Why do we teach the way we do?

The relationship between tutors' conceptions of teaching and learning, the design/teaching of their online courses and effective online teaching principles.

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Declaration

To the best of my knowledge and belief, this thesis contains no material previously published by any other person except where due acknowledgement has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

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Abstract

There is an increase in the use of e-learning within tertiary institutions and many courses are moving to online learning as the means to deliver all or part of courses that were previously delivered face-to-face. Online delivery, primarily through the internet, provides new challenges for tutors in delivering courses that demonstrate effective teaching principles. This study researched the perspectives and practice of twelve tutors from three different New Zealand polytechnics via a multiple case study. It investigated how tutors' conceptions of teaching and learning aligned with the design and teaching of their online courses, and with effective online teaching principles. Enablers and barriers to tutors using effective online teaching principles were also examined. Interaction between students, between tutor and student and between tutor and content were all found to be important conceptions of teaching and learning shared by the participants. It appeared that an understanding of learning theory was related to tutors' conceptions of teaching and learning aligning with the design of their courses. In addition, this understanding influenced tutors' use of effective online teaching principles. The research identified that all tutors' courses aligned with the effective online teaching principles of constructive alignment, the chunking of content and tasks into appropriate sizes, and scaffolding of information. The principles related to student interactivity with content, between students and with the tutor were evidenced on two of the polytechnics' courses with limited evidence on the third polytechnics' site. The effective online teaching principles of promoting student ownership of the learning process, and interaction with a larger learning environment was demonstrated on few of the tutors' online courses in this study. The enablers and barriers experienced by tutors played a key role in the extent to which tutors implemented effective online teaching principles in their courses. Institutional processes related to course design, and tutor professional learning and support played a critical role in providing tutors with the knowledge and time they needed to effectively teach online.

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1   INTRODUCTION

1.1   Introduction

Technology in education has the potential to transform teaching by providing new possibilities and affordances for learning. Jonnassen and Land (2012) state that the rapid development in technology in the last 30 years has seen the most revolutionary changes in learning theory in history. Others agree that learning through communication and information technology has transformed pedagogy and the nature of learning (Andrews, 2011; Garrison & Akyol, 2009; Gumbo, 2014). However, against these assertions sits the reality that the fundamental way that people learn hasn't changed (Laurillard, 2009). What has changed is that the internet has provided unprecedented new functionalities and ways of supporting learning (Laurillard, 2006). Yet it is not the internet itself that provides these unique possibilities for learning, but the innovative ways in which tutors can use it for teaching (Caplan & Graham, 2008).

Yet, how well are tutors prepared for teaching in this new environment, particularly the online environment where instruction is primarily delivered through the internet? Ragan and Schroeder (2014) describe that the transition to online teaching is not a simple move but has conceptual implications requiring new and specific skills. Many tutors in tertiary education have little or no training in teaching, particularly teaching online and are used to face-to-face delivery. Training that is provided usually focuses on technological skills rather than improving pedagogical practice (Haggery, 2015; Hegarty et al., 2015). However, in order for instructional technology to be successfully used in higher education it must be driven by sound concepts of teaching and learning (Garrison & Akyol, 2009).

It is not surprising then, that in the absence of knowledge of educationally sound concepts of teaching, tutors default to practices according to their own personal learning theory. Harasim (2012) describes personal learning theory as "a kind of modus operandi; it influences, shapes and determines our actions, even unknowingly" (Harasim, 2012, p. 5). In order to provide effective online teaching, tutors need to reassess their pedagogical assumptions and rethink teaching practices (Harasim, 2012) and ask themselves, why do we teach the way we do? (Naidu, 2003). In order to examine and develop knowledge of effective online teaching practice, tutors need support and training. In the New Zealand tertiary context, tutor professional development is the responsibility of the institution

(Viskovic, 2009) and needs to be implemented within the larger context of national and institutional e-learning strategy (Stein, Shephard, & Harris, 2011).

This research is informed by Naidu's (2003) question about 'why we teach the way we do' in the online learning The study investigates the relationship between tutors' conceptions of teaching and learning and the design of their online courses, and how these courses align with effective online teaching principles. Bearing in mind that tutors' conceptions and knowledge develop and are influenced by the larger context, this study also investigates the constraints and enablers that influence tutors use of effective online teaching principles.

1.2   **Rationale for the research study**

In 2002, the 'Highways and pathways: Exploring New Zealand's e-learning opportunities' report was released (E-Learning Advisory Group). It stated that e-learning in New Zealand would "only be successful if it was based on sound pedagogical principles" (p. 6) providing learner-centred opportunities. It added that academic staff would need to have the confidence and skills to work in the internet environment and that professional development was a priority in the tertiary sector. However, a report released ten years later, described that the aspirations of the 'Highways and pathways' report had not been realised. It stated that the kind of transformational pedagogical shift from "recall and memorisation" (p. 9) to collaborative, student centred practice had not taken place (Marshall, 2012).

A New Zealand Ministry of Education report (2014) described that between 2005 and 2011 there was a shift in the delivery of tertiary courses from traditional face-to-face courses, to those delivered online. It foresaw that this trend would continue and would also include higher-level qualifications shifting to online delivery. Given this trend it is timely to conduct a research study to gain a snapshot of how polytechnics and polytechnic tutors are faring in relation to online pedagogical practice today. Harasim (2012) states in relation to the online environment that "qualitative change in how we perceive and practice teaching and learning remains in the early stages of development largely because it is not yet well understood by educators and researchers"(p. 2).

There are few comparative studies that examine the development of e-learning from the perspective of e-learning principles and tutor practice (Zhang, 2013). In addition, it is common for research that is conducted on teachers' conceptions of teaching to focus on what tutors say in interviews rather than observing what they do in practice (Viskovic, 2009). This research aims to not only identify tutors' conceptions of teaching and learning but to examine how these relate to the design and teaching of their online courses and how the courses align with effective online teaching principles.

Rich description of tutors' conceptions and the enablers and barriers they experience in using effective online teaching principles will add to the existing body of knowledge in this developing field and may be used by institutions to inform strategy, policy and practice for online teaching in order to provide quality education. The study aims to provide information that can contribute to the "qualitative change in how we perceive and practice teaching" (Harasim, 2012, p. 2).

1.3 Research questions

The research questions that inform this research study are:

Question 1. What is the relationship between tutors' conceptions of teaching and learning and the design/teaching of the online component of their courses?

Question 2. How does the design/teaching of the online component of tutors' courses align with principles of effective online teaching?

Question 3. What are the enablers and constraints that influence tutors in the use of effective online teaching principles?

1.4 Structure of the thesis

The main body of this thesis begins with a literature review in order to provide a background of previous research to this study. A chapter describing the methodology used for this research, and the rationale for choosing it, follows the literature review. Findings are then presented in response to the three research questions with detailed accounts of each case described separately within questions one and two. The findings for question

three are described according to each theme that has been identified and common and variable issues are highlighted. The discussion chapter includes cross-case comparisons and discusses patterns that have been identified. This leads into the research study's conclusions. These include a summary of findings, the contribution to research, recommendations from this research, limitations of this study, and recommendations for future research. The thesis concludes with some final thoughts.

2 LITERATURE REVIEW

2.1 Introduction

The key foci of this research relates to tutors' perceptions of teaching and learning, how these conceptions align with their online course design and how tutors' course design corresponds with effective online teaching principles. Additionally, the study investigates what helps or hinders tutors in the use of effective online teaching principles.

In order to provide a background to this study, this literature review begins by clarifying the terminology related to e-learning used in this study, and then outlines theories of learning with particular relevance to their pedagogical potential online. This is necessary because theories of learning inform tutors' conceptions of teaching and learning, often unknowingly (Harasim, 2012). These assumptions are then embedded within tutors' decisions on how to use technology (Bates, 2005). Frameworks and models that have been developed to support effective online course design will then be described and a list of effective online teaching principles synthesised from the literature is then provided. Finally, literature related to constraints and enablers to tutors' use of effective online teaching principles is provided.

2.2 Terminology

The terminology relating to the use of technology in education changes constantly. Some of the terms to describe different forms of technology that are currently in use are; online learning, e-learning, technology enhanced learning, and blended learning. It is important to be clear on what the different terms mean. As Pachler and Daly (2011) comment, without a clear definition, tutors, managers and policy makers will struggle to achieve synergy and understand the affordances of e-learning. The use of specific terms in this thesis will be in accordance with the definitions below.

E-learning is the term that provides the broadest scope (Conole, 2010a) and is the most commonly used when describing the development of technologies and their application in education (Conole & Oliver, 2006). The definition gives precedence to 'learning' (Garrison, 2011; Kanuka & Conrad, 2003; Pachler & Daly, 2011) with the 'e' variously described as

"electronically meditated synchronous and asynchronous communication" (Garrison, 2011, p. 2), "and "communication around digital artefacts" as a process of making meaning (Pachler & Daly, 2011, p. 25). JISC defines e-learning as "learning facilitated and supported through the use of information and communications technology" (JISC, 2004). The term technology enhanced learning is also becoming widely used to describe technology application in learning (JISC, 2009, p. 10) where the technology plays a significant role in the learning (Goodyear & Retalis, 2010).

This research is focused on online learning. Online learning is a subset of e-learning that relates specifically to the use of the internet (Ally, 2004; Anderson, 2008) to gain knowledge and construct meaning by accessing learning materials and interacting with the tutor, content and other learners (Ally, 2004). According to Nichols (2008a) online learning uses only digital technology, (usually the internet), to facilitate education. It can also describe a component of a face-to-face course which has an online component (Nichols, 2008a). In this study, the term e-learning is used when research or tutors are talking about the larger use of technology, and online when the study refers particularly to delivery through the internet.

The term 'blended learning' is also mentioned in this study, although it is not the focus. In this study, some of the courses are blended courses. Although this research is based on the online portion of tutors' courses, tutors' conceptions of what blended learning is can affect how the online section is designed. Simply stated, blended learning combines learning in both virtual and physical environments (Stacey & Gerbic, 2009) blending "text-based asynchronous internet technology with face-to-face learning" (Garrison & Kanuka, 2004, p. 96).

2.3   Theories of learning

This literature review begins with an outline of theories of learning as teaching successfully online, requires that tutors need to have knowledge and understanding of theories of learning (Anderson, 2014; Beetham & Sharpe, 2013; Harasim, 2012). The literature outlines that tutor-designers need to have awareness of pedagogy and the assumptions that underlie their beliefs about learning (Sutherland-Smith & Saltmarsh, 2010; Joyes, 2008; Mayes & de Freitas, 2004) as these assumptions and beliefs determine their practice (Haigh, 2005; Joyes, 2008; Kirkwood, 2009; Morrison, 2007). Harasim (2012) states that awareness of personal

learning theories are fundamental as theory "influences, shapes and determines our actions, even unknowingly" (p. 5). Without awareness of what informs their teaching, tutors will design online courses that reflect their implicit assumptions about teaching and learning rather than what is effective in the online environment.

At the heart of learning theory rests questions related to epistemology: "what is knowledge" (Harasim, 2012, p. 6) and whether it rests 'out there' or 'in here' as an inseparable part of the learner (M. Oliver et al., 2006). In order to examine these questions, this literature review begins by examining research on the major learning theories that have emerged in the 20th Century and their relevance to online teaching.

Broadly speaking, different beliefs about the nature of knowledge can be categorised under the headings of objectivist and constructivist epistemology (Harasim, 2012; Roblyer, 2004). Sfard (1998) uses the metaphors of acquisition or participation respectively to describe this epistemological difference. It is worth noting the importance of not viewing these views from the perspective of binary poles (M. Oliver et al., 2006; Sfard, 1998) but rather look at combining them both in order to maximise their advantages (Sfard, 1998). Oliver et al., (2006) comment that the division between these epistemologies does not fall into neat binary divides and they comment that both objectivist and constructivist principles are still relevant in teaching today.

Much early learning theory falls under the objectivist category. This well-researched philosophy espouses that knowledge has its own existence and people learn through the transmission and storage of this knowledge in their brains. An early objectivist learning theory is behaviourism, developed by theorists including Skinner, Watson and Thorndike (Anderson & Dron, 2011). Behavioural theory perceives learning as an individual activity with new behaviours gained through responding to stimuli. The focus is on the behaviour change, not the learner's attitude, capacity, (Anderson & Dron, 2012; Dyke, Conole, Ravensecroft, & de Freitas, 2006) or inner processing (Harasim, 2012; Hoy, Davis, & Anderman, 2013). Behaviour changes as a result of different consequences to an action such as positive or negative reinforcement, or punishment (Roblyer, 2004).

In practice, the behaviourist focus is on controlled and adaptive responses as a result of trial, error and reinforcement (Conole, Dyke, Oliver, & Seale, 2004) with the teacher

creating an environment to steer students towards certain desired behaviours (Merriam, Caffarella, & Baumgartner, 2007). Positive and negative consequences are the most common behaviourist teaching practices with intended outcomes achieved by repetition, examination, memorisation and reinforcement for correct answers (Harasim, 2012). The role of the tutor is pivotal in controlling the learning (Anderson & Dron, 2012; Dyke et al., 2006). Another aspect of behaviourism is the deconstruction of tasks into smaller chunks with behavioural objectives (Harasim, 2012).

Critics argue that behaviourism was not able to account for people's motivation and attitudes (Anderson & Dron, 2011). Behaviourism has been criticised for being focused on single actions and overt behaviour (Merriam et al., 2007) and that it does not motivate students to become independent learners because of the dominant role of the tutor (Laurillard, 2012; A. Moore, 2012).

The relevance of behaviourism in the online learning context is that students are made aware of explicit learning outcomes and that students are tested to determine if they have met the learning outcomes, (Ally, 2004). The principles also apply to students receiving feedback so they can monitor how they are doing, and that there is appropriate sequencing of learning materials from more simple to more complex and "known to unknown" (Ally, 2004, p. 21).

With the developing understanding of the brain (Anderson & Dron, 2011) and the growth of cognitive and computer science, (Harasim, 2012) cognitive learning theory emerged (Anderson & Dron, 2011; Harasim, 2012). This objectivist theory focuses not only on behaviour but the role of the brain in knowledge storage and retrieval (Anderson & Dron, 2011) and the importance of prior knowledge (Merriam et al., 2007). Cognitivist learning theory views the brain like a computer (Harasim, 2012; Roblyer, 2004) and perceives the learner as "a processor of information" (Harasim, 2012, p. 48) requiring teaching strategies to help students transfer information from the senses to working memory (Ally, 2004).

Cognitivist learning theory is still relevant in teaching practices and has implications for online course design and pedagogical practice. This design and practice includes strategies to enable students to pay attention to information through colour, graphics and the mode of delivery, strategies to enable learners to construct memory links between existing and

new information, and strategies that enable deep processing including application of information in authentic situations (Ally, 2004).

In reaction against behaviourism and cognitivism, constructivist learning theory emerged in the 1960s (Harasim, 2012). Constructivist learning theory posits that individuals construct knowledge for themselves by making meaning from the environment (Ally, 2004; Bates, 2015; Pritchard, 2013), and that intellectual understanding is required for conceptual development, not just the absorption of information (Mayes & de Freitas, 2004).

The two theorists who were most instrumental in the development of constructivist learning theory, Piaget and Vygotsky, shared some similar conceptions but differed in their thoughts on learning as a social activity. Cognitive constructivism is associated with Piaget, with a focus on the individual learner (Harasim, 2012) whereas social constructivism, developed from Vygotsky's ideas, places a strong emphasis on the role of others in the construction of knowledge (Harasim, 2012; A. Moore, 2012).

According to Piaget, learning is the process of adjustment to the environment through assimilation, accommodation (Pritchard, 2013) and equilibrium/disequilibrium. That is, people learn, grow out of previously held ideas and adopt new ones (Harasim, 2012). This view of learning stood in strong contrast to objectivist epistemology, which viewed knowledge as matching reality (Harasim, 2012). Piaget's view was that knowledge has to "fit with reality" as the learner tries to reach equilibrium between assimilation and accommodation of new knowledge (Harasim, 2012, p. 64).

Vygotsky, on the other hand, was particularly interested in social and cultural factors in learning. One part of Vygotsky's theory is the concept of the Zone of Proximal Development (ZPD); the distance between what a person knows and potential knowledge which can be achieved through help or scaffolding provided by others (Duffy & Cunningham, 1996; Harasim, 2012; Pachler & Daly, 2011). These others are seen as teachers or more advanced peers who provide support for the learner to reach their intended goal by means of tools such as language and concepts (Harasim, 2012). Scaffolding of activities has become associated with the ZPD. Activities take the students' prior knowledge into consideration, lead the students from what they know through the ZPD by means of interacting with others, to reach their potential (Harasim, 2012). Of note

is that scaffolding needs to be conducted through collaboration between the learner and the teacher not as a form of instruction (Harasim, 2012). As students gain more proficiency they become more able to take control of their learning process (Harasim, 2012) with the tutor acting as guide to students setting their own goals and teaching themselves (Robyler, 2004).

The key principle of collaboration refers particularly to collaboration between learners although it can also refer to learner and teacher (Harasim, 2012). Not all collaboration is based on constructivist principles and group work can be used for other purposes such as peer tutoring (Duffy & Cunningham, 1996). Constructivist collaboration refers to collaboration for the purpose of learners helping each other to develop different perspectives through challenge and sharing other points of view (Duffy & Cunningham, 1996). Constructivist collaborative learning sits within the participation metaphor described by Sfard (1998) which perceives knowledge as something that someone does within a group of learners as against something that is possessed (Wegner & Nückles, 2015). Collaborative learning is particularly important in teaching and learning underpinned by social constructivist theory with learners able to discuss their actions and reflections with others and work together on projects (Laurillard, 2009).

Constructivist approaches are task-orientated. These include self-directed activities (Conole et al., 2004), guided discovery, problem-based learning and group discussion (Liu & Matthews, 2005). There is much agreement on the use of constructivist principles in e-learning (Attwell & Hughes, 2010; L. Brown, 2014; Garrison & Akyol, 2009; Pachler & Daly, 2011; Valerie, 2009) with emerging technology tools such as blogs, social media, instant messaging, bookmarking and wikis providing opportunities for collaborative, creative, constructive learning (Garrison & Akyol, 2009). Constructivist teaching environments can foster creativity, develop metacognition and foster group co-operation (Roblyer, 2004) with collaborative learning of particular importance (McConnell, 2006; Kowalczyk & Copley, 2013). Learners should also have time for reflection, and learning should be active, interactive and meaningful (Ally, 2004). Ally (2014) comments that learners should be able to control their learning process and make their own decisions on learning goals within a guided process of discovery.

There are a number of criticisms related to constructivism. Kirschner, Sweller and Clark (2006) state that empirical evidence has shown that minimally guided activities are not always as effective as approaches that provide direct instruction, considerable guidance and the use of examples depending on the circumstances and students. In addition, not all topics are appropriate for constructivist methods and important issues such as students' prerequisite skills may not be taken into consideration. Another issue has been the lack of clarity on the role of the teacher (Harasim, 2012). Duffy and Cunningham (1996) discuss the decentred role of the teacher in constructivist teaching, renaming the role to that of coach. They comment that it appears that although this role is now seen as the 'guide on the side', in practice the coach still has the knowledge the students need. They believe that the constructivist tutor and student should be involved in a bidirectional relationship where skills and knowledge of both are honoured (Duffy & Cunningham, 1996). Anderson (2014) describes the arbitrary distinction between the tutor role of facilitator and content provider in the online environment as "troublesome" (p. 358). He describes the 'guide on the side' approach as 'laissez-faire' in that it does not address one of the important aspects of constructivist and social cognition theory in relation to the role of a skilled 'other' to scaffold a student's learning.

A form of constructivism, called 'constructionism' was developed by Papert who was a proponent of learning by doing and believed that learners needed to be taught how to do something, instead of being taught about something (Harasim, 2012). In addition, the actions had to result in some form of feedback in order to improve on-going action (Laurillard, 2012). This concept has similarities to the idea of 'situated learning' developed by Brown, Collins and Duguid (1989) who contend that meaningful learning will only happen if "it is embedded in the social and physical context within which it will be used" (p.15). The situation needs to have a meaningful context and direct feedback received from the environment means that less teacher direction is required (Laurillard, 2012).

The situated learning model is based on the idea that "knowledge is contextually situated and is fundamentally influenced by the activity, context and culture in which it is used" (McLellan, 1996, p. 6). This model includes the concept of cognitive apprenticeship which uses methods to "try to enculturate students into authentic practices through activity and social interaction in a way similar to that evident—and evidently successful—in craft apprenticeship" (J. S. Brown et al., 1989, p. 32). There has been debate by researchers such

as Hummel (1993) and Tripp (1996) as to whether situated learning theory can be used as a model of instruction. However, much of the criticism compared the learning environment to a traditional apprenticeship, not a cognitive apprenticeship. In addition, Brown, Collins and Duguid continued to believe that with refinement and research, it was an appropriate model of instruction (Herrington, Reeves, & Oliver, 2010). It seems that much depends on how 'authentic practice' is defined as to whether this theory can be used as a model of instruction. Some researchers doubt whether it is possible to design learning experiences that are truly authentic (Oliver, Herrington, & Reeves, 2006), while others such a Barab, Squire and Dueber (2000) state that it is the dynamic interaction between the learner, task and environment that creates authenticity.

When it comes to situated learning theory online, despite scepticism as to whether real situated learning can take place through a computer, there is now much agreement that computers and the internet can provide "a powerful and acceptable vehicle for the critical characteristics of the traditional apprenticeship" (Barab et al., 2000, p. 17). Authentic contexts can be provided through technology and contexts do not have to only be the actual work setting. According to McLellan (1996) the situated learning model requires that "learning must be learned in context" (p.12) which not only refers to the real work setting but could be a very realistic or virtual substitute of that setting or the use of multimedia programmes or video.

A related concept is Communities of Practice (CoP), formulated by Lave and Wenger (1991). This differs from the situated learning model as according to Lave and Wenger, (1991) learners need to be directly engaged in professional communities rather than learning a practice in a separate learning environment. Within a CoP, participants begin by observing from the boundaries and taking part in peripheral tasks of the community. Slowly, they become fully functioning members as they learn about the culture and become more involved, becoming 'expert' members of the group (Duffy & Cunningham, 1996; Lave & Wenger, 1991). Lave and Wenger (1991) favour the concept of cognitive apprenticeship compared with problem based learning, facilitated by a tutor. The CoP approach is based on the concept that learning happens by taking part in the shared practices of the 'lived in' world and knowledge production cannot be separated from engagement within that world (Omidvar, 2014). It is the learner's relationship within the group that is important, not the activity (Mayes & de Freitas, 2004).

CoPs are generally perceived as situated within places of work (Hodkinson & Hodkinson, 2004) or developed around a common activity (Mayes & de Freitas, 2004). However, a learning group can be seen as a community of practice where the learning is the practice and learners succeed because of their becoming experts within that domain by mastering the tasks rather than interest in the subject matter (Mayes & de Freitas, 2004). Attwell and Hughes (2010) however state that being a learner in a community of learners does not provide enough commonality to create a community of practice. The usefulness of CoPs in online learning has been questioned by Dyke et al (2006) who comment that the concept of learning through engagement in communities that have that knowledge can be problematic within an online environment and still needs development. Bates, (2015) on the other hand describes connectivist MOOCs (Massive Open Online Courses) as a form of virtual CoPs, because they emphasise sharing knowledge between participants with different levels of equality. He does however state that CoPs tend to lie outside of formal learning environments (2015).

The past century has seen learning theory develop from a focus on acquisition of knowledge to learners participating in knowledge production. However some people do not believe these theories are sufficient for the online environment. Pachler and Daly (2011) state that technology is challenging conventional ideas about how knowledge is created and distributed and Garrison and Anderson (2003) claim that e-learning represents a new "learning ecology" (p. 122). Some argue that Web.2.0 tools have transformed pedagogy and the nature of learning (Garrison & Akyol, 2009; Andrews, 2011; Gumbo, 2014) due to the "social, multimodal and technical interplay that affords and directs e-learning" (Andrews, 2011, p. 53). The internet provides learning and knowledge creation potential that has never been possible before according to Dron and Anderson (2013) and Laurillard (2006).

Connectivism is a new theory of learning that has emerged developed by Siemens (2005). According to Bates (2015), connectivism is the first theory that attempts to thoroughly consider the implications of the internet and communication technologies. It is based on the concept that the ability to access knowledge is of greater importance than individual knowing (Siemens, 2005). Siemens (2005) claims that connectivism is a successor to traditional learning theories, stating that other theories of learning do not explain

knowledge expansion. The theory of connectivism is that knowledge does not necessarily reside within the individual and that it is that connections between sets of information that are more important than individual knowing (Siemens, 2005). An important concept is that there is a reciprocal benefit between learners and a learning community (Ng, 2015). Social constructivism and connectivism share the proposition that knowledge is not acquired 'as a thing' (Downes, 2007) but is constructed within a social environment (Dron & Anderson, 2014). This proposition corresponds with aspects of the metaphor of participation as described by Sfard (1998) with learning "as an enculturation into a subject community" (Wegner & Nückles, 2015, p. 624).

The research on the use and effectiveness of connectivism is still developing. Connectivism and the theory of CoPs share the understanding that learning takes place by "connectivity to the learning community and continuous dialogue with its members" (Ng, 2015, p. 90). However, Dron and Anderson (2014) view CoPs as being situated within connectivism stating that the term 'community of practice' has been blurred, leading to it being "hijacked" (p. 65) by social constructivists. Connectivism has been challenged with critics commenting that it does not merit being seen as a new theory of learning (Kop & Hill, 2008; Ryberg, Buus, & Georgsen, 2012). This view is that the principles of connectivism are no different from many traditional learning theories and misinterprets them (Kerr, 2006; Verhagen, 2006). Kerr (2006) states that learning has not been changed by networks to the extent that the traditional theories of learning should be discarded and replaced with new ones. The role of the tutor is also not entirely clear according to connectivism other than providing the initial learning context and environment (Bates, 2015).

Newer and less researched concepts of learning with technology continue to be developed. Examples of these are networked learning (Banks, Goodyear, & Hodgson, 2003; Haythornthwaite & de Laat, 2010) and networks of practice (Wenger, Trayner, & de Laat, 2011). Networks of learning focuses on the processes and properties of networks that foster connections between tutor and learners, learners and other learners and community of learners and their resources (Banks et al., 2003). Networks of practice focuses on learners attempting to make meaning in networked environments that are constantly changing (Dron & Anderson, 2014).

This section of the literature review focused on traditional and evolving learning theories and models, with the more recent models specifically related to the development of

communication technology. Yet despite some research suggesting that new theories of learning are necessary, others such as Laurillard (2009) comment that what it takes to learn hasn't changed. Mayes and de Freitas (2004) state that, "we are beginning to witness a new model of education, rather than a new model of learning" (2013, p. 68).

All theories of learning have potential use in online teaching contexts according to many literature sources (Anderson & Dron, 2011; Laurillard & Masterman, 2010; Mayes & de Freitas, 2004; Roblyer, 2004). According to Ng (2015) there is no theory of learning that is appropriate for all online course design with all learning theories having relevance depending on the "context and purpose of the learning and the desired learning outcomes" (p 94). Researchers tend to agree that effective online design requires the blending and integration of approaches that are informed and underpinned by more than one theory (JISC, 2009; Mayes & de Freitas, 2013). The next section outlines the literature related to effective online teaching with reference to learning theory and concludes with a list of key online teaching principles that have been synthesised from the research.

2.4   Effective online teaching principles

An important principle of good pedagogical design is constructive alignment (Biggs, 1996). Constructive alignment is design in which the curriculum, the environment, methods of teaching and assessment are aligned. Effective e-learning, according to Conole, Littlejohn, Falconer and Jeffery (2005) requires that tutors have an understanding of constructive alignment in order to provide the most effective conditions for learning. To achieve constructive alignment, assumptions need to be examined and aligned at each stage with awareness of what the learner is actively being required to do (Beetham & Sharpe, 2013). According to Mayes and De Freitas (2004) the key to good online pedagogical design is judgement as to whether the processes of teaching and learning will attain the required learning outcomes.

The active role of the learner is an important principle common to many effective online design approaches (Attwell & Hughes, 2010; H. Beetham, 2013; L. Brown, 2014; Garrison & Akyol, 2009; New Zealand Council for Educational Research, 2004; Pachler & Daly, 2011; Valerie, 2009) and many researchers have urged tutors to move beyond teacher-centred environments and change their learning paradigms in order make use of the

potential of new technologies (Aslan & Reigeluth, 2013; Garrison & Akyol, 2009; Salinas, 2008). Newer learning theories such a connectivism (Siemens, 2005) sees tutors playing a less controlling role in the learning process and supporting students to develop their own learning environments (Bates, 2015).

It is important that different learning theories are integrated appropriately into course design. Ng (2015) describes the importance of design that blends learning theories in a "sequence of pedagogically sound learning activities" (p. 94) and Beetham (2013) discusses the need for integration between activities. A number of e-learning models and frameworks have been developed that interweave aspects from different learning theories. Examples of these are the conversational framework (Laurillard, 2009; Pachler & Daly, 2011), the community of inquiry framework (Garrison, 2011) and Salmon's five-stage model (Salmon, 2012). Pachler and Daly (2011) caution against trying to design a "universal approach" (p. 107) that brings all the key features of these models and frameworks together as an important aspect is the relationship of a model with a tutor's practice.

Laurillard's conversational framework brings several pedagogical approaches together and "defines the superset of essential requirements for supporting the learning process" (2009, p. 10). These are acquisition, inquiry, practice, production, discussion and collaboration (Laurillard, 2012). The framework has iterative interactive cycles between teacher and peers to develop the learners' conceptions in practice (Laurillard, 2009).

The community of inquiry framework, developed by Garrison, Anderson and Archer (Garrison, 2011) describes learning communities through the intersection of cognitive, social and teaching presence and according to Arbaugh (2007) is the model that has gained most attention by researchers and by teachers in practice. This approach is informed by the premise that higher-order learning requires a community of learners (Garrison, 2011). Social presence requires that learners are able to work and communicate in a trusting environment in which they can identify with the group and develop relationships. Cognitive presence relates to social learning based on constructive alignment in which learners can construct meaning through reflection and discourse. Teaching presence requires that the educational experiences are facilitated and "inform the transactions" (Garrison, 2011, p. 24). Within this model, there are three critical roles performed by the tutor to create an effective teaching presence according to Anderson, Rourke, Garrison and

Archer (2001): "the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes" (p. 5). These roles include creating and implementing activities that encourage discourse between students, between tutor and student and between content resources, and creating an environment in which teaching presence is not just the role of the tutor, but is assumed by students in contributing their knowledge to the learning community (Anderson, 2008). These tutor roles are also described by Moore and Kearsley (2011) who state that effective online teaching requires tutors to have an in-depth understanding of facilitating interaction between the student and content, student and tutor and between students. These three general categories of interaction that can be built into any learning activity (Graham & Stein, 2014).

A model of online teaching and learning formulated by Salmon provides a development process for effective e-learning (2012). It includes the stages of student access and motivation, online socialisation, information exchange, knowledge construction and development (Salmon, 2012).

In the New Zealand context, the Treaty of Waitangi "must underpin e-learning developments" (Maharey, 2002, para. 4) in order that Maori participation takes place at all levels of e-Learning. There are no pedagogical e-learning models specifically for Maori (Gander, 2014) although Ferguson (2008) has suggested what the key elements of a Maori e-Learning Framework would look like. Gander (2014) suggests that Maori concepts and western pedagogical models can be interwoven to support successful outcomes for Maori (2014). The importance of the collaboration between students, between student and tutor and between learners and resources would be an important aspect of such a framework (Tiakiwai & Tiakiwai, 2010), emphasising whanaungatanga (establishing relationships) (Ferguson, 2008; Gander, 2014) and ako; reciprocal learning and teaching process between students and tutor (Ferguson, 2008; Gander, 2014). The importance of the establishment of relationships in e-learning however is not specific only to Maori learners but to all learners. Social relationships play a crucial role in learning environments that require information exchange and collaboration (Alonso, Manrique, Martinez, & Vines, 2015). Relationship between student and between tutor and students provides for better engagement and on-going communication (New Zealand Council for Educational Research, 2004). Haythornwaite (2008) clearly defines that learning relationships are

necessary for learning communities. Learning relations "are the lifeblood of living networks" (p. 154).

The literature has identified that there are features from all learning theories that are relevant to effective online teaching. Sharpe (2007) in fact describes the commonalities between behaviourist, constructivist and situative approaches which all stress the importance of the learner taking part in an activity, integration across activities, constructive alignment and the importance of feedback. However there are major epistemological differences between approaches in relation to the metaphors of acquisition or participation described by Sfard (1998). In addition newer theories such as connectivist place greater emphasis on access to knowledge rather than individual knowing (Siemens, 2009). A number of models and frameworks that interweave learning theories have been developed to support good pedagogical practice in online course design and teaching. It is important for online tutors and designers to be aware of learning theory as assumptions about how people learn informs their conceptions of teaching and learning (Harasim, 2012). To conclude this section, key principles of effective online teaching based on the research and literature, have been synthesised.

Effective online teaching:

- Takes account of prior knowledge and provides a scaffolded learning process (Anderson, 2014; Bird, 2007; New Zealand Council for Educational Research, 2004);
- 'Chunks' content and tasks into appropriate size pieces (Anderson, 2014);
- Shows alignment between learning outcomes, content/activity and assessment (Anderson, 2014; Conole, Littlejohn, Falconer, & Jeffery, 2005);
- Uses a sequence of learning activities with integration between activities (Beetham, 2013; Laurillard, 2012; Ng, 2015);
- Uses strategies that enable students to construct knowledge and integrate it into existing schema (Anderson, 2014; Bird, 2007; Dyke et al., 2006; Garrison, 2011; Laurillard, 2009; New Zealand Council for Educational Research, 2004; Salmon, 2012);
- Uses activities that promote active learning (Anderson, 2014; Bird, 2007; New Zealand Council for Educational Research, 2004);

- Promotes interaction between peers and tutor (Anderson, 2014; Bird, 2007; Dyke et al., 2006; Garrison, 2011; Laurillard, 2009; New Zealand Council for Educational Research, 2004; Pachler & Daly, 2011; Salmon, 2012);

- Promotes knowledge construction through collaboration with peers and tutor (Anderson, 2014; Bird, 2007; Dyke et al., 2006; Garrison, 2011; Laurillard, 2009; New Zealand Council for Educational Research, 2004; Salmon, 2012);

- Enables learners to interact with a larger learning environment/community (Dyke et al., 2006; Kirschner, 2015); (J. S. Brown et al., 1989; Dyke et al., 2006; Kirschner, 2015; Lave & Wenger, 1991; McLellan, 1996; Omidvar, 2014).

- Provides opportunity for formative feedback (Dyke et al., 2006; Laurillard, 2009; New Zealand Council for Educational Research, 2004); and

- Is facilitated in a manner that promotes student ownership of the learning process (Ally, 2004; Anderson, 2014).

2.5   Enablers and constraints to effective online teaching

This section of the literature review examines the enablers and constraints that influence tutors' adoption of effective online teaching principles. However, enablers and constraints to effective online teaching principles should not be viewed in isolation from each other. As Ertmer, Ottenbreit-Leftwich and York (2006) comment when describing enablers and barriers to integrating technology into curricula, there is an inverse relationship between enablers and barriers, with barriers decreasing as enablers increase. The major themes related to constraints and enablers identified in the literature include institutional strategy, tutor professional development and support, and allocation of tutor time.

A key finding from the literature is that effective online teaching requires institutions to have a mission that clarifies the importance of e-learning to the institution's long-term success (Chaloux & Miller, 2014b) and a systematic strategic direction in terms of teaching with technology (Garrison, 2011; Marshall & Shepherd, 2016; Ragan & Terheggen, 2003; Rosenberg, 2011) based on a vision endorsed by staff and students (Guiney, 2013). The strategic direction also needs to be reflected in other institutional strategy (Higgins & Prebble, 2008) such as that related to tutor workload. A comprehensive approach is necessary to not only adhere to a set of e-learning principles but include issues such as

those related to management and student support services (Zhang, 2013) and an institutional approach to professional development (Wilson, 2012; Zhang, 2013) that addresses the different needs and levels of staff (Wilson, 2012).

Lack of clear guidelines and strategies can cause obstacles for tutors in adopting effective online teaching principles. Many institutions lack strategies related to online teaching. Moore and Keasley (2011) comment that without institutional strategies, those involved in e-learning suffer from not having a secure frame of reference. In New Zealand, there is no national tertiary education strategic vision for e-learning and little direction related to technology is provided in The New Zealand Tertiary Education Strategy 2014-19 (Marshall & Shepherd, 2016). There are however e-learning guidelines which have been developed to provide assistance in the design and implantation of e-learning (E-learning-guidelines, 2014). These include guidelines from the perspective of the quality assurance body, organisation leader, manager, tutor and learner.

Lack of national policies related to e-learning creates barriers for institutions (Morre & Kearsley, 2011) and lack of national strategic vision impedes focus for the different groups involved in e-learning (Marshall & Shepherd, 2016). "Without the support of wider national and institutional policies, wide-scale changes in teaching practice will not happen" (Stein et al., 2011, p. 146). Nichols (2008b) found in his research study of integration of technology at institutions that those that had, or were officially developing policies and systems that aligned with e-learning were most successful in integrating technology. Consistent administrative, technological and academic resources are required for the success of online courses (Chaloux & Miller, 2014a) and organisations must have comprehensive processes and systems to support tutors (Ragan & Schroeder, 2014).

A constraint to effective online teaching identified in the literature is tutors' lack of belief in their capability to use technology (Abbitt, 2011; Kregor, Breslin, & Fountain, 2012) or lack of confidence in its usefulness (Kregor et al., 2012; Wozney, Venkatesh, & Abrami, 2006). Lack of confidence in using technology is a common theme in the literature (Conole, 2010b; Liaw, Huang, & Chen, 2007; Loveless, 2006). Ertmer and Ottenbreit-Leftwich (2010) state that even if tutors have changed their pedagogical beliefs to those of good teaching and know how to implement technology, they still require the confidence to do so. In addition, there is the belief amongst many tutors that technology is not essential to their teaching (Ertmer & Ottenbreit-Leftwich, 2010) with tutors' intentions to use

technology guided by their beliefs about its usefulness and perceived difficulties in using it (Kregor et al., 2012). According to Wozney, Venkatesh,and Abrami (2006) tutors' confidence that they will be able to attain their instructional goals is a predictor to their use of technology.

A critical component of success in e-learning identified in the literature is tutor professional development (Nichols, 2008b; Ragan & Terheggen, 2003) with pedagogical professional development a key factor in best practice. It is essential that institutions prepare tutors for teaching online, pay attention to their development (Ragan & Schroeder, 2014; Sangra, Guardia, & Gonzalez-Sanmamed, 2007) and ensure tutors maintain the competencies and skills they need to teach online through a co-ordinated, well resourced, effective and efficient approach (Ragan & Schroeder, 2014; Sangra et al., 2007). The skills necessary for teaching online are considerable and the importance of tutor training is widely documented in the literature. In order to design online courses, tutors need to have knowledge of, and skill in applying e-learning principles, how to use e-learning platforms, instructional design, writing online course material, multimedia design and production, how to use open education resources, online student support, teaching online, evaluation and quality assurance (Zhang, 2013). Tutors also need to expand on their pedagogical knowledge in the areas of planning, implementation and evaluation (Ertmer & Ottenbreit-Leftwich, 2010) and have the knowledge and skill to select the best combination of pedagogy and technology (Anderson & Dron, 2012). Tutors also need to develop an understanding of the role of the tutor in the online environment. Ragan and Schroeder (2014) comment that successful online teaching requires that teachers are provided with development opportunities to understand online teaching presence. New tutors in particular struggle to understand the role of the tutor in the online classroom and may require a change in beliefs (Ragan & Schroeder, 2014). There is a call for online course designers and tutors to move beyond teacher-centred environments and change their learning paradigms in order make use of the transformative potential of new technologies (Aslan & Reigeluth, 2013; Garrison & Akyol, 2009; Salinas, 2008). However, expecting staff to be self-motivated in learning how to develop innovative teaching practices is not realistic (Kenney, Banerjee, & Newcombe, 2010) and development opportunities need to be available to help tutors move to a transformative rather than transmittal pedagogical approach (Morrison, 2007).

Due to the extensive skills necessary to design online courses, some research argues that tutors should not design their own courses. Naidu (2003) states that with the advent of

"non-traditional distance teaching and learning practices" teachers should no longer be considered to be responsible for the whole teaching and learning operation (p. 349). Oblinger and Hawkins (2006) suggest that tutors should not be expected to develop courses alone because of the many skills required, and that working in collaborative teams is more effective. Caplan and Graham (2008) go so far as to say that online courses should be created by more than two people as "quality courseware production requires a highly organized, concerted effort from many players" (p. 256). They suggest teams need to be made up of five or more people including subject matter experts, graphic designers and instructional designers (Caplan & Graham, 2008). Moore and Kearsley also (2011) strongly recommend team approaches, and suggest that teams could range from two to 20 members. It is likely that courses designed in this way are well planned and include high quality course materials (Higgins & Prebble, 2008).

On the other hand, Kirschner (2015) argues that teaching online should not be approached as something outside of a tutors' normal function but should be seen as part of general tutor competence in the same way as other professionals adapt to the developing tools in their fields. He comments that designing for technology enhanced learning should be part of what tutors do in their normal role of designing learners' experiences using whatever tools are at their disposal. In order to achieve competence, tutors "must know, understand and be able to apply" (p. 321) their subject speciality, different pedagogies and research and design (Kirschner, 2015). This approach ensures that the tutor keeps ownership of all aspects of the design and is cheaper for institutions than a team approach (Higgins & Prebble, 2008). However, it can be very challenging for tutors and can result in variable quality (Higgins & Prebble, 2008) with the primary medium used being the one the tutors is most comfortable using (M. Moore & Kearsley, 2011). Tutors designing courses in this way may struggle due to the additional responsibilities (Restauri, 2004). In light of the considerable skills and competencies tutors need to design courses, Kirschner (2015) urges that tutor professional development be drastically reconsidered for tutors to gain the necessary competencies.

In order to help tutors with online course design, a number of tools have been developed. The Learner Activity Management System (LAMS) was one of the earliest tools (LAMS International, 2015) and is still readily available with many users throughout the world (Conole, 2010a). It provides guidance for tutors in choosing learning activities that are

collaborative and sequential (de Freitas, Oliver, Mee. & Mayes, 2008; Conole & Fill, 2005; Britain, 2004). LAMS has primarily been used by early adopters (Conole, 2013). A learning design toolkit that was developed to guide tutors in the process of creating learning activities informed by pedagogy was the DialogPlus toolkit (Conole & Fill, 2005; de Freitas, Oliver, Mee, & Mayes, 2008). Although the toolkit has now been superseded, one of the important outcomes was a learning activity taxonomy(Conole & Fill, 2005) that can be used to support tutors in pedagogical design and professional development.

Another learning design tool is Courseware Development Methodology for Open Instructional Systems (CADMOS) (Conole, 2013). It is tool that provides course design guidance to tutors (Katsamani & Retalis, 2013). A recent tool for supporting designers is the Open University Learning Design Initiative (OULDI) (Conole, 2013). It focuses on improving efficiency and effectiveness in learning design, capturing innovative practice, and providing support for tutors creating learning activities through scaffolding based on good practice (JISC, 2015). Professional development frameworks for tutors such as the Technological Pedagogical Content Knowledge (TPACK) have also been developed. This is a well-known and well-researched framework which helps tutors to understand the intersection of the different kinds of pedagogical knowledge required for online course design and teaching (Koehler, Mishra, & Cain, 2013). It is based on the concept that effective online teaching requires the integration of content, pedagogy and technology (Abbitt, 2011; Koehler et al., 2013; Pachler & Daly, 2011).

Despite the obvious need for tutor professional development in e-learning, only a small part of investment in ICT has been spent on changing tutor practice with little time, training or resources provided to tutors (Laurillard & Masterman, 2010). When training has been provided for tutors, it has had a greater focus on developing technological skills than people and processes (Conole, 2010b), improving good pedagogical practice (Haggerty, 2015; Hegarty et al., 2005; Sangra et al., 2007; Stein et al., 2011) and integration with the subject matter (Angeli & Valanides, 2009). In New Zealand, tertiary institutions are responsible for the professional development of tutors (Viskovic, 2009). Yet despite new full-time polytechnic tutors being expected to gain a qualification in teaching within a period time after being appointed, it appears that this requirement is often not implemented (Ako Aotearoa, 2014).

Literature identifies that the kind of professional development required for teaching online is multi-faceted and needs to fit the context and situation within which tutors are situated, (Barr, Neal, Moore, Delany, & Hunt, 2008; Stein et al., 2011). A New Zealand report that synthesised the literature on how to design effective professional development for e-learning made the following recommendations (Barr et al., 2008). Effective professional development for e-learning needs to be relevant, flexible, individualised, short-term and long-term, use a variety of approaches, include central teams to provide appropriate training, encourage tutors to work with peers and in learning communities, include training that has a focus on e-learning pedagogy, and provide on-going pedagogical and technical support (Barr et al., 2008). This is in line with the concept of professional learning rather than just professional development which is a key point made by Webster-Wright (2009) in order to support "authentic professional learning" (Webster-Wright, 2009, p. 702). She argues that the provision of isolated professional development opportunities does not take into account context and ontology and calls for a change from "continually developing professionals to supporting authentic" (p. 728).professional learning.

According to the research, support is crucial in order for tutors to successfully adapt to online teaching (Conole & Culver, 2010; de Freitas et al., 2008; Guiney, 2013; Ragan & Schroeder, 2014). Many tutors may have little experience of the online environment and need to be supported to adjust and reconceptualise their assumptions and practices of teaching and learning (Ragan & Schroeder, 2014). Tutors often use models that have been designed by other people and need to be provided with support when using the model in order to enable to engage with it and understand how it relates to their own practice (Conole & Oliver 2002; Sharpe 2004). One form of support is centralised teams to guide tutors and to provide them with timely knowledge and training to design and teach online courses (Barr et al., 2008; Youngman, Gotcher, Vafa, Dinsmore, & Goucher, 2000). These teams differ from the design teams mentioned earlier and will be referred to as online learning teams (OLTs). The kind of technical training OLTs can provide includes individual tuition, workshops, computer tutorials, website help centres with frequently asked questions. (Restauri, 2004). Caplan and Graham (2008) describe online development units with the members playing the role of "para-academics" (p. 256) who are first at the scene to support tutors in course development. Their roles can include technology

expertise, media development, instructional design and graphic design (Caplan & Graham, 2008).

The literature also identifies the need for community to support tutors in e-learning design and teaching (Conole, 2010a; Conole & Culver, 2010). Demonstrations of good technology use (Conole & Culver, 2010) and sharing stories of successful technology integration practice with peers in a collaborative environment enable tutors to develop ways to improve student learning (Ertmer et al., 2006). Tutor networking that focuses on peer support and highlights peers' work creates a more resilient and unified programme (Restauri, 2004). Community is important when designing courses (Ragan & Schroeder, 2014) with evidence that tutors benefit from collaborative course design in acquiring knowledge about technology potential and rationale for using it (Nihuka & Voogt, 2012; Sharpe & Oliver, 2007). There is a call for the establishment of CoPs (Garrison, 2011; Ragan & Schroeder, 2014) so teachers can share knowledge and pedagogical processes. In addition, Viskovic (2009) recommends that institutions refocus the emphasis from central professional development activities towards supporting "communities of teaching practice" (p. 337). Laurillard and Masterman (2010) suggest online "communities of innovation" (p. 230) in order to provide support for tutors and also have them involved in the innovative process. The importance of a culture of sharing and collaboration is at the heart of Cloudworks, an online site created so that learning designers and tutors can discuss their experiences and thoughts (Conole, 2010a).

Tutor lack of time is a common theme in the literature related to online teaching (Kirschner, 2015) with teaching workload and responsibilities impeding effective use of technology (Loveless, 2006; Meyer & Xu, 2007). One of the impacts of the reconfiguration of higher education in New Zealand along market lines has meant that tutor workloads are increasing in the New Zealand polytechnic sector, student-tutor ratios have risen and support for tutors has decreased (Ako Aotearoa, 2014). There are also requirements for tutor research which is another demand on tutor time (Ako Aotearoa, 2014). There is a need for institutions to acknowledge that changes are required in tutor time and workload because of e-learning (Barr et al., 2008) and that it takes time to adapt to new innovations and establish new practices (Conole & Oliver, 2002; Conole, 2010a). The plethora of learning object choices for educators is confusing (Gumbo, 2014), tutors do not know enough about new technologies and how they can be used (Conole & Culver, 2010) and are concerned about becoming technology experts and managing their workload (Haggerty,

2015). According to Ragan and Schroeder, teaching online requires 10 to 15 percent more time than teaching face-to-face (2014).

2.6   Conclusion

The literature identifies that teaching online is not a simple task and that the skills and knowledge required to teach online are multifaceted. Tutors' need to have an understanding of learning theory and develop an awareness of their own beliefs about learning as these are fundamental to how they design and teach their courses. The literature outlines that although principles from all learning theories are relevant in online teaching, the affordances of the web provides learners with greater opportunities for participation, collaboration and interactivity than have previously been possible. Effective online teaching principles synthesised from the literature conclude the first section of the literature review.

Literature describing the enablers and barriers to designing and/or teaching online courses using effective online teaching principles provides further description of what tutors need to teach effectively online. There are many factors which influence tutors' knowledge and skill development and institutional issues determine the larger context of how they conduct their teaching. Tutor professional development, support, and time for course development and teaching, are identified as crucial for tutors teaching online. Underlying these issues is the importance of national and institutional strategy related to e-learning in order to support effective online teaching. This literature highlights the complexities of teaching online and identifies that there are key enablers that can be implemented in order for tutors to teach online using effective online teaching principles.

3   METHODOLOGY

3.1   Introduction

This chapter begins by describing the rationale for using an interpretative paradigm in this research study. It then describes the use of case study methodology and outlines ethical considerations. These are followed by a description of the research procedure, and how issues of credibility, transferability, dependability and confirmability were addressed.

Qualitative research comes from the ontological perspective that the social world is constructed by people's interactions within it and that multiple meanings exist (Merriam, 2009; Stake, 2010). It attempts to describe personal knowledge including people's experiences, intuition and perceptions within unique contexts (Stake, 2010). The situated nature of qualitative research means that the researcher is located in the world they are researching and there is an intimate relationship between what they are studying and themselves (Denzin & Lincoln, 2003).

This research is a qualitative study. It aims to provide a thick description based on tutors' subjective experiences and study the multi-faceted reality of tutors' perceptions within the field of online teaching. Flick (2008) argues that it is important to use research methods that are appropriate to the issue. Qualitative research acknowledges that reality is complex with many layers and multiple interpretations (Cohen, Manion, & Morrison, 2011). The qualitative researcher has an interest is finding out the meaning people make from their experiences and how they construct their worlds (Merriam, 2009). This research study requires a perspective that acknowledges that situations are not static and events and people's behaviours change over time and are affected by the context in which they are situated (Cohen et al., 2011). The subjective and personal nature of the qualitative research approach is necessary to gain in-depth understanding of tutors' perceptions and actions. As qualitative research reflects the subjective nature of human experience from within participants' frames of reference (Cohen et al., 2011), it is an appropriate research perspective to use for this study.

This research is based on an interpretive/constructivist perspective which attempts to understand social reality through the reality of those involved in it. Interpretivism and constructivism are terms that are often used interchangeably (Merriam, 2009). Interpretivist researchers hold the epistemological belief that reality is not a singular entity that is separate from the researcher's perceptions (Lapan, Quartaroli, & Riemer, 2011) and that understandings are co-created by the respondent and the knower (Cohen et al., 2011; Denzin & Lincoln, 2003). The focus of the interpretivist paradigm is on how people understand their world and the meanings that they make from situations (O'Donoghue, 2007). Social interaction is emphasised as the starting point of knowledge (O'Donoghue, 2007). Constructivism is based on the notion that people's realities are specific to them and constructed through their experience of the situation (Guba & Lincoln, 1994). Knowledge is not 'found' by researchers. It is constructed by them (Merriam, 2009).

When compared with positivist, quantitative research, qualitative research can be considered 'soft' and undependable (Guba & Lincoln, 1994) and has been discredited by some on the grounds that it is subjective and personal (Stake, 2010). Yet these criticisms are the strengths in certain research situations, for example in education. This is because teachers' knowledge is both professional and clinical and is gained through working with others with similar training, and working with students (Stake, 2010). This "is a kind of knowledge carved out of, and shaped by, situations; knowledge that is constructed and reconstructed as we live out our stories and retell and relive them through processes of reflection" (Clandinin, 1992, p. 125).

3.2   Case study methodology

One of the important features of a case study is that it is 'bounded' (Merriam, 1988; Yin, 2014). This means that the case has boundaries; it is a phenomenon that happens within a bounded context (Cohen et al., 2011; Punch, 2013). Being bounded means that it is the unit of analysis that characterises a case study, not the topic that is being investigated (Merriam, 2009). Stake (1995) describes the unit as "an object, not a process" (p. 2).

Case studies are a widely accepted methodology in education as they can explore complex issues within specific contexts (Simons, 2009) and are commonly used to extend understanding to improve practice (Merriam, 1988). Merriam (1988) describes this kind of

design as research that focuses on "discovery, insight and understanding" (p. 3) from the viewpoint or participants and that case studies are the best option for making important contributions to educational practice. This is because case studies can provide thick, rich descriptions of complex phenomena and the interaction of people with the phenomena (Moore, Lapan & Quartaroli, 2011). . They capture the perspective, values and interests of participants and explore their actions and the influences on their actions (Simons, 2009). Simons' (2009) definition of case study methodology is that it "is an in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institution, programme or system in a 'real life' context" (p. 21).

Although there is agreement on the fundamentals of case studies, philosophical stances differ. Yin presents a methodological philosophy with a large focus on design quality related to the four conditions of reliability, external validity, internal validity and construct validity (Yin, 2009). Yazan (2015) suggests that Yin's philosophy follows the positivistic tradition. Stake's focus is on creating meaning (P. A. Brown, 2008) following a constructivist, non-deterministic epistemology (Yazan, 2015). Stake (2010) highlights the subjective experience of participants and interpretation, and the multiple perspectives of knowledge (Yazan, 2015). Merriam's (1988) philosophy is pragmatic and balanced (Brown, 2008). She too has a constructivist philosophy but her case study design is a combination of both Yin and Stake's approaches in that it has more flexibility than Yin's but less than Stake's (Yazan, 2015).

3.2.1 Descriptive case study

There are a number of different classifications and types of case studies. Yin (2014) identifies these as exploratory, descriptive and explanatory. Exploratory case studies look for patterns in the data, descriptive case studies suggest possible theories that the research questions can focus on, and explanatory case studies attempt to answer 'why or how' questions in relation to the situation or people in the study (Simons, 2009). Merriam categorises case studies as paticularistic, descriptive and heuristic (Simons, 2009). Paticularistic case studies look at a specific phenomenon, descriptive case studies seek to find thick and deep description and heuristic case studies try to develop understanding of what is being studied (Simons, 2009).

Stake focuses on the uniqueness of a case and compares completing a case study to completing a work of art in terms of its depth and uniqueness (Simons, 2009). He identifies case studies as intrinsic, instrumental and collective (Cohen et al., 2011). Moore et al. (2011) state that Stake's two classifications of the purpose of case studies, being intrinsic or instrumental are the most helpful. Intrinsic case studies can be used when the case is of primary, not secondary interest whereas instrumental cases studies use the results to develop a new way of explaining a phenomenon or to support a theory (Stake, 1995). Collective case studies are useful to explore a number of cases within the same research project (Stake, 1995).

This study is a descriptive case study as defined by Merriam (1988). Descriptive design is appropriate when the researcher aims to provide a detailed description of a phenomenon within its environment or context (Hancock & Algozzine, 2006; Merriam, 1988). The final product from such a case study is a "rich, 'thick' description" (Merriam, 2009, p. 43).

3.2.2   Multiple case study approach

It is important to be clear on the unit of analysis in a case study (Yin, 2014). This research uses a multiple case study approach. Multiple case study design uses a number of bounded cases in order to gain deeper understanding of the phenomena and can be used to look at similarities and variations between cases (Mills, Durepos, & Wiebe, 2010). As more extensive descriptions of the issues can be gained, multiple case study designs are more powerful than single-case study designs (Mills et al., 2010). In this study each polytechnic is considered as a case.

3.3   Ethical considerations

The ethical principle of 'doing no harm' is paramount when conducting research (Simons, 2009). This research was informed by the Massey University 'Code of Ethical Conduct for Research, Teaching and Evaluations involving Human Participants' and complied with the ethical principles outlined in the code: "respect for persons, minimisation of harm to participants, researchers, institutions and groups, informed and voluntary consent, respect for privacy and confidentiality, the avoidance of unnecessary deception, avoidance of

conflict of interest, social and cultural sensitivity to the age, gender, culture, religion, social class of the participants" and justice (Massey University, 2015, p. 4).

3.3.1 Minimisation of harm

Inflicting mental harm is a risk in social research (Stake, 2010). Participants may feel pressure to respond to questions, that they have limited control over how they present themselves (Flick, 2008) or they may feel judged by the researcher and fear researcher bias and interpretation.

This research was based on the perspective that relationships have primacy and that the research was conducted with participants, not on them (Simons, 2009). The interviewer was aware that participants might feel embarrassed describing their practice and having their courses examined. Participants may also have been concerned about harm to their reputation and the reputation of the institution they represent if confidentiality was breached. Interpersonal issues could also occur between participants and the researcher such as a clash of personality or disagreement about interpretation.

Establishing trust and engagement with participants was essential in this research and the development of relationship with the participants was practiced throughout the study. Participants were also offered the opportunity to debrief at end of each interview. This is important in order for the participant to describe reactions and ask questions (Sieber, 1992) and build trust. Once interviews were transcribed, participants were asked to check the interview transcripts to ensure they were an accurate record of the interview. The researcher also practiced reflexivity in order to remain aware of potential issues, kept a researcher journal to process issues and discussed any problems with her supervisors.

3.3.2 Respect for privacy and confidentiality

Confidentiality, privacy and anonymity are different from each other (Sieber, 1992). Although all attempts were made to respect participants' confidentiality, watertight confidentiality is not possible (Stake, 2010) and what the researcher may consider to be neutral may not be viewed in the same way by the participants (Christians, 2008; Guba & Lincoln, 1981; Merriam, 1988). It was intended that participants did not know who else was taking part in the research study and pseudonyms were used for participants' names.

Polytechnics were not identified and as much information as possible that may have identified particular polytechnics or tutors' disciplines was omitted. However, participants were alerted to the fact that as there are a small number of polytechnics in New Zealand, confidentiality does not guarantee anonymity. If breaches of anonymity or confidentiality had occurred during the research process, ways to minimise risk of harm would have been discussed with all participants.

Privacy relates to the establishment of boundaries (Sieber, 1992). These were established through the use of the information sheet and agreement between researcher and participant. In order not to invade participants' privacy, researchers need to demonstrate empathy and intuition to anticipate possible threats and minimize harm by not asking participants questions unrelated to the research questions (Yin, 2014).

This research involved looking at tutors' online course sites independently and in conjunction with them as part of the second interview. An important ethical consideration was whether opening tools for data collection purposes, for example to demonstrate how students used them, violated student privacy. In order to protect students' privacy, students' forum postings and tutors' responses to students in fora were not accessed. Chang and Gray (2013) comment new ethical research challenges are emerging for teaching and learning research involving Web 2.0 technology. The unique features and educational affordances of Web 2.0 technologies means that research ethics approval needs to be seen as a sequence of measures to protect students, institutions and teacher-resources when doing research on teaching and learning with Web 2.0 (Chang & Gray, 2013). This waskept in mind throughout the research process.

3.3.3 Voluntary consent

Voluntary informed consent requires a two-way process of communication between the researcher and participant on an on-going basis, as well as an agreement related to participation in the research (Sieber, 1992). There was no obligation for individuals to take part in this study and they were invited to do so and provided with an information sheet in order to enable fully informed consent. This helped outline explicit expectations of the participants which is necessary for informed consent

3.4   Research procedure

The selection of polytechnics and participants and methods of data collection used in this research study are described below. A table then summarises the main features of the polytechnics and tutors' online course designs and processes and further explanation is provided about specific courses. Data analysis methods are then described.

3.4.1   Selecting the cases

Selection of polytechnics

There are 18 polytechnics in New Zealand. Each of these polytechnics provides some form of e-learning which ranges from only providing online repositories for course resources to courses fully online. These ppolytechnics use different processes for designing/teaching online courses. Some polytechnics use centralized, specialist teams made up of content, technology and education experts to design the courses whilst others require tutors to both design and teach their courses. This multiple case study was made up of three cases with each case being a different polytechnic.

Purposeful sampling was used to select three polytechnics with a range of practice related to online course design processes. One polytechnic had a team approach to course design with the team consisting of a tutor, a teaching expert and a technical expert. The other two polytechnics required tutors to both design and teach on their courses with support from the online learning team (OLT). However, three tutors at one of these polytechnics were using courses that had initially been designed by previous colleagues. The polytechnics needed to have more than four tutors who had taught online courses in the past 18 months. At least 60% of those delivery hours needed to be online.

Initially letters were sent to Academic Deans to invite the polytechnic to take part in the research (see Invitation to polytechnics, Appendix 1). Once this was approved, additional ethics' procedures specific to that polytechnic were completed when necessary. The Academic Dean then contacted the Online Learning Team (or equivalent) manager to invite participants to take part in the research. The Online Learning Team manager distributed invitation letters from the researcher to tutors whose courses met the criteria

for participation. Polytechnics in this study are named Polytechnic A, Polytechnic B and Polytechnic C.

Selection of participants

Sample sizes need to be large enough to provide "a new and richly textured understanding of experience" (p. 183) and for data saturation, but be small enough to provide thick and rich data (Sandelowski, 1995). The first criterion when choosing a sampling plan is that it needs to take full advantage of what can be learnt (Stake, 1995). Purposeful sampling is used when the researcher requires a sample from which they can "discover, understand and gain insight" (p. 77) and therefore require a sample from which they learn the most (Merriam, 2009)

Potential participants in this study were invited to take part to ensure voluntary consent (see Invitation to participants, Appendix 2). They were informed that if they did decide to take part, they had the right to decline to answer any particular question, withdraw from the study up to the data analysis phase, ask any questions about the study at any time during participation, provide information on the understanding that their name would not be used unless they gave permission to the researcher, be given access to a summary of the project findings when it was concluded and ask for the recorder to be turned off at any time during the interviews.

A total of 12 participants were selected to take part in this study, four from each polytechnic. When selecting tutors, the study used a purposive sample plan in terms of inviting all tutors who had developed and/or taught on fully online or blended courses (with at least 60% of tutor contact hours online) in the past 18 months to take part. Only four tutors from each polytechnic volunteered. If more participants had offered to take part, those who had the highest proportion of their courses online would have been chosen and if more than four had fitted this criteria, a random selection would have been made from the potential participants. Participants were invited to ask questions prior to giving consent in order to try to provide as much information as needed for full informed consent.

Participants in this study are identified as:

>Polytechnic A – Kate, Becs, Pete and Michelle
>
>Polytechnic B – Susann, Amanda, Karolle and Jules
>
>Polytechnic C – Miles, Bryce, Lilu and Raymond

3.4.2   Methods of data collection

It is common practice to use data triangulation as one form of triangulation in case study research adding richness and verifying the importance of the issues (Simons, 2009). Triangulation provides for the cross checking of issues and examination from different angles in order to engender and strengthen evidence (Simons, 2009) and provides breadth and depth. Data triangulation enhances credibility, ensures the data is complete (Houghton, Casey, Shaw, & Murphy, 2013) and provides greater trustworthiness and validity. Data collection using different methods of data collection and from a number of sources also provides for consistency to be determined through comparison (Houghton et al., 2013) and complementarity.

This study utilised three data collection methods: a semi-structured interview with each participant, an analysis of their online course site and then a second guided semi-structured interview with the participant whilst viewing their online site with them. Field notes were made when looking at tutor's online sites.

Semi-structured interviews

Postmus (2013) describes how interviewing in qualitative research provides the researcher with the opportunity to be in the position of learner and the participant as the expert. The participant is able to describe their point of view and reality (Postmus, 2013) and the researcher can respond according to the ideas and thoughts of the participant and explore their worldview as it emerges (Merriam, 1988).

The advantages of semi-structured one-to-one interviews are that they are flexible, enable the collection of verbal and non-verbal data, and provide for both control and spontaneity (Cohen et al., 2011). They are also the best way to find out intensive information and how people interpret their world (Merriam, 1988). Semi-structured interviews are very

appropriate for case studies as they provide participants with the opportunity to describe their reality and express themselves freely (Hancock & Algozzine, 2006). Structured interviews stress rational rather than emotional responses (Punch, 2013) and unstructured interviews do not provide focus on key themes (Simons, 2009).

It is important for researchers to be aware of the issues of subjectivity in interviews and to practise reflective listening (Merriam, 1988). They should aim to keep a neutral stance with regard to the content provided by the participant. The way in which questions are worded are also of vital importance in order to gain the required information (Merriam, 1988).

This research aimed to find out participants' conceptions, and enablers and constraints to using effective online teaching principles. Therefore, it required an interview structure that encouraged participants to talk about their ideas, thoughts and feelings (Postmus, 2013). In this research, it was expected that the participants' experiences and feelings would be multi-faceted and nuanced which is why an interview structure that allowed for follow up using exploratory questions was most appropriate. Semi-structured interviews were therefore used in order to allow for some focused questions that could be used as a reminder of topics but were flexible enough to provide for open-ended, in-depth discussion (Postmus, 2013).

The first semi-structured interview with tutors was conducted using a series of initial questions or prompts with some exploration of responses to gain a deeper understanding (see Appendix 3). The second interview was also semi-structured and was conducted after the researcher had analysed the participant's online course site and took place whilst both researcher and participant were viewing the site (see Appendix 4). According to Rapley and Flick (2008), in order to gain a true understanding of document use, it needs to be examined with the participant. This is true too, when examining an online course site and is especially necessary in this research as it is tutors' conceptions of teaching and learning and the design of their online courses that are the prime focus. Documents in paper and electronic form are a central organizing device in our culture (Rapley & Flick, 2008) and how things are organized allows for insight into the essential characteristics of human culture (Prior, 2003). However, it is only by asking questions about people's work that you can "begin to understand how they are embedded in and reproduce again and again, with each moment so-called broader contexts and institutions" (Rapley & Flick, 2008, p. 97).

Data collection from online sites

When deciding whether a data source is valuable, researchers need to be sure that it contains information relevant to the research questions and if the data can be gained in a systematic and practical manner (Merriam, 1988). Course online sites meet both these criteria for this study and sites were analysed by the researcher after the first semi-structured interview in order to determine how the site related to effective online teaching principles. Analysis of the site provided documentary information but the interview with the participant described the context of the information; their understanding as to why the site was organised as it was.

3.4.3   Outline of online courses and processes

The key aspects of the design and design processes used by different polytechnics and tutors are outlined in Table 3.1. Further information about individual online courses is then provided.

Table 3.1 Tutors' courses and design processes

Courses:	Polytechnic A				Polytechnic B				Polytechnic C			
	KA	BA	PA	MA	SB	AB	KB	JB	MC	BC	LC	RC
Moodle LMS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Adobe Connect									✓		✓	
Fully online	✓	✓		✓					✓			
Blended			✓		✓	✓	✓	✓		✓	✓	✓
Designed by self with support from OLT				✓					✓	✓	✓	✓
Designed by others	✓	✓	✓									
Designed with team					✓	✓	✓	✓				
Clinical placement			✓				✓					

All participants referred to only one course during both interviews, except for Michelle from Polytechnic A, who referred to two. Michelle's courses were in essence one course run over two semesters, the first being more theoretical and the second, more practical. From 2016, this is being run as one course. For the purposes of this research, these two courses have been considered as one as this was how Michelle perceived them. They will be referred to as Module 1 and Module 2.

The interviewer was given access to two courses that each Polytechnic B tutor taught on. However, only one course was used for the purposes of this research with tutors asked which course they would prefer the interviewer to view. Courses at this polytechnic were developed using a template which meant that the process of each week's tuition followed a similar format. This was in the form of a Moodle book and included an introduction to the week's topic, some small chunks of content, activity/ies exploring the topic, further

content if students were interested and then a reminder about the face-to-face session. The use of eportfolios were also used on most tutors' courses.

At Polytechnic C, students from three different polytechnics were enrolled on Miles and Lilu's courses. Students on Bryce and Raymond's course gained the institution's qualification whilst at the same time completing modules for an external certification body. The content of their courses addressed the requirements of both qualifications.

Notation used in this research study to reference tutor interviews and tutor online course sites is as follows: To reference tutor interviews, the initial of the tutor is used first, then the letter A, B or C to identify the polytechnic. This is followed by I1 or I2 to denote whether interview one or two is being referenced. To reference field notes follow a similar pattern. The initial of the tutor is used first, then the letter A, B or C to identify the polytechnic, followed by IFN (interviewer field notes). As Michelle referred to two modules, notation used for her field notes include the numbers 1 or 2 to refer to which module she is talking about, for example MA1IFN; MA2IFN.

3.4.4   Data analysis

In qualitative research, data analysis is generally interpretive requiring a reflexive relationship between the decontextualised data and the researcher (Cohen et al., 2011). Once data has been recorded, it is divorced from the context in which it was gathered. It is therefore important for the researcher to practice self-awareness to ensure that findings relate to the data, not the researcher's biases and interests (Cohen et al., 2011).

There are a number of methods to analyse data which share similar characteristics. The Miles and Huberman framework (Miles, Huberman, & Saldaña, 2014) was used for analysis in this study, using the programme NVivo in order to reduce and display the data and then draw inferences and conclusions. From interview transcriptions, themes and patterns were identified, then coded and memoed and concepts identified. Miles, Huberman and Saldaña (2014) identify many kinds of coding that can be used for first cycle coding such as elemental, affective and exploratory methods. From these, patterns can be established to create smaller units using pattern codes for second cycle coding (Miles et al., 2014; Punch, 2013). Memos are used throughout the process to comment on the codes. These

comments can be personal, theoretical or methodological but they must be more than descriptive of the data (Punch, 2013) and provide the researcher with the opportunity to find higher-level analysis meanings (Miles et al., 2014).

3.5   Credibility, transferability, dependability and confirmability

The trustworthiness of qualitative research is determined by credibility, transferability, dependability and confirmability (Lincoln & Guba, 1985). These are examined below with reference to this research study.

3.5.1   Credibility

Credibility refers to the researcher ensuring that they have represented the "multiple constructed realities" of the participants adequately (Lincoln & Guba, 1985, p. 295). There are a number of ways to meet the criteria for credibility. These include persistent observation, triangulation, external checking of the enquiry process and checking findings with the participants (Lincoln & Guba, 1985). Persistent observation provides "salience" (p.104) to a research study in that it enables the researcher to identify and focus on the aspects of the study that are most relevant (Lincoln & Guba, 1985).

There are four modes of triangulation suggested by Denzin (2006). These are data triangulation, methodological triangulation, investigator triangulation and theoretical triangulation. An additional 'multiple triangulation' is also suggested by Denzin which is the combination of the other modes in one investigation. Source triangulation involves collecting evidence from a number of sources to encourage "convergent lines of inquiry" during the data collection stage (Rapley & Flick, 2008, p. 97) (Yin, 2009). This mode also includes collecting a number of copies of one kind of source, for example the interviewing of participants (Lincoln & Guba, 1985). Diesing (1971) describes that this mode also relates to comparing information from one source of information with other information about that source. This locates "the characteristic pattern of distortion in a source" (p.148). Method triangulation involves different modes of collecting data and participant triangulation involves the use of a number of investigators (Lincoln & Guba, 1985). Lincoln and Guba suggest that the use of multiple theories is not appropriate for naturalistic research.

This research provided credibility through persistent observation in two in-depth interviews with participants. These interviews contributed to source triangulation. Three different methods of collecting data were used: semi-structured interviews and analysis of the participants' online sites, and another semi-structured interview with the participant while viewing their online site.

Further credibility was provided by requesting that participants read transcripts of their interviews to ensure they were an accurate record of the interview. This process is vital in qualitative research (Maxwell, 2002). Qualitative research requires analysing and interpreting people's actions, thoughts and feelings in order to gain understanding. Confirmation that transcripts are accurate records of interviews is important as the researcher is with the participant for a very short time and may miss aspects that were not discussed in the interview (Maxwell, 2002) or view a distorted picture of a moment in time (Yin, 2009). Participant information could also be different in other situations (Simons, 2009) and for all these reasons, false inferences can be made. Additionally, the researcher kept a "chain of evidence" (p. 122) as suggested by Yin (2009). Keeping a chain of evidence means that an observer is able to trace all the steps taken in collecting, analysing and recording the data (Yin, 2009). External checking of the enquiry process was through the use of two supervisors.

3.5.2   Transferability

In its strict sense, transferability is not possible in naturalistic research (Lincoln & Guba, 1985). The best a researcher can aim for is to provide thick description in order than other researchers can determine the likelihood of transferability within their context (Lincoln & Guba, 1985). Thick description in this sense requires that the setting and participants are described with sufficient evidence, for example, participant quotes and field documents, and findings need to be well detailed (Merriam, 2009). This research study aims to provide a rich description.

3.5.3   Dependability

Dependability or consistency is an important aspect of trustworthiness in qualitative

research (Cohen et al., 2011; Merriam, 1988). This research ensured results were dependable through clear description of assumptions and process, triangulation and a clear audit trail in the form of a chain of evidence. This chain of evidence included raw data in the form of recordings of participant interviews and transcriptions. A researcher diary was used to record meeting arrangement data (who, where, when) as well as personal notes, thoughts and observations related to the research process. It also recorded summaries of supervisor meetings. The Miles and Huberman (Miles et al., 2014) data analysis framework in NVivo coded themes and patterns as they were identified.

3.5.4 Confirmability

In qualitative research, confirmability is equivalent to objectivity in quantitative research (Lincoln & Guba, 1985). In order for researchers to achieve confirmability, they need to ensure that their findings have emerged from the data, not their own attitudes (Shenton, 2004). Three ways for establishing confirmability are through an audit trail, triangulation and the use of a reflexive journal (Lincoln & Guba, 1985).

Researchers need to have an awareness of the impact of their values and beliefs on the research process and ensure their subjectivity is disciplined and monitored (Simons, 2009). Before the start of the research process, the researcher recorded her assumptions and biases in the researcher diary. Through these and the supervision process, the effects of these biases were minimised. A chain of evidence and triangulation as described above was also used to ensure confirmability.

3.6 Conclusion

This qualitative study comes from interpretive/constructivist perspective in order to attempt to understand the worlds of the participants within the study; their conceptions and practice in relation to teaching online. The descriptive case study design aims to find rich description of participants' conceptions and practice using a multiple case study approach involving twelve participants from three different New Zealand polytechnics.

4 FINDINGS

Findings are reported according to the three research questions for this study. The first question explores tutors' conceptions of learning, the role of the online tutor, and how these conceptions relate to the design and/or teaching of their online courses. The second question identifies how tutors' online courses align with principles of effective online teaching. These principles have been synthesised from the research (see Appendix 5). The enablers and constraints that influenced tutors in using effective online teaching principles are explored in question three. Findings for each polytechnic are discussed in order of Polytechnic A, B and C for the first two research questions but findings related to enablers and constraints to effective online course design are presented in a more integrated manner.

4.1 Question 1:

What is the relationship between tutors' conceptions of teaching and learning and the design/teaching of the online component of their courses?

The major finding related to tutors' conceptions of learning is that interactivity with content information, between students and with the tutor was necessary for learning. The design and teaching of the online component of tutors' courses demonstrated this understanding to different degrees. These findings will now be outlined in more detail.

4.1.1 Interactivity with content

All tutors from Polytechnic A described their belief that people need to interact with content through activities in order to learn and this was reflected in their online sites. The conception that interactivity should be in authentic situations was emphasised and that it was important for students to construct knowledge by actually doing the task. Pete commented, "If you can you know … do a skill or put your knowledge into practice, or put it into a scenario a real life scenario then it just sort of brings it to life" (PAI1). There was also a clear view that baseline knowledge was a prerequisite in order to apply theory into practice. Michelle explained that she believed students need "the basics of knowledge of certain aspects" (MAI1) before attempting practice. An additional comment made by Pete related to the link between putting theory into practice in authentic situations and the

learner connecting with the knowledge. After describing his conception of experiential learning he commented, "so I think you know … someone can actually connect with that knowledge and relate to it in a way that suits their own learning style, and experience, personal styles of communication and understanding" (PAI1).

In describing their online course sites, these tutors explained how content information was provided through explanation in the form of tutor text, video and links to external sites. There were a variety of interactive activities that tutors described using in their online teaching to reinforce or get learners to interact with new information including short answers, crosswords, multi-choice, research, creating questions, drag-and-drop exercises and responding to fora. On viewing tutors sites and discussing their sites with them, almost all tutors' conceptions aligned with their course design and teaching. When looking at Kate's site with her, she commented, "so they're asked particular questions. They read … they're asked questions about it and they are responding" (KAI2). Field notes from Becs' site state, "Content – questions - response development - a posting – response to other students" (BAIFN).

The concept of constructing knowledge through engagement in authentic tasks was a particular feature of Becs and Kate's course design and teaching, and on Michelle's Module 2. The entire context of Becs, Kate sites and Michelle's Module 2 were based around the development of a final authentic product described in their course outlines and assessment information. Field notes from Kate's course state, "Course outline – 4 week modules. Weeks 1 & 2 content/activities. Week 3 – content/work development Week 4 – workshopping of work in fora with feedback from other students. Final product part of portfolio for assessment" (KAIFN).

Pete had talked about the importance of using authentic situations in his online courses, describing questions based on a video scenario that students needed to respond to. However the example he gave was not evident on his course. When asked about this, he commented, "Those scenario based questions do tend to be more in the first semester paper than the second semester paper" (PAI2).

The conception that people learn through interactive engagement with content through activities was also a major theme in the findings from Polytechnic B with tutor sites clearly

demonstrating this understanding. Most tutors believed that learners expand competency by interactive engagement with content. Related to this was the importance of interactive activities that enabled students to make meaning for knowledge construction. This was mentioned by both Jules and Susanna. Jules used the term "little coat hooks in the brain" (JBI1; JBI2) and Susanna commented: "I think they learn when they can see themselves mirrored somewhere in the concepts or the ideas or the experiences, so you know if what they're being introduced … there's nothing that they can hang it on, to kind of interpret it, then they're not going to get it you know" (SBI1).

Karolle, whose course included a practicum, commented, "I've been very conscious of providing the theory and exploring the theory but making it very practical based and workplace orientated" (KBI1). Two tutors clearly articulated that they think that learning is a process, which needs to include interactivity. Jules explained this in terms of the experiential learning cycle. "So it's that real experiential learning cycle that you actually need to have an experience, you need to have feedback, you need to have reflection and then what will I do differently next time?"(JBI2).

A learning process, using an institutional template was evident on all tutors' courses. Each course was divided into modules with a Moodle 'book' for each module. The module began with a short introduction about the subject and then a number activities with most of the content information included as part of the activity. Students were asked questions to reflect on and research. They were also required to engage with readings, diagrams, graphs or videos and then complete some activity such as quizzes, scenarios, surveys, research, fora responses, group work, and eportfolios.The overview of this template in interviewer field notes states, "Themed modules in Moodle 'books': Short content introduction - activities (1 or 2) - explore more" (KBIFN; JBIFN: SBIFN; ABIF). An example from Amanda's course from field notes records, "Activity: short introduction – research activity - answer questions related to topic from research findings (in table) - post in Padlet[1] notes" (ABIFN). Jules and Susanna's sites included a series of learning tasks that illustrated their conceptions of interactivity within the experiential learning cycle, the importance of students making meaning and collaborating in knowledge construction. One of Jules' activities was "video - collaboration on a group portfolio page to answer questions related to video - sharing page with another group - posting feedback to another group

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[1]   An online form of 'sticky notes' that can be used for collaboration.

related to specific questions such as how easy it was to understand the information they'd presented" (JBIFN).

The tutors from the third polytechnic, Polytechnic C also described the conception that people learn through interacting with activities. However, this was not identified as often or in as much detail as tutors from Polytechnics A and B and there were generally fewer activities on online course sites. Three of these tutors' courses were blended, with most of the activities in the face-to-face sessions. Lilu explained that because of the practical nature of her subject, she introduced face-to-face projects so that her students had: "to engage with that project they have to do that … And when they're talking to the students, talking to each other that's one thing and the other thing is the main thing is they are learning by doing things" (LCI1).

Bryce had put effort into making much of his online course based on an authentic environment in the form of a story. He commented:

> So a bit of variety does help. I have tried to build that into the theory subjects. They are all slightly different in the way I go about each one. And they are not all research reports or all quizzes. It is giving them something different to do each one as much as possible. (BCI2)

Most of the content on Lilu and Miles' course was presented through Adobe Connect in the form of lectures or through students presenting their assignments with some discussion and quizzes. The recorded lectures were evident on the sites but not the quizzes. Quizzes were evident on Raymond's site and Bryce's scenario included a variety of activities related to content and assessment. An example of one of Bryce's activities was "Moodle book with 10 short chapters of content information - students need to complete template with information from provided url - submit as part of assessment" (BCIFN).

4.1.2   Interactivity between students

Interaction with other people, primarily other students, was also found to be a major finding underpinning all tutors conceptions of learning described by all tutors. This was demonstrated in the design and teaching of the online component of tutors' courses from Polytechnics A and B but not Polytechnic C where the tutors were doubtful that was possible in an online environment.

Interaction between students seemed to be an important conception of learning of tutors from Polytechnic A but generally it was implied through their description of their teaching rather than explicitly stated. Primarily, the interaction described by the tutors related to student-to-student interaction, although tutor-student interaction was mentioned. This included student collaboration and students and the tutor providing feedback on how well students had done the task as well as feedback on the process they had used to do the task.)Becs commented:

> Becs: I put them in to smaller groups. So then they are working more intensely giving feedback and stuff in a more manageable size group and then from there when we get down to the big project which take a lot more time they are partnered and so they are then working kind of one on one plus me to each of them as well.
>
> Interviewer: Giving feedback?
>
> Becs: Yeah giving feedback and spending more time sort of analysing the work and things like that. (BAI1)

On viewing tutors' sites, it was evident that engagement between students in fora was stated as a strong expectation on all tutors' sites (BAIFN: KAIFN; PAIFN; MA1IFN; MA2IFN). Kate's feedback guidelines were related to the tasks students helping each other "improve "their work and guidelines for writing assignments suggested that feedback comment include "areas for development" (KAIFN). When looking at Kate's site with her, she pointed to a forum where students were expected to give peer feedback. "So, yeah, you'll be able to see here that they will post, so this is an exercise that she's posted. And then we are all responding to her and giving her feedback" (KAI2).

The main learning activity on Michelle's Module 2 required interaction and collaboration with other students as demonstrated by the activity brief. "Work together on… to agree on …in a forum - send brief to tutor - individual students use agreed concepts to develop task - swap task with partner for comment - submit task with partner comments to tutor "(MA2IFN).

Interaction between students the most important conception of learning mentioned by all tutors from Polytechnic B. These tutors also placed greater emphasis on collaboration between students and on building community than was mentioned by tutors from the other polytechnics. When it came to building community, Karolle wanted students "to see themselves as a community, to see themselves as responsible for each other's learning" (KBI1).

Activities requiring interaction between students were clearly evident on most tutors' sites. Fora were also widely used as a mechanism for interaction with evidence of the inclusion on all tutors' sites. An example from field notes related to an activity on Susanna's course was, "Watch one of 5 videos provided - summarise video - comment on students' summaries of other videos - read article on topic - review summary - rewrite post on individual eportfolio page for tutor comment" (SBIFN). It was noted that specific instructions were often given to students in terms of whether it was feedback on the process of the task or completing the requirements of the task that they were expected to provide when commenting on other students' postings in Jules and Susanna's fora. Pair or group activities were major aspects of Jules and Susanna's courses where students were required to work together in collaboration. For example, one of Jules' activities required students to "Individually identify and explain an issue related to topic in forum - group choose one of the issues after agreeing how decision will be made - group develop presentation for next face-to-face class" (JBIFN).

Interaction between students was deemed important for learning by tutors from Polytechnic C. However, the tutors did not expand on this conception as other tutors had and seemed to have concerns about how students could work together in the online environment. The only forms of student interaction included in the online portion of courses were student presentations of their assessments to their groups on Miles and Lilu's

courses, and a group assessment activity on Bryce's course identified by the interviewer in assessment information. Bryce had not mentioned this activity during the interviews.

4.1.3   Interactivity between tutor and students

Conceptions of the role of the tutor and conceptions of learning aligned for tutors from Polytechnic A and B's. This corresponded with their practice through the process of the tutor interacting with students and building relationship. In contrast, there was limited alignment between Polytechnic C tutors' conceptions of how people learn and their conceptions of the role of the tutor. The provision of content seemed to be the most important role described by these tutors and this aligned with how they designed their courses.

The role of the online tutor described by tutors from Polytechnic A included keeping students informed about activities and expectations, building relationships, monitoring student engagement, pastoral care and addressing different learning needs. Although not all of these roles included interactivity between student and tutor, tutors believed that communication was an important part of interactivity. Pete commented:

> Communication is what really clinches it, and yeah you often find that they don't care so much about what you teach or how you teach, so long as you maintain good communication with them, and that they feel involved and informed, and supported. (PAI1)

All tutors monitored their students' online engagement closely and made individual contact with students who were not participating sufficiently in activities or not providing enough information. Pete, Kate and Michelle described the importance of providing pastoral care for their students. Michelle described the on-going contact she has with students:

> I ring all of them up at least a couple of times during each semester to touch base personally with them if we can or we Skype, so, I see myself as in there with them rather than over the top of them. (MAI1).

Two of the tutors believed that the tutor providing formative feedback was important. Although Pete thought that giving feedback was important, he had difficulty giving individual feedback due to the number of students on his course. The role of mentor was particularly important to Michelle who related this to an apprenticeship model which she used in Module 2. She commented:

> [I tell students] I want to see application of what you are learning in your actual … work. And then I come along and respond and give them feedback on their … work, as would be the case in [the industry]. So I think those feedback loops … are particularly important to them. (MAI1)

On viewing tutors' sites, it was apparent that all tutors posted weekly updates on 'course announcement' fora although Michelle and Kate had not mentioned the use of fora for this purpose. Pete and Michelle also used this post to recap on what had just been covered and Pete's videos were an obvious feature on his site. The videos showed Pete in the corner of the screen explaining the focus and tasks for the next week while the larger screen showed his Moodle site scrolling through activities for the week. Pete's tone was engaging and encouraging. This use of fora to provide tutor feedback was evident on Kate, Michelle and Becs' sites although the feedback itself was not accessed by this researcher in order to protect students' privacy. The feedback loop Michelle had described therefore could not be viewed either. Interviewer field notes related to Michelle's Module 2 states, "Course outline explains when work needs to be submitted for formative feedback" (MA2IFN). The warm, supportive tone of tutors' weekly updates showed tutors' intentions to build relationship (MA1IFN; MA2IFN: PAIFN: KAIFN; BAIFN). Other interactions that built relationship and provided pastoral care could not be evidenced as this happened individually between tutor and students.

Similar to the conceptions of tutors from Polytechnic A, tutors from Polytechnic B had a clear conception of the importance of tutor interaction with students and building relationships. As Susanna described it "to keep … the connection, the flow and to try and make it interesting for people to engage" (SBI1). Aspects of tutor interaction with students included monitoring students, making contact if they were not engaging, providing tutorial support and addressing different learning needs. The importance of giving feedback on

both the process of the task and meeting the requirements of the task was described by all tutors. In explaining this, Amanda said:

> I would then go on and say, 'that's really good thinking or really good work', (if it is good work, that is) or 'have you also thought about this part, you might have missed this information' or 'how do you think this relates to … ' and then I might also add a bit of an extension like, 'reflecting on the … competency' - I might ask a specific question related to that. (ABI2)

A very important role for most of the tutors was building relationships. Jules talked about "using that kind of social constructivist model as the context of where they're learning is as important as what they're learning" (JBI1). Her practice ensured that she worked "particularly around making sure that there are Maori principles woven throughout. I work from a Treaty based model, so I create space for whanaungatanga[2]; for people to get to know each other" (JBI1). Susanna made a similar comment:

> I think to really build a community, you know to get those relationships, to get the whakawhanaungatanga happening, so that people feel safe to engage online, because I think it's really, you know that is the first step is creating that community. (SBI1)

It was not possible to evidence the individual tutor-student interaction as much of this took place in the face-to-face portion of the course or though interaction on student eportfolio pages. Instructions on some tutors' sites described that feedback would be given. Jules' course began with group activities where students were required to share aspects of themselves with their group and instructions aimed at building a community were evident. Interviewer field notes commenting on one of Jules' activities state "Activity 1a - 'who am I' - activity 1b in groups 'who are we as group?' - Name group and discuss values - As group prepare presentation to introduce group to rest" (JCIFN).

Although all tutors from Polytechnic C described the tutor roles of engaging students and addressing different learning needs, the most important tutor role discussed was ensuring students had the necessary content to meet the learning outcomes and assessment requirements. Tutors did make some comments about tutors interacting with students with

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[2] Building relationship

Miles commenting that students "do have an expectation that the tutor will be of assistance anyway and will guide them through the course I think" (MCI1), and Lilu commented that she thought it was important "to keep the link between me and the student and I understand that they are doing the work and they get my message as well" (LBI1). This could not be evidenced by viewing tutors' sites.

4.2   Question 2.

How does design/teaching of the online component of tutors' courses align with principles of effective online teaching?

The findings in response to this question were that tutors' courses from two of the three polytechnics' aligned with most of the effective learning principles (Appendix 5) However, there was little evidence on most tutor's sites that courses aligned with two of principles: course design and teaching that promoted interaction with a larger learning environment/community and course design that was facilitated in a manner that promoted student ownership of the learning process.

These findings refer to evidence gained by reviewing tutors' sites, supported by the description of their course design and teaching, in relation to the effective teaching principles identified in the literature review. Not all the principles discussed in the literature review are included as those that cannot be judged are omitted specifically the effective online learning principles of taking and taking account of prior knowledge and using strategies that enable students to construct knowledge and integrate it into existing schema.

Table 4.1 synthesises the information gained from tutor interviews and looking at tutors' sites. Where 'some' is stated, this principle is evident but limited. This means that the principle may be used but not consistently throughout the course. Not evident (n.e.) relates to effective online learning principles not being evident from viewing the course.

Table 4.1 Alignment of course design/teaching with effective teaching principles

Effective online teaching principles:	Polytechnic A				Polytechnic B				Polytechnic C			
	Kate	Becs	Pete	Mich	Susa	Ama	Karo	Jule	Mile	Bryce	Lilu	Ray
Scaffolds learning	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	n.e	Yes	n.e	Yes
'Chunks' content and tasks into appropriate size pieces - less to more complex	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	n.e.	Yes	n.e.	Yes
Alignment between LOs content/activity and assessment	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Uses activities that promote active learning	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Some	Yes	Some	Some
Promotes interaction with content to construct knowledge	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Some	Yes	Some	n.e.
Promotes interaction between peers and tutor	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Some	Some	Some	n.e.
Promotes knowledge construction through collaboration with peers and tutor	n.e.	n.e.	Yes	Yes	Yes	Yes	Yes	Yes	n.e.	Some	n.e.	n.e.
Provides opportunity for formative feedback from tutor/peers	Yes	Yes	n.e.	Yes	Yes	Yes	Yes	Yes	Some	n.e.	n.e.	n.e.
Demonstrates a process that interweaves principles	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	n.e.	n.e.	n.e.	n.e.
Promotes interaction with a larger learning environment/community	n.e.	n.e.	n.e.	Yes	n.e.	n.e.	Yes	n.e.	n.e.	Some	n.e.	n.e.
Facilitated in a manner that promotes student ownership of learning	n.e.	n.e.	n.e.	Yes	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.	n.e.

From the table it can be seen that Polytechnic A and B's course design and teaching aligned with most of the identified effective learning principles other than the last two principles. There was evidence of only some alignment with course sites from Polytechnic C and these principles.

When interviewed, tutors from Polytechnic A had a good understanding of these concepts and the use of these principles were evident when reviewing their courses. Course content was chunked into small pieces of information and there was evidence of content being scaffolded from simple to more complex and a logical progression in terms of content and activities. Michelle designed her courses in "bite-sized" pieces with a logical progression "from the less difficult to the more difficult" (MAI1). Field notes from Michelle's Module 1 state "Small chunks content. Activity – quiz. Activity – scenario with question – post responses on forum" (MA1IFN). The development of an authentic final product through scaffolding of smaller authentic tasks with feedback from other students and the tutor was a major feature throughout these courses. Pete commented:

> I like how each week builds on the previous week, so rather than just sitting isolated in little blocks or learning, as I say, they build on one another and they can relate it back to one another… so there is a certain amount of review from one week to the next. (PAI2)

The template model used for all online courses by Polytechnic B provided for many of these principles to be built into the courses and a structured learning approach was evident on all tutors' courses. Generally, this format included a brief introduction to the subject, expansion of the subject with a small amount of content, activities that required students to read, analyse, watch, research, write, collaborate or develop a project. Often reflection was required in eportfolios and the face-to-face classes were included in this process in terms of consolidation and more discussion. When discussing this process, many of the tutors mentioned a missing step which was comprehension prior to application.

It was interesting to note that Jules and Susanna's sites in particular demonstrated evidence of a structured process using interweaving principles. Activities often required reflection, the input of content, individual or group processing, (much of it collaborative) and consolidation in the form of a final product. Field notes from Susanna's course records

stages in an activity. "In a group, each choose a different theoretical model - summarise on group page - comment on each other's summaries - reflect on models in group forum - comment on 2 peers' posts - use model to analyse a video - include information in draft for assessment - post writing on 'working page' for tutor feedback" (SBIFN). Jules demonstrated her understanding of course design that promoted interaction with content to construct knowledge with the following comment: "I try to ask them for their own experiences … Try and draw out from them as much of their personal story and then find ways of linking it into literature" (JBI1).

Some alignment with effective online teaching principles was evident primarily on Bryce and Raymond's sites from Polytechnic C. Lilu and Miles' sites generally only had recorded Adobe Connect lectures or links to other information. Each topic in the first part of Bryce's online course had activities which followed "bite-sized" (BBI1) pieces of information, often with colour and pictures. These activities were all within the context of the authentic environment he had developed and included 'drag and drops', a questionnaire, reports and a group activity and were scaffolded from simple to complex. Raymond's content was also in the form of short chunks and often included pictures or photographs. He also included quizzes on his courses. The only evidence of interaction between students on Lilu and Miles' courses were assessment instructions that outlined student presentations to the group and the recorded Adobe Connect sessions.

In the interviews, all tutors had demonstrated a clear understanding of constructive alignment and alignment between learning outcomes, assessment and activities was evidenced on tutors' courses from all polytechnics. However, the interviewer is aware that judgement as to whether in fact courses are constructively aligned requires a greater knowledge of the teaching and learning processes used within the courses than was possible in this research study. However, Susanna's comment below illustrates the process that was used by Polytechnic B for course design:

We've been able to think very carefully about the fit of how all the pieces fit together, so the learning outcomes, the assessment, the online activities and the class time. So basically we sort of started with our learning outcomes, and we were also given the scope to sort of review our learning outcomes, to make sure that they made sense and were clear, and could be sort of both broad and specific enough to cover, to

achieve the course aim, and then from those learning outcomes, assessment were then developed, so there's a very strong tie in between the assessments and the learning outcomes, and then the … learning material drops out of that. (SBI1)

Although learning outcomes were not displayed on Kate and Becs' courses (Polytechnic A), they had described what the learning outcomes were in the interviews. In addition to constructive alignment, other than Pete, (Polytechnic A) Amanda (Polytechnic B)) and Raymond's (Polytechnic C) courses, many course activities were part of the assessments. An example of this recorded in field notes from Karolle's (Polytechnic B) course is "Instructions Activity 2 state the activity will contribute to LOs 1 and 2 and help with presentation assessment and portfolio" (KBIFN).

The effective teaching principle of interaction with a larger learning environment/community was evidenced in some way on Miles (Polytechnic C) course and on Karolle's (Polytechnic B), and Michelle's (Polytechnic A) courses. Miles included an assessment based on an audit for students to do at home or work. The second and third module of Karolle's course were based on developing a portfolio of evidence related to students' experiences in their practicums. Field notes from Karolle's course state, "Module 3 complete journal entry commenting on practicum experience that week - choose competency from Module 2 related to reflection to build knowledge - post comment on forum - provide peer feedback to 2 peers - post to eportfolio" (KBIFN).

Michelle's (Polytehcnic A) Module 2 was the only course facilitated in a manner that promoted student ownership of the learning process. Students developed an aspect of the work that was of particular interest to them in a special project and determined what they would like to be evaluated on. "So, that learning is not directed by me; it's very much directed by them, although in consultation with me" (MAI2). The learning outcomes for this part of the course were:

quite fluid – it's not a situation where there are right or wrong answers – it's a situation where you analyse a problem … and you then effect … what seems to be the best solution. I then assess the strength of that solution; whether I think it works well or not, is appropriate or not. (MAI1)

4.3   Question 3:

What are the enablers and constraints that influence tutors in the use of effective online teaching principles?

Having explored how tutors' conceptions of teaching and learning correspond with the design/teaching of their online courses, and how these courses align with effective online teaching principles, this last section looks the enablers and barriers to tutors using effective online teaching principles. The major findings in this section were that formal and informal training, a team approach to course development, support from the institutions' online team, and peer support were enablers to tutors adopting effective online teaching principles. The major barriers identified were lack of time, lack of sufficient knowledge and institutional constraints.

4.3.1   Enablers

4.3.1.1 Attitude to teaching online

The attitudes tutors expressed about teaching online appeared to be enablers to them embracing online teaching with none of them demonstrating lack of confidence to teach online. Polytechnic A tutors were the most positive with Polytechnic B tutors expressing mixed feelings, and Polytechnic C tutors showing a more mixed stance with some concern about whether teaching online was best for their subjects.

All tutors from Polytechnic A felt very positive about teaching online. Two of them commented that it was less pressured and they liked the flexibility it gave students, enabling them to study no matter where they lived and at times that suited them. Kate's comment is an example of the kind of attitude participants' expressed "I find that there are kind of new challenges and it's hugely rewarding. I really, really enjoy the process of working online and getting to know students on that kind of platform" (KAI1).

Tutors from Polytechnic B had mixed feelings about teaching online but could see the importance of online learning and the flexibility it provided students. Their doubts generally related to the novelty of teaching online, their own lack of knowledge and the

related frustrations. However, they all were prepared to be open-minded in embracing the challenge. This attitude is captured in Jules' comment:

> I was a bit sceptical about how it would work and I thought, 'you can't really be sceptical about something that you don't know. … If this is the way that education is going, I better figure it out. (JBI1)

Although Polytechnic C tutors commented on the flexibility online learning provided students and could see that it was the way of the future, there was some concern about what could not be done online for their particular subjects.

4.3.1.2 Formal and informal professional development

Formal and informal professional development, particularly aspects related to teaching online, were identified as being beneficial for teaching effectively online by tutors from all three polytechnics.

Tutors' formal training in teaching/education is outlined in the table below. To maintain tutor confidentiality, the table groups training according to the polytechnic rather than in relation to the individual tutor.

Table 4.2 Formal training in teaching/education

Polytechnic A	2 tutors no formal training 1 tutor Hons. Degree in Education 1 tutor short course on Educational Practice
Polytechnic B	1 tutor Diploma in Tertiary Education 1 tutor Grad. Cert in Higher Education and presently completing Masters in Education 1 tutor no formal training 1 tutor Certificate in Tertiary Education
Polytechnic C	1 tutor four week teaching course and presently studying on a post-grad certificate in higher education 1 tutor 16 week tertiary teaching course and teaching-related Post Graduate Diploma 1 tutor Tertiary teaching course 1 tutor Tertiary Teaching Diploma

As can be seen from the table, tutors had a variety of training and qualifications. Most tutors from Polytechnic B had qualifications in education whereas most of the tutors from Polytechnic C had qualifications or training in tertiary teaching. Only two tutors from Polytechnic A had training or qualifications in teaching or education.

When it came to qualifications in tertiary teaching, Raymond, from Polytechnic C talked about the benefits of completing a diploma.

> I didn't get the principles of how you design e-learning. I only got that toward the end of my [adult teaching diploma] course and this is like, you know, two years later. So in saying that I had been practising some of it correctly because I applied the logic and in saying that … I had also been designing incorrectly because I didn't know the principles of it. … So I learned about them [the principles] in hindsight, and now I am better able to design the course … now as we go into a new course. (RC11)

When asked what helped her develop the knowledge she needed to teach online, Michelle responded:

> My degree was in education … and I have focused very much on education during my … career … so I think I have a pretty good understanding of educational principles and practice and I just did a lot of reading myself in regard to on-line learning so I think there was an in-play of both of those, plus just the actual experiences doing it and having students reacting to it. (MAI1)

None of the tutors had formal qualifications in teaching online although most had attended some informal training through workshops, mostly in-house. Tutors at Polytechnic B had on-going professional development offered by the organisation some of which related to teaching online whereas workshops at the other two polytechnics were more casual and less frequent.

Tutors also mentioned informal ways that had enabled them to develop the knowledge they needed. These included reflection, student feedback, research and trial and error. Four tutors (three of them from Polytechnic A) had studied online themselves which all described as very helpful in informing their practice. Often, as described in Michelle's

earlier quote, it was the interplay between these experiences which had contributed towards tutors' knowledge development.

4.3.1.3 Support in course design

The benefit of working with a centralised specialist team consisting of a tutor, technical expert and teaching expert was described as being immensely beneficial by all tutors from Polytechnic B. This team continued to give support and help once the courses were running. Amanda and Susanna particularly talked how about how useful it was having technical experts to do the technical work and that the template used for all Moodle courses enabled good practice.

> It does work really well and it's been a really big relief, … to take the, the pressure off of you know going, oh look I don't want to be fiddling around in Moodle trying to embed a video, you know like that kind of thing would take me hours … it also really helped having the templates there. (SBI1)

Three of the courses from Polytechnic B had been designed by previous tutors. Kate and Becs both described how well these had been developed with Kate commenting:

> She did such a beautiful job and they are quite old now and every now and then I look at them and think I wonder if we need to update them but they're so, they fit together, everything fits together so beautifully I kind of don't, I don't want to do anything to upset the apple cart. It feels like it's actually just functioning really well. (KAI2)

The institutions' OLT were mentioned by all participants from Polytechnics A and C as a source of help and guidance although it wasn't always clear to what extent this related to using effective online teaching principles or technical issues. However, Michelle from Polytechnic A did comment when describing training from the OLT that, "[They] were trying to push us away from the idea that you are replicating a face to face task on-line" (MAI1).

4.3.1.4 Peer support

Support from peers in sharing ideas and practice was found to be very helpful in the design and teaching of online courses for tutors from Polytechnics A and B. Becs from Polytechnic A commented:

> Again you know using the resources of the other online tutors who you know some of them have an educational background as well as [the professional] … background that they need to teach their course and so that's quite cool. … The openness really works you know and whether it's that I am talking to the head of the school or another tutor and I can say hey this is going on, any ideas? And we can have a conversation about it. (BAI1)

Susanna from Polytechnic B described how beneficial this peer support was in the development of the programme.

> I enjoy bouncing ideas off other people, and so to have some people around me to go, I'm thinking about doing this does this work, and then the no or yeah that sounds a really good idea but you could make it better by doing this, you know so having that team thinking has really helped. (SBI1)

4.3.2 Constraints

Tutors' lack of sufficient knowledge, lack of time, and institutional issues such as institutional directives and technical issues were constrained tutors in the use of effective online teaching principles.

4.3.2.1 Lack of knowledge

Lack of knowledge about different aspects of online teaching was a major constraint mentioned by most tutors. They were concerned about their lack of skill and knowledge in online teaching. As Amanda stated, "So I don't feel like I have the skills to fully utilise every aspect of online possibility"(ABI1). Tutors were clear about the kind of training they needed.

I think in particular an opportunity to talk with other people who have developed on-line courses. … I know a lot of on-line courses have very minimal content on them but this one is very information-rich and I would find it valuable to have tuition in just how valid a learning methodology that really is if it is appropriate for this type of course, or this type of learning content. And if it is, what other people have done in that respect. So I think it would be the training I would most benefit from is really just talking with other people who are doing it. (MB11)

All tutors from Polytechnics A and B talked about lack of student participation in fora and wanted to know how to manage this better and develop more skill in facilitating fora. Kate commented:

But, and you know, I do have those kind of wider questions about whether there is a better way of managing student participation. That feels like the greatest challenge for me with teaching online and everything else about it I just love and find incredibly rewarding. So, that's kind of the one area that I feel like I haven't quite found the golden key to yet. (KAI1)

Not having enough knowledge in online teaching was mentioned by Robert and Lilu from Polytechnic C. Lilu commented "I just started teaching the same way I teach my students in the classroom" (LCI1). When Robert first developed the course, he had no teaching experience. A strong comment he made was that there was no one who could help him develop his knowledge about teaching and online teaching.

There's no wealth of experience for me to look in to. It would be good if there was somebody who tells me what they are doing in their on-line course and how it actually reflects back into the principles – and then helps me analyse mine. (RCI2)

He described the need for a scaffolded approach for his development. "So basically if somebody sees ahead for me and says okay, you are now ready to move into this stage" (RCI1). Although he had developed knowledge of teaching online and blended learning, he did not have them when he designed his course.

4.3.2.2 Lack of time

Lack of time was a major constraint mentioned by 11 out of the 12 tutors involved in this study. Two tutors from Polytechnic A mentioned that having to be self-employed in their industries as well as teach meant they did not have sufficient time. For Michelle, this meant that she could not develop more resources such as "interviews or podcasts or something with experienced people in the profession" (MAI2).

Lack of time was mentioned by all tutors from Polytechnic B. Although two tutors had mentioned that initial allocated time for course development had been helpful, there were general concerns about insufficient on-going time allocation. A concern of Jules was that the timeframes tutors were expected to work in were insufficient for a new model of instruction. Karolle made a similar comment: that it was "run and learn as you go" (KBI1). Time was a constraint for Amanda in developing the knowledge and skills she needed and Susanna talked about the time requirements for teaching online:

> I think there's sometimes an assumption that doing, you know using blended and online models, that it requires less tutor time, but actually I think it requires more because it's not just having to prepare and teach class, there's that plus you know giving feedback to potentially 30 students and checking 30 lots of activities, so it's like marking assignments every week. (SBI1)

All tutors from Polytechnic C talked about lack of sufficient time for course design and preparation. Raymond mentioned that lack of time for marking meant that assessments needed to be "pretty much automated" (RCI2). He also commented on lack of time to design his course (RCI1). At the beginning, he was "getting images in the morning and loading up in the afternoon and then running my class in the afternoon after that" (RCI1).

4.3.2.3 Institutional issues

All tutors mentioned institutional issues which constrained them in using effective online teaching principles.

Michelle from Polytechnic A described that she did not have authentic activities in Module 1 as the institution had directed her to design her course so that minor tutor interaction

was necessary. "As I understand the information rich/minimal tutor input was and is a costing decision on the part of the polytechnic" (MAI1).

Three tutors from Polytechnic B mentioned institutional issues. A comment made by Amanda was that sometimes "the cart comes before the horse" (ABI1) in terms of the institution getting things online rather than focusing on best practice. Jules described how she saw the problem:

> [It was a] new program that we had to try and figure out and a new pedagogy and there seemed to be very little understanding of how complex that was. … There just seems to have been no understanding around how complex that task was. (JBI1)

Institutional issues were also mentioned by Miles, Bryce and Lilu from Polytechnic C. Miles commented that there was a lack of institutional understanding from:

> the administration side of things [as to] what is needed and what support is required and how you really need to get people together and discuss in sort of a freeway what's going to work and what's not going to work. (MCI1)

He also talked about the institutional difficulties teaching students from three different polytechnics with different policies and systems (MCI1).

Lack of classroom space was the initial impetus for much of the theory in his course being put online according to Bryce. Also an institutional decision to decrease the length of his course by eight weeks made a difference to the design of the course as it was difficult to fit in all that needed to be taught. "We have to hit the ground running and get the information to them as best we can, otherwise we have pressures from all directions" (BCI2).

Technical issues also constrained delivery according to Miles, Lilu and Bryce. These difficulties on Adobe Connect meant students sometimes could not hear or contribute (MCI1). Because of technical issues, Lilu pre-recorded her lectures (LCI1). Bryce also commented that they did not have all the software they would like, particularly one that had been developed for his industry (BCI1).

4.4 Summary

Tutors from Polytechnic A and Polytechnic B's conceptions of teaching and learning corresponded with the design and teaching of the online components of their courses. These conceptions were that interaction with content between students and with the tutor were necessary for learning and this was reflected in the design and teaching of their online courses. Additionally, their online courses generally aligned with most principles of effective online teaching, specifically: 'chunking' content and tasks into appropriate size pieces, alignment between LOs content/activity and assessment, the use of activities that promote active learning, promotion of interaction with content to construct knowledge, promotion of interaction between peers and tutor, promotion of knowledge construction through collaboration with peers and tutor, provision of opportunity for formative feedback from tutor/peer, and demonstration of a process that interweaves principles. There was partial application of interaction with a larger learning environment and being facilitated in a way that student ownership of learning which showed only a little application.

In contrast, there was limited alignment of Polytechnic C tutors' conceptions of learning with their actual online course design although their courses did align with the conception that the role of the online tutor was to provide content. These course sites did not align with many of the effective online teaching principles.

The major findings in response to question three were that formal and informal training, a centralised team approach to course development, support from the institutions' online team, and peer support were enablers to tutors adopting effective online teaching principles. The major barriers identified were lack of time, lack of sufficient knowledge and institutional constraints.

These findings will be discussed in the next chapter.

5   DISCUSSION

This chapter focuses on the research study's three questions which are discussed with reference to the wider literature. The first question discusses the different conceptions of the role of online tutor as a relationship was identified between how tutors perceived this role and the alignment of their courses with principles of effective online teaching. This difference in role is described with reference to learning theory. The second question, related to the alignment of tutors' courses with effective online learning principle, discusses tutors' awareness of different learning theories and the relationship between these theories and effective online teaching principles. Enablers and constraints to tutors using effective online teaching principles are discussed in question three. Institutional processes are disccussed as being pivotal in either enabling or constraining tutors in using effective online teaching principles, in particular, tutor professional development and time allocation for online course design and teaching.

5.1 Question 1.

What is the relationship between tutors' conceptions of teaching and learning and the design/teaching of the online component of their courses?

Tutors in this study shared the conception that interactivity with content information, between students and with the tutor was necessary for learning. The design and teaching of the online component of tutors' courses demonstrated this understanding to different degrees. There were however differences in tutors' conceptions of teaching online and the role of the tutor which was reflected in the design and teaching of the online component of their courses.

The role of the tutor is fundamental in providing opportunity for interactivity. Learning theories perceive this role from a range of perspectives and differ in relation to the importance of the tutor providing an environment that enables students to interact with content and other people for knowledge construction. In this study, there appeared to be a relationship between tutors' awareness of constructivist learning theory and the

interactivity demonstrated in the design of their online courses. Tutors from two of the polytechnics also demonstrated awareness of a range of learning theories.

Tutors from Polytechnics A and B's conceptions of teaching and learning generally aligned with the design of their online courses. However there appeared to be a contradiction between Polytechnic C's conceptions of teaching and their conception of learning which was reflected in the design and teaching of the online component of their courses. They had described that they thought interactivity between students and with content were necessary for learning, however they described the main role of the online tutor as information provider. This conception of online teaching as transmission of content was reflected in their course design. This meant that for the most part, their conceptions of the importance of student interactivity with content and with other students was overshadowed by their conception of the role of the online tutor and therefore limited opportunities were provided for interactivity to take place on line.

These tutors' conceptions of teaching online and their course sites primarily demonstrated the more objectivist view of knowledge as acquisition. The role of the tutor corresponded with aspects of both behaviourist and cognitivist learning theory in terms of the tutor controlling the learning environment. Activities that were provided required interactivity related to behaviourist responses in terms of quizzes and tests requiring reproduction, or cognitivist in relation to students being required to process the information to answer assignment questions. Behaviourist and cogntivitist learning theories do not take interaction with the social environment into consideration and this lack of interaction was demonstrated in the design of their courses.

In contrast, the conceptions and practice of tutors from Polytechnics A and B demonstrated a more individual and social constuctivist understanding of knowledge construction with the tutor facilitating student interactivity. These online sites included opportunity for reflection and experimentation, and discussion and collaboration between students. The role of tutor as described by the tutors was in line with the role of the online tutor provided Moore and Kearsley (2011), that is facilitating interaction between the student and tutor, student and content, and between students. The focus on relationship was also significant to these tutors with two tutors commenting on the importance of

whakawhanaungatanga[3] in the design and teaching of their courses. The fostering of relationship is pivotal in social constructivism with social relationships critical in learning environments that require collaboration and information exchange (Alonso et al., 2015). Haythornthwaite describes learning relations as being "the lifeblood of living networks" (2008, p. 154). One of the courses from Polytechnic A also demonstrated an understanding of the situated learning model in which learning were embedded in the context in which it would be used with the role of the tutor as mentor.

Despite course sites from Polytechnics A and B primarily demonstrating constructivist principles, much of the content was still provided by the tutor. A big issue is to what extent the constructivist tutor, both face-to-face and online, should be knowledge provider. This highlights a lack of clarity about teacher roles in constructivist pedagogy which is a point made by Harasim (2012). As Duffy and Cunningham (1996) describe, there still seems to be the perception that tutors have the knowledge that students need as against honouring the knowledge and skills of both tutor and students. Anderson (2014) does not see a contradiction between the tutor role of facilitator and content provider in the online environment and believes that there is a role for tutor content provision in the scaffolding of students' learning.

It seemed that the sites of tutors who had awareness of a range of learning theories demonstrated interactivity from a social constructivist perspective. Tutors from Polytechnics B and one tutor from Polytechnic A had provided clear explanation as to what informed their teaching practice discussing such concepts as the experiential learning cycle and the Zone of Proximal Development. The tutor from Polytechnic A, whose course demonstrated principles from the situative approach, described the work of Lave and Wenger in informing her use of an apprenticeship model. These tutors also described principles related to objectivist learning theory including constructive alignment and scaffolding of content. Likewise, tutors from Polytechnic C showed awareness of these objectivist principles but did not discuss concepts related to other learning theories in relation to their conceptions of teaching and learning or their practice. These tutors' sites demonstrated a more objectivist view of teaching and learning.

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[3]   Building relationships.

Although there are potential uses for all theories of learning in the online environment, (Anderson & Dron, 2011; Laurillard & Masterman, 2010; Mayes & de Freitas, 2004; Roblyer, 2004) the way they are used determines how pedagogically sound the designs are. The next question discusses whether the courses in this study aligned with effective online teaching principles

5.2 Question 2.

How does design/teaching of the online component of tutors' courses align with principles of effective online teaching?

This question expands on the previous discussion. It discusses tutors' courses and their alignment with effective online teaching principles with reference to learning theory. It concludes with the observation related to both question one and two, that the courses designed and taught by tutors who appeared to have awareness of a range of theories of learning showed most alignment with effective online teaching principles.

Constructive alignment is emphasised in cognitivist, constructivist and situative learning theory (Sharpe, 2007) and it is one of the principles of effective online teaching. In the interviews, all tutors demonstrated a clear understanding of constructive alignment and it seemed that alignment between learning outcomes, assessment and activities was evidenced on tutors' courses from all polytechnics. Mayes and de Freitas (2004) comment that it is judgement on the process of teaching and learning that is required to determine whether learning outcomes have been met. Yet it is beyond the limits of this research to make a totally informed judgement as to whether the processes of teaching and learning met the required learning outcomes on tutors' courses as more information would be required for such a judgement. However, Mayes and de Freitas (2004) also state that assumptions about learning need to be examined in order to achieve constructive alignment. It can be said that reflection related to constructive alignment was described as having a pivotal role in the design process used by tutors from Polytechnic B.

The effective online teaching principles of chunking content and tasks into appropriate size pieces and scaffolding of information were evidenced on most of the tutors' courses. Chunking content is a particular feature of behaviourist learning theory. Another effective online principle evidenced on most tutors sites was the scaffolding of activities.

Polytechnic C online sites demonstrated more of a behaviourist view of scaffolding in terms of simple to more complex tasks whereas the sites from Polytechnic B, and to a lesser extent, Polytechnic A demonstrated scaffolding not only from a behaviourist perspective but also that of social constructivism. Activities, particularly on most of Polytechnic B's sites, took students' prior knowledge into consideration and led students through a process of knowledge development requiring collaboration with others.

The effective learning principles requiring interactivity were evidenced on most of the online sites from Polytechnics A and B with limited demonstration of these principles on Polytechnic C's site. These principles are; that activities that promote active learning are used, and that interaction with content to construct knowledge and interaction between peers and tutor are promoted, that courses provide opportunity for formative feedback from tutor/peers and promote knowledge construction through collaboration with peers and tutor. As discussed in question one, interactivity with content, between students and with the tutor is associated with concepts from individual or social constructivist learning theory although providing formative feedback is common to a number of approaches included behaviourism, constructivism and the situated learning model (Sharpe, 2007). What is of particular note is that collaboration is not always constructivist. Two sites from Polytechnic A and two from Polytechnic B demonstrated clear social constructivist principles of learners collaborating with each other for the purposes of developing new knowledge, as described by Duffy and Cunningham (1996).

There was limited demonstration of two of the effective online teaching principles of interacting with a larger learning environment/ community and course design that was facilitated in a manner that promoted student ownership of the learning process. The two courses that did demonstrate the principle of interacting with a larger learning environment/ community showed student interaction with real environments outside of the immediate online learning environment. An authentic environment could also be seen as a scenario-based activity used by one of tutors in this study. However, the key word in this teaching principle is 'interacting with' as against 'responding to' which is why the scenario activity at Polytechnic C has not been evidenced as totally demonstrating this principle. This principle of interacting with a larger learning environment/community relates to concepts such as situated learning and CoPs which stress the importance of learning taking place within the authentic environment in which it will ultimately be used.

It appeared that most tutors were not aware of the potential of this online teaching principle. A good example of this was the lack of integration of students' clinical placement experience and learning in the online section of one of the two courses that included clinical placement.

Only one course demonstrated the principle of being facilitated in a manner that promoted student ownership of the learning process. Student ownership of the learning process is not a new concept and can be considered as part of social constructivism. Newer learning theories such a connectivism also see tutors playing a less controlling role in the learning process and supporting students to develop their own learning environments (Bates, 2015).

When it comes to the effective online principle of course design and teaching that interweaves other effective online teaching principles, this was demonstrated on Polytechnic A and Polytechnic B's sites. However, the sites from Polytechnic B and one site from Polytechnic A not only clearly demonstrated this principle but also showed the most evidence of the interweaving of different learning theories. In that way, these courses clearly showed effective online design as described by research which states that effective online design requires the blending and integration of approaches that are informed and underpinned by more than one theory (JISC, 2009; Mayes & de Freitas, 2013). They also demonstrated learning design with a "sequence of pedagogically sound learning activities" as described by Ng (2014, p. 94) and integration between activities as discussed by Beetham (2013). In addition, these courses showed the most alignment with frameworks that interweave aspects from different learning theories such as Laurillard's conversational framework and Garrison Anderson and Archer's community of inquiry framework (Garrison, 2011). These sites demonstrated students engagement in acquisition, inquiry, practice, production, discussion and collaboration as described by Laurillard (2012) as well as the presence of learning communities through the connection of cognitive, social and teaching presence (Garrison, 2011). In contrast, courses from Polytechnic C primarily demonstrated practice related to objectivist learning philosophy with no evidence of the interweaving of effective online learning principles.

Question one discussed a relationship between the alignment of tutors' conceptions of teaching and learning and their online courses, and their awareness of a number of learning theories. In terms of student interactivity with content, between students and with the

tutor these courses also demonstrated more constructivist principles. Question two discussed the degree to which tutors' courses aligned with effective online learning principles. When looking at questions one and two together, it can be stated that courses designed and/or taught by tutors who demonstrated awareness of learning theory most closely aligned with online teaching principles. In contrast, the courses designed and taught by tutors who did not demonstrate the same awareness of learning theory had limited alignment with effective online learning principles.

Tutors do not work in isolation and therefore it is important to examine what supported or hindered tutors in designing and teaching online courses using effective online teaching principles.

5.3 Question 3.

What are the enablers and constraints that influence tutors in the use of effective onling teaching principles?

In this study, enablers and constraints in tutors' use of effective online teaching principles were identified as relating to institutional processes and support. In terms of intrinsic barriers, lack of confidence in the use of technology was not seen to influence tutors' use of effective online teaching principles.

There is an inverse relationship between enablers and barriers as stated by Ertmer, Ottenbreit-Leftwich and York (2006) in their research examining enablers and barriers to integrating technology into curricula. Barriers decrease as enablers increase (Ertmer et al., 2006). The constraints and enablers that influenced tutors in the use of effective online teaching principles are the influence of online course design processes, professional development, training and support and allocated time for course design and teaching.

Although a few tutors discussed having concerns related to teaching online they were all open to trying it out. The concerns raised by a few tutors related to uncertainty about how appropriate online learning was for their subject and not having enough knowledge to deal with issues such as lack of student participation. However, they all indicated openness to teaching online and wanted to know how to effectively design and facilitate their courses. Comments made by individual tutors described how they believed online learning was the

way of the future, they had become inspired by members of the OLT showing them the potential, they liked the way that online learning could meet the needs of distance learners and they had had good experiences of learning online themselves. None of the tutors demonstrated lack of confidence in their ability or capability to teach online.

Research describes that tutors' belief in their capability can affect their adoption of technology and use of it (Abbitt, 2011; Kregor et al., 2012) and confidence levels can influence their use of technology (Ertmer & Ottenbreit-Leftwich, 2010). However, these were not identified as barriers in this study. It appeared that lack of knowledge and extrinsic factors were the greatest barriers for tutors.

5.3.1 Online course design processes

Online course design processes are determined by institutions. Each polytechnic in this study used a different course design approach: a team approach, building on an existing course design, and an independent approach. These approaches were either enablers or barriers to tutors using effective online teaching principles. The courses from Polytechnic B were designed using a team approach made up of a teaching expert, technical expert and the tutor with a generic template used for all online courses. Three out of four of the online sites from Polytechnic A had been designed by previous tutors, with two of the participants in the study having made only a few changes as they believed the design worked well. Who the previous tutors were and what design processes they used was outside the scope of this study. The fourth tutor had a background in education. The courses from Polytechnic C were designed by the tutors. The courses from Polytechnics A and B aligned with most of the principles of effective online teaching and those from Polytechnic C showed the least alignment with online teaching principles and the tutors' description of their conceptions of teaching and learning showed less focus on learning theory.

The team design approach at Polytechnic B had also enabled tutors to discuss what they were doing in order to determine the best way to meet the learning outcomes. In addition the institutional template used by this polytechnic was a strong enabler for tutors in using effective online principles. This template provided tutors with a basic framework, which

followed effective online teaching principles. It was populated with content and activities developed by the specialist team which included the tutor.

These findings align with the research. Restauri (2004) comments that developing a standardised template for course design is a reasonably simple process and is helpful for both tutors and students. In relation to individual as against team design processes, Higgins and Prebble (2008) state that tutors find it challenging to design their own online courses and quality is often variable whereas courses designed in teams are well planned and include high quality course materials. Some of the research strongly suggests that tutors should not design their own online courses because so many skills are required, and recommends team approaches to design (Caplan & Graham, 2008; M. Moore & Kearsley, 2011; Oblinger & Hawkins, 2006). An additional comment made by Moore and Kearsley (2011) is that independent designers use the primary medium that they are most comfortable with.

5.3.2   Time allocation

The amount of time allocated for course design can be an enabler or a barrier for tutors. Tutors from Polytechnic B generally experienced the time they were allocated to design their courses as an enabler whereas tutors from Polytechnic C were not allocated time to design courses and at times had to design courses whilst teaching them. Most courses at Polytechnic B were also designed at least a semester before courses were to run following a planned design process. Although two tutors from this polytechnic mentioned how helpful the allocated time was, other tutors still felt that they had insufficient time to implement a new model. Tutors in this study felt that teaching online required continued development time and lack of allocated tutor time for teaching was a major factor constraining tutor-student interaction for some tutors. Lack of time was also a barrier in developing the pedagogical and technical professional development they needed.

This need for development time, identified by tutors, is supported in the literature. Adapting to new innovations and establishing new practices in the online environment takes time (Conole & Oliver, 2002; Conole, 2010a; Kirschner, 2015) and tutors need time to find out about options, make adaptions according to the context and trial the technology (Conole & Oliver, 2002; Conole, 2010a; Guiney, 2013). Tutors in this study

clearly identified that teaching online required more time than they were allocated. Barr et al., (2008) comment that institutions need to plan for this additional workload and further literature confirms that sufficient time for tutors to explore and experiment with the new technology need to be provided (Conole & Oliver, 2002; Conole, 2010a; Guiney, 2013).

5.3.3 Knowledge development

In this study, all tutors identified some lack of knowledge of how to effectively teach online with tutors from Polytechnic C in particular having limited knowledge and understanding of the interactive potential of teaching online. Most tutors in this study showed frustration at not having access to the kind of professional knowledge they needed.

As mentioned earlier, some researchers believe that because so many skills are required to design online courses tutors should not design their own courses (Caplan & Graham, 2008; M. Moore & Kearsley, 2011; Oblinger & Hawkins, 2006). Kirschner (2015) however, strongly believes that designing courses online is a "subset" of what tutors normally do (p. 310) and Harasim (2012) states that, "For educators, learning new ways and new ways of learning are the nature of our profession" (p. 3). The key to meeting the challenges of designing online courses however, is that tutors have pedagogical, subject and design knowledge and are provided with the professional development to develop the required competencies (Kirschner, 2015).

In this study, a formal qualification in education appeared to be an enabler to tutors using effective online teaching principles whereas tertiary training qualifications appeared to be less useful in providing tutors with the knowledge development they needed or awareness of learning theory. The OLT and peer support were also identified as being important factors that enabled tutors' knowledge development. This section discusses what kind of professional development and support is most helpful in helping tutors teach online using effective online teaching principles.

Prior to designing their courses, there appeared to be a lack of opportunity for tutors from any of the polytechnics to learn about theories of learning related to teaching online or frameworks and models that could be helpful to them in interweaving features from different learning theories in the online context. Most tutors had received no or very little

training in teaching online. Two of the tertiary teaching courses that tutors had attended included modules in online teaching which tutors found helpful in understanding online learning processes although they had designed their courses prior to attending these courses. Other training in teaching online that tutors mentioned was in the form of short workshops but lack of time meant that some tutors from Polytechnic A could not attend. Polytechnic B was the only polytechnic that provided regular professional development workshops for teaching staff, some of which related to teaching online.

These findings are consistent with the literature which describes that tutors' lack of skill and ability to use emerging technologies is a major constraint to effective online teaching (Conole & Fill, 2005; Dyke et al., 2006; Koehler et al., 2013). The lack of opportunity to develop knowledge of learning theory and pedagogy is also identified in the literature which describes how tutor training often has a greater focus on developing technological skills than people and processes (Conole, 2010b) and improving good pedagogical practice (Haggerty, 2015; Hegarty et al., 2005; Sangra et al., 2007; Stein et al., 2011).

Tutors' backgrounds in tertiary teaching and education appeared to play a role in how well they understood and were able to use effective online teaching principles in their online course design.

An interesting point was that all tutors from Polytechnic C had some formal training in tertiary teaching, ranging from certificates to post-graduate diplomas. Even though tutors had these backgrounds, they struggled to design online courses that matched their conceptions of learning and had little knowledge of tools and activities that could be used to enable interaction between students and with content. This lack of knowledge and tutors' conception of the tutor role as content provider meant their courses had limited alignment with many of the effective online teaching principles. The principles that did align with their conceptions were those related to constructive alignment, scaffolding and chunking of content. It was evident that the courses tutors had attended related to tertiary teaching had not provided tutors with the knowledge and skill they needed to teach effectively online.

Tutors in the study who had formal qualifications in education appeared to have more awareness of learning theory than tutors who had attended tertiary training courses.

Awareness of learning theory had a relationship with tutors' ability discuss learning theory and to interweave different principles of effective online teaching into the design of their courses. Tutors who had tertiary teaching backgrounds tended to have knowledge of aligning learning outcomes with content and assessment, and the importance of chunking and scaffolding content but limited knowledge of how to use the effective online teaching principles related to interaction or interlink effective teaching principles together.

The importance of being aware of assumptions that underlie tutors' beliefs about learning is well described in the literature (Sutherland-Smith & Saltmarsh, 2010; Joyes, 2008; Mayes & de Freitas, 2004). Harasim (2012) comments that without knowledge of educationally sound concepts of teaching in the online environment tutors will default to practicing according to their own personal learning theory.

This raises the issue of what kind of professional development tutors need to design courses and teach online and whether tertiary teaching certificates and short workshops provide tutors with sufficient grounding in learning theory and pedagogy to apply effective online teaching principles in their online courses.

New Zealand polytechnic tutors can be appointed to their positions without any teaching or education qualifications but are expected to gain a qualification in teaching within the first few years of their appointment (Ako Aotearoa, 2014). The literature clearly states that a key factor in successful e-learning is tutor professional development (Nichols, 2008b; Ragan & Terheggen, 2003). It describes the importance of development opportunities for tutors to help them move from a transmission to a transformative pedagogical approach (Morrison, 2007) and move beyond teacher-centred environments to make use of the transformative potential of new technologies (Aslan & Reigeluth, 2013; Garrison & Akyol, 2009; Salinas, 2008).

All tutors described the crucial role of the OLT /specialist team in the development of their online courses and teaching although there were differences in the roles of the specialist team from Polytechnic B and the OLT of Polytechnics A and C. The support provided by the OLT from Polytechnics A and C was identified by the tutors as more technology focused than pedagogical, providing 'just-in-time' support at both polytechnics, and more hands-on technical support at Polytechnic C. As most of Polytechnic A's courses

were already designed using effective online teaching principles, the kind of support provided by the OLT seemed to be sufficient according to the tutors. It is not known what responsibilities these teams from Polytechnic A and C were charged with by the institution although the clarity of function and role of the Polytechnic B specialist team was very evident.

In line with research, centralised support is essential in order for tutors to successfully adapt to online teaching (Conole & Culver, 2010; de Freitas et al., 2008; Guiney, 2013; Ragan & Schroeder, 2014) and many institutions have created online learning or support teams (OLTs). This kind of team is different to a specialist course development team as used by Polytechnic C. Research identifies the importance of on-going pedagogical and technical support (Barr et al., 2008) using a 'just-in-time' approach. This kind of support is an important aspect of learning and support required by online tutors (Stein et al., 2011).

All tutors from Polytechnics A and B discussed the importance of peer support in their online design and teaching. They described how helpful it was to discuss ideas with each other and find solutions to problems. This support was notably absent from the reports of Polytechnic C tutors who seemed to work in more isolated environments. Furthermore, two of the tutors from Polytechnic C were designing courses that were used by other teaching colleagues who had little online teaching knowledge and experience. This meant that at times, collegial relationships were more of a barrier than a support in designing courses.

The peer support identified by tutors from Polytechnics A and B and a sense of community are important for tutors designing and teaching online courses. This need for support and community is similar to findings in the research. Ertmer et al. (20016) describes the benefits of sharing ideas and stories with peers in a collaborative environment. Research discusses not only the benefits of peer support but of the formation of wider CoPs to enable tutors to share knowledge and experiences (Barr et al., 2008; Garrison, 2011; Ragan & Schroeder, 2014). This is strongly emphasised in the literature with recognition of the important role of colleagues in knowledge development when teaching online. There are widespread recommendations that institutions develop communities to support tutors teaching online that have been referred to as 'communities

of teaching practice' (Viskovic, 2009), and 'communities of innovation' (Laurillard & Masterman, 2010).

Professional development and training, centralised support teams and peer support were all identified in this study as enablers of effective online teaching. However, Polytechnic B was the only polytechnic which demonstrated an institutional approach to providing the kind of on-going learning that Webster-Wright (2009, p.704) terms "continued professional learning" (CPL) with formal and informal activities situated within tutors' practice and community. It was this kind of situated on-going professional learning approach which two of the tutors identified as necessary, wanting the opportunity to talk to people who had developed similar courses to their own and a scaffolded approach to professional learning. Formal commitment to professional learning could also take into account the importance of peer support and a community of learners.

These findings are supported by the literature which states that a multi-faceted approach to professional development is required for teaching online (Barr et al., 2008; Stein et al., 2011). Tutors need professional development which is situated within their professional context (Barr et al., 2008; Stein et al., 2011) and is flexible, individualised, both short and long-term, encourages tutors to work in learning communities and includes training that has a focus on e-learning pedagogy (Barr et al., 2008). Research states that institutions have a responsibility to ensure that their tutors are prepared for teaching online (Ragan & Schroeder, 2014; Sangra et al., 2007). They need to ensure that tutors are given appropriate on-going training and development within the larger institutional professional development framework (Wilson, 2012; Zhang, 2013).

This study did not investigate whether the institutions involved had strategic plans related to e-learning. What was described though by Polytechnic B tutors was that their polytechnic had an institutional understanding of e-learning and a coordinated and well-resourced implementation plan. It was interesting to note that some of the tutors from Polytechnic B still commented that e-learning could have been better planned and resourced with greater acknowledgement from management of how complex the tasks were, and that the process of getting courses online was too rushed. Polytechnics A and C tutors did not comment on institutional strategies or planning for e-learning. In particular, it appeared that the implementation of e-learning at Polytechnic C was ad hoc and

introduced to meet resourcing needs rather than as an institutional strategy. As a result, it seems that there was insufficient preparation and planning for online teaching.

The apparent lack of institutional processes and support for e-learning caused obstacles for some tutors in this study using effective online teaching principles whilst for others the planning and support were enablers to effectively teaching online. This finding is similar to comments made in the research with Ragan and Schoeder (2014) emphasising the importance of tutors being supported by comprehensive processes and systems.

5.4 Summary

Tutors' awareness of learning theory appeared to play an important role in the alignment of their conceptions of teaching and learning, their course design and principles of effective online teaching. The courses of tutors who demonstrated awareness of a range of learning theories aligned most closely with the effective online teaching principles. The design and teaching on tutors' courses using effective online teaching principles were influenced by a number of enablers and barriers. These related to the online course design processes used, tutors opportunities for professional learning and time allocation for designing and teaching online. These enablers and barriers were influenced by institutional systems and processes related to online teaching.

6   CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This study investigated the relationship between tutors' perceptions of teaching and learning and the design and teaching of their online courses. It also looked at how tutors' course designs aligned with effective online teaching principles. In order to provide a larger context to tutors' practice, the constraints and enablers to effective online course design experienced by the tutors were also examined.

This chapter provides a summary of the main findings of this research and how the study contributes to research. Recommendations are then made about how institutions can provide online tutors with the support and training required to optimise successful online teaching based on effective online teaching principles. The limitations of this study are outlined with suggestions for further research and the thesis concludes with some final thoughts.

6.2 Main findings

The study found that all courses demonstrated alignment with the effective online teaching principles of constructive alignment, the chunking of content and tasks into appropriate sizes, and scaffolding of information and tasks from less to more complex. All tutors believed that interactivity between students, between students and the tutor, and with content were important for learning but these conceptions only aligned with tutors' course design and teaching at two of the three polytechnics. At the third polytechnic, despite the tutors sharing these conceptions, there was lack of alignment between these conceptions of learning with the tutors' conception of teaching and the role of the tutor in online courses.

There was limited demonstration of the effective teaching principles requiring interactivity on Polytechnic C's sites but these principles were evidenced on all the online sites from Polytechnics A and B. Nine of the eleven effective online teaching principles aligned with tutors' online courses at these two polytechnics. There was limited evidence from all polytechnic courses of alignment with the effective online teaching principle of promoting

student ownership of the learning process, with only one course demonstrating facilitation that enabled students to take control of their learning process. Similarly, there was evidence of only two polytechnic courses demonstrating the principle of interacting with a larger learning community.

Formal and informal training, support from the institutions' online team, a centralised team approach to course development and peer support were all identified as enablers to tutors use of effective online teaching principles. The major barriers identified were lack of sufficient knowledge, lack of time, and institutional constraints.

6.3 Contributions of the research

This research study focused specifically on online teaching within the New Zealand polytechnic sector. It provided a picture of tutors' conceptions and practice within this mode of delivery and the enablers and barriers to them using effective online teaching principles. The focus of this research provides valuable information to those interested in pedagogically sound online teaching within polytechnics. As the research investigated not only tutors conceptions of teaching and learning, but also their practice, this adds weight to the findings. In addition, all information that contributes to the larger body of research on online learning is important as this form of delivery continues to grow in the New Zealand tertiary environment.

Another important contribution to the research is in relation to the two reports on e-learning in the New Zealand tertiary sector. In 2002, a report that set out the vision for e-learning in New Zealand stated that for e-learning to be successful in New Zealand, it needed to be guided by sound pedagogical principles. A report by Marshall released ten years later commented that much of the wisdom in the 2002 report had been lost. He stated that there was little evidence that educational institutions were taking advantage of the student-centred collaborative opportunities provided by the technology. In contrast to Marshall's report, this research study found that although there is still evidence of transmission models of teaching, collaborative, student-centred teaching is evident in online teaching within the New Zealand polytechnic sector. This is useful information in relation to online learning and polytechnics in particular. The research also investigated the barriers and enablers that support effective online teaching using sound pedagogical

principles and this too contributes to the larger body of knowledge that can be used to inform effective online practice.

6.4 Recommendations

From this research, the following recommendations are made. In order to support tutors in using effective online teaching principles in their design and teaching, institutions need to have processes and systems in place related to online teaching. These need to include course design processes that take into account the knowledge and skill of tutors who are teaching online. An institutional template design based on sound pedagogical principles was found to be useful by tutors in this study. It is also recommended that a centralised team approach to online course design be used for tutors new to online teaching with teaching and technology experts working alongside the tutor. Tutors in this study benefited from this approach in terms of both skill and knowledge development and had expertise to help with the more technical aspects of design. Appropriate time for online course design and teaching, including time for tutors to research and experiment needs to be provided and online course design should be completed prior to courses running through systematic planning. This was identified by participants as an important issue. Online learning teams were found to be valuable in supporting tutors with technology and it is recommended that institutions provide this support. Finally, it is recommended that institutions ensure tutors are adequately prepared for teaching online and that planned institutional professional development opportunities are provided for tutors. All tutors described some lack of knowledge when teaching online and awareness of learning theory was found to have a relationship with tutors' courses demonstrating effective online teaching principles.

6.5 Limitations

There are a number of limitations of this research. The first is the limitation that is common to case studies, that is that the sample size was small, and findings are not generalisable. However, being a descriptive case study, the intention was to capture participants' conceptions and practice within a particular moment in time through rich description, not to provide generalisability.

A second limitation is that it was not known who three of the original course designers from Polytechnic B were or what their conceptions of teaching and learning were in relation to the design of their courses. Information related to the enablers and barriers they'd experienced in designing their courses was also not available. This meant that discussion related to course design could not be included for Polytechnic B as it was for the other two polytechnics.

Investigation of student activities within the courses was beyond the scope of the study and fora where students and tutors interacted were not read in order to protect student confidentiality. This was a limitation in that student interaction with each other and with the tutor could not be fully evidenced.

The final limitation is that the complexity of tutors' worlds and conceptions could not be fully represented within this study. Although rich, thick description can be provided within case studies, the multi-faceted realities described by participants are not always easy to represent. As Hodkinson and Hodkinson (2001) comment, what is revealed in case studies is not linear and it can be difficult to portray nuances and subtleties in the written form.

6.6 Recommendations for further research

This research identified that institutional enablers and constraints play a key role in online course design processes and tutor professional learning and support. However this study did not investigate if institutions had strategies or policies related to the provision of online delivery, and if so how they were implemented. A similar study to this research study could examine tutors' conceptions and practice with specific reference to the institutions' strategies for online delivery. It could also investigate whether institutional processes align with the strategies and the relationship between the processes, and courses demonstrating online teaching principles.

Further research could also include more polytechnics in order to gain a broader perspective of practice throughout the country. Alternatively a research study could include institutions that are similar to New Zealand polytechnics from other countries such as

Australian TAFEs or Canadian Polytechnics within a multiple case study to provide a contrast to practice within New Zealand polytechnics.

Finally, research could also include students' voices, particularly in relation to the alignment of effective online teaching principles with student engagement, successful completion of courses and/or retention.

6.7 Final thoughts

There is no doubt that online learning can transform potential ways of learning by providing more flexibility, greater access to information and more opportunity for interaction and collaboration to students. Yet the demonstration of principles of effective online teaching varies between polytechnics with tutor practice at some polytechnics in this study showing more evidence of using the opportunities afforded by the technology than others. Institutional frameworks that provided tutors with support and training appeared to be fundamental to tutors having the knowledge, time and skill they needed to provide pedagogically sound online courses. Despite concern that the aspirations for e-learning described in 2002 had not been fully realised by 2012, it is heartening that in 2016 there is evidence that practice at some online courses at New Zealand polytechnics demonstrates good use of effective online teaching principles.

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8   Appendices

8.1 Appendix 1: Invitation to polytechnics

Request for access to your institution for research purposes

Dear

I am a tutor at WelTec and I am studying towards my Masters in Education (e-learning) at Massey University. The research study for my thesis aims to investigate polytechnic tutors' conceptions of teaching and learning in relation to the design of their online courses. I am writing to you to ask your permission for me to invite tutors from your polytechnic to take part in this study.

The specific aims of this project are to find out:

- What the relationship is between tutors conceptions of teaching and learning and designing and /or teaching on on-line courses
- How these conceptions correspond with current teaching and learning theory
- What are the enablers and constraints that influence tutors in the use of current theories of teaching and learning in the design and teaching of the online courses

Participant Identification and Recruitment

This study will incorporate twelve participants from three different polytechnics (four participants from each). If you give permission, I would like to approach your Flexible Learning manager and ask him/her to identify all tutors who have developed fully online or blended courses (with at least 60% of tutor contact hours online) in the past 18 months. I would also like to ask you for permission for them to contact the identified tutors to invite them to take part in the study. If more than four tutors from each polytechnic volunteer, tutors will be chosen according to those who have the highest proportion of their courses online. I would also like to request that these interviews take place during tutors' work time. Finally, I would like to ask you for permission to access your tutors' online sites for the purpose of analysing how tutors have designed their course.

Project Procedures   Participants in this study will be asked to:

- Take part in an initial semi-structured interview lasting approximately 45 minutes
- Provide me with access to one of their online course sites developed in the past 18 months for analysis
- Take part in another semi-structure interview focused on examining one of their online course sites of their choosing. This should also take approximately 45 minutes.

Data Management

The names of participants and polytechnics will be kept confidential and interviews will be recorded and transcribed by me or a transcriber. No real names will be used in the final thesis. All attempts will be made to keep the identity of the polytechnic confidential, however there is the possibility that assumptions could be made about the identity of the polytechnic from factual information provided in the thesis. When analysing participants' online sites, the focus will be on the tools and their purposes and student contributions will not be read or included in the study in any way. Data will be stored securely and disposed of in five years.

Participants' Rights

Participants are under no obligation to accept this invitation. If they decide to participate, they have the right to:
- decline to answer any particular question;
- withdraw from the study up to the data analysis phase
- ask any questions about the study at any time during participation;
- provide information on the understanding that their name will not be used unless they give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.
- ask for the recorder to be turned off at any time during the interviews.

Thank you for considering participating in the study. Please contact me or my supervisors if you would like any more information.

Yours faithfully

Toni Horrell

Researcher	Supervisors	
Toni Horrell toni.horrell.1@uni.massey.ac.nz 021 0780689	Dr Maggie Hartnett Institute of Education, Massey University 06 3569099 extn 84409 M.Hartnett@massey.ac.nz	Dr Peter Rawlins Institute of Education, Massey University 06 356 9099 ext. 84403 P.Rawlins@massey.ac.nz

Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 15/49. If you have any concerns about the conduct of this research, please contact Mr Jeremy Hubbard, Chair, Massey University Human Ethics Committee: Southern A, telephone 04 801 5799 x 63487, *email humanethicsoutha@massey.ac.nz*.

8.2 Appendix 2: Invitation to participants

MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MATĀURANGA

Invitation to take part in my research study

Dear

My name is Toni Horrell and I am a tutor at WelTec. I am
also a student at Massey University studying in the Master of Education programme. As
part of that study I am undertaking a research project which will form the basis of the
thesis towards my Master of Education degree. I am writing to you to tell you about my
study and invite you to take part.

What is the project about?

This study will investigate how ideas of teaching and learning inform tutors' design
and/or teaching on online courses and how these conceptions correspond with current
teaching and learning theory. This study will also look at what helps or hinders tutors
decisions when designing and/or teaching on online courses. Participants will be drawn
from three different New Zealand polytechnics and their identity will be kept confidential
throughout the research process.

What's in it for me?

This research may help you to identify ideas and beliefs about your online teaching and
discuss how these correspond with current teaching and learning theory. It will give you
the opportunity to talk about how you teach and what constrains or helps you when
designing your online courses. The research also hopes to highlight effective practice
and identify how best to address institutional and/or professional development issues.

Why am I being asked?

Potential participants for this study are tutors who have developed fully online or blended
courses (with at least 60% online) in the past 18 months. Your name was provided by
your Flexible Development manager as a tutor who meets this criteria. Four participants
from each polytechnic are required for the study and if more than four tutors from each
polytechnic volunteer, tutors will be chosen who have the highest proportion of their
courses online. If more than four fit this criteria, a random selection will be made from
the potential participants.

What will it involve?

If you choose to take part then you will be asked to:

- Take part in an initial semi-structured interview with me lasting about 45 minutes
- Provide me with access to one of your online course sites that you have developed in
  the past 18 months for analysis
- Take part in another semi-structured interview with me whilst examining your online
  course site. This should also take about 45 minutes
- Review both interview transcripts which should take about 15 minutes each

Data Management

Interviews will be recorded and transcribed by me or a professional transcriber. You will be asked to review the interview transcript to ensure your comments have been recorded accurately. No real names will be used in the final report. Data will be stored securely and disposed of in five years.

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:
- decline to answer any particular question;
- withdraw from the study prior to the commencement of the data analysis phase
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.
- ask for the recorder to be turned off at any time during the interviews.

Thank you for considering participating in the study. Please contact me or my supervisors if you would like any more information prior to making a decision to participate. Details can be found below. If you would like to take part, please email me on toni.horrell.1@uni.massey.ac.nz by….

Yours faithfully

Toni Horrell

Researcher	Supervisors
Toni Horrell toni.horrell.1@uni.massey.ac.nz 021 0780689	Dr Maggie Hartnett Institute of Education, Massey University 06 3569099 extn 84409 M.Hartnett@massey.ac.nz Dr Peter Rawlins Institute of Education, Massey University 06 356 9099 ext. 84403 P.Rawlins@massey.ac.nz

8.2.1.1.1 Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 15/49. If you have any concerns about the conduct of this research, please contact Mr Jeremy Hubbard, Chair, Massey University Human Ethics Committee: Southern A, telephone 04 801 5799 x 63487, email humanethicsoutha@massey.ac.nz.

Te Kunenga
ki Pūrehuroa

Institute of Education

Cnr Albany Drive & Collinson Road, Private Bag 11222 (PN900), Palmerston North 4442, New Zealand **T** +64 6 356 9099 www.massey.ac.nz

8.3   Appendix 3: Questions for semi-formal interview 1

Participant questions for first semi-structured interview

1. How do you feel about teaching online?
2. How much experience have you had teaching online?
3. When you are designing a course online, what are the most important considerations for you?
4. How much do student needs affect the way you design the course? Prompts: Prior learning, motivation, accessibility, learning styles, cultural influences, different abilities
5. What are some of the other factors that affect how you design your courses? Prompts: confidence, capability, time, availability of resources, learning platform, expertise, support, student feedback

Tutor

1. What training have you had in general teaching theory and/or teaching online?
2. What has enabled you in in developing the knowledge and skill you need to design online courses?
3. What has constrained you in in developing the knowledge and skill you need to design online courses?

Pedagogical understanding

4. How do you think people learn?
5. Do you think that the online environment makes a difference to this?
6. How do you design your online courses to reflect your understandings of how people learn?
7. What do you think the role of the tutor is in online courses?
8. What do you think the role is of other students on the course?
9. What do you think the role is of other people (or anything else) on the course?
10. What role does assessment play? (Is it congruent with the learning outcome?)

Online activities

11. What kinds of activities do you use in your online courses and why do you choose them?
12. How do you use them?
13. What do you ask the students to do and do you find that students take part in the activities in the way you anticipated?
14. How do you find out about possible tools that can be used for e-learning and how they can be used?

8.4 Appendix 4: Questions for semi-formal interview 2

Participant questions for second semi-structured interview
To what extent do you think the following are necessary for learning?

Conversation/interaction/knowledge exchange	
Not so much	Very important
Retention and reproduction	
Not so much	Very important
Thinking and reflection	
Not so much	Very important
Experience and activity	
Not so much	Very important

Do you think that activities related to these need to be built into your online course?

To what extent do the learning outcomes play a role in the activities you include in your online course?

How do you see the connection between learning outcomes, activities and assessment in your online course?

8.5   Appendix 5: Effective online teaching principles used for course site analysis

'Chunks' content and tasks into appropriate size pieces - less to more complex
Alignment between LOs content/activity and assessment
Uses activities that promote active learning
Promotes interaction with content to construct knowledge
Promotes interaction between peers and tutor
Promotes knowledge construction through collaboration with peers and tutor
Provides opportunity for formative feedback from tutor/peers
Demonstrates a process that interweaves principles
Promotes interaction with a larger learning environment/community
Facilitated in a manner that promotes student ownership of learning