and reliable assessments, comfortable working with an SME and an ED, as well as flexible and responsive enough to work with feedback from other members of the development team such as bicultural or Pasifika reviewers. Due to this high level of professional ability, writers often require a lot of support from EDs.

This paper will investigate ways in which the development process of an online-only e-learning course could be enhanced. The focus will be on support given to writers during the process, although other areas of the development process will also be discussed.

The practice under scrutiny

A survey will be created using surveymonkey.com and given to 16 educational designers at TOPNZ. The survey will ask participants to define what they see as essential information for writers to have before course development starts, when it is good for them to know, and what is unnecessary.
The results of the survey will inform the development process. Discussion during the process will cover such topics as what defines good writing for online learning, how the requirements of the learning platform influence the writing, and the importance of maintaining good lines of communication between all parties involved.

A prototype of a course for writers to engage with before course development begins will be created, and will then be opened to interested parties for feedback. The course will then be modified as a result of the feedback, and will then be given to a limited number of educational designers in order for trialling. Feedback from these trials will result in a number of further modifications, and the course will be released to all staff involved in the development process.

The course is intended to be in a continuous state of development, with feedback from writers, educational designers, faculty members and other interested parties resulting in changes. The course will form an important part of the development process under scrutiny.

Discussion/conclusion

Writers who are employed by TOPNZ are required to produce work of a high standard, which is designed to fit within a specific platform, with reference to learning outcomes, assessment requirements, and the particular needs of a faculty.

Their primary focus, however, is to provide material for TOPNZ learners who come from a wide variety of backgrounds but are often in full-time employment. With the time-pressure that comes with obligations to work and family, students require learning material that is clearly and succinctly written. Furthermore, writers who produce material which is not written to an appropriate standard find themselves locked in a frustrating cycle of editing, reviewing and re-writing.

By explaining the requirements for writers before the writing commences, by demonstrating what these requirements are in practice, and by providing a repository of information for writers to draw from, the writer’s course aims to improve the development process and result in the creation of distance learning material of a high quality.

Take home message

Research which looks at improving the e-learning course development process with the aim of improving efficiency and effectiveness will be of interest to any involved in the creation of online courses. This project set out to investigate the development of a course which is created specifically to assist writers who are themselves writing ODFL courses. Input from a variety of stakeholders will be sought, and is intended to be incorporated in the final development process proposal.

Asking writers to engage with learning material on the platform which they will be writing on has the aim of familiarising them both with the platform, and with the writing standards required by the institution. The project is designed to assist staff at TOPNZ in the creation of high quality distance learning material, and lessons learned will be shared in this paper.

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What makes a course like 23 Things go viral?

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Practice paper outline

The “23 Things” course model has gone from a small US library to Oxford, Cambridge, Melbourne, and New Zealand. The 23 Things programme has gone viral in that over 500 public iterations have been recorded globally since 2006, each one adapted to the organisation's needs, and it continues to spread. This paper considers the features that have lead to this growth in the context of our own experience running 23 Things for Research for staff and doctoral students and 23 Teaching Things for student teachers at the Faculty of Education and Social Work of the University of Auckland.

23 Things offers online, self-paced, à la carte learning. It is delivered via blog posts and related digital communication tools. The activities scaffold learners to apply the learning by creating artefacts that are relevant for their contexts, and reflecting on how those artefacts might be used in their practice. 23 Things curates free, open source content and is Creative Commons licensed to freely share and repurpose for non-commercial gain. Success is reflected in the participants' reports of their increased confidence and ability, the formation of professional learning communities, and the subsequent spread to new contexts and audiences.

Introduction

As tertiary institutions are challenged to respond to the prevalence of digital technologies, there is a corresponding need to develop staff and student skill in using online and blended modes of learning (Gregory & Salmon, 2013). However, for staff it is one of many claims on their precious research and teaching time. Students in a crowded teacher education curriculum already have many demands on their time to meet the graduating teacher standards but also the need for digital competence for future-focused learning.

The Centre for the Creative Application of Technology in Education (CreATE) at the University of Auckland has a remit to enhance learning, teaching, and scholarship through digital innovation. This includes provision of professional development opportunities for staff and supporting student use of digital technologies for teaching and learning. We sought a timely solution that could be quickly and inexpensively integrated without broad structural and institutional changes - and, crucially, one that participants would elect to do, even though there was no associated course credit or academic workload credit. In short, something viral.

We sought to integrate technological, pedagogical, and content knowledge (Mishra & Koehler, 2006), and recognised the need for tertiary online teaching to incorporate personal, pedagogical, contextual, and organisational components (Baran & Correia, 2014). We also sought for participants to benefit from mentoring and support via a Community of Practice (Kopcha, 2010).
The practice under scrutiny

“23 Things” was first developed by Helene Blowers in 2006 to educate library colleagues about Web 2.0 and provides flexible means to deliver online learning via blog. It has since been adapted many times by other tertiary institutions to suit their own learning outcomes. By using online, open source components, minimal resource is required other than staff time to develop and customise the course (Blowers, 2008; Erikson & Healy, 2013).

Firstly, the CreATE team identified a need for professional development on digital tools for research, for academic staff, professional staff, and PhD students. 23 Things for Research (www.23research.com) was adapted to the University of Auckland context by Damon Ellis and the CreATE Team from versions of the programme recently delivered at the University of Melbourne and Oxford University. The programme was delivered for the first time in 2014 and a second iteration ran in 2015.

Next, the CreATE team identified a need for professional development on digital tools for teaching and learning, for faculty student teachers. A second version of the programme was developed to support the needs of our student teachers to be confident and capable users of digital technologies in classroom environments. 23 Teaching Things (www.23teaching.com), was developed by Lucie Lindsay, the CreATE team and Bronwyn Edmunds, E-learning Leader at Freemans Bay School.

Both 23 Things programmes began with content and activities delivered by blog posts. Each post was about a ‘Thing,’ focusing on a specific aspect or affordance of technology: professional social networks, content curation, cloud storage, and so forth. The programmes ran over 12-15 weeks with two new topics released every week.

For 23 Things for Research, in addition to the intrinsic value of the learning, we moderated the process by providing proactive consistent feedback to participants. Additionally there were spot prizes to incentivise weekly participation. In contrast, 23 Teaching Things had minimal facilitation or prizes for the student teacher participants. Instead, participation was motivated by the intrinsic value for students who are creating portfolios, in their job search and to demonstrate graduating teacher standards.

Discussion/conclusion

The immediate outcomes for participants corresponded to the benefits identified by Stephens (2012): increases in participant confidence, curiosity, and communication around online tools. In pre- and post-course surveys, participants have identified both that they intend to use more tools, and that they intend to extend their use of these online tools into new domains (from personal use into teaching, research, professional development, and other professional activities). Across the board, participants have provided consistent feedback on the value of moving beyond technology boosterism in order to critically engage with the tools in practice.

Longer term, the 23 Things courses have demonstrated their virality by spreading organically beyond the boundaries of the programme. ‘Graduates’ of the course have used their artefacts to effect change with external stakeholders, host their own online communities of practice, and initiate and lead training programmes with other staff. 23 Things has even extended outside our planned audience: current classroom teachers spontaneously adopted the course to structure their own school’s professional development.
Take home message

What makes a professional development programme like 23 Things go viral? The modular and re-purposable nature of the open source framework gives considerable opportunity for designers to customise and contextualise. Likewise, the course approach is flexible according to the needs of the designer: it can be self-paced, but also offers the opportunity to engage with participants relatively synchronously as a community of practice. The content is is strongly relevant to multiple practices, and the unity of subject matter and process (using the tools it teaches in the act of teaching them), thus combining technological, pedagogical and content knowledge in ways that can be easily repurposed and adapted to meet the needs of specific audiences, purposes and criteria. Christakis (2010) describes how innovative ideas spread like the flu through social networks. The 23 Things model will likely continue to spread and grow.

References


Establishing best practice information literacy teaching models to ensure equitable learning experiences

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Practice paper outline

Information literacy teaching is a core activity for academic libraries, and although this has been the case for many decades, not all librarians involved in teaching are formally trained in either pedagogy or good teaching practice. The consistency of the student learning experience is of critical importance, especially when contact opportunities are limited.

At Massey University Library, it was established that a set of teaching models was needed to assure an equitable and consistent experience in our offerings for information literacy teaching. To achieve this, a collaborative project was instigated with teaching colleagues across the three physical Massey University campuses. The purpose of this was to establish models in terms of best practice and to design these models to make them both appealing as tools and achievable as concepts.

A project team was established to develop information literacy teaching models for face-to-face, online synchronous and online asynchronous modes. A literature review and environmental scan to establish best practices and a shared understanding of what the activity of teaching comprises was conducted. The team sought expert guidance and developed three models for library staff. The models will be piloted during Semester Two, 2015. A training plan and toolkit will be developed to equip all teaching librarians to deliver the models from 2016.

It is expected that this work will lead to a consistently excellent teaching and learning experience for all participants, regardless of delivery mode or individual librarian.

Introduction

The Massey University Library context provides several challenges to teaching information literacy. There are teaching librarians at three campuses, which are located throughout the North Island of New Zealand. The Library also serves a large population of distance students, Massey University’s ‘fourth campus’. The teaching librarians have a varying degree of teaching experience, both within and external to a library context. The increase in online teaching has highlighted the fact that a librarian experienced in face-to-face teaching is not necessarily equipped with the knowledge, skill or confidence to deliver excellent teaching in an online environment.

Prior to the formation of the Teaching Models Project Group, a series of workshops was held with teaching librarians. The Project arose from the discussions at these workshops – there was a clear need to foster understanding of and a best practice guideline for the teaching of information literacy across all modes of delivery. This concurs with Devlin and Samarawickrema’s assertion that “a shared understanding of what it means to be an effective university teacher forms the basis of ensuring...
quality” (2010, p. 111). There was a clear need to establish a way forward which would assure all offerings were of a consistently high standard, no matter is which mode they were delivered in.

Thematically, the literature reported that teaching is a practical activity in which the teacher facilitates students’ engagement with the subject and encourages dialogue between the student and teacher. This concurs with Lowman’s 1995 two-dimensional reflection of teaching as an activity which encompasses both “…intellectual excitement and interpersonal rapport.” (Samples & Copeland, 2013)

There have been a variety of discussions in the literature regarding the crafting of teaching models to influence quality of teaching (Gray & Montgomerie, 2014; Lee Roberts & Taormina, 2013; Moselen & Wang, 2014). These discussions informed the group’s own thinking around the subject, how the definitions of best practice were created to function within the local context, and how the group engaged with the staff stakeholder group.

The practice under scrutiny

Only teaching of information literacy concepts and skills came under the scope of this project. While the elements for the models were established during the workshops, it was agreed that a standard was needed to which teaching librarians could adhere across all four campuses. There was also a clear need to positivise this thinking away from a possible perception that the models were an attempt to homogenise the teaching output of librarians. The group needed to couch it in terms of its true purpose, which is to “…identify deep underlying universal structures which can be named, described, and, perhaps most importantly, replicated in all contexts for all students.” (Elmborg, 2006, p. 194)

Fowler and Walter wrote that “…instructional programs are becoming increasingly complex, and ever more closely tied to initiatives of import across the campus because of broader trends both in the profession and in higher education” (2003, p. 466). This is still a reality – Massey University has yet to adopt a series of graduate profiles into widespread usage, which has implications for the design of the models, and may or may not impact on the outcome of this project.

Generally, this project was well received by teaching librarians in its inception stages, with a fair degree of representation across librarians associated with different disciplines, colleges and campuses, as well as levels of teaching experience. However, the project team has yet to instigate the models as applications to teaching processes; while the team is convinced of the positive intention behind these models, it is not outside the realms of possibility that there may be some who will resist the adoption and use of these models as part of their praxis. There has been a positive reception from librarians to the pilot project of the models during Semester 2, 2015. However, the pilot was undertaken by members of the project group, who, while they discussed their use of the models with their colleagues casually, were already ‘on board’ as to the usefulness of the models.

A key observation from developing these models across three modes of teaching was that the key elements of effective library teaching were similar, if not identical – the differences lie in the “how”. This observation will form a primary element in developing training for teaching librarians in order to deliver the models.

The ideal outcome of the adoption of the teaching models as they have been developed is that they empower teaching librarians to provide a consistently high level of teaching excellence, and enable learners to acquire the knowledge and confidence to use information critically.
Key to the successful implementation of the models in library teaching will be the supporting training and development plan and resource toolkit. These are currently under development now that there is a clear understanding of the models for teaching. The training plan will be delivered to meet acknowledged competency ‘gaps’ in library staff that will be identified using a self-assessment survey instrument. The project team will analyse the aggregated results of the survey to ascertain where the most significant need for development is and therefore source and provide appropriate development opportunities (in partnership with University colleagues). The training plan will be implemented progressively during 2016 with the aim of all teaching staff meeting all competencies by the end of the year. To accompany the training plan a self-help toolkit of resources, including guideline and practical tips and tricks, will be developed for those who wish to refresh or upskill independently of facilitated training.

Discussion/conclusion

This project to develop teaching models for information literacy teaching by librarians had a good initial buy-in during its formative process. This was in part due to the fact that the project has been framed not in the context of a critique of current practice, but as a setting of expectations for future practice, and an opportunity for librarians to self-assess how they meet the expectations currently and engage with training and development opportunities if required (Davis, Lundstrom, & Martin, 2011). However, the models have not yet been fully implemented as a practical application, and as such, the group has yet to encounter and deal with any issues of perception of these models, potential resistance to their use or how teacher librarians will engage with these models.

If the quality of learning experiences offered throughout a higher education institution is of critical importance, then it is vital for that institution to take proactive steps to ensure that whomever is interacting with learners has the skills and knowledge required to deliver best practice. The project answers the need to set expectations of teaching librarians praxis in order to provide a consistently excellent learning experience regardless of mode, location or individual. It also provides a tool for clear competency gap analysis of teaching librarians skills and knowledge. This in turn provides clear guidance for training and development planning.

Take home message

Educators in the context of higher education often find themselves in the position of being expected to teach to students without the benefit of any teaching qualification. This can lead to a patchy learning experience for students, and a concern amongst librarians that they do not have the skills to deliver instruction effectively. Establishing a shared understanding of good practice and supporting teacher librarians to deliver a high standard of experience is a sustainable and scalable approach to quality assurance.

This project has allowed the Library to take steps to ensure that all library teaching is delivered using sound pedagogy and current best practice informed by research and the literature, rather than solely on the basis of individual experience. Setting a standard for expected teaching practice and then empowering teachers to meet that standard is something which can be applied across all aspects of higher education.
References


’All’s well that ends better’: Engagement and retention in a collaborative online community

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Practice paper outline

This paper discusses the practice of building engagement and retention of an online community of learners (CL). This practice is ongoing in the context of an online programme taking place over 20 weeks, facilitated by two new to online Co Facilitators (CF), in collaboration with the Learning Design (LD) team, working with a Community of 80 Learners (CL), from across New Zealand. Moreover, as the LD team and CFs are located in both the North and South of New Zealand, our regular meetings have been virtual. The impetus for this professional inquiry was three fold. One, to deliver a quality programme that is both responsive and empowering; two, to ensure the LD and CFs had a shared vision and effective collaboration, and finally, to push the educational boundaries of online facilitation. By addressing these aims, a model will be offered to represent the conditions required for engagement and retention, to include the three stakeholders: the LD team, the CFs and the CL.

Introduction

As with any type of learning environment there can be challenges, an online programme is no exception. Martin (2009) suggests that regardless of how much time and effort goes into planning and creating a programme, there can be issues gaining interest and tapping into the CLs intrinsic motivation. He suggests that the lack of face to face contact, teacher presence and technical support are partly to blame for this, alongside the learners’ lack of experience in an online learning environment, and their ability to be self regulated.

When crafting an online learning experience, both the capability of the participant and the role of the facilitator need to considered. The purpose of this paper is to examine the practice of building engagement and retention in a collaborative online community of learners, to ensure a high quality programme is delivered, which is both responsive and empowers its CL.

Tinto (2006) states that it is a “widely accepted notion that the actions of the faculty, especially in the classroom, are key to institutional efforts to enhance student retention” (p. 5). Therefore this paper focuses on the actions facilitators can take to enhance student retention in an online community.

At the start of a course the capability, technical or academic, of a student is an unknown. However most platforms provide tools to monitor students’ progress at the start of the course and flag non activity that may signal students experiencing technical difficulties or another form of “digital pot-hole” that act as barriers to engagement (Fisher and Baird, 2005)

This paper outlines the steps taken by the CFs to use these tools, with support and expertise from the LD team, to highlight those CLs not engaging. These CLs were then contacted, and comparisons made between activity logs before and after the interventions to monitor success. This
will be triangulated with course evaluations from the CL to gain their perspective on the CFs efforts to enhance engagement and retention.

**The practice under scrutiny**

Prior to facilitating an online programme, both CFs had worked in the background of several online courses. Anecdotal evidence of what worked and what did not, accompanied with feedback from previous evaluations, suggests that although CLs were getting much from the programme, the CFs believed there was still room for improvement.

The evolution of this practice was made up of several components including the role of the CFs, the LD team, CLs, the use of synchronous and asynchronous platforms, plus the strategies to engage.

As ‘Gandalf’, the LD team’s expertise and endless possibilities into the Moodle world, provided guidance and practical strategies to actively involve CLs, including a ‘Getting the most out of Moodle’ guide.

The Gizmo Tool was employed to monitor and evaluate the interventions and impact. Regular virtual meetings with the LD team provides a shared understanding, knowledge building and creating.

In order to provide a personalised, engaging experience, the CFs have maintained an active online presence, often setting up discussion threads with provocations, encouragement and questions. The timing and distribution of forum posts was critical also. Regular personalised emails were also sent to touch base with individuals, to build a relationship, and to respond to their individual needs.

To ensure that the CFs were responsive to the CL, the synchronous sessions needed to be adaptive and flexible to ensure that the CL were actively participating, engaged, critiquing and celebrating. Major technical issues needed to be overcome, as well as ensuring the sessions ran to the allotted times.

Therefore, the CFs needed to upskill in Adobe Connect. A ‘Breaking Adobe’ event was organised to push the capabilities of the platform; to see what online facilitation was possible. Exploring the options to ensure the CL had true agency, meant that ‘Breakout’ rooms, for example, could be utilised. By providing options for the CL, in turn, they were empowered to drive their own learning collaboratively. Likewise, the CFs collaborated effectively by resuming roles of lead and co facilitator each time, from generating the online chat, through to reflections and moderation. This has been an organic process, one which continues to be reviewed, refined and reflected upon.

**Discussion/conclusion**

In conclusion, the ongoing professional inquiry into practice of an online collaboration between the LD team, CFs and the CL, to engage and retain participants, continues to be a powerful journey to “end better”.

Informal feedback gathered and received thus far from the CL has affirmed the power of, responsive and personalised facilitation. Anecdotally, the CL have thanked us and shared their appreciation in the recorded webinars/synchronous sessions, sent personal emails, to acknowledge the ways in which we have adapted and responded to their needs.

In addition, the Activity Logs and reports provide a clear insight into the online habits of our CL, which again, helps us to create the model we will present. Evidence that highlights “all’s well that
ends better”, will include an analysis of the course evaluations, alongside observations of the CL who continue to collaborate, grow and evolve on their personal and professional journey, long after their twenty week online course.

The unexpected outcomes to date, are the powerful virtual collaboration between all three sets of stakeholders; regular virtual meetings, and the genuine collaboration and engagement from our CL, within and across a number of schools and kura. A further area of exploration is the concept of ‘Learning and Lurking’. How might we engage those lurkers, and how do we ensure they are learning?

**Take home message**

- **You are not alone in your online learning experience.** Engagement and retention is the joint responsibility of multiple groups; Co Facilitators, Learning Designers and the Community of Learners.

- **For facilitators:** Online facilitators can draw from face-to-face face experience - identify students not engaging and contact them. Learning Management Systems provide tools to identify those most in need of contact. Seek feedback about how your learners are finding the course. Make changes during the course.

- **For learning designers:** Work with facilitators to identify participants not engaging early in a course to help tailor initial contact to include them in the course. This involves using learner analytics to identify cases where engagement is low.

- **For learners:** Seek help for technical difficulties early. Open lines of communication and use these as opportunities to provide feedback to facilitators and help make the course one you want to be part of.

**References**


Flippin’ students! What do they need now?

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Practice paper outline

There has been a recent, substantial rise in flipped and blended modes of delivery in Australian university classrooms. To enable these changes, universities are spending considerable time and resources focusing on course re-design and training academics to deliver courses in this mode. Far less time has been allocated to determining the needs of students and properly supporting them as they adapt their study to this changed mode of learning. There is an increased responsibility for the students to learn materials that would have previously been presented in classrooms though a standard lecture format.

There seems to be an assumption that students will embrace and leverage the technologies that are integral to blended learning due to their daily reliance on technology for personal communication and entertainment purposes. Universities have also made the assumption that students possess sufficient organisational and study skills to easily cope with these changes in learning approaches - but this may not be true. Universities are rapidly adopting instructional methods that are changing students’ university experience, especially relating to content delivery, without actively and aggressively supporting the students through this change. This paper argues that this support must be grounded in student consultation and action research.

Introduction

The past few years has seen a rapid increase in the integration of flipped and blended modes of learning in the Australian university classroom. In this move to flipped or blended modes of delivery, universities are spending a great deal of time focusing on course re-design and upskilling academics to adopt these new teaching methods. In contrast, it appears that considerably less time is being allocated to determining the needs of students (the primary stakeholders) and meeting their requirements to become effective learners in this dramatically changed mode of learning.

There seems to be an assumption that students will easily embrace the new methodologies that are integral to blended learning approaches. The use of blended learning is considered to enhance student engagement, however little is known about whether this is leading to discernible gains (Means, Toyama, Murphy, & Baki, 2013). There has been a shift to an increasing number of engaged classroom activities, often working with peers in groups. The adoption of these strategies along with students being required to learn content prior to attendance is causing a real shift in the way that students are being asked to engage with learning in a university setting. There has been little done to support them in these changes or to determine the support that they need.

Universities have made the assumption that students will embrace this style of learning based on the belief that students are skilled in all things technology - but this may not be true (Dalstrom and Bischel, 2014). When entering university for the first time most students are not expecting to have
their studies organised in such a manner. Universities are telling students that this is the best delivery method for their learning, when in truth, we are all in our infancy in this new blended world.

The practice under scrutiny

Across Australia, universities are developing blended learning experiences and designing learning spaces that leverage the growing number of educational technologies available (Johnson, et al., 2015). This is in stark opposition to the traditional lecture model. These developments challenge the relevance of the traditional lecture format as the most effective model, and in fact, represent a renaissance of teaching and learning methods in the university setting. Adopting these approaches will necessitate fundamental changes to how most courses and especially assessments are designed and delivered. As the majority of universities attempt to facilitate these changes, attention is focused on the re-development of courses, activities, and assessments and the re-training of teaching staff to allow for successful implementation of blended learning models. Much less attention is being given to supporting students through these changes.

In 2014, the University of Newcastle’s Faculty of Business and Law began a concentrated initiative to convert all of their first year courses (in the first instance) for delivery in a flipped or blended mode. Four of these newly designed courses were offered in the first semester, 2015. Subsequent to this, the Centre for Teaching and Learning conducted focus groups with students from three of these courses to gain insight into the students’ experiences of this new way of learning. Feedback from students was very mixed, with many saying that they would prefer the traditional lecture mode, while others indicated that they enjoyed the added engagement in the classroom. Other opinions fell within these two extremes, but the general feedback was that students had not expected to ‘learn the material themselves’ when they enrolled. The courses in this case were new, and developed by inexperienced academics, which may well have had an impact on student perception.

To ensure that we have included elements of support, we have applied the work of Churchill, Fox, King and Webster (2013) using their RASE model as a starting point for a systematic approach to blended course design. To this end we are trialling a course re-design for a flipped and blended delivery in Semester 1, 2016 for a large (800 students) first year management course. The RASE model has provided a framework of development, with an essential component of student support that is frequently omitted from course and curriculum design models. The success or otherwise of this implementation will determine the next steps in this process of incorporating student support in course re-design.

Discussion/conclusion

There is a definitive shift from students as consumers of content to creators of their own knowledge through a shift to deeper learning approaches (Johnson, Adams Becker & Hall, 2015). These developments place a greater emphasis on students as curators of their own learning, and assigns them greater responsibility for maintaining sufficient involvement in their courses. For the first time students have the responsibility and the opportunity to determine their own approaches to mastery of content and concepts. The previously held belief that it was the responsibility of the university to ensure that students are being provided learning opportunities is now being, to a large extent, transferred to the individuals themselves. These learning models have not been experienced by students’ parents, older siblings, or other significant people in their lives. This renders most
students of flipped or blended learning as ‘first-in-family’ – a cohort that has been previously acknowledged by all universities as requiring special support.

Student engagement and satisfaction is a critical issue both for ensuring that students are able to maximise their opportunities to achieve their educational goals, and to meet broader public policy objectives. It is important that universities manage this impact and provide the right support for students. To accomplish this, Australasian universities must consult with students and begin offering the rigorous support they require. We must construct student support mechanisms that will prepare our students to embark on radically different learning journeys and do it successfully. We are not there yet. We are not close.

**Take home message**

We need to guide our students on how to use the technologies and learning resources available as well how specific self-organisation and study methods can best assist them in achieving academic success. Their preconceptions of university study, gained from parents, siblings, teachers, and others, will no longer serve to assist them in university study. It is time to work carefully and closely with all students and listen to them regarding how they want to construct their learning. Action research can determine the optimal institutional and course-based supports required for students embarking on a completely different university journey than has previously existed.

This is a call for action to Australasian universities and those around the world to partner with our students in empirical and action research to provide a solid basis for assumptions about student learning needs as they attempt to succeed in blended and flipped classrooms. It’s time to begin.

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Postgraduate Rural Programme: Linking rural doctors across NZ and into the Pacific.

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Abstract

How can we improve training for health professionals wanting to work in rural and remote areas and what about ongoing support and upskilling of those who are already a part of these diverse communities?

This paper will focus on the University of Otago Rural postgraduate programme, its Diploma of Rural and Provincial Hospital Practice (DipRPHP) and Certificate of Clinician Performed Ultrasound (CertCPU), with strong principles of collaboration and culturally responsive pedagogy. We follow the journey that the programme has taken over the past decade, unique challenges presented by the conflicting demands and priorities of the programme’s home base, (Dunedin School of Medicine), and the context it needs to reach (rural remote NZ and beyond). There have been stumbling blocks, resulting in some detours, but at the same time these have led to innovative solutions. The programme has continued to expand and is creating a growing community of rural and remote practitioners throughout NZ and the Pacific. We are now looking at what is needed to allow the programme to thrive.

Overall the aim is contribution to improving the healthcare and access to healthcare of rural and remote communities in NZ and the Pacific region.

Introduction

Rural Medical practice is determined by its social context, the rural environment and its demands which include professional isolation, geographic isolation, limited resources and special cultural and sociological factors. (Medical Council New Zealand, 2009). It is defined by an inability, as a consequence of distance, to confine one’s scope of practice to a particular range of illnesses or acuity of presentation. This is Generalist (as opposed to Specialist) medicine.

We know that people living in rural and remote areas have poorer access to health care and poorer health outcomes, (Eberhardt et al 2004, Nixon et al 2014). Strengthening rural medicine and broadening its scope can reduce the disparities rural communities face when accessing health services, (Nixon et al 2008). In the early 2000’s the NZ rural medical workforce was in crisis yet there was no rural specific medical training available in NZ. These factors led to the setting up of the PGdipRPHP in 2002.

Early key programme principles included: 1. Accessibility: majority of teaching by distance to enable rural health professionals to remain in their communities whilst learning. 2. Credibility: teachers immersed in the rural context.3. Teaching to and through the strengths of the participants, centred on their day to day clinical practice i.e. in diverse rural communities.
Links were established with the Australian College of Rural and Remote Medicine (ACRRM) which resulted in a greater emphasis on professional developments and career pathways for rural generalist doctors. In March 2008 Rural Hospital Medicine (RHM) was recognised by the Medical Council of New Zealand (MCNZ) as a new vocational scope. The PGDipRPHP would provide the academic component of the new vocational training programme. In 2006 the CertCPU, teaching clinician performed ultrasound and echocardiography skills, was added. 2011 saw the beginning of links with the Pacific: a common clinical context and no generalist medicine training programme for these doctors presented the opportunity to think beyond national borders.

The practice under scrutiny

**What happened?** Delivering a distance education program to a widely dispersed student body by an equally dispersed faculty from an institution which is largely campus focused creates unique challenges, the 6 C’s:

- Culture: clash between the academic culture of central station and the realities of rural communities and clinical practice.
- Cost: how to shift resource to where the staff and students are?
- Communication; at-a-distance staff with no on-campus presence: how to link in?
- ICT: the rural urban digital divide is not well appreciated or understood.
- Concept of an academic programme as part of a vocational programme: can create tensions.
- Components: asynchronous (on-line forums) and synchronous (videoconferences, residentials), components are all essential and need to fit together.

**How did we go about it?** By forging collaborative relationships: recognising the benefits of being part of a large established institution, at the same time introducing to our institution the concept of a virtual, digitally based, programme, which links the geographically dispersed rural health faculty and student body. By tying in with professional training thus ensuring that the right focus is sustained: ‘it’s about the students, it’s about rural communities’. By recognising and strengthening the different components of our programme but keeping them strongly connected. By expanding and enhancing the innovative use of technologies. By never losing sight of the connections with the rural communities in which we live and which we serve in all our roles – including our academic ones.

Our online forum uses the Moodle Learning management system version 2.8. The asynchronous nature facilitates information sharing, case study and other interaction outside the constraints of time and place, critical for our group who are not only scattered geographically but also rural health professionals, thus working irregular hours. Although faculty contribute, the Moodle Discussion Forum belongs to the students. It needs to replace the shared learning that occurs when urban based groups of students meet face to face on a daily basis. Moodle is used differently for the CPU papers: here it is a forum that allows students to share the ultrasound images and echocardiography clips that they have obtained during their daily clinical work and for the tutors to check on the technical quality of their scanning and on their interpretation.

We became the first group in the University to start using the Zoom e-conferencing platform (initially for faculty meetings), in 2014. We started using Zoom as a teaching tool in second semester
2015. Prior to 2015 we had used audioconferencing, with telephone lines which was not only expensive but, as the class size grew, allowed little opportunity for the students to interact. We had long considered the move to video-conferencing and had trialled several other systems all of which had significant drawbacks particularly when used on rural broadband. Zoom, however, seems to be bringing together the key things needed to deliver for our program: access and installation is easy; audio and video quality is excellent; the interface is clean and simple for new users, yet has the functionality required for our scenarios; recordings are easy to manage, good quality and in a standard format. Zoom seems able to handle variable network speeds and quality and has excellent quality of screen sharing, e.g.: the ability to share video clips on the fly with sound. The cost is substantially less than audioconferencing. Having a visual component not only allows more material to be shared synchronously but, perhaps even more importantly, has a powerful effect with students reporting a closer connection with the group. The University’s eConferencing, officially rolled out Zoom across the whole University late in 2015.

Residents remain an essential synchronous component. The nature of the programme with its dispersed student body, professional isolation, cultural aspects and need for practical skills training currently demands four to five days of face-to-face learning for each paper. The RHM programme is unique to medical vocational training programmes in NZ in that the trainees placed in rural areas for around half of their four year programme, are usually the sole trainee in that area/hospital. Compare this to other medical vocational training programmes which are based in large hospitals, and urban centres where there is daily, if not weekly interaction. For RHM trainees the residentials are often the only time during the four years that they are together with peers. In addition to the formal teaching, which is largely case based, other vital interaction happens e.g.: collegial aspects, peer support. There are practical aspects e.g.: the residential for the trauma paper takes place at the Simulation lab in Christchurch; the residential for the CPU papers allow essential hands on skills training; cultural aspects are key at the rural marae based residential for the communication paper. Residentials also tie the programme in with rural communities, e.g.: community members in Central Otago join the Dunstan CPU residential as ‘patients’; the local community is the backdrop for the marae based residential in Hokianga.

Pacific: Extending the program into the Pacific has its own unique challenges, there are similar principles and curriculum commonality but larger dimensions and less resource. Knowing the context is essential and in crossing national borders it is local Ministries and clinicians who play the lead role, (Sopoaga et al 2015). Here, as in NZ, it was key to tie in with professional training. In 2014 the Cook Islands Ministry of Health established the Cook Islands Fellowship in General Practice with the PGDipRPHP providing the academic component of the programme. The face to face residentials are even more important for these practitioners as their isolation, both geographic and professional, is greater than NZ based students.

What did we notice? The beginning of better connection at all levels: between students, staff, institutions, other health professionals within NZ and internationally and technology starts to become a support rather than a hindrance. We start to see reciprocal learning, from and between the students, which leads to diversity in culture and experience. Embarking on the papers means that doctors, whether they are in Gore, Kaitaia, the East Cape or Rarotonga become part of a wider peer group thus overcoming some of the professional isolation often faced by clinicians in remote locations. At the same time, in particular for the Cook Islands and Niue, there has been a reciprocal effect, the contributions of the Pacific Island Nation (PIN) doctors to the group both in the on-line forums, and at
the NZ based week long residential bringing in a wider regional Pacific perspective which enriches the learning for all participants

**How do we know?** Growth: numbers have more than quadrupled and there is increasing demand in NZ and beyond. The programme now forms the academic component of two training programmes (the NZ Rural Hospital Medicine training programme, and the Cook Island GP training programme). Expansion has been rapid and is now creating a capacity issue.

**What did we learn that is worth sharing?** The importance of perseverance, collaborative relationships, and occasionally having to make a stand: for ‘the bottom line’, in this case the connections with rural communities as key to the whole programme. For a small programme within a large institution reciprocal benefits need to be recognised and acknowledged, only then can there be progression.

Credible staff know the reality of the context i.e. –they are immersed in the rural context and have an understanding of ‘what happens in that (rural remote) place’: which means the beginning of linking the rural-remote communities into the University. Keeping focused on the common rural context in turn links dispersed students and staff.

**Discussion/conclusion**

This practice activity is creating a growing community of rural and remote medical practice nationally and regionally. Early evidence suggests improved health workforce numbers, workforce satisfaction, and retention, (Lawrenson et al 2015).

To ensure sustainability, at a distance staff and students need at least equitable resource and support; technology can be a key enabler however it can also be a source of frustration and a hindrance particularly when systems are developed that do not work well in the rural context. The integration of academic programmes with professional development can work even flourish if well supported.

There is potential for involving other rural–remote health professionals, i.e.: an inter-professional programme. Regarding Pacific Island Nations: the potential reciprocal regional benefits are huge.

**Take home message**

Underlying the programme is a big audacious goal with wide potential benefits, social justice and equity issues that the team believes in. It requires thinking outside the square.

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‘Over the edge of the wild’: Lessons of discovery on the journey to trans-disciplinary breadth

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Practice paper outline

At the University of Tasmania, a breadth unit program is underway with the dual purpose of evidencing student experience in graduate attributes and developing multidisciplinary approaches to understanding the complex challenges (or ‘wicked problems’) of the real world. All units are developed by lecturers working in teams across multiple faculties; all units must be capable of being studied off campus, and several have on-campus options (meeting the university’s requirement for blended learning). Breadth units are being built into student study plans, with most students required to study at least two as part of an undergraduate degree.

The initiative, commencing in 2013, uncovered challenges in administrative and academic systems, which may have been predictable, but were often surprisingly intractable. Administrative systems have primarily had to adapt to university study moving out of faculty silos. One-year-on reviews of units following their introduction capture the delivery experience (from lecturer and student perspectives) and provide vital feedback for quality improvement. Teaching teams now confront how best to sustain the blended approach.

This paper indicates some of the issues to be tackled and suggests indicators for the ‘success’ of this initiative. Some specific examples will be discussed in the conference presentation.

Introduction

“There are no safe paths in this part of the world. Remember you are over the Edge of the Wild now, and in for all sorts of fun wherever you go” (Tolkien, 1937).

Many universities are now addressing the need to broaden the experience and understanding of their students beyond a single disciplinary approach, to produce graduates with a ‘rounded perspective’ capable of operating in the real multidisciplinary world.

Some universities give students the opportunity to sample elective units from different faculties; others have introduced compulsory core subjects that cover cross-disciplinary topics with relevance across all courses. A third approach is the ‘breadth unit/subject’ that brings academics from different disciplines together to develop and teach on a topic that can be examined through different disciplinary lenses, which may provide complementary or contrasting understandings.

At the University of Tasmania (UTAS) the Breadth Unit Initiative was originally conceived to evidence graduates’ experience during their studies in each of the generic graduate attributes. An opportunity was quickly realised by the Curriculum Review Committee of the potential for carefully selected topics to offer students insights into the complex challenges that would face them as graduates, and do this from a transdisciplinary perspective (two examples: ‘Confronting Sustainability’ and ‘Living with Cultural Diversity’).
The UTAS approach to Breadth – its focus on complex world issues and the variety of options provided to students – is specific to UTAS (Dibben, 2015). Units are compliant with the university’s Blended Learning Model; i.e. all can be studied off-campus, several include on-campus support alternatives; individual and group project work demands high level student interactivity and application in developing individual perspectives.

However, it has been a challenging journey leading up to “the first year’s (2014) experiences of introducing breadth units into a university whose systems and processes were not geared to implementing them” (Dibben, 2015), and the pioneers faced unique logistical hurdles to overcome along the way.

The practice under scrutiny

In translating the breadth unit idea into reality, we divide challenges into two types: (a) administrative and (b) learning delivery.

(a) Unique administrative structures

“The administration of an interdisciplinary subject tends to be more problematic than other subjects” (Golding, 2009, p. 9). Because of recognised resourcing and workload implications for breadth unit development, team work for the preparation of new breadth units was established with central support in the form of incentivisation funding and design advice. Development commenced in late 2013, and three units were approved for initial offering in Semester 2, 2014. A range of logistical issues quickly emerged (Dibben et al., 2014):

- Confusions over funding distribution and revenue distribution;
- Confusions around when the funding should ideally be provided;
- Whether first semester delivery should receive similar support as the development period;
- Coding issues – administrative resistance to creating non-faculty unit codes.
- A new Cross Faculty Learning and Teaching Committee administers the breadth unit approval process, and has been forging a route through the misty mountains.

(b) Learning delivery

“Interdisciplinary subjects present multiple, and often conflicting, perspectives and ways of knowing. These need to be coordinated in some way so the students have a coherent and rewarding teaching experience, and so the subjects do not become a confused muddle” (Golding, 2009, p7).

Breadth unit development requires the input of disciplinary experts with interdisciplinary insight (ibid), and this has mostly engaged senior academics. Significantly, the units are required to be available off-campus – and whilst most UTAS teachers are becoming conversant with the university’s Learning Management System (LMS) it is evident that many are inexperienced in holistic design for distance learning. Some issues tend to be amplified with cross-faculty teams when different disciplinary ‘norms’ apply.

A ‘one-year-on review’ by an educational developer (ED) is a requirement of each breadth unit implementation, designed primarily to review the delivery experience from both teaching team and
student perspectives (rather than the actual subject content). The ED accesses the unit online in the LMS, reads discussion boards, reviews evaluation reports and interviews the unit coordinator(s). A standardised set of review questions has been developed and the same process has (at the time of writing) been applied across eight units.

Significant reoccurring issues include:

- Consistency within a unit – individual teaching styles can enhance a unit, but content organisation, delivery language, assignment submission, feedback and delivery of grades, etc. need to conform;
- Planning for sustainability – for enrolment growth and staff turnover once incentive funding expires;
- Sensible use of discussion forums – more forums do not equate with increasing interactivity;
- Organisation of group work – purpose of inclusion; what skills are you testing?

Feedback to teams from the ED review informs the revised offerings. Particular consideration is being given to the unit delivery rationale and support expectations of on- vs off-campus students, thereby engaging lecturers in novel cross-disciplinary conversations on the demands of blended learning. A new unit planning process required for new (2016-) breadth units anticipates design options and promises to improve content structure, consistency and alignment (Linquist & Phegan, 2015). The journey continues …

Discussion/conclusion

Some real lessons can be learnt from these experiences – in what pioneer teams with development assistance have achieved by surmounting (unexpectedly challenging) administrative hurdles and developing and delivering engaging content to students from all university disciplines. There are positives for the staff too: in bringing them together to work in novel teams, teaching experience and techniques are shared and new and otherwise improbable research opportunities and collaborations are identified.

Trans disciplinary studies are becoming a vital component of contemporary undergraduate education. At UTAS, breadth units focusing on complex challenges (or ‘wicked problems’) aim to make the central issues of our time primary in, rather than secondary to, advanced discipline-focused university level study. Our experience suggests one should expect: a) limited knowledge of leading-edge unit development principles and thus the need to develop competencies of teaching staff as part of the implementation process; b) university financial, faculty load and student management information systems unfriendly to trans-disciplinary project requirements. However, these challenges are surmountable and the outcomes are inherently worthwhile.

To be further addressed in ongoing study: how do you evaluate the ‘success’ of interdisciplinary subjects? Golding argues (p22) that standard student survey instruments are not specific enough and should include an evaluation of the extent to which a subject enables students to develop a meta-disciplinary understanding, and interdisciplinary skills. Are we achieving this by matching outcome achievement to graduate attributes such as problem solving and global citizenship?
Take home message

Being ‘Over the Edge of the Wild’ does indeed mean you are in for ‘all sorts of fun wherever you go’! However, particular successes of projects like this are two-fold. First, they provide a legitimate means by which to bring, not only faculty staff, but also the student body together so that, for example, students from medicine get to meet, interact and study with students of art history; the silos inherent in the experience of higher education may be broken down. Second, by exposing limitations in both system infrastructure and teaching concepts and capabilities this enables each to be addressed as part of the implementation process to the benefit of the university; the system must be willing to evolve when embarking on the journey. Trans-disciplinary teaching projects take universities out of their comfort zones and encourage them to learn.

“There is nothing like looking, if you want to find something. You certainly usually find something, if you look, but it is not always quite the something you were after” (Tolkien, 1937).

References


Science in Society spreads its wings: An online course suite and integrative MOOC approach

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Practice paper outline

This paper presents the iterative and experimental growth of a suite of asynchronous, flexible, online courses offered by the Faculty of Science at a predominantly campus-based University. Initially starting as a small 15-point summer course in 2011, the programme has grown into a nationally-recognised undergraduate Minor and two MOOC-like courses that are currently being offered in pilot form. The development of each course has introduced new student learning needs, new technologies, new challenges, resourcing issues, and opportunities. Positive student feedback, high adaptivity to student needs, significant support and resourcing from IT Services and senior management, alignment with a new University strategic vision, and input from concurrent communities of practice, a professional mentor programme, and other aligned research programmes have all helped to support the development of this programme. Highlights include use of technologies that enable a personalised learning experience, taking student on location through the use of field-lectures (from Wellington to Antarctica), and substantial upskilling and enthusiasm from a wide cohort of staff profiled in the courses.

Introduction

In 2011, Victoria University’s Faculty of Science offered an experimental, stage 2, online summer course in “Contemporary Issues in Science and Society”. The motivation was to explore opportunities for online learning in this predominantly campus-based University and upskill academic staff in the use of digital tools for learning and teaching.

The success of this course has led to substantial growth, including creation of an undergraduate programme, led by the newly established “Science in Society” group. This minor in “Science in Context”, launched in 2014, can now be added to a degree in any major. It is designed to help science graduates to develop and demonstrate an enhanced literacy and awareness of societal issues, and non-science students to develop and demonstrate an understanding of science and scientific issues. At the core of this minor are three successful online, asynchronous and interactive courses, offered one per trimester, all of which are also offered in a not-for-credit option through continuing education. In addition, two new courses, piloted in 2015, have been designed to reach “MOOC-like” audiences and target students outside University, but utilise many similar features as the existing suite including asynchronous videos, blogs and discussion fora. One is focused on teachers and high school students in New Zealand and the other, filming on location in Antarctica, has attracted professionals from around the world. In both cases, recruitment occurred by “word-of-mouth”, through email, and by targeting appropriate listservs, and Open Blackboard was chosen as the Learning Management System for ease of mirroring existing courses that use Blackboard. From 2016, both courses will be offered in parallel in MOOC- and for-credit options.
All courses receive very positive student feedback and sustain consistently high retention rates (over 80%). Factors that have guided the learning design include: the University’s Digital Vision Strategy (2012), participation in an ascilite Community Mentee Programme (2013), participation in a professional learning community (2013 – 2015), research into resilience in teaching triggered by earthquakes (2014) and strong support for innovation from senior management and IT Services. Ethics approval, granted in 2014, allows us to analyse course content, part of a concerted effort to carry out research into facilitators of success and opportunities for this programme.

The practice under scrutiny

The three main courses offered for credit in the above-mentioned minor are “Contemporary issues in science and society,” “Revolutions in science” and “Energy, society and the future”. In addition, two new courses, “A survivor’s guide to the 21st century” and “Antarctica Online”, specifically target students outside University. These courses were established separately, over four years, each building on the learnings of the previous.

By offering one course per trimester, we are able to be responsive to student needs and new technologies and pedagogies. Different technologies, trialled in one course, are then adapted or rejected for roll-out across the online programme. As a result, the common format, learning design, and course expectations have created a safe and familiar learning environment for students, which now sees returning students supporting and mentoring those who are taking an online course for the first time.

Successes in this iterative programme development include creation of a space for private dialogue between students and instructors through the use of a private learning journal and student learning contract; hiring a “chatter” for the larger courses – a recent graduate who welcomes students to the course and helps to settle them into the unfamiliar learning environment; integration of assignments and feedback that supports scaffolded learning; creation of transcripts to support students with learning difficulties and english as a second language; and mechanisms for making videos available offline for those with limited bandwidth. Several technologies and approaches were also abandoned, including the use of tutorial groups, integration of Twitter, and use of wikis, as these were found to distract rather than support the student learning experience. The flexible nature of the courses has also allowed us to offer courses over different time periods and outside of the trimester when they are officially run, and to tailor deadlines to individual student needs.

These courses all feature academics from a wide range of disciplines. This has led to an increased staff openness with regard to their understanding and use of new technologies, and exploration of other modes of teaching such as online, blended, and flipped. While we do not advocate the use of these kinds of tools for their own merit, the goals of the University stated through the Digital Vision Strategy and the University Strategic Plan (striving to double student numbers and ‘spearhead our digital futures’) certainly provides additional motivation and support from senior leadership for these developments.

Discussion/conclusion

The steady establishment of a suite of online courses in “Science in Society” at Victoria University of Wellington, a predominantly campus university, has allowed exploration of new technologies for learning and teaching, responsiveness to student feedback, engagement and upskilling of a
wide cohort of teaching and support staff, and experimentation of new courses that reach cohorts of non-traditional university students. Core to this has been the “pilot” process that establishes each new course based on the learnings of previous, along with a creative, experimental and innovative attitude. We learn from our mistakes, actively seek and respond to student feedback throughout the courses, and grow our capacity to ensure a personalised and supportive student learning experience. Highlights include a course filmed in Antarctica and delivered to students around the world, a programme tailored for teachers and high school students, and for our institution, the creation of a new undergraduate Minor.

**Take home message**

The successful online and blended teaching programme led by Science in Society group grew out of experimentation, new ideas, and strong support across the Faculty and University. Starting as a small, 15-point online summer course, the group now supports over 400 student enrolments each year and five unique courses that receive positive student feedback and high retention rates. In addition to learning from experience and student feedback, we also turn to communities of practice, associated research programmes, and relevant literature to ensure long term sustainability and implementation of best practice.

**References**


From Makerspaces to MOOCs: Recalibrating historical thinking for the digital age

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Practice paper outline

What does it mean to think historically in the digital age? This question drives our investigation into how tertiary students and teachers use digital media to transform learning experiences and present novel ways to engage with key historical concepts. Combining the frameworks of historical thinking (Seixas and Morton, 2013), threshold concepts (Meyer and Land, 2003) and decoding the disciplines (Shopkow et al, 2007), we explore how immersive technologies, both past and present, embody new learning opportunities and recalibrate historical thinking for the digital age. Several case studies are drawn from our current TLRI-funded project “Moving beyond the Threshold: Investigating digital literacies and historical thinking in New Zealand universities.” Examples include: the use of video lectures for virtual field trips in a MOOC-enabled course about Antarctica: the introduction of historical technologies such as stereoscopes and hand presses into “Metro meets Retro” interactive technology makerspaces: and the analysis of an Honours assessment focused on reflective visual workbooks to interrogate Holocaust memorialisation practices in Germany. These case studies exemplify how themes such as continuity and change, cause and consequence, historical perspectives, and place-based empathy can transform learners’ engagement with historical thinking as a digitally-immersive experience across diverse delivery platforms.

Introduction

Digital technologies drive New Zealand’s knowledge-based economy and underpin assumptions about the nature and function of 21st-century teaching and learning (Bolstad & Gilbert, 2008). University graduate attributes emphasise key competencies such as critical thinking, creativity, autonomous learning and citizenship, and foreground information and communication technologies. Both nationally and internationally, substantial investment in technology has been predicated upon the expectation of a direct correlation between learning quality and flexibility of delivery (Cuban, 2001; Oppenheimer, 2003). The Technology Outlook for NZ Tertiary Education 2011-2016 reported that digital literacy “continues to dominate conversations about the challenges likely to impact the acceptance of technology in tertiary education worldwide, and New Zealand is no different” (Johnson et al., 2011, p. 3). However, digital literacy is not simply “the ability to manipulate devices” but rather “it is the ability to critically evaluate the information obtained through those devices” (Gluckman, 2012, p. 3) and there is currently “insufficient knowledge about how ICT-related thinking and practice can be more consistently connected with ‘big-picture ideas’ about future oriented learning” (Bolstad & Gilbert, 2012, p. 57).
As the *Future-focused learning in connected communities* report makes clear, “digital technologies change the way students learn, the way teachers teach, and where and when learning takes place…using digital technologies to enhance the educational process involves more than just learning how to use specific pieces of hardware and software. It requires understanding pedagogical principles that are specific to using technology in instructional settings” (O’Riley et al., 2014, p. 4 & p. 34). This paper/talk will provide specific case studies relevant to these approaches, but also highlight how a continuum exists between past and present, both in the historical questions asked and in the technologies employed to address them.

### The practice under scrutiny

Although digital history has had almost two decades of scholarly activity and pedagogical reflection overseas, it is a relative newcomer to New Zealand. Defined as the application of digital technologies to investigating and representing the past, it is considered both a field and a method (Sword in Cohen et al, 2008) and embraces a diversity of subjects. Digital history relies on an increasing breadth of web-delivered, digitised resources that enable scholars and students ‘to make, define, query, and annotate associations in the human record of the past’ (Seefeldt & Thomas, 2009) often in the context of Web 2.0 social media, gaming interfaces, and new immersive technologies. It has the potential to offer powerful tools for inquiry-based and autonomous learning, but leads to two salient questions:

- How do we engage students in meaningful historical inquiry? (Lévesque, 2006), and
- What does the past look like through the lens of digital culture? (Tredinnick, 2013)

It has been argued that many disciplines are underpinned by a set of “threshold concepts” (Meyer & Land, 2003), which, once mastered, transform learning. In history-informed subjects, these threshold concepts have been identified as the “big six”: historical significance, evidence, continuity and change, cause and consequence, historical perspectives, and the ethical dimension (Seixas & Morton, 2013). However, the process of acquiring these often difficult, counter-intuitive, or even alien concepts has been described as an “unnatural act” (Wineburg, 2001). Students’ grasp of such “troublesome knowledge” (Meyer & Land, 2003) cannot, as Alexander (1997) points out, be acquired purely from everyday experiences, but requires “systematic instruction.” To achieve academic success in historical subjects, students are required to engage in a form of “critical literacy,” (McDonald & Thornley, 2009, p. 56) drawing on disciplinary knowledge and understanding to make sense of what they study and to grasp the specialised vocabulary and discipline-based methodologies of the subject (Sturtevant & Linek, 2004). Increasingly, these literacies are mediated by digital technologies. How do students move beyond the threshold of understanding the “big six” to applying them in their own critical thinking and improving their learning outcomes? If virtually all academic disciplines engage with history to some degree, how do teachers use the threshold concepts of historical thinking to shape learning objectives and develop better teaching practices in an environment where the resources, tools and, increasingly, delivery modes are mediated through digital technologies?
Discussion/conclusion

Our case studies demonstrate that integrating historical thinking with e-pedagogy to improve student outcomes is challenging in many formal educational settings. Often, teachers assume the ‘digital’ in digital history refers simply to the use of digitised resources that offer exciting opportunities to roll out ever more content in multi-media formats. Alternatively, they might assume that ‘digital’ can refer to business-as-usual approaches such as conventional virtual communication and web-based dissemination interfaces such as e-mail, discussion fora, blogs, and wikis, mediated (or not) by learning management systems (Crookston, 2006; Shep, Sheehan & McKinley, 2013). Such limited adoption of digital tools and technologies overall is consistent with findings outlined in the NZ Technology Outlook report, which states that “most academics are not using new and compelling technologies for learning and teaching, nor for organising their own research” (Johnson et al., 2011, p. 3). Institutions frequently take a global approach to e-pedagogy and do not recognise or cannot afford to resource discipline-specific needs, particularly for historically-informed subjects that are not considered to be as technologically-intensive as, for example, science or engineering. Furthermore, prior knowledge, time availability and commitment to ongoing training and support at the local institutional level all have an impact on the development and implementation of advanced digital literacies amongst teachers, who are often digital immigrants themselves. Finally, teachers and institutions make assumptions about the transferability of digital fluency amongst digital ‘natives’ from social media tools such as Facebook and Twitter to more interactive and immersive environments that include multimedia and mash-ups, or programming tools for analysis and visualisation.

Take home message

Digital pedagogy “requires us to rethink much of what we believe about education” (O’Riley et al., 2014, p. 28). While the disciplinary contexts for our case studies differ, we highlight key learning insights about how historical thinking has been unsettled and enriched by these immersive, if not potentially disruptive, technologies of ‘seeing’. The platforms adopted in these case studies—MOOCs, blended-learning environments and Makerspaces—demonstrate ways of pushing the ‘digital’ in digital history beyond the traditional applications outlined above, even within the usual institutional constraints. Our theoretical and methodological frameworks have provided points of reference, contestation and destabilisation for both the research team and our student learners. Experiencing doubt and discomfort and engaging in sustained self-reflection, we have wrestled with threshold concepts as a threshold concept itself, transforming our learnings into threshold experiences (Vaughan, 2015) that provide us with a matrix for digitally-centric curriculum design in historically-inflected disciplines.

References


What are the influences on teacher mobile technology self-efficacy within secondary school classrooms?

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Practice paper outline

This practice paper focuses on the influences on teacher self-efficacy when introducing mobile technologies into secondary classrooms. The study from which the findings reported on here are drawn focused on the perspectives of teachers in their first year of implementing a one-to-one iPad programme in an English-speaking international school in Germany. Teachers were interviewed several times over the course of the school year implementation period. During this time, changes to and factors that influenced mobile technology self-efficacy were explored. Key findings included the importance of teachers’ experiencing success when using devices, the significance of collective efficacy between teachers and their students that helped to build teachers’ individual self-efficacy, and the affordances inherent in the device itself that aided the development of teacher self-efficacy. Teachers also mentioned some barriers to technology integration, however their technology self-efficacy was sufficiently developed enough so that these were not prohibitive to technology use.

Introduction

Given the rapid growth of digital technologies in schools, the role of the teacher when introducing new technologies into the classroom is an important area of educational research. Teacher beliefs and attitudes towards technology have been linked to their subsequent adoption and integration of these technologies in the classroom (Donnelly, McGarr, & O’Reilly, 2011; Ertmer & Ottenbreit-Leftwich, 2010; Watson, 2006). A key element of these beliefs is self-efficacy.

Self-efficacy is strongly connected to future focused beliefs about mastery, value and usability of devices, and therefore plays a an important role in the acceptance and uptake in the classroom (Shea & Bidjerano, 2010).

This study sought to examine links between teacher self-efficacy and technology usage in secondary classrooms. Specifically, the study examined the influences on teacher self-efficacy as they participated in the implementation of one-to-one iPad devices in their classrooms over the course of one school year. This research explored how teacher mobile technology self-efficacy changed over this time, and the factors that influenced the observed self-efficacy changes. This practice paper reports on the factors that influenced teacher self-efficacy with a view to how this knowledge contributes towards the use and integration of digital technologies in the classroom by secondary teachers.
The practice under scrutiny

The practice explored was mobile technology implementation in secondary classrooms. The study took place in an English-speaking international school in Germany, with a mid-August to June school year (northern hemisphere). Teachers of Grades 6-8 were issued with iPad mini devices in June 2013. Teachers were concurrently offered professional development options, with the intention that teachers would have the opportunity to explore and experiment with the devices prior to them being introduced formally to the classroom (Grade 6-8 students received their devices in October 2013).

This study incorporated a series of semi-structured interviews with teachers over the first year of implementation. These interviews followed five participants and took place approximately four months apart, with each participant being interviewed three times between November and June.

A key theme that emerged from the interviews over the implementation period was the importance of collective efficacy, where a sense of efficacy between teachers and students existed separate from the individual teacher’s sense of efficacy: “The kids know how to do it and so do I, so it’s just like okay, yep, let’s share” (Annette, Interview 3, June 2014).

Teachers identified the perceived value of the device in the classroom as a contributor towards their confidence: “It’s increased the learner’s toolkit. That for me is invaluable” (Jim, Interview 3, June 2014). Jim also observed that student enjoyment, and device affordances were positive elements linked to device use: “If it’s done right, it’s making our teaching more engaging…..more active for the students too” (Jim, Interview 1, November 2013). Some teachers highlighted school and device infrastructure and (to a lesser degree) time as barriers to use of the device. Leslie observed that “Even in my own classroom, you know, plugging it in, getting all the wires. Then it’s being slow…. ” (Leslie, Interview 1, November 2013). However, they also mentioned coping strategies, suggesting a level of resilience to the challenge of the implementation, as Annette outlines here - “…at first you find it frustrating and then you kind of almost expect it to happen, and so when it does happen it doesn’t really affect you” (Annette, Interview 2, February 2014). Some teachers mentioned exploratory time as a factor to build confidence, and Annette’s comment summarises this. She said, “I think the more time you have with something even if it’s just you are wasting time…you’re just really confident in how it could be used”.

Collegial modelling, and differentiated learning were also mentioned, this time by Arthur, saying “I think [colleagues] showcased those at some of our meetings…”.

Discussion/conclusion

This investigation contributes to existing research concerning teacher mobile technology self-efficacy and technology use. It contributes to a small body of research on teacher self-efficacy associated with the use of mobile devices for teaching and learning purposes particularly in secondary classrooms.

Practice implications include providing the use of mindful experiences tailored to individual skill level (with adequate time to master skills), as well as value-oriented skills (where the skill or tool clearly adds value to curriculum areas or school levels) to contribute to building mastery experiences.

The results of this study also indicate a perceived change in the role of the teacher in the classroom into more of a facilitator and collaborator. Students and teachers working together to find a
solution was a key element of perceived collective efficacy that emerged from the study. What is promising about this finding is that it can enable teachers and students to become co-collaborators when using mobile technologies in the secondary school classroom. For school-wide implementation, this research indicates that the introduction of new mobile technologies could benefit from a staggered introduction for teachers and students, with new technologies being made available to teachers prior to full classroom/student implementation.

As we seek to understand how to engender attitudes that encourage teachers to integrate new technologies into their classes, building teacher mobile technology self-efficacy and classroom collective efficacy suggest important areas for future investigation and exploration.

**Take home message**

An individual’s belief in their ability to master new skills and feel competent is a key aspect of any process of change. This is true for teachers as much as students, particularly when it comes to the introduction of mobile technologies. This investigation revealed that allowing teachers time to experience mastery in relation to mobile technology use, in addition to providing differentiated support for those who feel less efficacious, were key elements in building self-efficacy for teachers within the study. Teachers’ perception of device value, and affordances it provides was also identified as an important aspect for building self-efficacy.

Encouraging a collaborative space in the classroom where students can take the lead with mobile technology use can also positively influence teacher efficacy. The importance of teachers’ self-efficacy for using mobile devices is set to become more important with increasing school-wide technology implementation.

**References**


Designing authentic assessment challenges for distance learners

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Abstract

Finding content to populate an online course is relatively straightforward, but finding ways of engaging participants so that their learning impacts on practice takes a lot more thought. CORE offers a range of online courses for teachers on modern learning, with participants working in a wide variety of schools all over New Zealand. A lot of work has gone into designing appropriate assessment tasks that provide relevant, authentic and challenging points of engagement for participants to demonstrate their learning. These tasks, or "Challenges" as they are called, form the focal point for each 'module' in the online programme, and provide a way for participating teachers to apply the ideas and understandings they are introduced to through the course content. Each challenge must be designed so that the objectives of the module can be clearly demonstrated, and they must also be relevant to teachers from primary or secondary schools, urban or rural settings etc. An essential aspect of the challenge is the assessment rubric that is shared with participants at the beginning of the module, providing a point of reference to them to self-evaluate their progress and ensure they provide evidence that is aligned with the criteria as a part of their presentation.

Introduction

One of the greatest challenges in education today is how to ensure the learning that is planned for and engaged with has impact in the lives of the learners, and goes beyond the superficiality of ensuring there is a transfer of knowledge taking place (Learning Media for Ministry of Education, 2008). This is particularly true in the field of professional development, where the imperatives for demonstrating what has been learned are inextricably linked with the imperatives for change within the organisation that the learner may be working for.

This problem is exacerbated further when the professional development is being provided at a distance, mediated through various forms of synchronous and asynchronous technologies, but where there is a physical separation between the PD provider and the learner and the context that he/she is working in.

In the field of compulsory education the current emphasis in PD is on supporting teachers through inquiry into their own practice, usually involving various forms of coaching and mentoring. The impact of such PD is not uniform or standardised, but needs to be considered in light of the unique context and needs of each teacher and school.

Modern approaches to PD must model the principles of the modern learning practice that teachers are expected to demonstrate in their work with students. Thus the design of CORE’s modern learning suite of courses intentionally focuses on finding the right balance between providing access to the relevant information and research and activities designed to engage learners in the ‘sense-making’ process as they interpret and apply these ideas and frameworks in their own context.
The critical success factor in the successful design and implementation of CORE’s approach is the design of the authentic assessment challenges that the groups of teachers collaborate to complete together, and the open and shared approach used to assess this activity.

The problem being addressed

The problem being addressed in this paper is how to sustain the engagement of distance learners in an online professional learning programme, ensuring that the impact of the programme is evident in the changes in practice in their local context.

An effective professional development programme must offer more than a sequence of ‘one off’ learning experiences for staff — in the form of isolated staff meetings or off-site workshops. The programme must be a part of the ‘weave’ of everyday activity in a school/kura/centre, with regular opportunity to identify and celebrate successes along the way towards achieving the change goals. The context of this project is an online professional development programme, targeted at small groups of teachers within a school, working collaboratively to demonstrate their learning from within the programme by completing an open-ended ‘challenge’ which is then shared with other course participants. The problem that is addressed in this paper is how such activity can be assessed in ways that model the principles of modern learning practice, and honour the authentic context within which each group is working.

The use of distance education approaches for teacher professional development isn’t completely new, and there are numerous examples of these in the literature (Dede, Ketelhut, Whitehouse, Briet & Mccluskey, 2008; Matzat, 2013; Owston, Wideman, Murphy & Lupshenyuk, 2008). Most frequently they are associated with the provision of courses leading to the awarding of formal qualifications, where the key motivation is the achievement of the qualification, more than the successful demonstration of what has been learned in the context in which the person is working.

The courses described in this paper are provided by a professional development provider, and intended to lead to change in professional activity in the teacher’s own context. Making the learning experience ‘real’ for these teachers is a challenge at the best of times, and as a distance education experience, the difficulties in maintaining focus, engagement and time on task become even more difficult.

Study design/Approach

This paper reports on the findings of an innovative approach to the professional development of teachers involving the design and implementation of an online course targeting groups of teachers from primary and secondary schools across New Zealand. In particular, it reports on the success in designing authentic assessment challenges that provided the central focus for participating teachers.

The designers of the courses outlined in this paper observed the following four research-based principles in their approach to designing these courses:

1. **In depth** – Each course consists of four modules, each broken down into four topics and an assessment challenge. Each topic introduces participants to key ideas from the research and practice base, together with rich tasks to promote deep engagement with the material. Various forms of online activity are promoted to enable the sharing of ideas and insights.
2. **Sustained over time** – Each course is designed to be engaged with over two school terms (approx. 20 weeks). During that time there are regular points of contact and feedback.

3. **Contextually relevant** – The course design accommodates teachers from all contexts, including primary and secondary schools, special needs schools, urban and rural schools etc. Participants share the features of their context early in the course as a part of tailoring the facilitation process.

4. **Linked to practice** – All activities are designed to assist the participants to apply the learning in the context of their own practice, and support for this is provided through the online facilitation.

The primary focus of each module in the courses is the achievement challenge which focuses attention on what the participant has to do to demonstrate that they have interpreted and applied the learning in their own context in a way that has shaped their practice. An important point about the challenge is that they are designed to be completed collaboratively by a group of teachers in the local school context, rather than by an individual teacher working in isolation.

For each achievement challenge an assessment rubric is supplied, available to all participants before they start, and which is used openly and transparently as a guide for completing the challenge, and for providing the summative feedback at the conclusion of the module. The progressions used for the rubrics have been developed based on the principles of the Concerns Based Adoption Model (CBAM) which is used extensively to underpin CORE’s approach to PD.

**Findings**

The courses used to inform the findings of this paper have been running for two years now in their current form, with modifications being made to each in the second year in response to feedback from participants. Key findings include:

1. There is a high level of positive feedback from participants regarding the challenge for each module, and how this provides the focus for the way in which they engage with the learning content in the topics. This is an extremely encouraging finding, and reinforces the design principle focusing attention on learning as activity rather than the delivery of content.

2. Participants who work collaboratively with at least one other person in their local context express a higher level of satisfaction about their work on the challenge than those who are working alone in their school. The collaborative aspect of the challenges is seen as an important aspect of the course as it is implicitly reinforces (and models) a key point of difference in modern learning practice in schools.

3. The completed challenge presentations are extremely diverse in what is presented and the ways they are presented, yet all are able to be assessed using the common assessment rubrics provided. This finding affirms the principles of Universal Design for Learning that underpin our course design, and the fact that teachers in a wide range of school contexts can find meaning through participation in the programmes that are offered.

4. Participants value the use of the assessment rubrics for each module, commenting on the way they provide transparency in terms of what is expected and also for the way they provide clarity and an aspirational view of what is expected to be presented. Course facilitators report only a few inquiries from participants seeking clarity around what is required, and in those cases, the conversations are generally at a high level of inquiry relating to specific aspects of what is being addressed. It would appear that the the clarity and transparency the rubrics provides offers sufficient guidance to participants.
5. The practical nature of the challenges, and the invitation to apply them to the local context of participants means the learning is being applied to create change in the school and classrooms they come from. In almost every case there is clear evidence during the challenge presentations of the application of what is being learned in schools, rather than simply being an academic exercise.

6. In a growing number of schools there is evidence of the learning being shared across the wider group of staff, with the course participants taking the role of facilitator within their own staff context.

Discussion/conclusion

One of the most significant learnings from this project is that the provision of online professional development that is practice-based, rather than typically academic and content focused, is possible and does bring about change in the local school context.

From a course design perspective, this can be attributed to the following:

1. The use of well-researched frameworks that underpin the instructional design, specifically the Concerns Based Adoption Model (CBAM) (Anderson, 1997; Hall & Hord, 2015; Hord, Rutherford, Huling-Austin, & Hall, 1987) and the principles of the Universal Design for Learning (UDL) (CAST - About Universal Design for Learning, n.d.; Ministry of Education n.d.; Rose & Meyer, 2002). The CBAM framework is used to create a clear view of the progressions involved in the learning journey, as well as a framework for ensuring that there are opportunities for teachers to engage with the topics at each of the three key stages of the framework. Meanwhile, the UDL principles are used to ensure that in the course there are:
   a. Multiple means of representation to give learners various ways of acquiring information and knowledge,
   b. Multiple means of expression to provide learners alternatives for demonstrating what they know, and
   c. Multiple means of engagement to tap into learners’ interests, challenge them appropriately, and motivate them to learn.

2. The emphasis on participation as a collaborative group of staff from within a school, rather than as an isolated individual. While it is possible to participate as an individual, the depth of engagement and application of understanding in the local context is not as powerfully demonstrated. If collaboration is to be promoted as a fundamental aspect of the modern learning paradigm then it is important that it is practised as a part of professional learning.

3. Every effort is made to create a sense of collegiality through the synchronous sessions, the online forums and the support inherent in the instructional design of the online environment, whilst avoiding the notion that this is something being ‘delivered’ to the participants.

4. The complete transparency in terms of the way the course is presented and facilitated. A key to this lies in the way that all of the course materials are made available to participants to browse and work through in each module, rather than being ‘drip fed’. In addition, the sharing of the assessment rubric that shows the explicit links between the module objectives and the assessment requirements provides a ‘no surprises’ environment that builds trust and mutual support.

5. The central focus on the module challenge ensures an emphasis on learning as activity, rather than learning as the ‘absorption of content’. In dealing with the challenge of what to present and how to present it, the participants are obliged to have to engage with the course content in ways that are meaningful to them, and in the process, may encounter further sources of information and ideas that they can bring to their work. Thus the learning in generative,
collaborative (in most cases) and reflects much of what the literature suggests is powerful learning through constructivist approaches.

As a footnote to this summary, the success of this approach has led to a negotiation with two tertiary institutions that have taken these courses through their own internal academic audit processes and are now offering participants who have successfully completed the challenges in the CORE provided online programmes the opportunity to have these efforts recognised within the context of their post-graduate qualifications. This is extremely encouraging as it provides further pathways for teachers to have their professional learning recognised towards formal qualifications.

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Electronic formative feedback and its effect on the writing skills of Asian L2 postgraduate students

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Practice paper outline

Many of our students in New Zealand are international, come from different learning traditions and have English as a second or other language. With this diversity, however, comes complexity, and a need to do things differently in order that we meet the needs of our students so that they can fully participate and learn effectively in an English-speaking teaching setting. Our graduates, in turn, need to be able to emerge from our teaching institutions business-ready and able to confidently take their place in workplaces with the skills they will need to succeed. But, as educators, are we meeting this need? How effective are the interventions we put in place in supporting this skills development? And what difference does using online rather than offline methods make to this process?

In this paper, we seek to outline a piece of practice-based research in progress which evaluates an electronic formative feedback process that aims to improve the academic writing skills of Asian second-language students within a postgraduate masters’ programme.

Introduction

In 2013, The University of Auckland’s Business School introduced a new Postgraduate Taught (PGT) Master’s Programme. In addition to discipline and content teaching, the programme is committed to the improvement of the mostly second language (L2) students’ academic and English language skills and therefore employs full-time language experts in the faculty. A major role for these language experts is to provide feedback electronically to drafts of the students’ written assignments.

There are two main concerns about the PGT students’ writing. The first is that there is a discrepancy between the standard of writing in many of the assignments submitted for summative assessment by the students and the standard of writing expected at Masters’ level by the Business School. The second issue is that some students do not significantly improve their writing skills over the programme and graduate with low writing skills. Ideally, a sustainable electronic system would address these problems by providing the PGT students with consistent, effective formative feedback on their written assignments. By responding to this feedback, the students should be able to submit final assignments with a higher quality of writing for summative assessment in each course and it is hoped that repeated use of this formative feedback process will improve the writing skills of these students.

To examine the problem, the theories of actions of the three groups of people who are involved are considered. These are the PGT students, the Professional Teaching Fellows (PTFs) who teach the academic and language skills, and the faculty who teach the business content of the PGT. An outline
of all these theories of actions and related research questions can be found in the appendix. This paper will focus on the actions of the PTFs in their quest to provide effective electronic formative feedback.

The practice under scrutiny

It is widely believed that providing feedback can successfully increase students’ learning in all levels of education (Black & William, 1998; Sadler, 1989; Sadler, 1998). A large-scale meta-analysis placed feedback in the top ten highest influences on student achievement and it is possibly the most powerful single influence for student achievement, whether at school or university (Hattie & Timperley, 2007; Hattie, 1999). Race (2001) who has expressed his belief that feedback in higher education “is vital in just about all learning contexts” (para. 1), suggested a “ripples on the pond” model to portray the central role that he believes feedback has to student learning. His pond metaphor was created to show that if there was no feedback, “the ripple of learning would tend to fade away and die out” (Race, 2001, Feedback and learning section, para. 3).

Another argument in favour of writing feedback, is the value that students place on it. For example, the Open University in the United Kingdom consistently receives extremely high ratings in England’s National Student Survey. One reason for this is that the students appreciate the feedback they receive on their assignments (Gibbs, 2010). However, many universities do not do so well in this survey because students express dissatisfaction with the feedback processes (Tett, Hounsell, Christie, Cree & McCune, 2012). The concept that effective feedback can increase student satisfaction is further strengthened by an analysis of the effects of programme assessments across various degrees in the United Kingdom, which concluded that the programmes with a high volume of formative feedback led to satisfied students who took a “deep approach” to their studies (Gibbs, 2010, p.34; Gibbs & Dunbar-Goddett, 2007). This student satisfaction with formative feedback also becomes obvious in the end of course PGT evaluations. In the comments section at the end of the evaluation, the students often choose to comment favourably on the PTFs’ feedback on their essays.

Discussion

The PTFs therefore, provide electronic formative feedback to support students’ learning and enhance student satisfaction. However, how best to do this requires careful consideration.

The first issue is the complexity of the existing feedback process. To increase learner autonomy and improve the initial quality of the first drafts, the students are asked to run their work through Grammarly before submitting it to Turnitin for formative feedback. Unfortunately, insisting on the use of this software has greatly increased the workload for the PTFs, as they now have to read numerous emails and check all the Grammarly reports. Further, the process requires both PTFs and students to login to Turnitin several times to submit drafts and give and receive feedback.

A significant problem for the PTFs is the workload the feedback process requires. In this suite of programmes, formative feedback is provided for about 30 different assignments each quarter, totalling 120 over a year. Students are able to submit two drafts for each assignment, resulting in an annual total of about 240 possible draft submission points. As the PGT accepts large cohorts of students (numbers are predicted to reach over 400 by 2016), it is clear that a vast number of scripts could be submitted for feedback. Currently, there are only three PTFs providing this feedback, which aims to follow best practice guidance and be given to the student within 24 hours so that they can
make good use of it (Race, 2005). With these figures, the difficulties of providing a sustainable system become apparent. When there are numerous assignments due at the same time, or PTFs have to work at night or at the weekend to meet the deadlines, the quantity, quality and content of the feedback can be affected.

Another important issue concerns the actual feedback that the PTFs are providing. Understanding that there are common linguistic and grammatical errors that L2 learners make, the PTFs have created a common set of feedback using Turnitin’s Quickmarks. The Quickmarks can provide detailed information that appears when the students click open the comment:

Figure 1. Examples of Quickmarks

This feature of Turnitin allows instructors to save feedback comments so that they can be used again. The comments can easily be dragged onto a student’s work allowing detailed feedback to be given very quickly. One of the advantages of the Quickmarks is that the students receive the same detail of feedback, whichever PTF is marking the work. However, the PTFs also believe that effective feedback should be personalised and therefore, often type individual comments on the text as well. This image shows how students see their feedback; purple comments are created by the automatic E-rater tool and the blue comments are added by a PTF.

Figure 2. Examples of E-rater and PTF’s comments

Using Turnitin to provide feedback is quick and easy for the PTF; the problem is that there is little moderation of the quantity, quality or content of the three PTFs’ feedback and the amount each uses

Quickmarks or personal comments also varies. The PTFs assume that their feedback will be understood, even if grammatical terms are used, and that students will know how to revise their work
successfully. An improved feedback process would provide consistent quality, quantity and content of feedback from individuals and across the team and students would easily understand written comments and be clear how to improve their writing.

The research in progress that we are presenting in this paper seeks to address each of these issues and problem areas in order to assess the effectiveness of these electronic feedback tools on L2 postgraduate learners. To this point, there is clear evidence of a language lift for exiting cohorts who have engaged with the current process model. We hope eventually to be able to design a process which maximises the effectiveness for our students and recognises the workload implications for faculty.

Take home message

All of our learners need to be able to engage with and develop crucial academic writing skills in order that they can demonstrate the graduate attributes expected of them. Although there are some intractable issues within this practice that further research is required to resolve, the evidence of exit tests thus far suggests that considerable contribution to improvement in Asian L2 postgraduate students’ writing skills can be achieved when formative feedback is given using electronic tools.

This piece of research has, we believe, demonstrated that this is a valuable and under-scrutinised area with huge potential for transformative learning experiences. Indeed, although this practice is based in a largely face-to-face teaching setting, the authors consider that this model has application for practitioners regardless of whether they are teaching in an offline or online programme.

References

A framework for seeking the connections between technology, pedagogy and culture: A study in the Maldives

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Abstract

Educational technology researchers often overlooked the impact of culture on teachers’ use of digital technologies in their pedagogical practices. This also includes a number of technology integration models (e.g. TAM and TPACK) that have failed to explain the connections between technology, pedagogy, and culture. This paper argues that teachers’ pedagogical and technological practices cannot be fully understood without considering the social and cultural norms of their specific cultures. This study adopted an ethnographic methodology, linked with Bourdieu’s (1977) habitus as a lens for exploring teacher educators’ practices in the Maldives. Data were gathered from eleven teacher educators who work in a Maldivian university context: using interviews, observations, focus groups and the hanging out approach. Key findings demonstrated that teacher educators’ pedagogical and technological practices were influenced by their own culture, early learning experiences in the Maldives, and their workplace (institutional context). Through this finding, this research proposes a framework, namely, Pedagogical and Technological Cultural Habitus (PATCH) for understanding teachers’ pedagogical and technological habitus in various contexts. The PATCH framework is, theoretically useful for designing technology-oriented professional development for professionals in various pedagogical contexts including virtual and blended pedagogical spaces. It also contributes to TPACK framework by adding an outer layer to
its current theorisation to represent teachers’ backgrounds and habitus when examining their practices.

Introduction

The literature highlights the notion that traditional teaching methods continue with the addition of digital technologies in many pedagogical contexts (Adams, 2012; Bang & Luft, 2013; Baran, 2010; Jones, 2003; Judson, 2006; Perkins, 2012; Pritchard, 2007; Sipilä, 2010; Zisow, 2000). Considering these studies were published at different times from the 2000s until the 2010s suggests that teachers’ use of digital technologies does not necessarily bring change to their pedagogical practices. In the context of this research, where digital technologies have only been introduced in the 2000s, the way teacher educators use digital technologies may mirror issues similar to those examined by the above researchers.

A number of researchers attempted to explore the factors that may perhaps explain what is behind a paucity of pedagogical change regardless of technology use in teachers’ practices (Aldunate & Nussbaum, 2013; Chapman & Gaytan, 2009; Falloon, 2011; Gülbaşar, 2008; Ihmeideh, 2009). Reflecting on these studies, it seemed that these researchers overemphasised understanding teachers’ competencies in using technologies, rather than exploring the associated influence of their backgrounds when understanding why their practices may have remained as highly teacher-centric and/or had not shifted. These researchers appeared to be techno-centric when understanding teachers’ use of technologies. Perhaps more explanations could be provided if they attempted to understand teachers’ backgrounds and cultures.

The problem being addressed

Due to many researchers’ technicist thinking, none of the studies above have attempted an understanding of the roots of teachers’ underlying benefits and practices that may be associated with their own culture. This research argues that technology integration cannot be fully understood by merely concentrating on technology, rather the focus ought to be teachers and the effect of their social, cultural and pedagogical contexts. This argument is very relevant because of the close connection between teachers’ culture and their conceptualised pedagogy. Examples include influence of culture (Gay, 2010; Jenks, 1993; Richardson, 2001); influence of own experience of learning (Belland, 2009; Cheng, Cheng, & Tang, 2010; Kukari, 2004; Pajares, 1992; Wong, 2005); and the impact of the practising context on teachers’ conceptualised pedagogies (Barton & Berchini, 2013; Bishop, 2003; Li, 2013; Williams, 2006).

Technology integration models also have provided scant attention to the connections between culture and teachers’ use of technologies in teaching. For example, TPACK studies (Abbitt, 2011; Chai et al., 2011; Koh, Chai, & Tsai, 2013; Koh, Chai, & Tsai, 2010; Sahin, 2011; Schmidt et al., 2009) provide limited knowledge about teachers’ backgrounds and culture when examining their use of digital technologies. This raises a question how far the TPACK model can be helpful to understand the connections between teachers’ early background, culture, and their use of digital technologies. Second, researchers (Aldunate & Nussbaum, 2013; Govender, 2012; Howard, 2013; Lai & Chen, 2011; Somekh, 2008; Sprankle, 2012; Wright, 2014) who have used Technology Adoption Model (TAM) for understanding their participants’ practices, also explain very little about teachers’
background influence on how they taught and used technologies. The studies reviewed here suggest a critical gap in understanding the connection between culture and the way these teachers used digital technologies in teaching. This paper aims to explain this connections between teacher educators’ culture, how they taught (pedagogy) and used digital technology (technology) in the Maldives.

**Study design/Approach**

This study adopted an ethnographic methodology to investigate how teacher educators’ use of digital technologies in their pedagogical practices was formed in the Maldives. The ethnographic methodology considered two focuses: institutional (teacher education context) and cultural (the connection between teacher educators’ early background and their later formed practices) when exploring teacher educators’ practices.

Prior to conducting this research, the ethical approval from the University of Waikato was sought and granted on 5 May 2011. Eleven Maldivian teacher educators were interviewed individually, classroom teaching of six of them were observed in the initial visit. Eleven months later, ten teacher educators participated in focus groups and five of them were interviewed for further clarifications. Plus, reflective journal-field notes were written through hanging out activities with ten participants over two visits: once at the beginning of 2012 (6 weeks) and again in 2013 (5 weeks).

The main findings were generated through various strategies adhering to grounded theory, linking it with Bourdieu’s (1977) habitus lens (seeking connections between participants’ practices and their backgrounds within their specific culture). Several strategies (diagramming) iteratively used for seeking connections between teacher educators’ pedagogy (how they taught), technology (what/how they used) and culture (their early backgrounds and cultural practices) in the Maldives.

**Findings**

The study indicates that teacher educators’ pedagogical and technological practices are influenced by their social cultural learning norms such as learning to recite the Qur’an without understanding it. This cultural practice has also unconsciously influenced both teacher educators’ view of learning and the pedagogical practices that formed later. This study indicates that the teacher educators formed cultural habitus in their pedagogical and technological practice through the influence of their culture and workplace context. The habitus they formed, however, involved three aspects represented within these two components (culture and workplace context). The three aspects are cultural (such as learning to recite the Qur’an without understanding reinforced with the rote learning experiences during schooling); technological (gained benefits as they continued teaching content); and pedagogical (pedagogical purposes of teaching content). These aspects made teacher educators form an overall pedagogical (content-oriented) and technological (PowerPoint-assisted) cultural habitus in their practices. More specifically, teacher educators’ content-oriented pedagogical habitus was influenced by both the culture and the institutional pedagogical context, while their PowerPoint-assisted technological habitus was heavily influenced by their institutional context.

With these findings, the study proposes a framework namely, Pedagogical and technological cultural habitus (PATCH) for understanding the connections between teachers’ culture and how they used technologies for teaching.
Discussion/conclusion

Pedagogical and Technological Cultural Habitus (PATCH) is an emergent idea developed to understand teachers’ existing pedagogical practices with technologies in relation to their backgrounds and culture as outlined in Figure 1. The literature discusses the strong relationship between pedagogy and people’s culture (Cheng et al., 2010; Gay, 2010a; Jenks, 1993; Kansanen, Tirri, & Meri, 2000; Kukari, 2004; Richardson, 2001; Wong, 2005). These researchers draw attention to the importance of understanding individuals’ culture when explaining their pedagogical practices. It is noteworthy that though teacher educators in my research were individually different, their common culture largely influenced their pedagogical and technological practices. Culture in this sense can include teachers’ own backgrounds (such as learning experiences), religious practices (such as learning recitation of the Qur’an), and the influence of the context where they teach (education system). This idea explains what Bourdieu (1977) argues, that teachers’ culture can become a strong ‘field’ where individuals’ dispositions are shaped through a socialisation process. The socialisation process is one in which teachers conceptualise their pedagogical practice with technologies. The facilities available (economic capital) in the teachers’ workplace or their cultural upbringing (social and cultural capital) can become a large part of their formed dispositions.

The PATCH framework is pertinent to researchers’ arguments about the strong connection between teachers’ conceptualisation of pedagogical practice and their culture. This framework may help researchers not only examine teachers’ use of technologies in teaching, but also identify what to address and which areas to focus on when change is necessary in order to enhance pedagogical practices. Also, it may inform those who design educational professional development programmes linking pedagogy with technologies.

The PATCH framework is timely because a number of technology integration models have failed to explain the connection between technology, pedagogy, and culture. For example, Technology Adoption Model (TAM) (Davis, 1989); and TPACK (Technological, Pedagogical and Content Knowledge) model (Mishra & Koehler, 2006) have limited room for explaining the relationship between how teachers use technologies and their culture. None of these models helped me understand what my participants have shown me: that early learning experiences can have a profound impact on pedagogical thinking, which also affects their choice and use of digital technologies in their classrooms.

In summary, the PATCH framework is, potentially useful for teachers, teacher educators, and lecturers in various pedagogical contexts including virtual and blended pedagogical spaces. It contributes to theory in several ways:

- It contributes to an understanding of teacher educators’ pedagogies in relation to their culture and habitus.
- It signals what aspects need to be considered when designing professional development in specific cultures.
- It illustrates three types of habitus associated with teacher educators’ pedagogical and technological practice: cultural, pedagogical, and technological habitus.
- It recognises the link between teachers’ habitus, their use of technologies and TPACK.
DEANZ2016: Conference Proceedings  April 17-20, The University of Waikato, NZ

- It offers a working framework for investigating technological and pedagogical cultural habitus among teachers, teacher educators, and lecturers across disciplines.

- It proposes an outer layer, namely, ‘Teachers’ PATCH’ to TPACK framework for helping researchers to consider teachers’ backgrounds and culture when understanding their conceptualisation of TPACK in teaching.

References


WhatsApp, agency and education: The case of female Saudi teachers

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Abstract

The rapid speed of technology development and different ways in which technology changes daily routines and behaviours has made it crucial for research to capture these changes that vary from place to place. In the Saudi context, there are growing numbers of teachers and students using technology in their teaching and learning practices; but there is a lack of literature that concentrates on teachers’ daily routines and experiences of using technology and the subsequent effects on Saudi society as a whole. This paper provides a detailed example of technology in use, specifically the WhatsApp application, by a group of female Saudi teachers and learners in the Saudi Arabian context.

Smartphone Mobile Messaging applications, like WhatsApp, provide users many options of communication both individually and as groups. The goal of this paper is to present the rationale and motives of female Saudi teachers choosing WhatsApp in their learning and teaching settings, and the ways they have used it to overcome obstacles that subsequently changed their teaching and learning experiences. To achieve the aim of this paper, I present some of the findings of a larger qualitative study done with a group of female Saudi teachers about their experiences using technology. An interview and focus group methods were used to collect in-depth data from teachers working in the field in public girls’ schools in Saudi Arabia.

This paper demonstrates the creation and modification of the practice of using WhatsApp in teaching (a use genre) that changed the experiences of teachers, the society and gave the technology new affordances that is more context-specific to overcome social and cultural positions; these new affordances were present due to many factors that are presented in this paper.

Introduction

Being a Saudi female myself, born and educated in the context of Saudi Arabia, I have observed the development and changes in education and also in Saudi lifestyle. My personal experience is as a student in Saudi schools, then entering a Saudi University; after that, teaching and training in Saudi schools where I worked with students and teachers before finally becoming a researcher believing in the power of research and that of a teacher as the key component in the process of education and integrating technology in education. This gave me an insight of the area, the Saudi context, and the determination to investigate the experiences of these teachers in greater depth through a qualitative study.

When choosing the topic of my research, I realised the scarcity of studies concerning teachers using technology in Saudi schools generally and female teachers specifically. Some researchers mentioned the need to conduct studies that concentrate more on the teachers’ experiences,
perspectives and daily lives to help capture not only the practice but the personal and social dynamics in the Saudi context (for example Jamjoom, 2010, Al-Lily, 2013). Therefore, I felt the need to conduct a study that looks closely at the living experiences of teachers and what they are going through in their daily routines.

After collecting the data, I noticed that according to teachers’ positions and the resources available to them, they improvised solutions to overcome the challenges they are facing. Their technology use was based on their needs and personal choices, which situated the study between technology affordances, education and the social, with teachers as the main active players in the process of technology use. In this paper, I have used one example of teachers’ experiences with technology - of using WhatsApp in their teaching delivery to demonstrate the rationale behind their use, how they used it, ways it changed the teachers’ experiences alongside those of their students, and how their use developed over time.

The problem being addressed

From observing and studying the Saudi context, (Al-Lily,2011) stated that Saudi women see the Internet as an empowering tool that enables them to interrupt the hierarchical order in the society, and which has given them more courage to communicate across gender lines, with policy makers and society, to support their struggle to acquire more power. He added that in Saudi society, technology is used as a problem-solving tool and is being reshaped based on the community requirements and challenges, thus conferring on technologies new values. On the other hand, Johnson & Wetmore (2009) stated that despite the advantages that technologies may offer by opening up new avenues of communication; in some cases they can be intertwined with social values, thus making them more concrete and permanent. This in turn may in fact reinforce existing social and cultural norms.

In educational technology research conducted on public schools in Saudi Arabia, the main hindering factors that teachers stated were increased work load, lack of online Arabic resources and lack of financial support in providing technology equipment and programs that created financial costs for the teachers who wished to adapt technology as they often met such requirements out of their own finances (Al-Furaydi, 2013; Oyaid 2015). (Oyaid, 2015) concluded that using already available applications in society that are free and accessible positively changed the views and attitudes of both students and teachers regarding using technology in education. In this case, technology encouraged teachers to develop their technical skills and teaching practices and increased their willingness to remain up-to-date with new innovations in their field.

Since there is a lack of in-depth qualitative research that concentrates on female teachers’ daily experiences, there is a need to show real-life examples of teachers using technology as a problem-solving tool, as a creative way to meet their needs as teachers and females in this context from their own practices, experiences, and perspectives.

To achieve this aim, I created a collaborative partnership between me (the researcher) and teachers by putting the teacher as the main focus and giving them the opportunity to share their experiences regarding their use of technology in a friendly, non-threatening environment. This will help other teachers living in the same context to benefit from other teachers experiences, and for policy makers to know teachers’ experiences being in the field.

In this paper, I concentrate on the use of WhatsApp by Saudi female teachers as an example of localised technology use genre. There are a number of studies that looked at the use of WhatsApp; for
example, Church & de Oliveira (2013) discussed the advantages of using WhatsApp, like, providing free messaging services, the fact that it is free to download and that it provides a more social, natural way of interaction.

This paper demonstrates the connection between the human agent (presented as the teacher), the technology (presented as WhatsApp), the audience or society (presented as students, students’ parents, and supervisors) and constraints (presented as the challenges, rules and policies) that all form the creation of a use genre that is being created and modified in this specific context.

By demonstrating this example, it shows ways teachers are active agents in the process of using technology, the role that technology plays to enable the use by its affordances, the role of society and how all this changed the experiences of female Saudi teachers, the technology and the society as well.

**Study design/Approach**

I viewed the WhatsApp use by female Saudi teachers as a genre. Miller (1984, p159) identified genres as “typified rhetorical actions based in recurrent situations”. Genre analysis has been borrowed by different disciplines. In the field of technology-in-use, there are some scholars who used genre analysis to study technology uses - for example, (Bakardjieva, 2005) study that examined how people interpret, domesticate and creatively use the Internet in their everyday lives.

In this paper, I draw on (Bakardjieva, 2005) notion of use genre. That is a focal point where the technical, the social and the subjective merge, proposing new affordances of technology. I also borrowed the notion of different kinds of capital proposed by Bourdieu’s economic, cultural and social capital models to explain teachers’ rules in the choices they are making.

To listen to participants experiences using technology, a focus group method was used in four public schools with up to 24 teachers participating. The study also involved in-depth interviews with five teachers to attain a rich description of the participants’ stories of their personal life, practices, beliefs and perceptions in the context they are living in. In the analysis process, a thematic analysis process was used by identified themes and codes to help cluster shared experiences together.

This paper concentrates on the research questions:

- What are the crucial elements that enabled the use of the WhatsApp use genre proposed by female Saudi teachers in their practice?
- In what ways has the use of WhatsApp in female Saudi teachers’ practice changed the experience of teachers and the society around them?

**Findings**

Teachers in both focus groups and interviews explained that they use WhatsApp to help them to overcome two main social barriers: the first barrier they faced was the need to communicate with their students’ mothers in a more effective way, and since there are some mothers who cannot attend parents’ evenings because of transportation barriers (women in Saudi Arabia are not allowed to drive). A second barrier to communication was that not all parents have computers and the Internet in their homes for teachers to communicate via emails. These two barriers might not exist in the case of a private school setting, however, in the schools that participated in my study, which are public schools, teachers realised the situation of their students’ families and found a solution in using WhatsApp that is accessible to most people in the society since it is free and easy to use.
Teachers described the experience of using WhatsApp as amazing; it helped them to inform the mothers of any announcements, activities and helped mothers get to know each other and form a community. Teachers then took the practice further, by sending pictures of outstanding students to the mothers’ groups as a way to motivate students. Here, teachers added to the affordances of the WhatsApp group to make it a student motivational tool.

Another use of WhatsApp that teachers mentioned is to overcome the gender divide in learning situations. They gave examples of a male lecturer communicating through WhatsApp with his female students who he only can teach and communicate with by virtual learning environments in university level. They stated that WhatsApp made it easier to communicate with their lecturer. In this context, WhatsApp is used to allow formal communication between male lecturers and their female students, which is different from using it with family, friends and colleagues.

Although WhatsApp is not an educational tool and was not created for school use, and might be viewed in other context as an inappropriate tool to be used by teachers in their practice, in this particular context, from teachers’ own experiences, they found in it a way to overcome many obstacles they are facing and a tool that they used afterwards to motivate their students. The study findings also showed that teachers were being critical about using WhatsApp by reflecting on the problems they are facing using it and on ways to overcome these problems.

Discussion/conclusion

The study showed that through the use of WhatsApp teachers are acquiring more control over their teaching and communication by having more communication options that enabled them to learn and communicate in a much easier and acceptable way in Saudi society. It showed the ways in which teachers circumvent some policies, gender segregation issues, and transportation problems by the use of technology, which gave them more agency and empowered them.

Here, WhatsApp was utilised according to the social situation by users. The characteristics of the teacher, her skills, knowledge and motivation to use something new, in addition to the need to communicate enabled her to think of new ways to overcome this limitation.

In educational technology literature, there are many studies that examined teachers’ practices and ways they integrate technology in their classrooms. Some of these studies, technology resources are already implemented in classrooms and teachers are asked to use these technologies and integrate them with their curriculum to promote a more interactive, collaborative and student-centred learning experience. The result in many cases is that teachers view technology as a burden, and state that they do not have time to learn and implement these technologies. In this case, the agency of teachers was removed by school administrators and policy makers by insisting on a fixed static translation of integrating technology into education that, in many cases, fails to complement the cultural and social capital of teachers, thus making it a burden rather than a useful and liberating tool. Here the cycle of shaping technology into teachers’ needs and practice is disrupted. These studies suggested that technology cost governments and schools large budgets without adding benefits to students’ attainments and learning experiences that they were hoping for.

This study is different in the sense that technology use was not suggested by schools or governments; rather the teachers chose to use technologies. This usage was based on teachers’ choices and their own capital and needs that increased their agency and empowered them.
On the other hand, the study also shows that the use of technology made some cultural and social norms more salient. In the WhatsApp example, teachers are finding ways around the cultural obstacles but not tackling the real problems, so on the one hand, it could be contended that technology is in fact helping to maintain the problems; however, on the other hand it gives the female teachers a degree of control over the social and political factors that they cannot change. This paper shows the main elements in the use genre that teachers created using WhatsApp and how this genre evolved over time.

References:
Church, K., & de Oliveira, R. (2013). What's up with whatsapp?: Comparing mobile instant messaging behaviors with traditional SMS. Proceedings of the 15 Human-computer interaction with mobile devices and services (pp. 352-361). ACM.
An evaluation of the accessibility of top-ranking university websites: Accessibility rates from 2005 to 2015

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Abstract

Accessibility evaluation is an important equity step in assessing effectiveness and usefulness of online learning materials for disabled students. With popular uptake of blended and online learning it is timely to evaluate the accessibility attained by universities in their websites and Learning Management Systems (LMS). The present study considers this question for the period 2005 through 2015. Previous studies in this area have indicated that university websites have become gradually inaccessible, as the complexity of their content increases, and that the amount of attention being paid to this problem by the universities is low. This study employed a comparative quantitative method, and a random sample of universities’ websites was evaluated using the accessibility evaluation tool designed by AChecker. The inclusion of the specific universities chosen for this study was based on their ranking in the world, and/or in the Oceania and Arab regions. Moreover, the evaluation is organised by page type: homepage, administration page or course description/syllabus page. Thus, through a statistical and empirical study, we demonstrated that there was no significant improvement in the accessibility of universities’ web sites between 2005 and 2015. Furthermore, access to media and document files had the most influential accessibility errors. In addition, there were 27,308 (33%) total home page errors among the 180 evaluated pages from 60 of the top world, Oceania and Arab universities’ sites. There are no significant differences in accessibility level between top-ranking universities in developed or developing countries. Therefore, with participation rate at universities expanding world-wide and equity being a common corporate theme there is a growing need for universities to commit to and responsibly address accessibility to online learning materials for disabled students.

Keywords: accessibility, LMS, disabled student, evaluation tool, ACHECKER, Website

Introduction

Along with the increased use of E-learning systems, distance learning and learning management systems (LMS) are being used as a means of distributing information. The number of university students with disabilities has been increasing dramatically, and their population is rising. Though developers have facilitated accessibility and provided new tools and features for web application systems, they still have limitations, and gaining access to online content and web-based resources has become a complicated process for disabled students. The socially preferred view of LMS accessibility is one of equity, where every student has the right to fully access the LMS, not just students who can easily access it via standard hardware and software.
Student achievement and LMS interaction are strongly interrelated. Educational data mining shows the impact of log-on time using online resources and digital contents on student achievement (Jo, Yu, Lee, & Kim, 2015). Analytical studies of LMS databases have proven that students who interact regularly with LMS components achieve higher grades, compared with those who do not (Baker & Inventado, 2014; Peña-Ayala, 2014). Moreover, Ringlaben, Bray and Packard (2014) evaluated 51 special education department websites in the US using accessibility evaluation tools AChecker and Bobby and found that most (97%) of the pages examined had accessibility problems, many of which (39%) should be regarded as high priority issues and resolved urgently. In comparing Ringlaben, Bray and Packard’s (2014) recent evaluation outcome with those of Hackett and Parmanto (2005), who proved the necessity of increasing accessibility rates in higher education websites in tandem with the increased complexity of web content, there were no significant improvement between the times of the two studies. Also, Zap and Montgomerie (2013) found that only 0.7% of 383 Canadian postsecondary websites received ‘Free of Priority 1 Errors’ and ‘Free of Priority 2 Errors’ ratings, based on the Bobby evaluation tool. Harper and DeWaters (2008) showed the results of their evaluation: one third (33%) of all college websites they examined were not compliant with any of the Bobby evaluation tool priorities, and universities’ home pages did not meet The World Wide Web Consortium (W3C) guidelines.

This study evaluates the current state of accessibility of universities’ websites of the top-ranked universities in the world, in Oceania and in the Arab region. The results of other studies from different periods are then compared, to show statistically if enough attention has been paid to accessibility issues by university systems. A review of the literature from 2005 to 2014 showed the necessity of improving universities’ websites accessibility, so those studies will we compared with the present study in the findings section.

This paper is organised into four sections; in the following section, the problem being addressed is discussed. The second section proposes the research design and method. Findings are evaluated in the third section, and the fourth section presents a set of brief general conclusions that can be drawn from the evaluation; it also suggests areas for future research.

The research problem

The Survey of Disability, Ageing and Carers (SDAC), published in 2012, showed that there were 1.5 million disabled people in Australia who needed formal assistance from an organised service provider for at least one activity of everyday living, including communication (SDAC, 2012). The number of students with disabilities has been increasing in recent years, and their population is growing; in 2014, the percentage of disabled students in Australian universities was around 10% (Department of Education and Training, 2015). Moreover, based on our empirical study of a large university in Queensland, we found a significant growth in the number of disabled students between 2011 and 2014, with 1,965 students in 2014. In 2014, 31.63% of disabled students left university without completing their degree, just 18.42% of students completed their degree, and approximately half of all disabled students graduated with a GPA of less than 5 out of 7. Today, it is apparent that attention must be paid to supporting disabled learners better and with a move to online systems that the accessibility of content and learning materials is a key area of attention.

Assistive technologies, such as Braille output systems, the modification of keyboards, screen enlargement utilities, voice output utilities, and other technologies, allow disabled students more access to information on an LMS and other online pages. On other hand, the complexity of many
systems’ content and resources has increased, especially with the emergence of Web 2.0 technologies such as blogs, multimedia and wikis; therefore, much information cannot be accessed with assistive technologies, software and hardware alone. There is growing evidence to suggest that universities have failed to keep up in addressing accessibility problems, whether they relate to assistive technology issues, multimedia content, or document files. This study highlights the number of accessibility errors commonly found in 60 universities’ websites; addressing them will benefit educators and disabled students by providing a current general overview of the accessibility problems. Finally, findings of the present study provide insight into the design of development guidelines, standards, codes and heightened consciousness of LMS or university sites’ accessibility for disabled students.

In the second section, the study design and approach are explained, including details of the site selection process and the evaluation method used to support the study’s aim of rating the accessibility of top universities’ systems.

Study Design/Approach

The selection process for participating universities was based on the Academic Ranking of World Universities (ARWU), which is conducted by researchers at the Center for World-Class Universities at Shanghai Jiao Tong University (ShanghaiRanking Consultancy, 2015). The evaluations are based on the top university rankings in the world, Oceania and the Arab region, as of 2015, and the sample consisted of 20 university websites from each of the three categories. The top universities in the world were considered to show that even they, despite their location in developed countries, struggle with accessibility. Examples from this group include Harvard, Cambridge and Tokyo Universities; the remaining members of this category come from a random selection of university sites among those ranked 1-100 in the world. Universities in Oceania were randomly chosen from among the top 50 ranked schools, including Australian National, Monash and Otago Universities, where the study was conducted. In the Arab region, accessibility issues were considered in developing countries such as the Kingdom of Saudi Arabia, Egypt and the UAE, and the participant universities were randomly chosen from the top 50 schools in the region, such as King Saud, Cairo and United Arab Emirates Universities.

The data collection method was based on collecting HTML source code from web pages of the chosen participant universities, all of which are publicly available online. The focus of this study was to evaluate the accessibility of each university’s home page, one course description page and one admission page, as these pages are considered to have the greatest impact on students. All pages were chosen randomly from the universities’ websites, and a total of 180 pages were evaluated. In addition, the page type shows the level of accessibility when moving away from the university homepage, to record whether the number of accessibility errors increased or decreased when moving from the homepage to a course outline page. Finally, the evaluations included a comparison of accessibility errors found on sites originating from developed and developing countries.

The analysis method used here is based on two analytical tools; the first tool is AChecker (AChecker Adaptive Technology Resource Centre, 2015), a software tool that can be used to analyse individual web pages for accessibility. It produces a report of all accessibility problems for selected guidelines and identifies three types of problems: known, likely and potential errors. ‘Known errors’ are those that have been identified with certainty as accessibility barriers. ‘ Likely errors’ are ones that have been identified as probable barriers, but require a human to make a final decision. ‘Potential
problems’ are ones that AChecker cannot identify in terms of impact, so a human’s decision is required. An example of the AChecker evaluation process is presented in Figure 1.

Figure 1. An example of the AChecker evaluation process.

In this study, we set AChecker to find the number of errors in each web page that go against the AA level in the Web Content Accessibility Guidelines 2.0 (WCAG 2.0), which are the most commonly used guidelines in most educational organisations and LMS, including Blackboard, Moodle, and Skillsoft. Furthermore, WCAG 2.0 is a balanced, referenceable and technical framework with 12 standards that are categorised under four concepts: perceivable, operable, understandable and robust. Each standard has testable success criteria at three levels: A, AA, and AAA (World Wide Web Consortium, 2008). Thus, WCAG 2.0 is updated to include evaluations of Web 2.0 components, such as wiki and multimedia contents.

A second analytical tool the present study employed is SPSS, which is used to analyse and visualise the numerical data gathered from AChecker reports for each selected university systems, organised by page type and region.

A comparative quantitative analysis was used to answer the study’s proposed questions:

• What is the current accessibility rate for LMS and universities’ sites?
• Are there any differences in accessibility rates between top-ranking universities and other universities in different regions?
• Are there any differences between accessibility rate and web page types?
• What is the improvement rate between this study and other studies conducted during different periods?
• What are the most common errors in an LMS other online pages that affect accessibility?

The evaluation and resulting analyses that answer the above questions will be discussed in the findings section.
Findings

Figure 2. Mean total number of errors in the world, Arab and Oceania regions

There were a significant numbers of accessibility errors in the three pages evaluated for each university site among the 60 top world, Oceania and Arab universities. Figure 2 presents an overview of the accessibility issue throughout the world, showing the mean total number of errors in each country of the chosen regions in this study. For example, the mean of known, likely and potential errors in the home, admission and course description pages for all chosen universities sites from Australia is around 1000. The mean number of total errors reflects the global issue of accessibility concerns, showing it is a problem in all participant universities.

Table 1, below, shows the total number of known, likely and potential errors in the home, admissions and course description pages for all chosen participant university sites in the world, Oceania and Arab regions. There are 27,308 total home page errors (33%), 24,433 admission page errors (30%) and 30,944 course description page errors (37%), so the total number of errors on the 180 evaluated pages is 82,685. The AChecker evaluation tool searched for errors that went against WCAG 2.0 standards, at Level AA. The expected number of errors will increase by 30% if AChecker is set to Level AAA. In sum, the accessibility issue is considered a worldwide phenomenon.
Table 1. Statistics Summary for Total Home, Admission and Course Description errors in All Universities

<table>
<thead>
<tr>
<th></th>
<th>Total home page errors</th>
<th>Total admission page errors</th>
<th>Total course description page errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Valid</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>N Missing</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mean</td>
<td>515.73</td>
<td>407.22</td>
<td>455.13</td>
</tr>
<tr>
<td>Minimum</td>
<td>23</td>
<td>51</td>
<td>45</td>
</tr>
<tr>
<td>Maximum</td>
<td>1149</td>
<td>1623</td>
<td>3293</td>
</tr>
<tr>
<td>Sum</td>
<td>30944</td>
<td>24433</td>
<td>27308</td>
</tr>
</tbody>
</table>

Figure 3. Total number of home, admission and course description page errors in each region

A comparison of the total number of all error types in each region, as shown in Figure 3, shows that the number of accessibility errors in university systems is high, regardless of their origin in the developed world, in countries such as the US, UK, Australia and Japan, or in developing countries, such as Egypt, Saudi Arabia and Lebanon. These numbers demonstrate uniformly that minimal attention is paid by universities to accessibility of their online content in the nominated regions.
### Table 2. Statistics of Known, Likely and Potential Errors on the Home Pages of the World’s Top Universities

<table>
<thead>
<tr>
<th></th>
<th>Known Errors</th>
<th>Likely Errors</th>
<th>Potential Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Valid</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mean</td>
<td>30.25</td>
<td>1.80</td>
<td>386.75</td>
</tr>
<tr>
<td>Minimum</td>
<td>0</td>
<td>0</td>
<td>210</td>
</tr>
<tr>
<td>Maximum</td>
<td>414</td>
<td>15</td>
<td>629</td>
</tr>
<tr>
<td>Sum</td>
<td>605</td>
<td>36</td>
<td>7735</td>
</tr>
</tbody>
</table>

### Table 3. Statistics of Known, Likely and Potential Errors on Admission Pages of the World’s Top Universities

<table>
<thead>
<tr>
<th></th>
<th>Known Errors</th>
<th>Likely Errors</th>
<th>Potential Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Valid</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mean</td>
<td>58.45</td>
<td>2.10</td>
<td>351.65</td>
</tr>
<tr>
<td>Minimum</td>
<td>0</td>
<td>0</td>
<td>111</td>
</tr>
<tr>
<td>Maximum</td>
<td>943</td>
<td>10</td>
<td>1025</td>
</tr>
<tr>
<td>Sum</td>
<td>1169</td>
<td>42</td>
<td>7033</td>
</tr>
</tbody>
</table>

### Table 4. Statistics of Known, Likely and Potential Errors on Course Description Pages of the World’s Top Universities

<table>
<thead>
<tr>
<th></th>
<th>Known Errors</th>
<th>Likely Errors</th>
<th>Potential Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Valid</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mean</td>
<td>63.40</td>
<td>1.35</td>
<td>514.20</td>
</tr>
<tr>
<td>Minimum</td>
<td>0</td>
<td>0</td>
<td>60</td>
</tr>
<tr>
<td>Maximum</td>
<td>841</td>
<td>6</td>
<td>3073</td>
</tr>
<tr>
<td>Sum</td>
<td>1268</td>
<td>27</td>
<td>10284</td>
</tr>
</tbody>
</table>

Tables 2, 3 and 4 illustrate an example of World’s top universities finding. In this respect, table 2 shows statistics related to the known, likely and potential errors on the home pages of the world’s
homepage, it is likely that they will see an increase in the number of errors as they move to pages beyond the home page within the university’s system.

Table 3 shows statistics on the known, likely and potential errors on the admission pages of the world’s top universities. The mean number of known errors among 20 pages is 63, the number of likely errors is 1.35 and the number of potential errors is 514.20. It is clear that, in this study, the number of potential errors is higher than known errors for all evaluated pages, while the likely errors are the least frequently occurring. Most potential errors are related to the accessibility of multimedia content, such as missing synchronised captions for video or audio, inaccurate or unavailable descriptive text for images or video and a lack of reading and navigation order. These errors require human action to correct, and rely on a well-designed accessibility development plan, so that universities may check, find solutions for and fix these errors.

Table 4 shows statistics related to the known, likely and potential errors on course description pages of the world’s top 20 universities. The comparison between the total number of known errors on their home, admission and course description pages shows that the number of accessibility errors increases significantly as one moves away from the homepage; there were 605 known errors on home pages, and 1268 on course description pages.

However, when comparing the likely errors and potential errors for the three page types, the number of errors revealed that there is no relationship between the page type and increasing number of errors. Some universities had higher numbers of likely and potential errors on their home page than on their course description page. In all, the accessibility issue is present even in the world’s top-ranking universities, and in the Oceania and Arab regions. There is no relationship between the page type and increasing numbers of errors.

The AChecker reports generated from 180 pages were manually evaluated to identify the accessibility errors common to 60 universities’ web sites. These errors are listed below:

- Missing alternative text
- Linked image missing alternative text
- Alternative text is null or empty
- Document language missing
- Empty link
- Missing first-, second- and third-level headings
- Using unordered lists
- Missing synchronised captions
- Missing audio or video descriptions
- Lack of reading and navigation order
- Not all page functionality is available using the keyboard
- No time control if a page or application has a time limit
- The web page has no a descriptive or informative page title
- The uploaded document file on pages like PDFs, Word and Excel files are inaccessible
From the above analyses and statistics, it is clear that accessibility issues affect universities’ sites in both the developed and developing world, and there is no significant difference between them. Also, there are no differences in accessibility rates between top-ranking universities and other universities. There is no relationship between the number of accessibility errors and web page types. It seems that the author impact on universities’ pages affects accessibility, so authors who create accessible pages reduce the number of errors on any university’s website.

The most common errors on university sites that affect accessibility relate to the accessibility of media content, assistive software issues, document file issues, and a lack of navigation information. Furthermore, the comparative analysis between the evaluation in this study in 2015 and other accessibility evaluation literature published between 2005 and 2015 showed that accessibility issues continue to require more attention from universities, educational organisations, developers and educators. The improvement rate was only slight, and the complexity of the issue and its impact remains high. In the conclusion section, a summary of this study’s findings and an analysis of the data gathered from the number of accessibility errors is summarised. The conclusion also offers suggestions for future work.

Discussion/Conclusion

Nowadays, learning management systems and other educational websites are a necessity in institutions of higher education and their accessibility for students with disabilities is of paramount importance to their learning. As the findings of this empirical study reveal, there are serious problems and a number of chronic errors being made regarding the accessibility of media files such as images, audio and video. There are also significant difficulties regarding the accessibility of documented files, such as PDFs, Word, and Excel data, all of which are used extensively in LMS and other online pages. Further, there are problems related to the availability and accuracy of descriptive texts for non-text components of web sites, and the structure of their information. This study has discussed accessibility issues in LMS and web pages, but does not consider known errors in evaluation tools. Nevertheless, supporting accessibility of online learning materials to disabled students will have an effect on reducing their attrition rate which in turn may support an increase in enrolments by disabled students if they see that their learning is supported by the organisation. To achieve this, universities might aim for higher levels of accessibility and usability for their LMS and other online pages. Achieving this goal will bring about significant changes in the university life of disabled students. In recent years, it has become clear that the impact of system interaction on disabled students is high, and their ability to access all online information and to complete online tasks is often a challenge for them (Jo, Yu, Lee, & Kim, 2015). As this study, which examined web sites maintained by some of the top-rank- ing universities in the world, demonstrated, there is often a lack of accessibility on the university’s homepage, admission page and course outline pages. There was no significant difference found, in terms of accessibility, between top ranking universities in the world or other regions, or in the accessibility ratings of university systems in developing or developed countries.

In the future, it will be significant for researchers and developers to focus on solving specific accessibility issues based on the experiences of disabled students when they interact with LMS and online pages, rather than merely assessing whether the webpages pass or fail the scrutiny of accessibility guidelines components or evaluation tools.
References


Designing a MOOC according to quality criteria: Photography course implementation

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Abstract

Massive Open Online Courses (MOOCs) are a trending topic today in higher education and lifelong learning. Although there are some initiatives by various institutions about online course quality, it is hard to find a comprehensive study which integrates any quality criteria from the very beginning of the course design through to development and application, and make it sustainable. The aim of this study is to design, develop and implement a “Basic Photography” MOOC according to the Quality Matters (QM) Continuing and Professional Education Rubric. The MOOC will be open to anyone who is interested. Type 2 Single Case Embedded Design Qualitative Case Study is the design of this research. Both quantitative and qualitative data will be collected from different designers and participants. Firstly, the “Basic Photography” MOOC will be designed according to QM rubric by the researcher, then feedback will be collected from other designers and the course will be introduced and delivered to a target audience. Different data collection tools will be used through the research process as interview, observation, questionnaire, voice records and logs. After the data analysis, QM evaluation criteria will be revised according to the results and there will be culture-specific new additions or removals to the criteria. It is aimed to be an example and lead the way through the quality of MOOCs with the generated implementation.

Introduction

With the popularity of the MOOCs, some concerns about MOOC quality also arose. Daniel (2013) emphasizes the importance of learning experience quality. Some studies show that even if MOOC learners rate their experience as positive, most of them find it confusing which may lead to high dropout rates (Haggard et al., 2013; Knox, 2014). Poyiadgi (2014) states that if the value of MOOCs is not at the expected level in terms of quality, delivery and learner perception, the completion rate could be low. These concerns show us that mechanisms to ensure quality are not well established in MOOCs formally (Conole, 2013).

In the literature, Lowenthal and Hodges (2015) examined only science, technology, engineering and mathematic (STEM) focused MOOCs from major MOOC providers: Coursera, edX, Udacity; randomly selected the MOOCs, two from each of these three providers, for analysis. These 6 MOOCs are analysed with Quality Matters 2011-2013 version by QM trained three experts. Adair et al. (2014) stated that QM Lifelong Learning and Professional Education rubric is more suitable for MOOC evaluation. It is expected to exceed 85 percent and 2 of the 3 experts give the same evaluation to be able to be evaluated as quality courses. One Coursera and one edX courses received good points but couldn’t reach 85 percent. These examples in the literature reflect quality evaluation of already existing courses, however, there is a lack of examples which integrate a set of quality criteria from the
beginning of course design process in MOOCs. There are some criteria in course level such as Coursera’s, QM’s criteria. In this study, the course will be designed by Quality Matters Lifelong Learning and Professional Education because this criteria is the most commonly used and comprehensive one which suits best for the purpose of the proposed MOOC.

The problem being addressed

In this research, there will be an example about how to design, develop and implement a MOOC according to a set of quality criteria. Both national and international literature will be consulted. With the Bologna process, quality assurance in higher education became very important. Producing a quality course, improving quality in MOOCs for both lifelong learning and higher education and professional development accomplish one of the Bologna process goals. Also, it will increase social welfare, knowledge and contribute to national and international economy as it is an investment to human resources which thus increases society’s education level. There is a possibility that at the end of this study there may be new culture-specific new criteria. In this context, new items may be added to QM quality criteria or remove the existing ones. These criteria can be used both locally and globally while being a foundation to new criteria that will be developed. In this way, this study may be an example or model both at national and international levels. Besides, it will arguably build more awareness about MOOCs’ quality who will take this course for other MOOCs they will enrol in the future. Learners may expect at least the same quality from now on, designers will be pushed to accomplish these needs while designing MOOCs and this may lead to a quality increase locally and globally. There will be a book at the end of the study which describes the study and with this, social welfare and knowledge will be supported. There will be a website and the study’s findings will be shared and the proposed course will hopefully be augmented with new sustainable courses.

Accomplishment of this study will entail designing a MOOC using quality criteria. In this study, how to design, develop and implement a quality MOOC will be discussed.

Study design/Approach

Research design of the study is Type 2 Single Case Embedded Design Qualitative Case Study. Qualitative and quantitative data is collected from both the designers and participants. As one of the designers, the researcher will keep a diary. The researcher will also log feedback from other designers. While observing the learners, logs will be kept by the researcher. Before, during and after the MOOC there will be questionnaires administered to evaluate the MOOC’s quality. QM quality criteria will be also used. Interviews will also be conducted with the learners. The field of this study will be the MOOC which will be designed to teach at a public university. The name of the MOOC is Basic Photography and the MOOC is open to anyone. In Yin’s (2003) Type 2 Single Case Embedded Design Qualitative Case Study there is more than one analysis unit. If we consider the designers and learners in this study as analysis units, it can be seen that there is therefore more than one analysis unit. This type of study will often demonstrate a social phenomenon and will thus form part of the design (Yin, 2014). If we consider that this study’s purpose is to find how to design, develop and implement a MOOC with selected quality criteria, then the design of the study aligns well with the stated purpose.
Findings and discussion

This study represents work in progress as data collection is not yet complete. But findings and a full paper submission will follow. Some of the data collected will be shared during the DEANZ conference.

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Many shades of MOOCs. Internet Learning, 3(1), 53-72.


Digital learning objects: Design for learning

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Abstract

This research investigated relationships between the information presentation modality of a digital learning object (DLO) and learning. It also investigated relationships between DLO design features and participants' perceptions of learning. DLOs are a type of learning material defined for the purposes of this research as ‘digital, multimedia learning materials that support the learning of specific concepts by enhancing, amplifying, and guiding the cognitive processes of learners’. In this research, participants used one of three DLO variants that presented information about the forces affecting an airplane in flight. Each variant presented identical information but used a different modality. The information presentation modalities were, on screen text and an illustration, narrated text and an illustration, and on screen text and narrated text and an illustration. Using a mixed method case study methodology, data was gathered using pre and post assessments, an online user perception survey (UPS), and one to one interviews. Within the limitations of this research, the results suggest that use of any variant of the forces of flight DLO influenced participants' learning. The modality and other DLO design features, such as interactivity, also influenced learning and participants’ perceptions of learning. The researcher argues for the need to consider the cognitive and affective processes of learners when creating DLOs. A need for further research that explores the effects of different DLO designs upon learning is identified.

Introduction

Educational digital resources are digital artefacts of cultural, historical and/or scientific interest. They exist in a wide range of media formats and include artefacts such as digitalised photographs, art works, video clips, speeches, songs and digital models. In New Zealand the popularity of educational digital resources amongst educators is attested to by the existence of the New Zealand Ministry of Education’s Digistore (http://Digistore.tki.org.nz/ec/p/home), an online repository of educational digital resources designed specifically for use across the New Zealand curriculum, from early childhood to senior secondary.

The affordances of contemporary computing technologies enable the creation of DLOs that utilise a wide range of multimedia e.g. animation, video, text, and illustrations, and provide for a diversity of interactive user experiences in a myriad of different combinations (Churchill 2014). Computer applications such as Microsoft PowerPoint and Microsoft Movie Maker (amongst many others) make available to educators and instructional designers the tools with which to create DLOs. Furthermore, DLO repositories such as Digistore and Merlot provide access to DLOs to educators worldwide. While the literature identifies that positive learning benefits can arise from the use of DLOs, the literature also identifies that poorly designed DLOs can be detrimental to learning (Mayer,
The problem being addressed

This research investigates the proposition that DLO modality affects learning and that modality and other DLO design features, such as interactivity and usability, affect learners’ perceptions of learning. Despite extensive historical empirical evidence supporting the modality effect (Mayer, 2014; Mayer and Moreno, 2003, Ginns, 2005, Moreno, 2006), Inan, Crooks, Cheon, Ari, Flores, Kurucay and Paniukov (2015) argue that there is a lack of clear guidelines for people creating DLOs regarding modality effects. They call for further research to investigate the factors that influence the modality effect. As such, this research contributes to an emerging body of contemporary research investigating modality effects and the factors that influence modality effects in the context of DLO design.

Study design/Approach

Literature review: Richard Mayer’s Multimedia Principle empirically demonstrated that people learn better from words and pictures presented together than from words alone (Mayer, 2009). Literature about learning with multimedia is situated in four separate but related domains, the cognitive, the multimedia, the curricula and the affective (Sweller 2005; Sweller, Ayres & Kalyuga, 2011; van Merrienboer & Kester, 2005; Mayer, 2014; Kim, Kim and Whang, 2013). The cognitive domain describes mechanisms of how the presentation of multimedia learning materials influences learning. The multimedia domain describes the influence of multimedia materials on learning. The curricular domain describes how DLOs are used in teaching while the affective domain considers the relationships between learner characteristics such as the extent of existing knowledge, emotions and beliefs and DLO design features.

In this study participants used one of three variants of a digital learning object created by the researcher that provided information about the forces affecting an aircraft in flight. Each DLO variant presented learners identical information in different modalities (written text, spoken text and combined written and spoken text). Data was collected from participants before and after using a DLO variant via an online pre and post assessment intended to measure changes in learning performance as a consequence of engaging with the DLO. Further data was gathered via an online survey to gauge participants’ perceptions of learning arising from their use of the DLO variants. One to one interviews were also conducted with six participants in order to delve deeper into perceptions of learning identified in the survey. Pre-post assessment, survey and interview data was analysed and used to answer the research questions:

• How did the modality of instructional messages presented by the forces of flight digital learning object affect learning and perceptions of learning?

• What properties of the forces of flight digital learning object did users perceive as supporting learning?
Findings

Taken as the whole, the results suggest that the modality of instructional messages presented by the forces of flight DLO variants supported learning and perceptions of learning by affecting the cognitive and affective processes of learners. This assertion is supported in the literature. Specifically, by the Cognitive-Affective Theory of Learning from Media (CATLM) (Moreno, 2006) and the Cognitive Theory of Multimedia Learning (CTML) (Mayer, 2005). Furthermore, the results suggest, and the reviewed literature identified, that learner cognitive and affective characteristics together act to influence modality effects. An example of this is the influence of learners’ prior knowledge on modality effects.

Modality and interactivity were two DLO properties that participants from all cases perceived as helping their learning. Modality and interactivity are identified in the CTML and CATLM literature as DLO properties that affect learning and perceptions of learning. As such, I propose that CATLM and CTML be used as frameworks that inform evidenced based DLO design guidelines. The application of such guidelines could contribute to the creation of DLOs that guide, enhance and amplify the cognitive processes of learners and aligned with the affective characteristics of learners. Such DLOs should facilitate learning.

Discussion/conclusion

The results of this research suggest, and the reviewed literature identified, a number of elements that require consideration when designing a DLO. The application of the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) to DLO design provides a useful visualisation of these elements and the interactions between them and as such TPACK could be applied as a design guide used in the creation of DLOs. The TPACK framework (Figure 1) identifies the knowledge domains required by teachers in order to teach effectively with technology. The application of TPACK framework to DLO design could provide DLO designers an easy to comprehend, visual model that identifies the essential design knowledge domains that require consideration for the creation of DLOs that support, rather than detract, from learning. The application of TPACK’s knowledge domains (context, pedagogical, content, technological, pedagogical-content, pedagogical-technological and pedagogical technological content) could be connected to DLO design knowledge in the following way:

Context :

• Knowledge of the learner’s characteristics such as extent of prior knowledge, gender, age, previous experiences, expectations and motivations in the context of the use of technology and the subject area.
• The setting in which learners are intended to use the DLO e.g. as a core component of a facilitated course or as an additional self-directed activity.

Pedagogical knowledge (PK):

• Knowledge of appropriate instructional design approaches implemented in the DLO and the alignment of these with specific learning outcomes.
• Knowledge of cognitive instructional design theories such as Cognitive Load Theory (Sweller, Ayres & Kalyuga, 2011), Cognitive Theory of Multimedia Learning (Mayer, 2005, 2014).

• Knowledge of affective theories of multimedia learning. For example, Cognitive Affective Theory of Learning from Media (CATLM) (Moreno, 2006).

• Knowledge about the characteristics of the learners such as preferred and perceived learning styles.

**Technological knowledge (TK):**

• Knowledge of the technologies that can be used in the creation of DLOs and the functionality these technologies provide. For example, the presentation of interactive multimedia content, the presentation of stimulus, response, consequence learning activities in the form of educational games.

• Knowledge of the functionality and affordances of multimedia media. For example, file formats, accessibility, re-usability, and the use of metadata for discovery, the ability for users to select different media modalities, the ability of learners to select learning pathways.

• Knowledge of learner’s characteristics regarding their technology expectations and preferences.

**Content knowledge (CK):**

• Knowledge about the topic of instruction and learners characteristics such as the extent of their existing content knowledge.

• Knowledge about the affects of different media modalities (words and/or pictures) used in the presentation of content.

**Pedagogical Content knowledge (PCK):**

• Knowledge of effective instructional design approaches for the topic of instruction and knowledge of the characteristics of the intended learners.

• Knowledge of effective assessment strategies for the topic.

**Technological Content knowledge (TCK):**

• Knowledge about the technical functionality of the computer applications being used to create a DLO and how this functionality can be used in the presentation of content to learners. For example, behavioural interactivity.

• Knowledge about the media modalities by which the technology is able to present learning activities and content.

**Technological pedagogical knowledge (TPK):**

• Knowledge about ways in which technology can support the DLOs instructional design. For example, cognitive interactivity, feedback (stimulus- consequence- response), Learner control over sequence of instruction.

• Knowledge of the characteristics of the learners such as their expectations, feelings and beliefs regarding the use of technology for learning

**Technological Pedagogical Content Knowledge (TPACK):**

• Knowledge and understanding of the interactions between the TK, CK, PK and contexts
• Knowledge domain and the relationships between learner characteristics (expectations, prior knowledge, beliefs, metacognition, etc.) content, instructional design and technology.

• Knowledge of theories of multimedia learning (Mayer, 2005, 2014) and cognitive learning theory (Sweller, Ayres & Kalyuga, 2011).

Fig. 1. The TPACK framework: Taken from http://tpack.org/

Today, most educators use DLOs. However, pre-service teacher education training programmes and higher education teacher professional development courses do not typically consider the creation of learning materials from cognitive and affective perspectives. When the creation of learning materials is addressed in such programmes it is usually in the form of providing instruction on how to use a particular software application, for example, how to use Microsoft PowerPoint. As such there is a danger that teachers will invest time and energy in the creation of learning materials that are of little or no learning benefit. To this end, I recommend that pre-service teacher trainees be provided instruction concerning the application of multimedia design principles to the creation of learning materials. The advantages of this could include:

• Providing teachers with the skills and knowledge required for the creation of DLOs and other learning materials that support learning.

• Providing students with learning materials that support their learning.

• Making overt to teachers and educational organisations the educational benefits and resourcing requirements associated with DLOs designed for learning.

References


The art and politics of successful online and distance teaching

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Abstract

This research investigated the individual and environmental factors that influence tertiary teaching practice in the New Zealand online and distance learning (ODL) environment, and explored how these factors change across context and through time. It focused on the creation and maintenance of online and distance courses by gathering data from Faculty, Educational Designers and others involved in the course development process. Data was collected from 15 participants across three tertiary institutions and included interviews, journals and observations of practice, as well as review of publicly available institutional documents. A grounded theory approach (Charmaz, 2006) was used to analyse the data, along with utilisation of the Cultural Historical Activity Theory framework (Engeström, 2000) to structure discussion of the findings.

The research shows a distinct difference across the three institutions in the roles and responsibilities of actors in the creation and design of ODL courses, and minor variations within institutions. A number of factors are shown to have an impact on teachers’ choices and practice. These include institutional support for specific technologies, professional development and peer support, teaching goals and teacher experience, institutional policies and pressures, and division of labour in the course development process. Study findings will be useful to practitioners who are interested in the impact of systems, processes, professional development and teacher experiences on course development in the NZ ODL environment.

Introduction

Teaching practice in ODL is influenced by several factors including teacher’s beliefs and experience, technology, organisational priorities, time and resource constraints, and the involvement of others such as educational designers in the course development process (Lawrence & Lentle-Keenan, 2013). Some of these factors have been extensively explored, such as the relationship between teaching beliefs and technology use. As Bunting, Williams, and Jones (2015) note, in the teaching and learning process there is an ongoing interaction between curriculum and assessment design, technology and the teacher’s beliefs and goals. This is especially the case in distance education where teaching is by necessity mediated by technology (Anderson & Dron, 2011). Each technology has its own affordances, based on the technology designer’s implicit assumptions about what constitutes teaching, learning and knowledge and these affordances set the boundaries for a teacher’s creativity in using that technology (Payne & Reinhart, 2008; Mcloughlin & Lee, 2007; Nunes & Mephabson, 2007). The negotiation of these boundaries in course design is affected by the teacher’s beliefs and goals (Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, & Sendurur, 2012), so the result is often a compromise between the philosophy of the teacher and the inherent pedagogy of the system.
Less well researched is the underlying and implicit impact of institutional systems, governmental policies, and access to support and professional development (Stein, Shepard, & Harris, 2011). This is a significant gap, as lack of alignment between institutional policy, professional development and infrastructure can influence academics (dis)engagement with e-learning technologies (Shephard et al., 2011), affecting teaching practice and course design. This linkage is often overlooked, for example, Hickey (2014) espouses the benefits of teacher’s choosing particular technologies to support their teaching philosophy, but neglects to consider that for many teachers, the choice of technology is limited by institutional support and policies.

The problem being addressed

Lawrence and Lentle-Keenan (2013) identified several research areas that would benefit from further attention, including investigation of the relationships between institutional policies and technology use, the dynamics of division of labour in course design, professional development, and workload management. It is intended that the current research will provide some insight into these issues through exploring the experiences of individuals and institutions currently engaged with ODL in NZ.

The current research aims to provide a clearer picture of the challenges, tensions and issues in the system, as well as identify ways that elements within the system could be modified to result in better experiences for teachers and learners. Analysis is focused around the question What is the relationship between individual and environmental factors that influence teaching practice in the NZ online distance learning environment and how do these change across context and through time?. In response to this, elements within the ODL system are investigated and patterns of relationships between elements are identified. Common contradictions or tensions in the system are observed, as are commonalities and differences in ODL systems across institutions and individuals. Finally, the development of systems and relationships between elements over time is considered.

The current trend in tertiary education towards online learning means that the findings from this research will be relevant not just to those currently working in ODL, but also those currently working in face-to-face teaching who are being asked to now teach online and to institutions who are adding a new layer of complexity to the system of teaching that had previously existed. I am anticipating that my research will be of interest to individual teachers, professional developers and educational designers, as well as to institutional managers and government policy developers.

Study design/Approach

This research investigates the relationships between the variety of factors that influence teaching practice in the online and distance environment. A grounded theory approach (Charmaz, 2006) to the data collection is being undertaken, complemented by Cultural Historical Activity Theory (CHAT) (Engeström, 2000) as a framework for analysis of the collected data.

Both grounded theory and CHAT emphasise that the activity being researched must be studied in practice, qualitatively, and using data collected from a variety of sources in order to understand the varying perspectives of the system being investigated. In this investigation of the NZ ODL system information is gathered from 15 participants across three different institutions and across multiple disciplines. Teachers and educational designers are being interviewed, and publicly available...
information about policies and systems at each institution is being collected. Data from the wider tertiary teaching environment, including data on governmental strategies, policies and funding, and international education trends is also being reviewed. The research is being carried out longitudinally, so that chronological change in the system can be captured. The research reported on in this paper is from the initial data collection of the study. Two further stages of data collection are being undertaken, with one calendar year passing between each set of data collected.

Findings

The data collected shows a distinct difference across the three institutions in the roles and responsibilities of actors in the creation and design of ODL courses. Within institutions minor variation of roles was also noted; often a pragmatic result of individual teacher experience or style of practice. Levels of self-efficacy and personal teaching goals appeared to have an impact on the degree of tension between the individual and the system they were working within. The clearer the intended teaching goal, the more likely the teacher was to want to manipulate the system to achieve that goal, and the greater the degree of conflict or tension when systems, rules or responsibilities conflicted with the implementation of that goal. Teachers and instructional designers had differing views on the use of various technologies for teaching, where instructional designers reflected an openness and interest in trying new technology because of its apparent potential, whilst teachers tended toward a pragmatic ‘I don’t care what it is, or how old it is, as long as it does what I want it to do’ approach when incorporating specific technologies into a course design.

Discussion/conclusion

Institutional policies and goals have a direct impact on teachers in some institutions due to the close alignment between policies, funding and professional development. For these teachers, choices in course design can feel limited, and tensions between teaching goals and organisational policies can be seen. In institutions with a higher level of academic autonomy, teachers were less likely to pay attention to institutional policy, and more likely to engage with online teaching in a way that aligned with their personal beliefs and goals. There was variation within institutions, and even within disciplinary areas within a single institution, suggesting that the impact of institutional factors is mediated by personal factors of the teacher, such as years of teaching experience, job security, confidence in their teaching goals and teaching philosophy.

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Supporting primary student Independence in virtual learning: Investigating the role of school-based support staff

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Abstract

This paper reports on the emerging findings of a small qualitative study investigating the role of school based support staff (hereafter referred to as SBSS) in supporting students to become independent virtual learners in the Virtual Learning Network Primary School (VLNP). The VLNP is a collaboration of schools throughout New Zealand providing virtual learning opportunities for their students in subjects that are not available in their own schools. The SBSS are staff members in the student’s home school who support and mentor the student during their time in the VLNP. Students that learn through the VLNP have varying levels of academic, technical and independent skills. In some schools SBSS assist students, however the expectations and degree of support varies from school to school. Two schools within the VLNP were used in this study. An interpretive qualitative methodology was adopted using individual semi-structured online interviews with the teachers, eteachers, principals and students at each of the case study sites. Grounded Theory was used to analyse the data. Eight key themes emerged to highlight the multiple roles that the SBSS importantly play in the VLNP. These include developing critical thinking, providing a wrap around approach, removing barriers to learning, providing opportunities, tuakana/teina: learning from each other, allowing students to take responsibility for their own learning, monitoring teaching and learning, and having administrative/managerial processes in place. The key findings in this study are of distributed support by all stakeholders and the importance of the role of the SBSS in coordinating this support.

Introduction

This paper reports on the emerging findings of a small qualitative study investigating the role of school based support staff (SBSS) in supporting students to become independent virtual learners in the Virtual Learning Network Primary School (VLNP). Virtual learning in Aotearoa New Zealand schools has been steadily growing over the last 15 years and is now established as a recognised form of education in secondary schools (Barbour, 2011); and in the last 7 years, for primary schools.

The Virtual Learning Network Primary School (VLNP) is a collaboration of schools that formally began in 2009 through the need of small and rural primary schools to deliver languages as outlined in The New Zealand Curriculum (Ministry of Education, 2007). VLNP schools looked for ways to transform their teaching and learning environment to provide subjects for their students they aren’t able to provide in their own schools. The VLNP provides the opportunities for students by organising and enabling online collaborations between schools. (See Fig 1 for VLNP structure.)
One of the Protocols of Participation in the VLN is ‘It is the responsibility of the home school to ensure that students are interacting appropriately and supported to do this where necessary.’ (VLNP, 2009). There have been several different teacher roles identified in the virtual learning environment (Barbour, 2011; Davis & Niederhauser, 2007). Davis and Niederhauser (2007), for example, suggest that there are three core roles in the virtual learning system: the eteacher, the designer and the VS (Virtual School) Facilitator (SBSS). While the VLNP use the term SBSS, Watson (2007) uses the term ‘mentor’ while Davis and Niederhauser (2007), suggest that it has also been referred to as ‘site coordinator’ or ‘coach’.

The SBSS plays a key role in supporting students to become independent virtual learners and can be undertaken by a classroom teacher, admin staff, teacher aide, principal or a person hired specifically for the job (Davis & Niederhauser, 2007). They are at school on-site with the students and act as the liaison between the students’ school and the VLN National Administrator and the students’ eteacher (Davis & Niederhauser, 2007). The students’ eteacher is usually off-site, working virtually with the students both synchronously, through Adobe web conferencing software (Adobe Connect), and asynchronously, through the VLN online student learning environment WeLearn, which uses the Elgg social networking engine.

The SBSS, as a role and resource, is a most important, underestimated and underprepared role for supporting virtual students to be independent learners (Davis & Niederhauser, 2007). Barbour and Reeves (2009) called for further research on the ‘factors that affect student success in virtual school environments’ (p. 412), particularly with regards to the role and ways that SBSS can support virtual learners to achieve learner independence and success. This project seeks in a small way, to examine that.
The problem being addressed

Students in the VLNP typically have only one scheduled period a week of online synchronous instruction. The students then work asynchronously on their online projects or homework in their own schools or at home. In some schools an SBSS may assist students with these tasks, however the expectations and degree of support varies from school to school. In many of the VLNP online staff meetings it has come up time and again about the lack of support that some students are receiving in their home school, the poor homework completion rates, students missing classes because of forgotten passwords or forgetting the url for the online class. Watson (2007) and Davis & Niederhauser (2007) make similar suggestions. Communications between the students’ school and the eteacher are also ad hoc, with some eteachers having little or no contact with the students’ schools. In small rural schools the Principal may also be the teacher, an eteacher and the SBSS, whereas in a larger school these roles may be separate.

It is widely accepted that there has been a dearth of rigorous research into virtual schooling. At present the majority of the research into virtual learning has focused on adult learners, the eteacher and administrators with very little focus on the student or the SBSS in primary schools (Barbour & Reeves, 2009). There is a need for further research into the roles of the SBSS, and the development of new school structures where learner independence is supported by pedagogy and resources (Bolstad & Lin, 2009).

This research aims to obtain a better understanding on the role of effective SBSS and how it might be implemented within schools in the VLNP in order to better support the learning of students in Aotearoa New Zealand primary schools. Two schools identified as portraying exemplary SBSS practice in supporting online learners were case studied. The findings of this research will:

• assist schools within the VLNP to identify the role of the SBSS in order to better support their virtual students,
• complement the existing policies and protocols of the VLNP regarding the SBSS’s role and scope of responsibility,
• inform schools who are contemplating having students learn virtually to develop their SBSS policy, procedures and resources,
• provide better support for students and complement the support available from their school, eteachers, parents and whanau, and peers.

Within this context perspectives were gathered in order to gain a deeper, richer understanding of how VLNP schools support their students.

Study design/Approach

The overarching research question asked was: What role does the SBSS play in the VLNP in supporting virtual students to be independent virtual learners?

An interpretive qualitative methodology (Denzin & Lincoln, 2011) was adopted to frame this study. Two primary schools, ranging from U1 to U5 size (New Zealand Education Institute, 2013), that portrayed exemplary characteristics and practices of SBSS which have a VLNP component agreed to participate in the study, to obtain perspectives of SBSS and eteachers. Schools were selected that have:
been with the VLNP for a minimum of three years,

provided an eteacher for the VLNP, and,

illustrated exemplary characteristics of the SBSS as suggested by Davis and Niederhauser (2007) such as:

• providing support for students experiencing problems of varying types,
• monitoring and mentoring of students,
• being a liaison between the student’s school and the eteacher,
• providing assistance in course selection for students,
• providing face-to-face communication with students.

I have an established relationship with the schools through the VLNP as an eteacher and through the VLNP Governance Group. Being part of the VLNP Governance Group, I have access to the database on schools and in consultation with the ePrincipal identified two schools that fit the criteria.

Individual semi-structured interviews with the teachers, eteachers, principals and students at each of the case study sites were used to gather the participants’ understanding and personal experiences of the roles of the SBSS. The interviews were conducted online using the Voice Over Protocol platform, Skype, and recorded with the software Camtasia, as well as by phone where necessary. All interviews were transcribed and adult participants were given the opportunity to review their transcript.

Grounded Theory, an inductive analytical approach (Bryant & Charmaz, 2007) was adopted to analyse the data. It involved a dynamic activity between data collection and analysis. As the data was collected, codes were generated and developed into categories. Copious memoing of ideas, which Miles, Huber & Saldaña. (2013) describes as ‘little conceptual epiphanies’ (p.99) were recorded as they formed. These memos eventually merged and emerged into the Key Idea. Ethical approval for the research was obtained and all participants participated voluntarily.

Findings

Many initial codes were generated from the raw data. From these, eight categories emerged and are depicted in Table 1. This table depicts the categories, describes them, and includes an illustrative quote.
TABLE 1. Eight exemplary roles of the School-Based Support Staff (SBSS)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing critical thinking</td>
<td>Assisting students to reflect on learning</td>
<td>“teaching them how to, the kids, how to troubleshoot it, without needing other people”</td>
</tr>
<tr>
<td>Providing wrap around approach</td>
<td>Involving teachers, parents and providing support and encouragement to all stakeholders</td>
<td>“getting other people enthusiastic”</td>
</tr>
<tr>
<td>Removing barriers to learning</td>
<td>Providing sufficient infrastructure, adequate resources, and removing all structural stresses (Putz, 2013)</td>
<td>“I couldn’t get on because my password doesn’t work’, So sometimes it’s around the technical stuff, ... I’ve put a link on our school website which they have access to.’</td>
</tr>
<tr>
<td>Providing opportunities</td>
<td>Providing choice, opportunities and alternative ways to access learning</td>
<td>“Well we have like five different choices of the languages and then we’ve got like three other choices like maths, astronomy, science, and computer programming of the four choices and then for the rural kids there is one class for us all to do like all these different subjects and stuff and that.”</td>
</tr>
<tr>
<td>Tuakana/teina: Learning from each other</td>
<td>Providing environment for peer to peer learning</td>
<td>“I’ve often said to her well why don’t you message one of the others from the other school and see what they think, it’s a digital online tool. But often for her she needs that face to face contact and I said well Skype her.”</td>
</tr>
<tr>
<td>Allowing students to take responsibility for their own learning</td>
<td>Providing opportunities for students to develop their independent capabilities, life skills and Key Competencies</td>
<td>“It’s just all that type of stuff that they’ve got to go through but you’ve got to give them the language so that they can do that.”</td>
</tr>
<tr>
<td>Having processes in place</td>
<td>Liaising between eteacher and classroom teachers, ensuring online attendance, and keeping track of students learning</td>
<td>“Making sure they are up to date with the work and the work they are missing out of in class.”</td>
</tr>
<tr>
<td></td>
<td>Ensuring that the policies, procedures and protocols are in place and being followed</td>
<td>“We put it into our strategic plan last year so it’s part of our strategic plan...”</td>
</tr>
</tbody>
</table>

Discussion/Conclusion

This study sought to better understand how schools within the VLNP support their virtual learners within their own schools. It was particularly interested in the role that the SBSS played in supporting learner success and independence in primary aged students. Eight categories in relation to exemplary roles of the SBSS were identified which can be explained through the notion of a distributed support model approach to online learner support. The distributed support model enables the SBSS to provide the students with opportunities to develop independent learning skills by crafting an environment of distributed responsibility for, by, and with the learner. The Distributed Support Model shows the SBSS working in collaboration with the students, the school,
the parents and whanau, and the eteacher in a wrap around service role, to support the students in their learning and in taking responsibility for their own learning.

Students come to the VLNP requiring varying levels of support as online learners: dependence to interdependence to independent. The findings indicate the SBSS play an important role at each level in supporting students towards developing their independence. For example, when students first start out in the VLNP the SBSS needs to provide scaffolded support and work within the student's zone of proximal development (Vygotsky, 1978). This builds into the SBSS using a guiding role as the students develop interdependence where they interact with peers to problem solve and develop skills. Finally the SBSS role changes to one of monitoring as the students become independent online learners who can also assume support roles over time.

The SBSS is the most important, underestimated and underprepared role (Davis & Niederhauser, 2007) and this research has gone some way to identify the ‘factors that affect student success in virtual school environments’ (Barbour & Reeves, 2009. p. 412). The SBSS is not the only support in the students online learning, the eteacher, principal, parents,whanau and school technicians also play important roles. They are however the most significant support person as they share the student's physical location. This research illustrates that a distributed support model has the potential to frame the role of the SBSS in Virtual Learning Network Primary Schools in order that they can provide effective support for students to become independent virtual learners. The VLNP’s scoping of a SBSS’s role of responsibilities can be informed by the notion of the distributed support model to help complement their existing policy and protocols that assist schools in developing the SBSS roles, policies and procedures within their own schools.

References


