MEDIATIONAL ENGAGEMENT IN E-LEARNING: AN ACTIVITY THEORY ANALYSIS

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Abstract

The emergence of educational technologies offers flexible learning opportunities to students. However, the nature of the online learning environment can lead to disengagement and subsequent minimal participation, which present challenges and concerns in relation to students' learning. Therefore, in order for learners to have positive learning experiences, it is vital to identify factors that affect students' engagement in online learning environments.

Although the use of learning management systems (LMS) as an asynchronous e-learning platform can influence learner engagement, there is little research on these influences and the ways in which an LMS affects engagement. In addition, studies on students' perceptions of learning and engagement with synchronous and asynchronous technologies are under-explored. In response to these concerns, this research sets out to gain a better understanding of students' engagement in e-learning activities. In particular, the study examines mediating factors that affect students' engagement in e-learning activities in a range of e-learning contexts at the University of Waikato. The study also aims to explore the affordances and constraints of some e-learning tools and their influence on students' engagement in this context.

The research was carried out in the form of three case studies and students and lecturers of the three courses in three different university departments participated in this study. Qualitative data collection methods used in the research were interviews, observations and document analysis. The data were collected throughout the duration of the courses.

In exploring the factors that affect students' engagement in e-learning activities and how the various elements operate together, Engstrom's (1987) Activity Theory was used as the research framework. Activity theory helps describe learning activities, mediating tools, relationships between elements of activity systems and goals and objectives of activities. The constituents of an activity system include *subject, object, tools, rules, community* and *division of labour.* An

activity system framework allowed this research to examine the relationships between these elements and also the way elements affect each other.

Findings indicated that students' active participation in the three cases was mediated by the educational technologies, the learning materials, the design of the course and the English language. The analysis also showed that the lecturers' technological pedagogical knowledge (TPK) was reflected through the design of the courses and consequently influenced students' learning. The development of an online learning community also benefitted students' learning. Some deliberate strategies like creating spaces for communication both in general and in specific modules provided students with opportunities to work collaboratively, share ideas and useful information, and learn from each other. These interactions also facilitated close connections among students. The guidelines that specified information about the format of written or oral presentations, duration or length, level of formality, assessment criteria/marking guidelines and referencing guidelines also acted as a mediator and influenced the way students participated in activities in all three case studies. The analysis also indicated the importance of participants' responsibilities in their courses. In particular, as a result of lecturers not defining both their roles and those of their students, some misunderstandings, confusions and frustrations occurred. These mediated students' engagement.

Insights gained from this study related to affordances and constrains of some e-learning tools and their influence on students' engagement may be of benefit to tertiary educators. The pedagogical strategies that are suggested at the end of this thesis can also be of use to teachers and instructional designers when designing online courses. Overall, the findings confirm the importance of providing appropriate conditions for learner engagement in online learning contexts, and significance of lecturers' technological pedagogical knowledge on learner engagement and positive learning experiences.

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Publications arising from this thesis

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Conference and Seminar presentations

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Chapter 1: Introduction

Preface

My fascination for Information and Communication Technologies (ICT) began in 2002 when I first started my career as an English lecturer in one of the universities in Malaysia. I started teaching Immersion English and English Language to students who needed to improve their English before going on to degree programmes. The biggest challenge in the English Improvement Programme was to maintain students' motivation and interest while making them communicate in English, as most of the students were from China, Indonesia, Vietnam, Korea, Japan, Mongolia and the Middle East. Naturally, they switched to their mother tongue whenever possible. Therefore, the challenge was to get the students engaged with the activities as much as possible, and reliance on a text book was obviously not sufficient in achieving learning objectives. As a solution, the university integrated into the course a program called Australian Centre for Languages (ACL) English online lessons where students were allocated online self-learning hours and face-to-face lecture hours. Students could complete online exercises, participate in discussions with peers and the lecturer, drop in writing assignments whenever and wherever they were. This offered more flexibility than traditional classrooms.

My interest in using Information and Communication Technologies in teaching and learning increased further when my university set up the Centre for Information Technology Support (CITS). The centre was constantly introducing teaching technologies and providing training sessions for the staff. Recognizing my enthusiasm and interest, I was selected as the faculty representative providing me with opportunities to explore new teaching technologies, and provide professional learning for colleagues as hands-on sessions.

With the experience I gained while sharing knowledge and skills with other members of the staff, I realized that technology had become an integral part of my teaching. I was given opportunities to teach diverse groups of students in several

degree and diploma programmes. I frequently delved into ICT with my students to explore how these might enhance their learning experiences. A pilot study I conducted in 2010 on using blogs in improving students' writing skills further affirmed that students not only enjoyed the learning experience with ICT but also benefited in achieving good marks and grades. The use of teaching technologies undoubtedly resulted in more engaging and interesting lessons with my students. This led me to find out more about what the best practices of teaching and learning with ICT were and present papers in various national and international conferences.

On the other hand, some of my colleagues were hesitant about embracing these new technologies and incorporating them in their teaching. Often they complained that the students were not motivated and engaged with learning tasks, and they talked about the constraints of learning technologies. The university's Peer Observation of Teaching (POT) practice required each teacher to observe one of their colleagues and provide feedback on their teaching practices and the use of ICT. This system allowed me to observe some of the teachers in their classrooms and observe the issues my colleagues had when using ICT in their classes. I began to think of ways to identify factors that affected students' active participation in activities in order to maximize their engagement. With this interest, I embarked on my research at the University of Waikato which is an attempt to gain a deeper understanding of how learners are engaged with e-learning activities in tertiary level education. I do not believe that technology miraculously transforms learning; rather I believe that by gaining an insight into the nature of engagement in e-learning activities and the mediational factors that affect learners' engagement, teachers can make deliberate efforts to design courses that can enhance students' learning experiences, rather than frustrate or demotivate them.

In this research, E-learning activities are defined as any intentional activity that aims to improve one's knowledge, skills and competence that is facilitated by ICT. Learner engagement in the context of my research refers to students' active participation in E-learning activities (i.e. discussion threads, virtual classroom) in achieving learning goals.

Introduction

Since the launch of the World Wide Web in 1991, there has been corresponding interest in the exploration of e-learning (Bowles, 2004). As a tool, the Internet has brought significant changes to communities, organizations and markets. Because of its flexibility, Internet use has proliferated in many fields within a short period. In the education sector, teachers and students also explore new ways of constructing knowledge and enhancing teaching and learning experiences through such affordances.

The term e-learning has been defined in various ways. According to Garrison (2011), "e-learning is formally defined as electronically mediated asynchronous and synchronous communication for the purpose of constructing and confirming knowledge" (p. 2). Naidu (2006) defines e-learning as "the intentional use of networked information and communications technology in teaching and learning" (p. 1). Zhang and Nunamaker (2003) describe e-learning as "any type of learning situation when instructional content is delivered electronically via the Internet when and where people need it" (p. 207). E-learning generally refers to educational processes that use Information and Communication Technologies for asynchronous and synchronous communication for constructing knowledge. E-learning is also commonly known as virtual learning, online learning, digital learning, web-based or network learning, and distributed learning (Naidu, 2006; NZCER, 2004) although some researchers define slight differences between these terms. For instance, in differentiating the meaning between online learning and e-learning, Tsai and Machado (2002) state that online learning offers content that is freely available via the Web, Internet or on a CD-ROM while e-learning is associated with activities that are linked to computers and networks which are used concurrently. The computer in this case may not be the vital component or it may not deliver the learning content, but the important factor is that the computer and the network must have a connection with the learning activities and the learners.

The use of ICT is becoming one of the fastest growing segments of the education sector. Many universities and institutions have been incorporating components of

e-learning into their programmes (Kim & Bonk, 2006) with the intention of extending on existing modes of course delivery so that students have greater flexibility in choosing learning options. According to New Horizons (2012), "4,600,00 college students in the United States are currently taking at least one of their classes online and by 2014 this number will increase to 18,650,000" (para. 10). There appear to be three main methods of course delivery. The most common method is traditional which takes place face-to-face. The second mode is known as hybrid or blended learning that comprises both face-to-face and online technologies, and the third method is e-learning which is fully online usually without any face-to-face classes. In addition, in fully online contexts, communication can take place synchronously and asynchronously. The term asynchronous usually refers to Web-based, self-paced communication and learning, occurring at any time, any place through e-mails, forums, blogs or wikis. On the other hand, the term synchronous refers to simultaneous communication in real time, but from any place, using tools such as chat rooms or video conferencing; both methods can promote interactive and collaborative learning and teaching (Bowles, 2004).

In spite of the popularity and benefits of ICT, several elements and components should be taken into consideration when teachers integrate ICT in their teaching. Some of these are: the type of technology, the instructors' familiarity with technology, students' motivation and their willingness to use the implemented technology, the collaborative learning environment, and most importantly the ways to facilitate learner engagement with e-learning activities are significant. In relation to this, my research focuses on students' engagement with e-earning activities and the factors that influence their engagement in an online learning environment. The e-learning tools considered in this study include Moodle learning management system and Adobe Connect virtual classroom. All of these will be referred to as educational technologies or learning technologies throughout this research.

Research problem

Studies have focused on different aspects of e-learning such as the level of learner satisfaction with e-learning (Gilbert, Morton, & Rowley, 2007; Wu, Tennyson, & Hsia, 2010), effectiveness of e-learning in relation to e-learning tools, learner acceptance of e-learning (Hassan, 2010; Lee-Post, 2009; Lee, Yoon, & Lee, 2009), learner perceptions of e-learning tools (Shu & Yi-Ju, 2007), e-learning strategies in relation to challenges (Tucker & Gentry, 2009) and e-learning success factors (Chai & Poh, 2009; NZCER, 2004). However, there is a paucity of research that focuses on factors affecting students' engagement in learning activities that are facilitated by synchronous and asynchronous learning technologies.

With reference to research on learner engagement in New Zealand context, Zepke, Leach and Butler's (2010) project on learning environments and student engagement with learning in tertiary settings indicated that although engagement has been researched well in other parts of the world, it is "not yet researched extensively in post-school education in New Zealand" (p. 1). While this report did not specifically refer to E-learning, it is encompassed in the focus on tertiary learning. Formal qualitative research that focuses on learner participation and engagement in e-learning activities in tertiary education is generally under-explored, and particularly in New Zealand.

Adverse effects of low engagement are likely to impact on student achievements and student behaviour and eventually, these effects may result in students leaving tertiary studies (Finn, 1989). A range of studies such as Marks (2000) demonstrate that factors contributing to low levels of engagement include the background of students, instructors' capability and curriculum. In some of these research studies, learner engagement has been addressed quantitatively (Beer, Clark & Jones, 2010; Bulger, Mayer, Almeroth, & Blau, 2008; Vaughan, 2010). For example, indicators of student engagement reported in such studies were determined by the number of clicks recorded in the learning management systems such as Moodle or Blackboard. However, this limited approach does not address participants' views on their engagement nor explore issues they face such as any constraints with

learning technologies or contradictions that hinder students' engagement within online learning environments. Thus, my research sets out to gain a deeper understanding of learner engagement with e-learning activities and factors that affect students' engagement.

In addition, other literature has provided strong evidence that traditional face-to-face learning has been transformed by online technologies where both learners and teachers gain benefits (Hew & Brush, 2007; Hughes & Ooms, 2004). This shift from traditional to blended learning environments is described as: "flexible, inclusive, collaborative, authentic, relevant, global and effective" (Uschi, 2005, p. 86). Holmes and Gardner (2006) claim that "e-learning has the potential to overcome some of the limitations of traditional learning, including, most importantly, the fixed times and locations for learning" (p. 77). With the flexibility of place, pace and time, online learners are able to broaden their learning experiences outside the four walls of a classroom.

In spite of the significant growth and interest in e-learning (Bell & Federman, 2013; Nagel, 2010; Rivera & Rice, 2002), positive outcomes are not ensured in all contexts (Alexander, 2001). In view of this, some researchers have shown uncertainties about technology transforming teaching and learning (Lee, 2006; Romeo, 2006; University of Washington, 2013) and the pedagogic values of online learning OECD, 2005). There are also a number of studies that have demonstrated that the implementation of e-learning has no significant contribution to students' learning experience or performance (Rivera & Rice, 2002), nor has enhanced learning (Davis, Steinweg, & Thomson, 2005; Friday, Friday-Stroud, Green, & Hill, 2006). In response to the concerns related to the less successful implementation of technology in some learning environments and the studies that show failure and uncertainties around e-learning, my study sets out to gain a deeper and more thorough understanding of the affordances and constraints of e-learning tools that are used and their influence on learner engagement in the context of my research.

Research aim and question

My study investigates one aspect of e-learning, namely students' engagement in e-learning activities and in particular, the mediational factors that exist within e-learning activities. With Activity Theory as its research framework, my study focuses on learning activities that are facilitated by educational technologies in three tertiary learning contexts in New Zealand. In investigating the issues related to students' engagement within e-learning activities, this study is structured to address the following research question:

> What key mediational factors affect university students' engagement in e-learning activities?

Significance

E-learning is developing rapidly, but not all aspects of its implementation are understood. Past studies suggest that e-learning enhances positive outcomes and students' learning experiences (Laurillard, 2006; Walsh, et al., 2012) if it is carefully designed (Rosenberg, 2007). Similarly, New Zealand's Ministry of Education (2004) asserts that e-learning has the potential to transform current educational practices. Transformative education in this context refers to the changes that can place in teaching and learning practices when educational technologies are used in classrooms. According to Laurillard (2006), online environments more easily facilitate flexibility and active participation; thus, support interaction and collaboration among learners. However, current practices of e-learning are not without constraints and criticisms (Ali, 2009). For instance, a frequent criticism raised is the quality of e-learning compared with face-to-face classroom learning (Arbaugh, 2000a; Ruth, 2010).

According to Coates (2006), the use of LMS as an asynchronous e-learning platform can influence learner engagement; however, there is little research on these influences and the ways in which an LMS affects engagement. One of the technologies that my research examines is Moodle, which is the LMS used in the University of Waikato. In addition, synchronous technologies such as virtual

classrooms can be used to engage students in the learning process and increase student satisfaction through a variety of activities (Little, Passmore, & Schullo, 2006) that can include with real time interactions (McBrien, Jones, & Cheng, 2009). However, the use of synchronous learning tools has not been researched extensively and in particular studies on students' perceptions of learning with synchronous technologies are under-explored (McBrien, Jones, & Cheng, 2009). In addition, research on the impact of the simultaneous use of synchronous and asynchronous tools on learner engagement is an area that has not been explored extensively, particularly in New Zealand.

In response to these concerns, my study focuses on everyday practices of e-learning in three online learning contexts in the University of Waikato. My intention is to contribute to a better understanding of students' participation in activities that are facilitated by various e-learning tools and the factors that affect their engagement. Tertiary educators may benefit from this research as it aims to determine affordances and constraints of some e-learning tools and their influence on students' engagement in this context. The course coordinators and designers are also able to consider using the findings of this research in deciding on suitable educational technologies or LMS that can facilitate learning activities. The pedagogical strategies that are suggested at the end of this thesis can also be of use to teachers and instructional designers when designing online courses. Moreover, this research can make a worthwhile addition to relevant literature in the field of e-learning particularly in tertiary education in New Zealand.

Definition of terms

The key terms used throughout this thesis include:

Educational technologies- are technologies that are used to assist learning in education. Educational technologies include web-based applications that can be synchronous or asynchronous. Examples of educational technologies include wikis, blogs, LMS and virtual classrooms and these are also known as learning technologies or e-learning tools.

Synchronous tools- enable real time interactions and communication, as they allow people to connect to each other at the same point of time, but from different locations. Common synchronous tools used in education include audio conferencing, video conferencing, chats and virtual classrooms.

Asynchronous tools- facilitate delayed communication and interactions at people's own pace, place and time. Some of the synchronous tools are discussion threads, email, blogs, wikis, streaming audio and streaming video.

E-learning- is defined as the use of educational technologies to design, deliver, and manage both formal and informal learning and knowledge sharing at any time, any pace and any place. In educational contexts, some e-learning courses are offered fully online without any face-to-face interactions while in some contexts, courses are offered with a blended mode that is the use of both face-to-face and online interactions that are facilitated by educational technologies.

E-learning activities- are defined as any intentional activity that aims to improve one's knowledge, skills and competence that is facilitated by Information and Communication Technologies.

Online learner engagement- My study defines online learner engagement as students' active participation in e-learning activities (i.e. discussion threads, virtual classroom) in achieving learning goals where students:

- feel a sense of belonging to a learning community
- use collaborative ways to co-construct knowledge
- interact with the content and technology
- maintain social and academic interactions with the peers and the lecturer

An overview of this thesis

This thesis contains six chapters. The first chapter includes an introduction and background to my research, statement of the problem, aim and research question and significance of the study.

Chapter two reviews the literature related to learner engagement, e-learning and pedagogical theory and practice. The latter part of this chapter details and discusses the history and the application of Activity Theory in literature related to various fields.

Chapter three addresses the methodology and methods that were used in my study. This chapter also includes descriptions of case study sites and participant samples and how data were collected and analysed using Activity Theory.

Chapter four presents an analysis of the findings that emerged from data. These findings are arranged according to individual cases and then according to the elements of Activity Theory as main themes and then the sub-themes emerged under these main themes are illustrated.

Chapter five includes an analysis of the key findings of this research, linking them to the literature discussed in chapter two to address the research question. The chapter discusses how the main mediators—Tools, Rules, Roles, Community and Contradictions influenced the way students participated in learning activities in the case studies.

The final chapter includes conclusions arise from my research and offers some recommendations teachers may like to consider when designing online courses. The chapter also includes methodological contributions as well as limitations and makes recommendations for further research.

Chapter 2: Literature Review

Introduction

This chapter is divided into three main sections. The main focus of the first section of the literature review is a discussion of learner engagement and its various forms: history and definitions, types of learner engagement, focuses of learner engagement research in higher education, research on learner engagement in New Zealand context and online learner engagement. This research takes place in New Zealand and in particular at the University of Waikato. Therefore, in order to contextualize the research, the chapter also includes a review of e-learning in education and the developments and current status of e-learning in New Zealand as well as at the University of Waikato.

The third section of this chapter is a description of pedagogical theory and practice that surveys Behaviourist, Cognitivist, Connectivist, Constructivist and Socio-cultural approaches, in order to relate the significant contributions and limitations of theory to online learning environments. It also highlights the evolution of theories of learning and their impact on online learning environments. Finally, a case is made for the appropriateness of Socio-cultural approaches in this research to better understand how engaged learning takes place in online learning environments. The latter part of this section also comprises a description of the history and the application of Activity Theory in related literature. The following figure presents a conceptual map that represents the structure of this chapter.

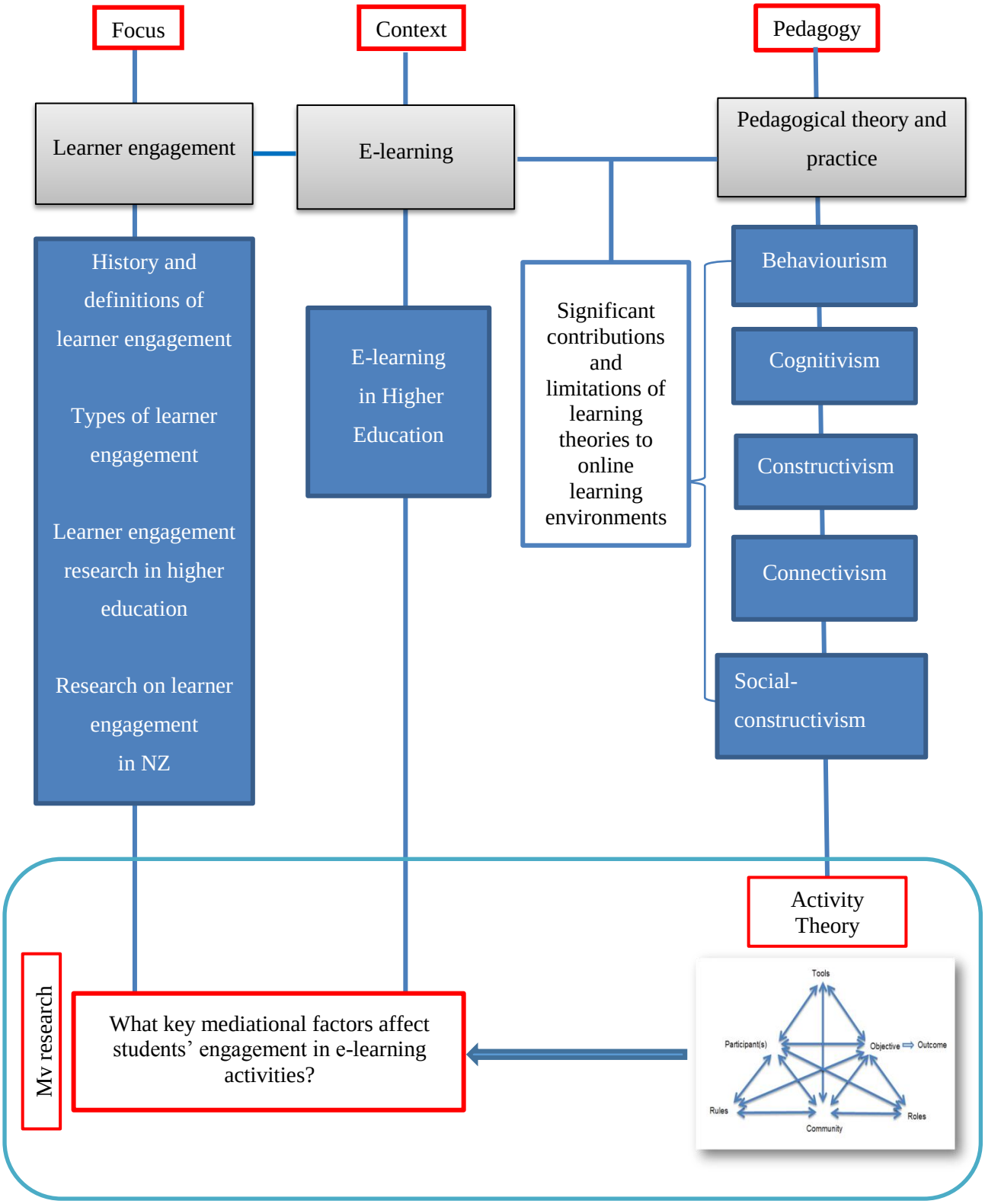

Figure 2.1. Conceptual map of the literature review

Learner Engagement

Based on the research question, leaner engagement is a central part of my study, and therefore this section focuses on various aspects of learner engagement. The first sub-section provides a brief account of the history and definitions of learner engagement that include a range of constructs and also demonstrates how the focus on engagement has changed over time, then various types of learner engagement are discussed. This is followed by a focus on learner engagement research in higher education which emphasizes the multifaceted nature of engagement and the benefits and positive outcomes to learners revealed by research. The latter part of this section includes a description of research on learner engagement in the context of New Zealand as well as online learner engagement. The review of the literature on various aspects of learner engagement such as definitions and types of engagement, research on learner engagement in higher education as well as in New Zealand, assists in developing an understanding of learner engagement and also contextualizes my research.

History and definitions of learner engagement

In the past, learner engagement was linked to achievement, behaviour and a sense of belonging in particular in school contexts. The concept of engagement was introduced mainly to deal with the dropout rates of socially and economically challenged students that were known to be at-risk (Parsons & Taylor, 2011). Over time, the focus of the concept of engagement has changed and the current trends of engagement constitute multiple constructs.

As Parson and Taylor (2011) accentuate, there are multiple dimensions and levels of learner engagement because of the ambiguity of the terms that are used when defining engagement. Harris (2008) asserts “While there is general agreement that student engagement produces positive outcomes, defining the concept is problematic as there is disagreement about what counts as student engagement” (p. 58).

This is due to the fact that the term student engagement denotes different things to different people (Barkley, 2009). For instance, some of the early studies defined engagement in terms of aspects such as interest (Dewey, 1913), effort (Meece & Blumenfeld, 1988), time on task (Berliner, 1990) and motivation (Skinner & Belmont 1993). According to Chen, Gonyea and Kuh (2008) engagement is the level to which the learners are involved with learning activities and engagement is related to learners' satisfaction and achievement of good grades. Sharing similar views, Beer, Clark and Jones (2010) state that in spite of the fact that there is no universally accepted definition of what comprises engagement, student and college success, student retention, and student motivation are always linked to engagement. In a similar vein, Kuh (2009) asserts that, "Today engagement is the term usually used to represent constructs such as quality of effort and involvement in productive learning activities" (p. 6). This means that when students devote more time and energy to educationally focused tasks, it is believed that the students gain more from their learning experiences (Kuh, 2009). In brief, engagement is a consequence of concentration and interest in what is being learned; it's not a precondition as is often assumed.

It is useful to observe the evolution of learner engagement in order to gain an understanding of how its focus has changed over time. Drawing on to the literature from 1980s to 2010, Parsons and Taylor (2011) identify three main categories based on different purposes and definitions of learner engagement. The three categories illustrate the shift in the purposes of learner engagement in the last three decades. During the first decade, learner engagement was associated with disengaged and disadvantaged students; the students needed help in participation and achievement. Thus, learner engagement in this decade was to reduce the dropout rates. The second decade focused on learner engagement in terms of classroom management in order to avoid and reduce classroom disciplinary issues. The third decade focuses on learner engagement "to engage students in learning about learning (to help them to become skilled lifelong learners as opposed to well behaved, attentive students)" (Parson & Taylor, 2011, p. 9).

Types of learner engagement

Engagement is viewed as a multi-dimensional construct. A critical reading of the literature on learner engagement demonstrates that there are several ways learner engagement has been discussed. They include: behavioural, emotional, social, academic, psychological, intellectual, cognitive, and institutional. Some types of learner engagement are repetitively mentioned in the literature and new categories are added each year, unfolding diverse elements that are associated with this multi-dimensional construct.

According to Fedricks, Blumenfeld, and Paris (2004), engagement has been classified in three ways in the literature: behavioural, emotional and cognitive. Behavioural engagement is defined as participation in both academic and social activities. Behavioural engagement is related to academic achievement and dropouts rates, and emotional engagement is described as students' positive and negative response to their teachers, peers and school. It is assumed that the relation or the bond that the students have with their teachers, classmates and school influences their willingness to perform the tasks. Cognitive engagement is linked with the idea of investment. This means that individuals who are thoughtful and willing to use their effort to understand concepts and ideas that are complex become skilled at challenging skills. A growing body of research focuses on these three dimensions of engagement; however, a majority of the studies focus only on one dimension of engagement or a combination of two (Fedricks, Blumenfeld, & Paris, 2004; Harris, 2008), for example, students' cognitive engagement in a Mathematical classroom (Helme & Clarke, 2001). The authors stress that there is a need for multidimensional research. Sharing similar views, Fedricks, Blumenfeld and Paris (2004) state that the concept of engagement is linked to the precursors of how students behave, feel and think. It is hard to separate these boundaries distinctly, as engagement is a multidimensional construct. Thus, it is assumed that one dimension facilitates another (Harris, 2008). As Fedricks, Blumenfeld and Paris (2004) affirm, all three dimensions, behavioural, emotional and cognitive are non-hierarchical, as they are all equally important.

Moreover, Jones (2008) proposes an Engagement-Based Learning and Teaching Approach (EBLT) which is based on the three domains, behavioural, emotional and cognitive engagement. According to Jones, the behavioural domain encompasses habits and skills; emotional domain includes feelings and motivation while the cognitive domain comprises values and beliefs. Highlighting the value of each component, the author identifies several preconditions (learning relationships, classroom environment, rewards, guiding principles, habits and skills) and practices (relevant and personalized learning, learning strategies, literacy, learning relationships) that are important in strengthening learner engagement. Jones (2008) places high importance on learning relationships.

> Strong positive relationships are critical to the education process. Students are more likely to make a personal commitment to engage in rigorous learning when they know teachers, parents, and other students care about how well they do. They are willing to continue making the investment when they are encouraged, supported, and assisted. Building good relationships complements rigor and relevance. For students to engage fully in challenging learning, they must have increased levels of support from the people around them. (p. 6)

Similarly, Anderson, Christenson, Sinclair and Lehr (2004) designed an intervention model called Check and Connect to promote learner engagement. The participants of this study were 80 elementary and middle school students in the United States. These students were referred to the Check and Connect program for signs of disengagement and poor attendance when the participants were in elementary school. As the name suggests the Check and Connect program focuses on checking and connecting with students, their parents and the staff. This means that students' attendance, grades and suspensions are regularly checked by a monitor in order to increase the connection students have with the school. The authors believe that through "relationship building, problem solving and persistence", learner engagement can be enhanced (p. 97). Describing the characteristics of learner engagement, they state:

> Engagement involves positive student behaviors, such as attendance, paying attention, and participation in class, as well as the psychological experience of identification with school and feeling that one is cared for, respected, and part of the school environment. (p. 97).

Anderson, Christenson, Sinclair and Lehr investigated whether the quality and the closeness of relationships students have with the intervention staff contributed to improve learner engagement. In their study, they propose four types of intervention design for improving learner engagement: behavioural (participation of classroom and extracurricular activities, attendance), academic (time spent on learning and task), cognitive (learning strategies, learners' responsibility, self-controlled learning) and psychological (relations with teachers and classmates, sense of belonging). Through teacher-rated academic and social engagement scales, the study shows the positive links between the closer relationships and improved engagement levels. However, this is a quantitative study and participants' experience of making these connections and their views are not included in this article. It should also be noted that this article discusses two other categories of engagement as academic and social engagement. Although the authors provide a clear description of what constitutes academic engagement, the article does not seem to provide a clear description of aspects of social engagement. The authors state:

> …academic aspects of students' engagement (e.g., attendance, preparation, work completion, eagerness to learn) may be easier to impact than their social/interpersonal experiences at school, perhaps because behavioural engagement represents discrete, more explicit actions than the aspects of social engagement included in this study. (p. 108)

The murkiness of what constitutes social engagement can be due to the fact that "consistency and agreement among scholars and educational institutes about what constitutes social engagement is still non-existent" (Parsons & Taylor, 2011, p. 27). It also shows the ambiguity of the terms related to learner engagement.

Furthermore, Willms, Friesen and Milton (2009) identify three dimensions of engagement as social, academic and as the authors mention, a "newer concept" of intellectual engagement (p. 10). The authors link social engagement with participation and a sense of belonging. Academic engagement is described as the involvement with formal requirements that are needed for schooling and intellectual engagement is defined as a combination of emotional and cognitive aspects of engagement. Willms, Friesen and Milton point out that intellectual engagement is linked with analytical, higher order thinking skills that help individuals to understand and resolve problems as well as create new knowledge. However, the notion of intellectual engagement introduced in this article is similar to cognitive engagement.

Reviewed literature on the notion of learner engagement as discussed in this section indicates the context-based, multi-faceted and multi-layered nature of learner engagement. The studies reviewed discussed various aspects of engagement in relation to different levels and types of engagement, as well as themes that are associated with engagement. As my research locates learner engagement within an activity of learning in an online environment, themes on online learning activity and engagement will be related to the elements of Activity Theory. It is expected that some other themes that may not be part of Activity Theory will also emerge from the data and analysis of my study.

Learner engagement research in Higher Education

The multifaceted nature of engagement seems to benefit learners in many ways and brings positive outcomes in spite of the disagreement about the definitions and constituents of engagement. It should be noted that research pertinent to learner (dis)engagement can be found mostly in school contexts. As discussed in previous sections, learner engagement evolved from the school context and was associated primarily with school dropout retention, classroom management and other behavioural issues. However, the recent trend of learner engagement research has been expanded to higher educational contexts.

Hardy and Bryson (2010) report that the phenomenon of engagement is a recent focus of higher education research in particular in the USA, UK, Australia and South Africa. For instance, The National Survey of Student Engagement (NSSE) which is carried out annually in the USA appears to provide one of the most widely used models (Coates, 2005). NSSE has been run in 1,300 institutions in North America and based on the NSSE, Australia has developed its own student engagement survey, Australian Survey of Student Engagement (AUSSE) and also South Africa has designed the South African Survey of Student Engagement (SASSE) (Ako Aotearoa, 2011). One of the main objectives of the student engagement survey is to develop quality student engagement data that can be used to enhance students' learning experiences. In relation to this, Coates (2005) states that NSSE related tasks and projects are important for institutions as the productive learning strategies and practices identified through learner engagement can enhance the quality of the learning experience. However, one limitation of NSSE is its focus on students' overall perceptions of learning experiences and the campus environment at a macro level, rather than the micro level of individual papers or courses. My study attempts to fill this gap by focusing on learner engagement with e-learning activities in three university courses (papers) in New Zealand.

There are several reasons why levels of engagement vary among students. For instance, Hu and Kuh (2002) state that characteristics of students such as race, sex and ethnicity, field of study, parents' level of education, years of study as well as characteristics of the educational environment influence the level of engagement with learning activities. In a similar vein, focusing on the different levels of engagement in a face-to-face environment, the study conducted by Ahlfeldt, Mehta and Sellnow (2005) demonstrates the correlations between engagement and variables that influence engagement such as enrolment, size of the class and level of proficiency. They conclude that more proficient students in small classes show higher levels of engagement.

Although the ability to measure engagement is still considered a difficult task, some researchers do suggest various scales to measure the levels engagement (Krause & Coates, 2008). Offering a broader perspective of student engagement, a

study carried out in Australia by Krause and Coates (2008) introduced seven standardized scales of engagement that include 'Transition Engagement Scale (TES), Academic Engagement Scale (AES), Peer Engagement Scale (PES), Student–staff Engagement Scale (SES), Intellectual Engagement Scale (IES), Online Engagement Scale (OES) and Beyond-class Engagement Scale (BES)' (p. 496). The findings affirm that engagement is diverse in nature and the levels of engagement shown by the different scales are based on students' behaviour and attitude. Other scholars have also attempted to measure engagement by using various scales, but these studies are mostly quantitative. As the authors suggest, qualitative studies on learner engagement in other parts of the world would be appropriate for future research.

Qualitatively measuring engagement is a difficult task (Bulger, Mayer, Almeroth, & Blau, 2008). Generally, students display various levels of attention and it is challenging to determine to what extent the students are engaged. In the context of a traditional classroom, engagement levels were determined through students' behaviour such as class attendance (Beer, Clark, & Jones, 2010), raising hands or answering questions (Handelsman, Briggs, Sullivan, & Towler, 2005). Past research on learner engagement seems to be linked primarily with behaviour and the measurements are based on attendance, exam scores and graduation numbers and these measurements are related to students' achievement levels (Parsons and Taylor, 2011). Although definitions of engagement are often linked with behavioural, cognitive and emotional dimensions and learners being 'on-task', this view seems to be questionable, as the learners may seem to be 'on-task', but in actual fact, they may be chatting or they may not be involved in an educationally purposeful activity. Quantifying learner engagement and making conclusions about inner mental processes by observing the external behaviour is a complex process. Quantifying emotional engagement can also be problematic as the learners' emotions can be affected by many internal as well as external factors. As a result, some scholars critique quantitative measurements such as class attendance and time on task stating that these measures may not show the quality of participation (Beer, Clark, & Jones, 2010) and also these studies neglect to document how learners felt about the learning experience and also whether they were interested in what they did (Parsons & Taylor, 2011). As Harris (2008)

mentions, we often attempt to measure "student engagement in schooling instead of in learning" (p. 74). In line with Parsons' and Taylor's (2011) and Harris' (2008) views, in my study, I intend to capture participants' views on their experiences of learning with educational technologies and factors that affect their engagement.

Recent research on learner engagement demonstrates that scholars' interests have shifted from linking engagement solely with student behaviour to relating learner engagement to learning experiences. For example, Parsons and Taylor (2011) state:

> ...no longer are educators focusing only on increasing engagement for behavioral compliance or academic achievement for some students; we are talking about increasing enjoyment, interest, scope, and meta-cognitive awareness about the spectrum of learning so students become skilled in learning in all aspects of life as well as core literacy and subject-area content. (p. 14)

In line with the new focus of learner engagement, Dunleavy and Milton (2009) mention that the intention of the Canadian Education Association (CEA)'s multi-year research and development initiative on learner engagement was to grasp, evaluate, and encourage new ideas that are able to enhance the learning experiences of adolescents in classrooms. In order to capture the aspects of learner engagement and its relation to learning, the authors use an extended framework that includes social, academic and intellectual elements of learner engagement.

Harris (2008) discusses new directions of learner engagement research with the rationale that quantitative research does not explain "how people make sense of this concept" (p. 60), whereas qualitative research on engagement supports comprehensive understanding of this concept through the words of participants that include teachers and students. In a similar vein, Parsons and Taylor (2011) stress that there is a need for empirical research on engagement that includes the perspectives of teachers and learners.

Addressing some of these issues related to learner engagement, my research focuses on learner engagement with activities in online learning environments. Through qualitative methods such as in-depth participant interviews, class observations, a survey and other relevant documents (course outline and assessment criteria), my study includes experiences of learners in terms of learner engagement with e-learning activities in three courses across the university.

Research on learner engagement in New Zealand

In the context of New Zealand tertiary education, Ross (2010) states that there is only a small emerging body of work, as "unfortunately, the student engagement literature is largely international" (p. 1). Like in other parts of the world, the term engagement denotes a variety of meanings to scholars in New Zealand. The Ministry of Education (2010) explains, engagement can mean different things in different contexts:

> 'Engagement' at school can mean many things, ranging from a student choosing to attend school rather than truant, to a situation where students remain on-task or 'engaged' throughout an activity or task because they find it to be 'fun' (but where learning of key concepts from the task may or may not be realized). (p.90)

It can also mean learning situations that involve "deeper-level cognitive engagement" where students "problem-solve, think more broadly than the immediate topic" and "make insightful links to other learning areas" (p. 90). This reinforces the multifaceted nature of engagement and the fact that engagement can have different indicators in different contexts.

Among the projects carried out in New Zealand, The Student Engagement Initiative (SEI) was conducted by The Ministry of Education. This was established in 2001 as a result of the high rates of "stand-downs, suspensions, exclusions, expulsions, early leaving exemptions or high rates of truancy" in schools (Phillips, 2007, p. 1). These are considered indicators of low engagement. This school-based project aimed at addressing these indicators has been successful

in reducing student dropout rates by 48% from 2001 to 2007 in 91 schools. However, the term 'learner engagement' here simply means attending school and it does not include any qualitative measure to indicate whether the students actually engaged or participated in educationally purposeful activities for learning even though they were present in the classroom.

On the other hand, Teaching and Learning Research Initiative (TLRI) project, *Learning Environments and Student Engagement with Learning in Tertiary Settings* (Zepke et al., 2010) focuses on student engagement with learning across nine tertiary institutes that comprise universities, institutes of technology, wanaga, private training providers and community organizations. Using tools such as surveys and interviews, the authors developed a number of strands of engagement. These strands include motivation and agency, transactional engagement (engagement with peers and teachers), institutional support, active citizenship and non-institutional support. The findings of the report show different patterns of engagement and the researchers recommend that the institutions should carry out their own research in terms of learner engagement. The participants of the research were mostly in face-to-face teaching environments. It is important to note that all these studies have been conducted in environments where there has been no significant use of ICT.

Another significant contribution to the body of research on learner engagement in New Zealand is AUSSE. The AUSSE is an annual survey conducted by the Australian Council for Education together with tertiary institutions in Australia and New Zealand. AUSSE is based on NSSE and its developments over the last 10 years. The AUSSE was first stared in the year 2007 in Australia and New Zealand (Ako Aotearoa, 2011). By the year 2010, all 8 universities in New Zealand participated in AUSSE.

The AUSSE is based on the Student Engagement Survey (SEQ) that contains 39 multiple choice questions and 2 open ended questions. The AUSSE measures learner engagement based on 6 engagement scales: Academic challenge, Active Learning, Student and Staff interactions, Enriching educational experiences and work integrated learning. Apart from measuring learner engagement, the AUSSE

also focuses on 7 outcome measures: higher order thinking, general learning outcomes, general development outcomes, career readiness, average overall grade, departure intention and overall satisfaction.

The report *Student engagement in New Zealand's universities* (Ako Aotearoa, 2011) which is based on AUSSE, highlights the lack of studies on learner engagement in New Zealand. The report says "although in recent years more and more research has focused on student engagement worldwide, little focus has been given to the engagement of students studying at New Zealand's universities" (Ako Aotearoa, 2011, p. vi). The report provides an overview of student engagement in all 8 universities in New Zealand. Each chapter provides an overview of one aspect of learner engagement in different universities i.e. The University of Canterbury focuses on student engagement in terms of students' field of study and the University of Waikato focuses on student engagement in terms of their gender. According to the report, learner engagement is defined as "students' involvement with activities and conditions that are likely to generate high-quality learning" (p. vi). The report also emphasises learner engagement for learner success:

> The concept of engagement provides a practical lens for assessing and responding to the significant dynamics, constraints, and opportunities facing tertiary education institutions. (p. vi).

In spite of providing information on learner engagement according to gender, student groups, field of study, departure intentions and extramural students, this report does not give much detail on qualitative measures except in the section that focused on Maori and Pacifica students' engagement in the University of Otago. The editor of the report *Student engagement in New Zealand's Universities* states that she is not aware of any in-depth analysis of the open-ended responses in AUSSE done by universities in New Zealand (A. Radloff, personal communication, August 22, 2012).

The overall findings of the *Student engagement in New Zealand's universities* report suggest that compared with the United States, New Zealand undergraduates are less engaged in their studies in their first and the last year, but compared with

Australian students, New Zealand students are slightly more engaged. In their first year, 12.8% of New Zealand students never ask questions or contribute to online or face-to-face discussions. In later years, this percentage of students asking questions and joining discussions increased to 40.7%. The findings also reveal that New Zealand students do not tend to work with other students during or outside class. One important finding stated in the report is that "nearly one-third of New Zealand's university students have seriously considered leaving their university before completing their study" (p. xiii). Although there could be other reasons for them wanting to leave the university, as the report indicates the main reason is lack of engagement. Therefore, there is a need for research that finds ways to enhance student engagement in tertiary education in New Zealand.

Other studies that have been carried out on learner engagement in New Zealand are limited to secondary schools and are also conducted in face-to-face learning environments. For instance, the report on *Student engagement in the middle years of schooling (Years 7-10): A literature review* (Gibbs & Poskitt, 2010) discusses the types of engagement as behavioural, cognitive and emotional. In relation to these, through relevant literature, they discuss the factors that are influential in fostering engagement such as motivation and interest, relationships with teachers and peers, self-efficacy, goal orientation and so on. Another study conducted on engagement in New Zealand is by Ministry of Education (2010) that focused on the factors that impact school students' engagement and disengagement in face-to-face learning environments. These factors include the nature of relationships with teacher and peers, levels of knowledge and skills, the way the learning task is approached, teacher feedback and so on. However, formal qualitative studies on learner engagement in tertiary level education in online environments in New Zealand are under-explored.

With reference to leaner engagement in e-learning contexts in New Zealand, Tamati's unpublished Master's thesis (2008) focuses on various ways of engaging the Maori e-learner. Tamati uses an action research approach and various data collection methods such as interviews, online observations and focus groups. The participants of this research are eight Maori professionals who are interested in e-learning. Tamati (2008) affirms that "culturally-responsive e-learning

environments that value Māori ways of learning may be deemed as invaluable for the Māori e-learner" (p. i). The findings of the study suggest that by using a problem-based teaching approach that involves direct instruction delivered via a blended learning mode within a culturally responsive learning environment can aid in engaging Maori professionals. It is interesting to note that Tamati does not define learner engagement and its components. This ambiguity hinders Tamati in making an understandable relationship between the notion of learner engagement and learner's belief and attitudes, which seems to be the focus of the study.

In a similar vein, although the report *Statistical profile of Pacific students in tertiary level education and engagement* (NZCER, 2006) refers to the term engagement in the title, the report does not seem to have any reference to engagement with learning activities, but generally focuses on student numbers learning at tertiary education. Similarly, *Statistical profile of Maori in tertiary level education and engagement in e-learning* (NZCER, 2004) provides statistics about tertiary education providers, enrolment and web access details of Pacific people such as Cook Island Maori, Fijian, Niuean, Samoan, Tokelauan and Tongan, but it does not define any form of engagement with reference to e-learning. This suggests that the existing literature related to learner engagement in New Zealand are mostly limited to the student numbers involved generally in education, students' relationship with institutions and also drop-out rates. Research on students' engagement with learning and the factors that affect their learning within a paper level is under-explored.

As this research focuses on students' engagement in e-learning activities, the next section includes a discussion on online learner engagement and also a definition of online learner engagement to frame the focus of my research.

Online learner engagement

Information and communication technologies (ICT) are being used by many organizations and educational institutions for their potential to support learners and facilitate learning. As Lim (2004) states, all the hardware, software and other

fundamental necessities offer various conditions and options for designing online learning environments. However, these promising technologies do not "ensure that learners are willing or know how to engage in the context of their learning and make sense of the information provided to construct their own knowledge" (Lim, 2004, p. 16). Thus, it is beneficial to explore how learning processes can be facilitated with appropriate technologies, strategies and conditions in order to maximize learner engagement in online learning environments.

In relation to online environments, Coates (2006) defines engagement as active and collaborative participation in learning activities, communication and correspondence with the academic staff, involvement in improving learning experiences and feeling accepted and supported by university learning communities. This description denotes the multifaceted nature of engagement and that it is a combination of active and collaborative learning, participation, communication as well as interactions among teachers and students that make them feel supported as members of a university community. Beer, Clark and Jones (2010) accentuate that e-learning environments facilitate these interactions and therefore influence learner engagement.

As a multi-dimensional construct, online learner engagement has been researched and conceptualised in many ways in the literature. In a review of articles on online learner participation, Hrastinski (2008) identifies six conceptions of online learner participation: accessing e-learning environments, participation as writing, participation as quality writing, participation as writing and reading, participation as actual and perceived writing and participation as taking part and joining in a dialogue. However, this review is limited only to articles that include the term 'participation' in the title and that excludes articles that are on learner engagement. It is argued that while participation is a vital aspect of learner engagement, as a complex construct, learner engagement is more than just participation (Beer, Clark, & Jones, 2010).

Measuring engagement in online learning environments is also a common focus of research. For example, Bulger, Mayer, Almeroth, and Blau (2008) developed a system called Classroom Behavioral Analysis (CBAS) to measure students'

engagement in a writing class. They used two formats to teach the students; a traditional lecture-based classroom and an interactive classroom where students were given a web-based simulation exercise. They observed on-task and off-task activities of both groups. They hypothesized that interactive lessons may increase students' engagement levels in a computer-supported learning environment. The authors state that with the help of computers scholars are able to measure students' engagement levels in online learning environments. Student behaviour data such as time spent on applications, website visits, internet activities, attention span and key stokes are among the data that can be collected to measure learner engagement and demonstrate students' on-task and off-task activities. The monitoring software could record students' computer actions that included log-ins, keystroke activities, application and website visits. The authors state that although computers can be distracting, the finding of the study supported their hypothesis that CBAS is an effective tool to measure student engagement. The findings of this study also suggest that student engagement is associated with instructional method, as lower engagement levels were shown with the traditional class-based study group compared to the group with simulation conditions. Similarly, Beer, Clark and Jones (2010) report how system analytics can be used in gathering information about indicators and patterns of student engagement in online learning environments. Although LMS records all actions that include log-ins, mouse clicks, time on task and stores these data to provide information about students' engagement, one significant limitation of this method is that it does not include the quality of their engagement or their learning.

Related literature also focuses on cognitive, academic and social engagement levels of students in online learning environments. Richardson and Newby (2006) define cognitive engagement as the incorporation and use of motivation and strategies in the course. Through a Study Process Questionnaire (SPQ), Richardson and Newby observed students' online learning experience in terms of program focus, previous online learning experience, age and gender. The SPQ measurements for motivation and strategies included three levels such as surface, deep and achieving motivation/ strategies levels. For example, a deep strategy was discovering the meaning by reading widely and relating with previous related knowledge whereas surface strategy is learning the essentials and reproducing

through rote learning. The authors indicate that as the learners were gaining more experience in online learning, they showed more responsibility in their own learning or self-directed studies. Social engagement that is defined as the interactions that take place among students and teachers in socially purposeful ways is also considered important as much as academic engagement that is involvement in educationally meaningful learning activities (Hu & Kuh, 2002).

Another aspect of learner engagement discussed by Hannon and D'Netto (2007) is how students from culturally and linguistically different backgrounds engage with technologies and to what extent these cultural and language factors affect learners' engagement with online learning. The authors surveyed 241 students in a South Australian University. However, this study did not focus on 'learner engagement' as stated in the title *Cultural diversity online: student engagement with learning technologies.* The study described cultural aspects and the organizational, technological and pedagogical issues in online learning and suggests that in order to improve the quality of learning, it is imperative to create a "culturally inclusive online learning environment" (Hannon & D'Netto, 2007, p. 418). Having research participants from different linguistic and cultural backgrounds in my study, findings from Hannon's and D'Netto's (2007) may shed some light on the analysis of my research in exploring factors that are related to cultural and linguistic aspects.

Other aspects that are considered important in relation to learner engagement comprise the instructors' roles in courses. In particular, teachers' limited time and knowledge about how to create engaging courses that have appropriate designs to promote engagement and interactions are some of the issues related to learner engagement (Revere & Kovach, 2011). In order to enhance learner engagement, the instructor needs to play an important role by facilitating the process of providing relevant guidelines and strategies that are helpful in participating in online learning activities (Lim, 2004). Some of the guidelines and strategies suggested in the study conducted by Lim include scaffolding strategies, problem solving skills and simulation activities and the author believes that by providing them with these strategies, the students can avoid some possible issues that hinder their engagement. By having in-depth interviews with the lecturers of courses I

observe, I intend to find out about their roles, practices, skills that influence students' engagement in the context of my research.

The types of educational technologies that help facilitation of learner engagement are another area researchers have explored. With the emergence of e-learning, universities are using LMSs and various types of ICT for teaching and learning. The extensive use of ICT such as forums, blogs, wikis and LMS such as Moodle or Blackboard has extended the learning environments in which students engage and interact with each other. When these educational technologies are used appropriately, they seem to foster leaner engagement as well as reduce attrition and improve learning outcomes and enhance learning experiences (Revere & Kovach, 2011). Coates (2006) focuses on LMS and accentuates that although LMS have the potential to influence student engagement, research on learner engagement in online environments where LMS are used has not been extensively explored.

Research also highlights the different types of activities used in classrooms facilitated by synchronous and asynchronous educational technologies and their influence on learner engagement. Synchronous technologies can be used to engage students in learning processes and increase student satisfaction through various activities (Little, Passmore, & Schullo, 2006) with real time interactions (McBrien, Jones, & Cheng, 2009) while asynchronous tools facilitate learner engagement with more flexibility. However, synchronous tools such as virtual classrooms have not been researched extensively and in particular studies on students' perceptions of learning with synchronous technologies are under-explored (McBrien, Jones, & Cheng, 2009).

While literature indicates that research on synchronous tools in education is limited, there are a few studies that have been done on virtual classrooms. However, it has to be noted that these studies are not purely on learner engagement. Drawing on the *tool mediation* principle of Activity Theory, Falloon (2011) explored the effectiveness of Adobe Connect virtual classroom experience of two groups of students in a university. One of the themes that emerged as a finding of this study was the affordances and constraints of virtual classroom to

support interaction, engagement and deeper learning. The findings indicate that *multiple knowledges* of students—technical, procedural and operational, influenced their participation. Falloon's study also mentioned that although the synchronous tools were useful in building relationships and diminishing learner alienation, it did not support deeper learning, but the asynchronous discussion forums gave more time and students could reflect and make intelligent contributions. He concludes that as a recent advent, virtual classrooms need more research to determine their best use.

In terms of asynchronous tools in promoting engagement, a majority of the studies focus on online discussion forums for learner engagement (Mokoena, 2013; Pawan, Paulus , & Yalcin, 2003; Schier & Curtin, 2009; Zhu, 2006;). Research on the impact of simultaneous use of synchronous and asynchronous tools on learner engagement can be considered an area that has not been explored extensively.

It should also be noted that although research on learner engagement in online environments constitutes a large proportion of the literature, the majority of the studies fall into the category of quantitative research. The intent of my research is to explore the factors that affect students' engagement with e-learning activities using qualitative methods.

In summary, my research resides within the area of learner engagement in e-learning activities and investigates the factors that affect learner engagement with e-learning activities. In particular, my study examines how synchronous and asynchronous educational technologies as well as other mediators influence students' active participation in e-learning activities in three courses in the university.

My study defines online learner engagement as students' active participation in e-learning activities (e.g. discussion forums, virtual classroom and others) in achieving learning goals where students:

- feel a sense of belonging to a learning community
- use collaborative ways to co-construct knowledge

- interact with the content and technology
- maintain social and academic interactions with the peers and the lecturer

This research focuses on students' engagement in e-learning activities in three diverse online learning environments at a university in New Zealand. Therefore, it is appropriate to discuss the current status of e-learning in higher education and in particular in the New Zealand context. The next section provides a review of e-learning and its related aspects.

E-learning in Higher Education

This review provides definitions and insights into the ways technology has been used for teaching and learning. The literature that is included in this review addresses a wide range of related aspects: potential benefits of e-learning, changes associated with the use of Information and Communication Technologies and the use of e-learning in the New Zealand context. To contextualize my research, the developments and current status of e-learning in New Zealand and studies that have been conducted on e-learning in the University of Waikato will be briefly discussed in the latter part of this section.

E-leaning has been defined in many ways, and these definitions generally focus on one characteristic or distinctive feature. Bleimann (2004) defines e-learning as self-directed learning that is collaborative and based on web-based technology. Similarly, New Zealand Ministry of Education (2009) defines e-learning as "learning that is enabled or supported with the use of information and communication technologies (ICT)" (para. 1). The basic tenet of e-learning is that learning is mediated by ICT. As Laurillard (2006) states, "A student who is learning in a way that uses information and communication technologies (ICT) is using e-learning" (p. 1).

E-learning is becoming increasingly exploited for teaching and learning in many countries, mostly because of the flexibility learning options in terms of time, place and pace (Holmes & Gardner, 2006; Manir, 2009). Studies that examine how

technology can be used in educational contexts have focused on potential benefits of ICT in relation to teaching and learning. E-learning offers unique opportunities for teachers and learners to enhance their teaching and learning experiences via virtual environments that help not only in the delivery but also in the application of knowledge (Holmes & Gardner, 2006). Rosenberg (2007) claims that "e-learning helps with course administration and management, with assessment and transmission of content, but is at its best when its interactive potential is used to the full, to allow each person to have active engagement in his or her learning" (p. 1). The author suggests that e-learning can be successful only when it is applied in appropriate contexts. E-learning is used in course administration, assessment and dissemination of content; however, in order to have potential outcomes of e-learning which is by engaging the learners with learning, careful planning is needed (Rosenberg, 2007).

The literature on e-learning has been growing rapidly covering various aspects of the pedagogical potential of computer mediated teaching and learning. Some common areas of research on e-learning include the best and unsuccessful practices (Fernando, 2006), the effectiveness (Carrol & Burke, 2010; Shih-Wei & Chien-Hung, 2005), success factors (Chai & Poh, 2009), and strategies (Rosenberg, 2001) of e-learning. Apart from these, some studies highlight the specific benefits of e-learning such as cost effectiveness, improved responsiveness to change, flexible access, appropriate content, uniformity, and learner value (Manir, 2009). In some cases, it is highlighted that e-learning brings several benefits such as flexibility in terms of time and place, savings in terms of cost and time, personalized learning, learning environments where collaboration takes place, better accessibility to instructors and unlimited access to learning materials (Garrison, 2011; Zhang & Nunamaker, 2003). On the other hand, studies also have identified drawbacks of e-learning such as initial investments in terms of technology and staff, substantial effort and designing, and support for hardware, software, training and technical support (Welsh, Wanberg, Brown, & Simmering, 2003). However, it is important to consider whether the advantages of e-learning outweigh its drawbacks, and whether it is useful and meaningful to implement e-learning in education.

In addition to the pedagogical potential of e-learning, some researchers have focused on changes that are taking place with the emergence of e-learning. Shifts from teacher-centred learning to student-centred learning in various contexts (Lee, Yoon, & Lee, 2009; New Zealand Council for Education Research [NZCER], 2004) and also the way students learn and interact in learning environments (Desai, Hart, & Richards, 2008) are some effects. For instance, access to information regardless of time and place enables learners to 'explore education' and communicate with peers and the outside world through various media ranging from print to video (Desai, Harts, & Richards, 2008, p. 329), an affordance previously unavailable.

Research affirms that collaboration is facilitated by technology-enhanced learning (Naidu, 2006). Rosenberg (2001) believes that e-learning is based on three suppositions: e-learning enhances collaborative learning; it uses Information and Communication Technologies; and also it disseminates instruction and information. However, other factors like teachers' knowledge and skills, students' willingness to embrace the methods of e-learning and their attitude also play important roles. Rosenberg suggests that because e-learning is networked, it supports learner-centred activities. This implies that e-learning encourages human interactions through activities that support learning processes (Watkins, 2005). In other words, e-learning assists learners in developing meaningful, collaborative interactions (Zhang & Nunamaker, 2003) regardless of the culture within or across classrooms. In e-learning contexts, "interactivity refers to interaction between teacher(s) and learners, learner to learner(s), and learner(s) with course materials" (NZCER, 2004, p. 11). Researchers also accentuate that the design and the interface of learning technologies can affect students' participation and interaction in learning (Vonderwell & Zachariah, 2005).

In New Zealand, Ministry of Education (2004) and e-Learning Advisory Group (2002) stress the importance and need of a learner-centred approach. According to e-Learning Advisory Group (2002), "New Zealand needs an e-learning vision that fits within the overall vision for learning in the tertiary sector and is underpinned by a learner-centred approach. Technology alone will not achieve our goals" (p. 5). As suggested by the e-learning Advisory Group, technology does not offer a

complete solution for a transformative education; rather the practitioners should concentrate on the potential and uses educational technologies offer individuals to enhance their performance and also the limitations of these technologies that hinder their performance. These potentials and limitations are known as affordances and constraints of technologies in education and they should be thoroughly considered for a successful implementation of e-learning.

According to Ako Aotearoa (2008), the ways students are taught and supported are changing with the use of teaching technologies in tertiary education in New Zealand. The report *Taking the lead: Strategic management for e-learning* illustrates that this transformation involves "fast-developing technologies, some complex re-design and integration of instructional systems and the recruitment of new categories of specialists to assist teachers and managers to use these new technologies" (p. 1). However, as the e-learning Advisory Group and Ako Aetearoa suggest, ICT alone do not make this change. This is also supported by Wright (2010) who affirms, "The provision of a tool per se isn't enough for it to be good for learning, if people don't know what it's for or how to use it. Perhaps this suggests what teachers need in order to engage in understanding how to get the best out of e-Learning tools: time, space, place, opportunity, and intellectual energy" (p. 13). She is referring to school teachers' responsibility in using e-learning effectively, but this can be relevant in any context including tertiary level education.

New Zealand Ministry of Education has clearly specified the importance of e-learning in education. According to NZCER (2004) "E-learning can improve understanding and encourage deeper learning, if there is careful course design and choice of technology in relation to learning objectives that aim to encourage deeper learning" (p. vii). The 'if' here further affirms that technology or tools alone may not facilitate learning, rather the courses have to be designed carefully with appropriate technology to suit learning activities in order to achieve expected outcomes. The government's support and initiatives in e-learning reinforce the need for effective strategies and plans that achieve the 'national development goals' which include "respond to globalization, accelerating technological change and the knowledge society" (Ministry of Education, 2004, p. 1). After about the

year 2000, there have been significant developments in the tertiary e-learning sector in New Zealand. Some of these include the formation of an e-learning Advisory Group (2002), Tertiary e-learning framework (Ministry of Education, 2004), e-learning portal, e-learning development projects (New Zealand Council for Education Research [NZCER], 2004), e-learning participation (Guiney, 2011) and e-learning achievement (Guiney, 2013).

Mitchell and Forer (2010) point out that until the establishment of the e-learning Advisory Group in 2001 very little attention had been paid to e-learning in New Zealand. They further observe that "The Ministry of Education has only recently begun to collect data on the state of e-learning in New Zealand's tertiary institutions" (p. 78). On the other hand, this could be due to the infancy of the field. Mitchell and Forer (2010) indicate that tertiary level research in e-learning education in New Zealand is rather limited, but increasing.

The Ministry of Education's 'Interim Tertiary e-learning Framework' (2004) anticipates the impacts of e-learning on the education system in New Zealand:

> e-Learning will help remove barriers to educational opportunity and success, leading to increased participation at all levels in the tertiary system, e-Learning will lead to life-long learning opportunities that are increasingly relevant to learners' individual needs, e-Learning will lead to better quality teaching and improved learning outcomes. (p. 2)

The key factors stressed here are: increased participation, life-long learning, quality of teaching and improved outcomes. The use of 'will' here implies that the Ministry of Education is confident about the solutions e-learning can offer to alleviate some of the barriers that hinder successful learning and also that e-learning can enhance the quality and outcomes of learning. In spite of this claim, since the year 2004, these potential outcomes of e-learning have not been discussed or mentioned.

Another dimension of e-learning in the New Zealand tertiary level context was focused on by Mitchell and Forer (2010) regarding students' perceptions of e-

learning and its effects on their learning behaviour compared to traditional modes of learning where teaching and learning take place face-to-face without any components of online learning technology. The findings of their study describe that students' learning styles and the learning experience impacted on their perceptions of e-learning. While recognizing the benefits of information and communication tools, the students valued traditional methods of face-to-face instruction.

McSporran (2004) examined which online teaching and learning strategies are considered valuable to students in the New Zealand context. This study was a duplication of an American study conducted in 2003 by Frey, Faul and Yankelov (cited in McSporran, 2004). The most used strategies in a Learning Management System (LMS) that were considered valuable at that time were:

(1) Email, which was used for communication; however, only 71% of the lecturers used this component;
(2) Information or instructions about assignments was used only by 57%;
(3) 64% of the instructors posted the course syllabus;
(4) 57% of the lecturers used the learning management system to upload lecture notes;
(5) 43% of the lecturers used it for announcements.

The findings of the study clearly show that although institutions were equipped with learning management systems, they were mainly for information dissemination and not for facilitating learning activities. Students' involvement or active participation was lacking, as there were no e-learning activities such as discussions, conferencing or blogging involved.

Similarly, in relation to the use of online components, focusing on eight tertiary level institutions across the country, Nanayakkara (2007) examined the factors that affect the implementation of e-learning management systems in New Zealand. The study highlighted that these factors can be categorised based on:

(1) individual characteristics and perceptions,

(2) organizational characteristics and

(3) systems such as learning management system characteristics and external system characteristics.

The findings of the research indicated that the crucial factors for user acceptance of learning management systems are related to the system and organization. According to Nanayakkara while 60% of the courses in tertiary level used some form of e-learning tools such as email, the adoption rate of learning management systems by 2007 was as low as 38%. Thus, in spite of the efforts and initiatives of the Ministry of Education to promote technologies in teaching and learning, they have been under-utilized in some contexts in tertiary level education in New Zealand. Sharing similar views, Rosenberg (2007) questions:

> ....why the uptake has not been quicker. We seem to have a sophisticated e-learning plane ready for take-off, yet it bumps awkwardly along the runway, sometimes seeming to take to the air, but in fact still short of take-off in the sense of sustained integration into teaching practice. (p. 2)

The preliminary inquiry I carried out in searching for information on the use of LMS in the universities in New Zealand after the year 2007 revealed that information on what LMS are mainly used for, and in what ways learner engagement is facilitated by LMS is very limited.

Beer, Clark and Jones (2010) also state that it is not clear to what extent LMSs affect learner engagement in universities. Moreover, research on engagement within learning management systems allows the identification of what hinders learner engagement in these contexts. In line with these factors, my study will highlight how existing e-learning tools such as Moodle and Adobe Connect virtual classroom affect learners' engagement with learning activities in three online learning environments in the University of Waikato.

Since the context of this research is in the University of Waikato, it is relevant to examine studies that have been conducted on e-learning in the University. The

history of the Internet in New Zealand dates back to the year 1989 when the first link to the internet was established via the University of Waikato (University of Waikato, 2014). The first technology enhanced course in the University of Waikato, the Mixed Media Programme (MMP) was offered by the School of Education in 1997. Expanding the initiatives that promote technology enhanced education, the University established the Waikato Innovation Centre for Electronic Education (WICeD) in 2001. WICeD was initially contracted to the university to supply e-leaning support such as learning management systems; however, in the year 2004 WICeD became a private company. After a 4 year gap, the University of Waikato established the Waikato Centre for e-learning (WCEL) in 2008. Since then the key responsibility of WCEL is to support staff in all faculties and divisions to promote the use of effective technologies in teaching, learning, research and administration.

There are few studies that have been conducted on e-learning in the university. Dewstow's unpublished Master's thesis (2006) investigated the reasons why university staff usage of online teaching methods had not increased and developed as expected. The findings of the study indicate some factors. These include: staff training, staff qualifications, commitment to online teaching and learning, computing skills and innovative learning environment. *The University of Waikato staff Educational Technology survey 2010* (WCEL, 2010) also reveal that, Moodle as a teaching, learning and research tool is regularly used by 38.3% out of 330 staff members who participated in the survey. While 34.3% of the staff members regularly used Moodle discussion forums, synchronous web-conferencing tools were only used by 2.7% of them. The low numbers shown here suggest that the university staff's online teaching methods are still underdeveloped. This may also have an impact on students' engagement with e-learning activities.

Westberry (2009) examined the use of learning activities that are underpinned by social epistemologies within three different asynchronous online learning contexts: nursing, linguistics and management. Focusing on the social and cultural nature of learner participation at an epistemological level, she concludes that due to the complex nature of e-learning environments, social and historical aspects play an important role in shaping student participation. In the section on further

recommendations for future research, she argues for empirical studies of everyday practices of e-learning that inform the "differing modes of engagement" and also research that considers "educational phenomena at the activity, paper, programme, and institutional level" (p. 305). My research locates learner engagement within an activity where this phenomenon can be examined empirically. In this way, factors that affect learner engagement with reference to students and online activities can be identified.

Westberry's subjects were English as an Additional Language (EAL) learners. According to her, English language and technology are considered as tools in this context and they should be dominant themes of her findings. However, to her surprise, she found that these themes did not emerge from her analysis. My study attempts to focus on the technologies as tools/artefacts that mediate learning and examine every day practices of e-learning to see how students participate in activities that are facilitated by various e-learning tools. The context of my research broadens the area of learner engagement by looking at different technologies and contexts, and explores factors affecting their engagement in three diverse contexts in the university.

Khoo (2010) developed a collaborative pedagogical e-learning framework in order to enhance and facilitate teaching and learning experiences of graduate students in a Research Methods course in the University of Waikato. Her objective was to understand online teaching and learning environments. In order to achieve this aim, she used a case study approach and observed one instructor's and 14 students' experiences over one semester. The study comprised three phases: (1) reviewing phase, (2) designing the intervention and implementing, and (3) the evaluating phase. Khoo explains:

> The notion of participation in a learning community through the adoption of different roles provides a useful orientation for understanding lecturer and student responsibilities and strategies to serve different purposes of teaching and learning. (p. iii)

In summary, the study highlights what Khoo sees as important sociocultural values in facilitating teachers' and learners' online learning experiences. She states that there is a need for studies that "explore the use of synchronous Web-based tools such as chats, or a combination of synchronous and asynchronous tools to foster interaction and to support the development of an OLC" [online learning community] (p. 396). With reference to the focus of Khoo's study, my study may have implications of forming online learning communities in some contexts.

Forbes' (2012) doctoral study examined how students and teachers experienced asynchronous online discussion within initial teacher education. She used socio-cultural theory and phenomenography to explore the participants' views on the phenomenon and argued that "teaching can be enhanced by awareness of how participants experience the situation" (p. ii). Her key findings reported in this study were the participants' need for creating expectations for intentional communication, maintaining a presence, working collaboratively to encourage student leadership and community in pursuing deeper learning. In line with Forbes' argument, the aim of my research is to contribute to a better understanding of students' active participation by investigating the mediational factors that affect their engagement in e-leaning activities. Through a case study approach, my research highlights how existing e-learning tools that include the Moodle learning management system and virtual classroom affect and influence learners' engagement with learning activities in a range of online learning environments in the University of Waikato. The affordances, constraints, as well as instructors' pedagogical purposes of using different types of e-learning tools in various learning contexts will also be examined.

In view of pedagogical purposes of using educational technologies in online learning environments, it is important to discuss how e-learning is facilitated in different schools of thought. The next section discusses significant contributions and limitations of learning theories and also their impact on online learning environments. Finally, the section shows the appropriateness of Socio-cultural approaches in this research to better understand some of the ways learner engagement is facilitated in online learning environments.

Pedagogical theory and practice

Behaviourism

From a behavioural perspective, learning is a change in behaviour which can be observed scientifically and is caused by external stimuli in the environment. The advocates of the development of Behaviourist Theory were Thorndike (1913), Pavlov (1927) and Skinner (1974) (Ally, 2008). The behaviourists were thus considered connectionists, as they were concentrating on the connection between stimulus and response and conditioning.

The behaviourist school of learning considered the mind as a black box and ignored the inner processes of the mind. The key concept of the behaviourist view was that learning is based on a behavioural stimulus-response relationship. Behaviourists believed that this overt behaviour which was based on conditioning could be scientifically observed and measured (Skinner, 1974). They believed that the observable indicators demonstrate that learning has taken place; however, they were unable to explain what was going on in the mind.

The principles of behaviourist learning were evidenced in traditional early computer based learning (Ally, 2008) where technology-enhanced classrooms used computer programs such as drill and skills or drill and practice. Typically, drill and skill software presents learners with a problem to answer. When the learners answer, they are provided with positive or negative reinforcement. Examples of drill and skill programs are online spelling or grammar programs (Hartsell, 2006). However, drill and practice programs do not teach new information to the learner, as they practice the same skill repeatedly (Mayer, 2003). These programs are only an additional support. Tutorials, as another type of behavioural software in contrast with drill and skill, teach learners new information. Tutorials use programmed instruction and are suitable for remedial courses as they allow more flexibility in terms of skipping certain levels or choosing which section to do first. Another form of learning software that is based on a behaviourist perspective is educational games. Hartsell (2006) states that "similar to the drill and skill programs, games provide an interesting theme such as solving a math problem to stop ants from invading the picnic basket" (p. 57).

Demonstrating more advanced features, these programs allow learners to upgrade themselves in terms of levels and also be rewarded based on their proficiency. However, although these computer applications aid students in learning basic skills, students may not necessarily understand what they are learning. The learners are considered passive recipients who are unable to apply what they learnt in new situations (Mayer, 2003). The weaknesses and dissatisfactions with the conventions of Behaviourist Theory of learning thus led to the exploration of a new view of learning which emphasized the importance of the human mind.

Cognitivism

In contrast to behaviourists, cognitivists believed that the mind, which was seen as a black box by the behaviourists, should be explored in order to understand the inner process of learning. In other words, while behaviourists observed the external stimuli, cognitivists focused on the internal processes of the mind. According to Ally (2008), "Cognitivists see learning as an internal process that involves memory, thinking, reflection, abstraction, motivation and metacognition" (p. 21). Cognitivists accentuate how learners process information by storing, organizing and linking the old knowledge to the new, which is known as schema (Hartsell, 2006). According to Shuell (1986), in cognitive psychology learning is an active process which relies on the mental activities of the learner. The higher levels of inner processes that are involved in learning and the importance of the role of prior knowledge in acquiring new knowledge are two aspects that are related to cognitive psychology. Cognitive psychologists pay more attention to the ways learners acquire and understand knowledge rather than the behaviour, and they place importance on the analysis of tasks and performance of learning in relation to cognitive processes.

Cognitivism emerged as a reaction to behaviourist views of learning. Cognitivists took the laboratory experiments on animal behaviour in non-natural settings to the next level of cognitive processes of human beings in non-natural settings (Mayer, 2003). This was influenced by the invention of the computer in the 1950s, as both computers and human beings are involved in cognitive processes such as gaining knowledge, storing or remembering knowledge, making decisions and so on

(Schunk, 2008). During the 1960's and 1970's the 'human-computer metaphor' (Mayer, 2003, p. 138) governed the Cognitive Theory of learning. As Lachman, Lachman, and Butterfield (1979) illustrate:

> Computers take symbolic input, recode it, make decisions about the recoded input, make new expressions from it, store some or all of the input, and give back symbolic output. By analogy, that is most of what cognitive psychology is about. It is about how people take in information, how they recode and remember it, how they make decisions, how they transform their internal knowledge states, and how they translate these states into behavioral outputs. (p. 99)

Like computers, human beings as active seekers of knowledge are capable of receiving, organizing, retrieving and manipulating information in the course of the information processing. For instance, in a typical classroom setting that is a reflection of cognitive views of learning, the teacher as the disseminator provides appropriate information to learners. In disseminating information, teachers use methods such as lectures, text books, PowerPoint presentations and videos. As receivers, students accept, organize, store and manipulate information (Mayer, 2003).

Cognitivist perspectives have influenced technology-based learning in many ways. Some of the examples of these computer applications are simulation, mind mapping and problem-solving software programs in which learners develop their cognitive skills (Hartsell, 2006). Tutorials and information databases such as encyclopaedia and internet resources also incorporate cognitive perspectives (Hung, 2001). Learners are exposed to activities where they recognize and learn complex strategies and techniques in order to develop their metacognitive skills. In addition, teachers play the role of a facilitator or a tutor in assisting students rather than an instructor (Motschnig-Pitrik & Holzinger, 2002). In summary, technology-enhanced learning influenced by cognitive perspectives allow "learners to research, reflect, select, organize, and present their conclusions and ideas concerning a given situation, problem, or topic" (Hartsell, 2006, p. 60).

Like most theories of learning, Cognitivism was also criticised for its drawbacks and limitations. According to Mayer (2003), cognitive views of learning shifted the focus from experiments with animals in laboratory settings to observations of humans. Cognitive views highlighted the importance of information and mechanical processing rather than knowledge and deliberate construction of knowledge. However, cognitive views of learning focused on human beings in artificial settings rather than on natural academic settings (Mayer, 2003). This view ignored the 'motivational, cultural and biological' aspects of learning (Mayer, 2003, p. 140). The failure to understand the affective, social and biological bases of learning in Cognitivism led to a new perspective of learning which is known as Constructivism.

Constructivism

While the term Constructivism was not formally recognized until 1977, evidence of constructivist thinking and concepts had appeared in the work of philosophers and educationists such as Confucius, Plato and Aristotle in the past (Pelech, 2010). The basic principle of constructivism is that learners actively construct knowledge. According to Mayer (2003), in a constructivist approach:

> Learning occurs when a learner actively builds meaningful cognitive representations. The mechanism underlying learning is the building of cognitive structures, including the building of mental models, through the strategic application of cognitive processes. In constructivist learning, learners engage in active processing such as paying attention to relevant information, mentally organizing it into a coherent structure, and integrating it with existing knowledge. (p. 141)

The two main trends that can be recognized in research pertinent to Constructivism are Cognitive Constructivism and Social Constructivism. The most notable proponent of Cognitive Constructivism is Jean Piaget. The basic principle of Cognitive Constructivism is that individuals construct their own knowledge based on past experiences, and these experiences influence them to build on their existing knowledge. Pelech (2010) states:

> Constructivism is a philosophy that views knowledge as a subjective process that is shaped and structured by one's experiences. As a person encounters new experiences and situations, he connects these new experiences to previous knowledge bases and understandings. These connections not only add to the original knowledge base but also restructure that pre-existing knowledge base. (p. 8)

Cognitive constructivists focused on the active construction of knowledge and suggested that learners are actively engaged in the process of creating meaning. In relation to the construction of knowledge, Piaget proposed a model called stage theory that describes how people make sense of the world. This was based on two concepts; assimilation and accommodation. Bell (2005) elaborates Piaget's concepts and states:

> Piaget's approach proposes that a person's mental representations are produced during progressively more complex interactions by that individual with the world of physical objects. Incoming information is initially assimilated by existing mental structures. If this assimilation proves inadequate – that is, the incoming material cannot be understood in terms of the existing mental structure, accommodation takes place – that is, a modified structure evolves. (p. 25)

However, Piaget's Cognitive Constructivism was criticized for ignoring social interaction processes and collaboration in learning (Barker, 2008). Consequently, views on learning in 1990s known as Social Constructivism began emphasizing the social aspects and collaborative nature of learning.

Social Constructivism stressed the importance of the social and cultural nature of learning. The basis for this stance came from the works of the Russian psychologist Vygotsky and Activity Theorist Leont've (Cobb, 2005). Vygotsky recognized the social nature of knowledge and claimed that learning is a process in which we create meaning and make sense of our experiences collaboratively (Vygotsky, 1978). The social interactions were believed to enhance learning. In

relation to this, Vygotsky introduced the idea of the Zone of Proximal Development (ZPD); that is, humans learn through interacting with each other. He described ZPD as the distance between what we can learn alone and what we can learn when helped by capable peers or significant others acting as mentors or facilitators of learning.

The construction of knowledge based on one's experiences can be an appropriate condition for e-learning (Hung, 2001; Koohang, Riley, & Smith, 2009). E-learning can support Social Constructivism by facilitating active and collaborative learning and promoting a community of practice (Palloff & Pratt, 1999) through tools such as emails, blogs, discussion forums, bulletin boards, video conferencing and the Web. Mediation, which is a key concept in Vygotskian thinking, describes how activities are mediated by tools and artefacts. In the context of e-learning, technologies are tools and artefacts; thus, they mediate and influence activities and the way we carry them out. In addition, in relation to the social aspects, computer mediated communication methods enable learners to "examine ideas in a social context of different perspectives and develop collective ways to understand issues" (Riel, 1998, p. xix). For example, Lim and Chai's (2004) study about how ICT can engage students in higher order thinking activities in schools in Singapore. The authors pointed out that, studies of ICT that take place in socio-cultural settings (classrooms) cannot be separated from their environments. In portraying the "intimate mechanisms that link ICT, learning and its socio-cultural settings" (p. 219), the authors used Activity Theory that is based on Vygotsky's mediational triangle as a framework. Activity Theory which focuses on the whole activity system allowed Lim and Chai (2004) to observe the learning processes mediated by ICT in the actual context at both an individual and social level.

The use of online technologies in education has the potential to change some of the ways we learn and interact with each other. Siemens (2004) argues that traditional theories of learning do not account for learning that takes place in digital contexts. He proposed Connectivism as a learning theory accounting for learning in such spaces.

Connectivism

Siemens (2004), as an advocate of Connectivism, points out that other traditional theories of learning: Behaviourism, Cognitivism and Constructivism are not accountable for technology-enhanced learning because these theories were developed when there were no online technologies.

Connectivism focuses on individuals connecting to each other through a digital network. He compares individual learners to nodes which feed information into the network (Siemens, 2004), so that learning occurs within and through the network. According to Siemens, "The starting point of connectivism is the individual. Personal knowledge is comprised of a network, which feeds into organizations and institutions, which in turn feed back into the network, and then continue to provide learning to individual" (para. 29).

Siemens (2004) suggests that the conditions and learning environments in the 21st century are completely different from the ones in the past. Twenty first century learning environments appear to be rich and complex. He asserts:

> Learning is a process that occurs within nebulous environments of shifting core elements – not entirely under the control of the individual. Learning (defined as actionable knowledge) can reside outside of ourselves (within an organization or a database), is focused on connecting specialized information sets, and the connections that enable us to learn more are more important than our current state of knowing. (para. 23)

In his view, learning does not take place only within individuals, but occurs outside of individuals where they store and manipulate knowledge with the help of technology.

However, there has been criticism of Connectivism. Verhagen (2006) points out that Connectivism can be considered as a pedagogical theory, but not a learning theory. He argues that Connectivism does not sufficiently describe the nature of knowledge and how humans acquire knowledge. In response to Siemens' (2004)

claim that “learning may reside in non-human appliances” (para. 25), Verhagen (2006) argues that knowledge cannot be present in appliances because these appliances are mere tools.

Further to arguments over Connectivism as a learning theory, distinctions between Connectivism and Constructivism appear to be vague. Sahin (2012) views Connectivism as an expansion of Constructivism with the use of technology in education. Since Connectivism is an emerging theory, the application of the theory is rather limited and formal literature on Connectivism is relatively sparse at present.

Socio-cultural aspects of learning

Socio-cultural theories of learning trace back to the work of Vygotsky. Social aspects are entailed in learning, and thus learning involves social mediation (Salomon & Perkins, 1998).

Socio-cultural views focus on “roles of social and cultural processes as mediators of human activity and thought” and place human activity or cultural behaviour as the principle unit of analysis in examining human behaviour. Socio-cultural views guide researchers to understand “the complex intertwining of the individual and the cultural in development” (Nasir & Hand, 2006, p. 458).

A number of theories conceptualize learning as a socially-mediated process. Social Constructivism, Situated Learning and Distributed Cognition include the social aspects of learning and share basic conceptions of knowledge and the ways to acquire it. Socio-cultural aspects allow scholars to understand the “collective participatory process of active knowledge construction emphasizing context, interaction, and situatedness” (Saloman & Perkins, 1998, p. 2). Hence, in order to understand how learners acquire knowledge, their interactions and the environment in which all these take place, socio-cultural aspects of learning need to be understood.

I thought that because my research is centred on three specific settings that combine social and cultural considerations, socio-cultural principles of situated learning, distributed cognition and mediated action are important theoretical considerations. The following section describes these theoretical considerations and the subsequent rationale for the selection of Activity Theory as a suitable framework.

Situated learning

Situated learning implies that learning and knowledge acquisition are situated in the culture, context and activities in which this learning takes place. A situated perspective views learning as an interactive activity system in which individual learners interact with others and tools. As opposed to a view of learning that focuses on the individual, a situated perspective includes the interactive activity system in which individual learners are interacting with others and tools, and highlights the importance of the context.

Nardi (2006) points out that studies in the field of Psychology and Computer Science show that "it is not possible to fully understand how people learn or work if the unit of study is the unaided individual with no access to other people or to artefacts for accomplishing the task at hand" (p. 69). Thus, it is important to study the context in which individuals, artefacts and others interact, which is referred to as situated learning.

Lave (1988) refers to the basic unit of analysis for situated action as "the whole person in action, acting with the setting of the activity" (p. 17). The setting that he mentions here is "*a relation* between acting persons and the arenas in relation with which they act" (p. 150). Thus, situated action does not emphasize the individual, or the environment, but the relation between these two, and how one responds to the environment and improvises human activities (Lave, 1988).

To illustrate the improvisatory nature of the activity, Lave (1988) provides an example of serving cottage cheese by a dieter. The dieter in Weight Watchers' program was to serve three quarters of the two thirds cup of cottage cheese. After

giving much thought, the dieter measures two thirds of cheese in a measuring cup, flattened the cheese in a shape of a circle on a chopping board, drew a cross on it, scooped out a quarter and served the rest.

Nardi (2006), referring to Lave's (1988) serving of cheese example asserts that:

> Situated action deemphasizes study of more durable, stable phenomenon that persists across situations. The cottage cheese story is telling: it is one-time solution to one-time problem, involving a personal improvisation that starts and stops with the dieter himself. It does not in any serious way involve the enduring social organization of Weight Watchers or an analysis of the design of an artifact such as the measuring cup. It is highly particularistic accounting of a single episode that highlights an individual's creative response to a unique situation. (p. 72)

A central principle of situated action is that it does not display a clear pattern across situations, but it is very much context-specified.

On the other hand, Nardi (2006) asserts that "Distributed cognition is concerned with structure—representations inside and outside the head—and the transformations these structures undergo" (p. 78). This is similar to cognitive science; however, the difference is that cognitive distribution includes the people and artefacts as the focus, rather than a more limited focus on individual cognition in the head.

Distributed cognition

The notion of distributed cognition was derived from cognitive sciences, social sciences and cognitive anthropology (Rogers, 1997). Distributed cognition denotes that learning is distributed among the individual learner, social others and tools. Distribution of learning means "that the resources that shape and enable activity are distributed in configuration across people, environments and situations" (p. 50). Salomon (1993) sees distributed cognition as a "jointly composed system that comprises an individual and peers, teachers, or culturally

provided tools" (p. 112). He identifies two versions of distributed cognition. His radical view of distributed cognition explains that distributed cognition involves people in the activity and peers and available tools. His less radical view describes the "spiral and reciprocal relationship" in which individuals and distributed cognition interact (Salomon, 1993, p. 132). This relationship is developmental.

Salomon and Perkins (1998) affirm that the social learning takes place through different types of interactions in which learners are involved. These interactions can be with another individual (peer, teacher) or a group (peers and teacher). The interactions appear to enhance the learning of the individual (Salomon & Perkins, 1998). The socially mediated learning was theoretically underpinned by Vygotsky's notion of Zone of Proximal Development (ZPD), which is the distance between what one can learn on one's own, compared with what can be learned when helped by more capable others.

Contributing to different views of distributed cognition, Cole and Engeström (1993) view distributed cognition from a cultural historical perspective. The authors describe how cognition is distributed "between the individual, a mediating artefact, and the environment" (p. 17). In this sense, one who is involved in an activity seems to be part of an activity system in which cognition is distributed among the other constituents of the system, i.e. other people and artifacts. Drawing from Bateson's example of a blind man walking with a stick, Cole and Engeström (1993) explain how the purpose of an action and the tools that are used in a particular setting can determine the distribution of cognition. With the blind man's example, the authors describe that:

> Analysis of mind's focus must include not only the man and his stick, but his purpose and the environment in which he finds himself. When the man sits down to eat his lunch, the stick's relation to his mind totally changes, and it is forks and knives, not sticks that become relevant. (p. 13)

The blind man is part of an activity system where other people (community), norms (rules) and social roles (division of labour) exist. Other than the blind man eating his lunch, other cognitive actions are distributed among artefacts (menu,

arrangement of chairs), rules (paying the bill before leaving the café), and division of labour (some waiters serving food and others cleaning the tables). In short, from a cultural historical perspective, distribution of cognition is determined based on the tools, goals and the setting of an activity system. Hence, "how cognition is distributed must be worked out for different kinds of activity, with their different forms of mediation, division of labour, social rules, and so on. The underlying principles, however, are universal" (Cole & Engeström, 1993, p. 42).

Pea (1993) refers to distributed cognition as distributed intelligence. Similar to Cole and Engeström (1993), Pea believes that knowledge is socially constructed through collaborative efforts toward shared objectives. He describes two aspects of distributed cognition; social and material. He sees learning as a social process in which social collaborations of people and the assistance of peers and experts, as well as tools, take place. On the other hand, Pea sees materials as available resources (i.e. tools) that assist in the development of the cognitive capabilities of the learner. Hence, his view denotes that distributed intelligence is part of a human activity system. It can be said that like human beings as subjects in an activity system, tools and systems such as computers or music chords also carry knowledge. Through various methods such as observation, imitation, exploration and participation with more capable peers novice learners are capable of exploiting this knowledge to achieve a goal because it is distributed among the learner, artifacts and the surroundings. Nevertheless, achieving a goal in an activity relies on learner experiences, background and the affordances of the tools. Therefore, culture and context play an important role in the achievement of a goal (Pea, 1993).

A fundamental understanding of distributed cognition is related to the various types of desires that instigate activities and patterns of distributed cognition (Pea, 1993). As Pea describes, these are task, mapping, circumstantial, and habitual desires. He believes that "The interpretation, relevance, and meaning of resources available for activity are shaped by the desires with which people come to situations" (p. 55). These desires are brought to situations in order to achieve activities.

Mediated action

According to Wertsch (1991), human action can be external or internal and uses mediation, which he clarifies as cultural tools, to fulfil an objective. This action is called mediated action because it can be carried out by an individual or a group. Wertsch (1998) asserts that a mediated action approach provides insights into other elements involved such as 'scene, purpose and act' (p. 24). The scene here refers to the situation in which actions take place. The purpose denotes the goal and the act refers to the action that takes place.

From a socio-cultural point of view, human action is mediated by artefacts (Bodker, 1997). These artefacts can be physical tools, technical procedures or symbolic resources (Salomon & Perkins, 1998). The basic concept of mediated action goes back to the work of Vygotsky:

> Just as humans do not act directly on the physical world but rely, instead, on tools and labour activity, which allows us to change the world, and with it, the circumstances under which we live in the world, we also use symbolic tools, or signs, to mediate and regulate our relationships with others and with ourselves and thus change the nature of these relationships. (Lantolf, 2000, p. 1)

The physical, psychological and symbolic tools through which humans have a relationship with the world are believed to be culturally constructed. In a particular community or society, to meet their requirements, the tools are constantly modified and changed. For instance, the size and functions of an early mobile phone are completely different from the latest mobile phone that is available today. Thus, tools and artefacts carry cultural and social knowledge and experiences of communities and are passed on from one generation to the next. These tools and artefacts carry their own histories of development with them. Extending Vygotsky's (1978) argument that cultural tools and symbols mediate human activity, Pea (1993) argues that "computer technologies mediate human interactions with nature, information, and other persons in distinctly different ways" (p. 57).

Many scholars (Bodker, 1997; Cole & Engeström, 1993; Lantolf, 2000; Pea, 1993; Perkins, 1993; Salomon, 1993; Salomon & Perkins, 1998; Vygotsky, 1978; Wertsch, 1991) have described learning as a socially-mediated process where individuals do not learn in isolation, but interact with 'normal' others, tools and their environment as they make sense of the world and construct knowledge. Socio-cultural theories describe the characteristics of this socially-mediated process allowing an analysis, examination, and understanding of the complexities of the learning environment, the people that are involved and their interactions.

Activity Theory

Activity Theory is derived from socio-cultural and socio-historical theories and draws heavily on Vygotsky's concept of mediation. Vygotsky's triangular model includes *tool*, *subject* and *object* and shows the relationships between these elements. However, because this model tended to focus more on individuals, socio-cultural theorists used Vygotsky's basic mediated triangle as a framework to develop Activity Theory which is accountable for both individual aspects as well as the social nature of activity.

Developing Vygotsky's (1978) concept of mediated action, Leont've (1981) produced a model of activity that consists of the three levels: *activities, actions* and *operations*. In his model, Leont've (1981) differentiates *activity*, *action* and *operation*. At the level of activity which is associated with a motive, it explains *why* something is done. At the second level which is driven by conscious actions, it shows *what* is done and at the third level, which consists of operations, it explains *how* it is done. Leont've (1981) also explains that actions can be individual or collective, thus denoting the social nature of activity.

Engeström's (1987) more recent expansion of the Activity theory framework offers other analytic tools that are appropriate for activity systems. Like Leont've, Engeström also considered activity systems as object-oriented, mediated and collective in nature. Engeström's activity systems analysis enables researchers to observe the interactions that take place among individuals and the environment

and how each affects the other (Yamagata-Lynch, 2010). The constituents of an activity system include *subject, object* and other mediators such as *tools, rules, community* and *division of labour*. Activity Theory can be considered as a philosophical framework that is used to study practices and processes of human beings (Kuutti, 1996). A more comprehensive description of Activity Theory is included in the latter part of this chapter.

In my research, Activity Theory is used as a framework to understand the nature of the online learning activities and contexts in which learning activities take place. The following section describes the theoretical considerations and the development of a suitable framework and the appropriateness of using Activity Theory over other learning theories for this research.

Framework: Comparison of Activity Theory, Situated Action, and Distributed Cognition

While situated action, distributed cognition and Activity Theory are examples of theoretical frameworks that are used to study the context of human and computer interactions, they are different in many ways and have various applications to this study. These theoretical frameworks were carefully considered in choosing a suitable framework for my research.

First, each framework treats the motive and goals of an action in different ways. In Activity Theory, actions are goal-directed and these conscious actions are carried out to fulfil a motive or to achieve an object. The important factor is that objects differentiate an activity from another. In distributed cognition, "a system goal is an abstract systemic concept that does not involve individual consciousness" (Nardi, 2006, p. 79) which is similar to the object in Activity Theory. In situated action, one activity cannot be differentiated by looking at the object, as the focus of situated action is the flux of the activity and "there is no definite concept such as object that marks a situation" (Nardi, 2006, p. 82). However, in Activity theory and distributed cognition, the object determines the activity. Thus, activity theorists claim that situated action frameworks are limited

to the actions and operation levels of an activity. For instance, Nardi (2006) points out that situated action frameworks:

> Have a slightly behaviouristic undercurrent in that it is the subject's reaction to the environment (the "situation") that finally determines action. What the analyst observes is cast as a response (the subject's actions/operations) to a stimulus (the "situation"). The mediating influences of goals, plans, objects, and mental representations that would order the perceptions of a situation are absent in the situated view. (p. 81)

It is by looking at the object that we are able to distinguish one activity from another. It is vital to consider "persistent structures" (Nardi, 2006, p. 83) such as artefacts, cultural values in studying the context of an activity and the interactions of participants. In contrast to situated actions frameworks, Activity Theory and distributed cognition frameworks consider persistent structures as a vital aspect. Thus, situated action frameworks are less likely to aid in understanding the interactions between humans and technology where tool mediation plays an important role.

Activity Theory differs from distributed cognition (Kaptelinin & Nardi, 2006) in that cognitive science suggests some equivalence between humans and computers in terms of processing of information. Hence, distributed cognition, which was derived from cognitive science, views human beings and things (a computer, for instance) as equivalents; both as agents of the system. In contrast, Activity Theory stresses the importance of motives and consciousness that clearly denote the involvement of humans, and thus differentiates humans and artefacts. In distributed cognition, artefacts are mental objects and in fact they cannot know things, but only operate as a vehicle that carries knowledge to humans. In this sense distributed cognition is somewhat illogical (Nardi, 1996). As opposed to this view, artefacts in Activity Theory are seen as mediators of cognition and appear to be more logical to use in understanding the relations between these mediators and humans.

Activity Theory

This section provides a detailed description of Activity Theory, the main objective being to develop the methodological implications of my research from Activity Theory (the research framework). The first section includes an illustration of the three generations of Activity Theory. Through the historical development of Activity Theory and related literature, this section demonstrates the appropriateness of second generation Engeström's (1987) Activity Theory framework in my research.

The second section includes a description of the basic principles of Activity Theory. Some of these key principles of Activity Theory will provide dimensions for an in-depth analysis of both individual and social perspectives on learner engagement with e-learning activities in my study. The third section is an overview of literature that has used Activity Theory as a framework for research that illustrates the value of Activity Theory in studying various aspects of human activity.

The three generations of Activity Theory

The first generation of Activity Theory

Engeström identifies three generations of Activity Theory (Engeström, 2001). Vygotsky's mediated action triangle is the first generation of Activity Theory. The following figure represents Vygotsky's basic mediated action.

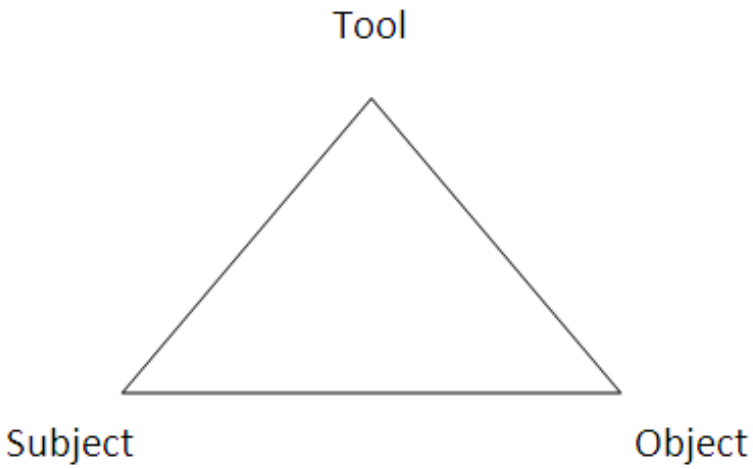

Figure 2.2. Vygotsky's basic mediated action (Vygotsky, 1978)

Through figure 2.2, Vygotsky illustrates that the *Subject* is the participant(s) of the activity, the *Tool* can be the artefacts or participants' prior knowledge that influence the experience of mediated actions/activity and the *Object* of the triangle represents the goal of the activity. Vygotsky's (1978) notion of mediated action thus explains the semiotic process of the development of human consciousness, that is, individuals make meaning of the world through interactions with artefacts and other individuals in a particular environment. The participants play an active role as they engage in the meaning making processes while they interact with artefacts, tools and people to create and modify activities. As Vygotsky notes:

> The use of artificial means [tool and symbolic artefact], the transition to mediated activity, fundamentally changes all psychological operations just as the use of tools limitlessly broadens the range of activities within which the new psychological functions may operate. (Vygotsky, 1978, p. 55)

However, Vygotsky's tripartite model focuses on the notion of mediation; it is located at the level of individual actions and does not explain the collective nature of activity. This led Leont'ye (1981) to explore the collective nature of human activity which is described in the second generation of Activity Theory.

The most popular Vygotskian concept among educators such as language professionals and linguists would perhaps be the Zone of Proximal Development (ZPD) that focuses on the cultural historical interrelationship between humans and their environment. Vygotsky (1978) believes that humans learn through social interaction and defines ZPD as the distance between what one can learn on one's own and what can be learnt when helped by others who are more capable. As Vygotsky (1978) explained "Every function in the child's cultural development appears twice: first, on the social level, and later on the individual level; first, *between* people (*interpsychological*), and then *inside* the child (*intrapsychological*)" (p. 57). The definition of ZPD given in *Mind in Society* (1978) is:

> It is the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers. (Vygotsky, 1978, p. 86)

From an Activity Theory perspective, ZPD is used as a conceptual tool that enables us to understand the complexities of activities. For example, Vygotsky belived that when a child is engaged in a problem solving activity, the child's intellectual development could be observed. Moreover, while the learners were involved in problem solving activities, Vygotsky examined the interactions between interpersonal and intrapersonal activities where ZPD could be observed. Yamagata-Lynch (2010) states that Vygotsky used ZPD as a "metaphorical tool for elaborating how interactions between individuals and their environments, including objects and social others, took place" (p. 19).

The second generation of Activity Theory

Leont'ev's (1981) concept of collective nature of human activity and Engeström's activity systems model are considered as the basic element of the second generation of Activity Theory. Vygotsky's attempt to fully develop the concept of activity was not successful during his short lifespan, and the development of the concept of activity was taken over by Leont've. As a significant contribution,

Leont'ye identified the three hierarchical levels of activity: operations, actions and activity (Barab, Evans, & Baek, 2004). He emphasized the importance of the *object* of an activity which is related to goals and motives of the participants. In addition, he showed distinct differences between object-oriented activity and the goal-directed actions (Yamagata-Lynch, 2010). Goal-directed actions which are temporary in nature can be a step that the participants are taking while participating in a durable object-oriented activity. In addition, goal-directed actions are more individually focused, whereas object-oriented activities are considered more collective in nature. Developing Vygotsky's (1978) theory of mediated action, Leont'ye (1981) produced a model of activity that consists of the three levels (figure 2.3). Greenhow and Belbas (2007) illustrate that Leont'ye's "model articulated the developmental transformation of social activity to individually internalized cognitive structures. At the foundational level of human activity is the object or "motive" which he theorized as the underlying driving force of human activity" (p. 366). This transformation is considered developmental.

As Leont'ye (1981) explains, operations are at the basic level of an activity. With a series of operations, actions take place at the next level. Taking part in an activity means carrying out a series of conscious actions which are associated with individual skills and knowledge. These actions can be individual or collective. At the highest level is the activity which is associated with goals and motives. Figure 2.3 shows the distinction between the hierarchical levels of an activity and the dynamics between these relationships with bi-directional arrows.

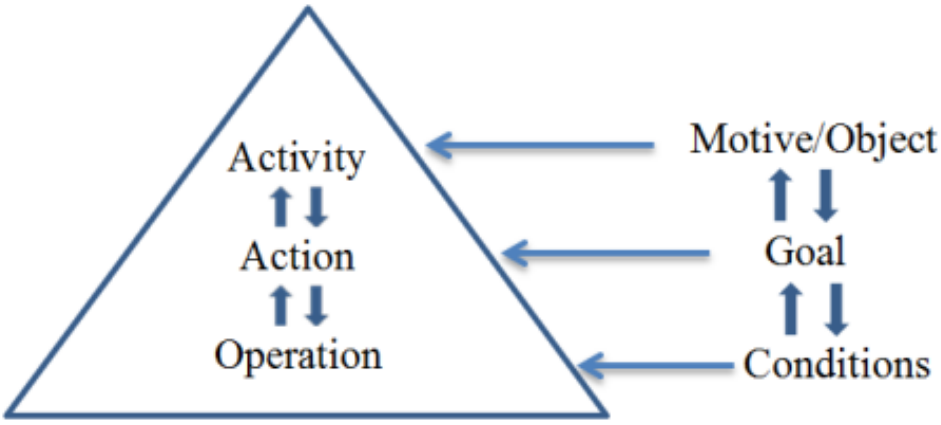

Figure 2.3. Hierarchical levels of an activity (Leont've, 1981)

Leont'ye (1981) illustrates the distinctions between these hierarchical levels of an activity by giving an example of hunting:

> A beater, for example, taking part in a primaeval collective hunt, was stimulated by a need for food or, perhaps, a need for clothing, which the skin of the dead animal would meet for him. At what, however, was his activity directly aimed? It may have been directed, for example, at frightening a herd of animals and sending them toward other hunters, hiding in ambush. That, properly speaking, is what should be the result of the activity of this man. And the activity of this individual member of the hunt ends with that. The rest is completed by the other members. This result, i.e., the frightening of the game, etc. understandably does not in itself, and may not, lead to satisfaction of the beater's need for food, or the skin of the animal. What the processes of his activity were directed to did not, consequently, coincide with what stimulated them, i.e., did not coincide with the motive of his activity; the two were divided from one another in this instance. Processes, the object and motive of which do not coincide with one another, we shall call "actions". We can say, for example, that the beater's activity is the hunt, and the frightening of the game his action. (1981, p. 210)

This excerpt depicts how Leont'ye (1981) differentiates activity, action and operation. At the level of activity which is associated with a motive, it explains *why* something is done. At the second level which is driven by conscious actions, it shows *what* is done and at the third level, which consists of operations, it explains *how* it is done.

Activities are generally differentiated from one another according to their objects. These objects cannot be converted into outcomes immediately, but through several phases. The subject and the object of an activity are in a mutual relationship in which the subject is transforming the object and the constituents of the object transform the subject. This phenomenon in the activity system is called internalization (Kuutti, 1996). Jonassen and Murphy (1999) assert that "with practice and internalization, activities collapse into actions and eventually into operations, as they become more automatic, requiring less conscious effort" (p. 63).

Engeström's (1987) expanded Activity theory offers other analytic tools that are appropriate for modelling activity systems. Figure 2.4 below shows the basic structure of Activity Theory on which this research is based.

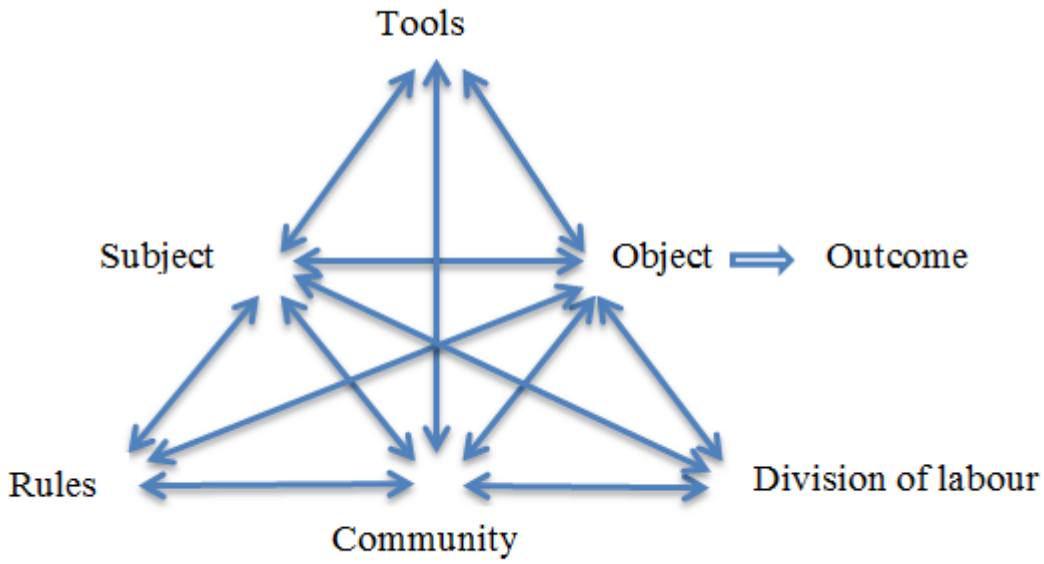

Figure 2.4. The basic structure of an activity system (adapted from Engeström, 1987)

An activity is comprised of elements which together form activity systems, and these systems are meaningful units through which to understand human activity (Kuutti, 1996, p. 25). Activity systems exist within socio-cultural settings like a classroom, school context or a society. Thus, learning processes cannot properly be studied solely at the individual level, but one should consider the socio-cultural setting which provides a more holistic approach (Lim, 2002). As shown in figure 2.4, an activity comprises a variety of mediators such as tools, rules and community and division of labour. These elements in an activity system act as mediators and the relationships between these elements are constantly mediated. For instance, a tool (computer) mediates between the subject (participant) and object (writing an essay), and rules (communication etiquette) mediate between subject (participant) and community (peers).

Kuutti (1996) further elaborates that the activities are not rigid or fixed, but under continuous change and development. The development of the activities is rather discontinuous as the activities are not straightforward. The reason for discontinuation is that every action has its own history and as the activities develop, it is important to understand that history in order to grasp the current situation. In addition, activities are not isolated units. Other activities and the changes in their environments bring effects to activity systems. These external effects give rise to imbalances in the activity system and also among the elements of the activity. In this context, the imbalances are called contradictions.

According to Activity Theory, contradictions expose themselves as obstacles, interruptions, conflicts and gaps; however, contradictions are believed to be helpful in the development of activity systems. Contradictions can occur within an activity system, between the elements of an activity system or between activity systems. For instance, when a new technology is introduced to a group of students, if they lack knowledge how to use the tool, this might create tension. This may lead some students to question the current situation or get frustrated when they are unable to use the new tool. Contradictions can even result in an expansion of an activity. This is known as an "expansive transformation" (Engeström, 2001, p. 137). As Engeström (2001) explains, this transformation takes place when "the object and motive of the activity are reconceptualised to

embrace a radically wider horizon of possibilities than in the previous mode of the activity" (p. 137).

The third generation of Activity Theory

The third generation of Activity Theory proposed by Engeström describes the expansion of one activity system to two or more interacting activity systems. As Kuuti (1996) explains, "activities are not isolated units but are more like nodes in crossing hierarchies and networks, they are influenced by other activities and other changes in their environment" (p. 34). Figure 2.5 shows the third generation Activity Theory model developed by Engeström.

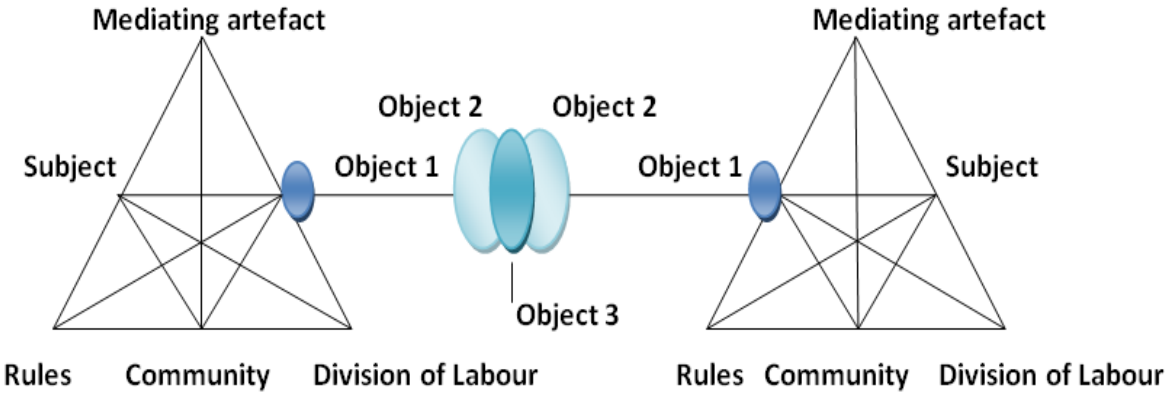

Figure 2.5. The third generation Activity Theory model (Engeström, 2001, p. 136)

Third generation of Activity Theory expands the unit of analysis from one activity system to two minimal activity systems as the unit of analysis (Engeström, 2001). For example, Engeström (2001) explored the relationships and contradictions among a health centre, a children's hospital and a patient's family in Helsinki area. Through the resolutions of tensions such as healthcare agreement model, maps and document guides, the working practices could be transformed to improve the patient care services. The tensions and contradictions that exist within and between activity systems are thus considered sources of change and development in activity systems.

In summary, Vygotsky's basic mediation model focuses on the notion of mediation and it can explain only individual actions and not the collective nature of activity. Compared with Vygotsky's (1978) and Leont've's (1981) models, Engeström's (1987) expanded Activity theory offers other analytic tools that are appropriate for modelling human activities. With the expanded version of Activity Theory, scholars are able to capture the interactions that take place between the elements of an activity system as well as among activity systems. Third generation of Activity Theory expands the unit of analysis from one activity system to two minimal activity systems as the unit of analysis (Engeström, 2001). Since the aim of my research is to explore various factors that affect students' engagement with e-learning activities and the fact that I do not intend to compare activity systems, the third generation of Activity Theory framework does not seem to fit in my study. Therefore, for the purpose of this research, Engeström's (1987) basic Activity theory framework is used as a research tool. The next section is an outline of the basic principles of Engeström's (1987) Activity Theory framework.

Basic principles

Activity Theory is derived from socio-cultural and socio-historical theories. The two fundamental ideas that constitute Activity Theory are: "(1) The human mind emerges, exists and can only be understood within the context of human interaction with the world; and (2) this interaction, that is, *activity*, is socially and culturally determined" (Kaptelinin, Nardi, & Macaulay, 1999, p. 28). Activity Theory is based on Vygotsky's basic activity triangle (see figure 2.2) that describes the relationship between a subject (individual or a group), an object (purpose, objective or a goal) and a tool or an artefact (physical or a mental tool).

Socio-cultural and socio-historical theories claim that learning is facilitated by learners' involvement in collaborative activities, mediated by artefacts and connected to social practices. The interactions between humans and their environment do not occur directly, but are mediated by artefacts such as tools and signs (Greenhow & Belbas, 2007). These tools and signs that mediate human action can be physical, symbolic, or even mental. For example, a learner (subject) is writing an essay (object) in Japanese (symbolic or psychological tool) using a

computer (physical tool). In this way, subject (participants), object (motive or purpose), and tools (physical tools such as a pen, computer or mental or conceptual tools like a model) are transformed through an activity where mediation takes place. However, Vygotsky's basic triangle of activity was not able to describe the relationship between the individual and the environment. As a result, Engeström (1987) developed a comprehensive activity systems model (see figure 2.4) including other analytic tools which could explain the relationship between the individual and the environment. Engeström's Activity Theory model comprises six elements: subject, object, tools, community, rules and division of labour. The following is a brief description of each element.

- The *subject* represents the individual or the group that are involved in an activity. The subject accomplishes an object through the use of tools.

- The *object* is the purpose of an activity which can be a motive or a goal. The object is transformed into an outcome and it distinguishes actions and sub-activities in an activity system.
- The *tools* mediate the object of an activity. Tools are referred to as artefacts and they can be physical (a computer), mental or conceptual (a plan) and psychological, symbolic or abstract (a language, experience). Tools assist in transforming an object into an outcome. This element shows the principle of mediation in an activity.
- The *rules* are the norms, practices, expectations that control or influence actions and interactions in the activity system. The rules can be implicit or explicit depending on specific communities.
- The *community* represents the participants of an activity other than the *subject* who share the same *object* and outcomes of an activity. This element shows the collective nature of an activity.
- The *division of labour* represents the distribution of roles, tasks and responsibilities among members of the community. This element also denotes the status and power divisions.

Numerous research studies have affirmed that many kinds of human activity can be analysed through the lens of Activity theory (Greenhow & Belbas, 2007; Jonassen & Murphy, 1999; Kuutti, 1996). Engeström's Activity Theory focuses on relationships between human activity and its environment. In a wider perspective, Activity Theory can be considered as a philosophical framework that

is used in various disciplines to study practices and processes of human beings (Kuutti, 1996).

Engeström (2001); Kaptelinin (1996); Kaptelinin and Nardi (2006); Kaptelinin, Nardi and Macaulay (1999) have discussed several characteristics or principles of Activity Theory. Some of these basic principles of Activity Theory include object-orientedness, hierarchical structure of activity, internalization vs. externalization, mediation, development, multi-voicedness of activity systems, and contradictions as a source of change and development. These principles are discussed below.

Object-orientedness: denotes that an object is part of every activity. The object distinguishes one activity from another. "All human activities are directed toward their objects...dreams, emotions and feelings are also directed toward something in the world" (Kaptelinin & Nardi, 2006, p. 66). Hence, in order to understand human beings, it is necessary to study the object. To understand the concept of objects better, it can be considered as objectives (Kaptelinin & Nardi, 2006). These objects can be either things or even people (Leont'ev, 1978). For instance, a new car can be the object of a person's activity (or it can be the object of a family). Objects can also be external or internal. A thought or desire to become a teacher one day, can be an internal object, for example. Objects are not only the properties of physical, chemical or biological entities but also the properties of social and cultural entities (Kaptelinin, Nardi, & Macaulay, 1999). With the mediation of tools, objects are transformed into outcomes. Thus, in the context of my research, it is vital to understand what participants' objectives are and how these objects are achieved through mediation. The tools should also be observed, as they play an important role in transforming objects into outcomes.

Hierarchical structure of activity: Leont'ev (1981) distinguishes three levels of activity: activities, actions and operations. Actions are generally carried out to fulfil a motive (object). In performing an activity, chains of conscious actions are needed. Actions consist of a variety of operations and all operations are actions when they are first performed. This is because these actions need conscious effort to perform them. With practice, performance becomes less conscious and

intuitive; however, operations can change back to conscious actions if the conditions change. For example, when students use a favourite search engine to look for information, if a technical problem occurs, the student may use a different search engine. The new search engine may look different and the functions may not be the same as the previous search engine, hence they need conscious attention to use it.

Internalization vs. Externalization: The concepts of internalization and externalization were introduced by Vygotsky (1978). The processes of internalization and externalization connect the human mind to its social and cultural environment (Kaptelinin & Nardi, 2006). There are two aspects of internalization and externalization. First, is the difference between mental processes and external behaviour. The second is the difference between the individual and the collective which are also known as intrapsychological and interpsychological.

Activity Theory describes a difference between internal and external activities. The internal activities are the mental processes which cannot be understood in isolation, but can only be explained together with external activities (Kaptelinin, Nardi, & Macaulay, 1999). The transformation of the mental processes can only take place mutually through internal and external activities. As an example of internalization, Kaptelinin and Nardi (2006) describe that when one is learning to type for the first time, they may look at the keys consciously (external). With much practice, they may type without looking consciously at the keys (internal). There is also a social aspect that can be noticed in internalization, which is, people perform actions with the help of others. Vygotsky (1987) refers to it as Zone of Proximal Development (ZPD). Conversely, in externalization, an internal action may be transformed into an external action. For instance, if someone finds it hard to do some calculations in the head (internal), that person may use a calculator (external) (Kaptelinin & Nardi, 2006). It should be noted that "Externalization is also important when collaboration between several people requires their activities to be performed externally so that the activities are coordinated" (Kaptelinin & Nardi, 2006, p. 69). In other words, sense-making and procedure-following is made explicit to each other.

Activity Theory also describes intrapsychological and inerpsychological processes. These intrapsychological and interpsychological processes are similar to mental processes and external behaviour in many ways (Kaptelinin & Nardi, 2006). The outcome of both processes includes mutual transformations between the two ends (internal- external and intrapsychological- interpsychological). Vygotsky (1986) mentions two stages of the development of mental abilities. (1) Mental abilities start as interpsychological functions and shared between the individual and other people. (2) When the social distribution is not needed, these functions become intrapsychological. Kaptelinin and Nardi (2006) explain:

> Internalization as individual appropriation of socially distributed functions is a powerful source of development. Externalization as social redistribution of activities relates individuals to their social environments and can be a way to "repair" a process in case of a breakdown. (p. 70)

Mediation: Activity Theory emphasizes that human activity is mediated by both internal and external (or physical and mental) tools (Kaptelinin, 1996). The external tools can be a computer or a book and the internal tools can be a mental model, concept or a plan. Tool mediation plays an important role in shaping how human beings act and interact with the world (Kaptelinin, Nardi, & Macaulay, 1999). Tools are transformed and modified over the years with the development of activities. For example, with experimentation and trial people may decide to use a metal axe instead of a stone axe to chop a tree because they learn that the metal axe works better than the stone axe. The transformation of a tool thus shows the transmission of culture and social experience.

Kaptelinin (1996) refers to tools as 'functional tools' or 'functional organs' that may be combined with natural or inborn abilities of humans in order to perform a new or an existing function in a better way (p. 109). For example, people use corrective lenses to have a better view when their eyesight is weak.

Development: According to Activity Theory, in order to understand and analyse an activity or a phenomenon, one may need to understand how it developed into its current form (Kaptelinin, 1996). Thus, in such cases it is necessary to study the

history of tools and the theoretical aspects of an activity (Engeström, 2001). According to Engeström (2001), activity systems are shaped and transformed over time and they have a historical development. This development is not only considered as an object of a study, but also a research methodology (Kaptelinin, Nardi, & Macaulay, 1999).

Multi-voicedness of activity systems: The participants of an activity come from different backgrounds carrying their own histories which include their diverse traditions, interests and viewpoints. As Engeström (2001) explains, this shows the multi-voicedness and the social aspect of activity systems and what they imply, which is a "source of trouble and innovation, demanding actions of translation and negotiation" (p. 136).

Contradictions as a source of change and development: Contradictions are also referred to as structural tensions that have been accumulated over time. These tensions exist within and between activity systems. The activity systems which are generally open to the outside tend to embrace new elements, which may collide with the old elements. For instance, if a new technology is introduced to an activity system, it might collide with the existing practices such as the distribution of responsibilities (division of labour) or the time limit within which the activity should be carried out (rules). These contradictions may create conflicts, interruptions and clashes; however, through the resolution of conflicts, they can also be sources of change or development.

In summary, the basic structure of Engeström's (1987) Activity Theory framework comprises six elements— subject, tools, object, rules, community and division of labour. The key principles derived from Activity Theory provided dimensions for an in-depth analysis of learner engagement in this study, facilitated by different technological tools as well as both individual and social perspectives on learner participation in e-learning activities in an online learning environment. The next section is an outline of the literature that has used Activity Theory in many different ways for research purposes.

Activity Theory in literature: An overview

Activity theory is a framework that can be used to study various layers of human practices which are linked at individual and social levels (Kuutti, 1996). It provides scholars in a number of fields with a powerful lens through which to understand and analyze various forms of human activity. This section is an overview of literature that has used Activity Theory as a framework for research. The purpose of this section is to provide an account of how valuable Activity Theory is in different fields in studying human activity. In this section, I do not intend to critically review the literature and find the gaps in relation to studies that have used Activity Theory. Through the literature, my intention is to show the appropriateness of the use of Activity Theory in my study.

One such field is the integration or the use of technology in education. For instance, Yamagata-Lynch (2003) investigated the effects of the Teacher Institute for Curriculum Knowledge about Integration of Technology (TICKIT) on participant teachers, non-participant teachers, and others in a number of school districts. Highlighting different activity systems and their historical developments, Yamagata-Lynch provides detailed accounts of each activity system which are before, during, immediately after and 1 year after the TICKIT teacher activity. She states that by using Activity Theory she was able to understand the historical relations of human activities that are associated with TICKIT, cultural artifacts and their historical developments, overall goals and the relations between individual, school and TICKIT goals and how TICKIT activities initiated successive activities of both TICKIT and non-TICKIT participants. In addition, she highlights that through the lens of Activity Theory, she managed to capture the tensions that teachers encountered at different stages. In a similar vein, Issroff and Scanlon (2002) conducted two case studies exploring the use of ICT in a Science Communication and a History course where the web was used to provide a range of resources and communication facilities. Through the application of Activity Theory, Issroff and Scanlon describe the learning experiences with technology and the problematic aspects of teaching and learning contexts in higher education. The studies highlight the value of Activity Theory in studying human activities that are facilitated by ICT in particular contexts and

identify the contradictions that occur within and between activity systems. The studies also highlight the usefulness of Activity Theory in capturing participants' views on their experience of learning with technology at individual and social levels which is also a focus of my study.

Activity Theory has also been used as a framework to analyze knowledge building activities. Using Activity Theory as an analytic tool, Aalst and Hill (2006) observed grade 4 students' participation in online and face-to-face discourses using knowledge building as an activity system in a school in Vancouver. The analysis highlighted that the discourses were based on four elements of Activity Theory: rules, community, mediating artifacts and division of labour. Greenhow and Belbas (2007) also attempted to understand broadly the collaborative knowledge building practices of students and course design teams within an e-learning course. The researchers used Activity Theory to develop an analytic scheme— Activity-Oriented Design Methods (AODM) which was used to help understand collaborative practices of knowledge building. By using Activity Theory, the researchers were able to identify the relations as well as tensions that exist within the activity system which are vital in the continued development of activities.

There are a number of studies based on the Activity Theory principle of mediation. Benson, Lawler and Whitworth (2008) examined the use of Tools, that is, "the ways technologies interrelate with their local context" (p. 456) in two online programs in the UK and USA. This comparative study discusses how a learning management system (Moodle) influenced the mediators such as rules, roles and tools in the two educational programs. The authors show the relations between macro and micro organizational levels. Similarly, Groves, Susie and Dale (2004) used Activity Theory to research young children's use of calculators in learning. The authors explain that Activity Theory framework not only allowed them to study the role of calculator as a mediating tool but also other aspects such as the beliefs and goals of participants, their roles as well as the class rules in this context. It is important to note that most of the studies that are based on Activity Theory highlight Tools, Rules and Division of labour as mediators in activity systems and Community aspect does not seem to play an important role as a

mediator (Benson, Lawler, & Whitworth, 2008; Groves, Susie, & Dale, 2004; Hung & Victor, 2002; Mwanza, 2001; Park, 2009; Wortham, 2008). With a main focus on the tool mediation aspect, the intent of my study is to explore mediational factors that influence students' active participation within e-learning activities in three learning contexts.

Studies using Activity Theory as a conceptual framework speculate that contradiction is a key concept in activity systems analyses. For instance, Yamagata-Lynch and Haudenschild (2009) applied activity systems analysis to explore factors that affect teachers' professional development and the challenges and contradictions that exist in teacher professional development activities in the USA. They discovered that the teachers, schools and universities that organize teacher professional development activities do not share the same objectives. While schools and universities were in favour of attaining objects such as licensing, accreditation, quality of teachers and test scores of students, the teachers' object was to improve curricular-based activities. As Yamagata-Lynch and Haudenschild (2009) illustrate, diverse objects create contradictions that affect the way changes are being implemented in classroom practices.

Basharina's (2007) study provides another example where Activity Theory is used as a framework to understand the tensions that emerged in an activity system. Basharina's study focuses on contradictions that emanated in a bulletin board shared by the learners of English from Japan, Russia and Mexico. Through Activity Theory, the study identified contradictions related to intra-cultural, inter-cultural and technology. The author concludes the discussion by asking whether the contradictions between learning models and cultural factors associated with the use of technology can be bridged and aligned. Also, Divaharan and Lim (2010) developed three activity systems (classroom, department and school) to examine the effectiveness of ICT integration in secondary school classrooms in Singapore. With a multiple case study approach, the research shows how internal and external contradictions at different levels affect each other (activity systems).

Other examples of studies that focused on contradictions from an Activity Theory perspective include Beauchamp, Jazvac-Martek and McAlpine (2009), Dippe

(2006), James (2008), Murphy and Rodriguez-Manzanares (2008), Tay and Lim (2014) and Turner and Turner (2001). Findings of the studies that have used Activity Theory to recognize and explore contradictions that occur in activity systems will inform my study in terms of cultural, technological and goal-related contradictions that may exist in the context of my research.

Teachers' and learners' attitudes toward e-learning systems are another area where Activity Theory has been applied. The study conducted by Liaw, Huang and Chen (2007) focuses on the learners' attitudes toward e-learning systems. The e-learning system constituted both synchronous and asynchronous communication, functions for monitoring and online examinations. The authors' findings from an Activity Theory perspective were that the learners' actively constructed knowledge within the social domain. This study highlights the value of Activity Theory in the analysis of activities that are facilitated by both synchronous and asynchronous technologies. Therefore, having a focus on synchronous and asynchronous activities in a higher education context, Activity Theory is a suitable research framework in my study.

Karasavvidis (2009) also used Activity Theory to examine the concerns and opinions of teachers about incorporating computer-supported collaborative learning into their daily practices. The authors described how Activity Theory aided them to identify a number of tensions: between the meditational tools and the object, within the object of activity and between the existing and the proposed object. These contradictions are identified as obstacles in the implementation of the new technological system. Similarly, Hardman (2005) examined the use of Activity Theory as a framework to understand teachers' use of technology to teach mathematics at primary level in Africa. The focus of this study was to understand teacher's perceptions about how pedagogy is changed with the use of technology. Hardman stressed that Activity Theory enables researchers to understand the objects that are emerging within as well as between systems. One of the teachers' perceptions was that computers are tools that can motivate learners and engage them with Mathematics. Hardman concluded that through Activity Theory, researchers can understand tool mediation in learning as well as activity systems in which changes take place.

The application of Activity Theory has been expanded to many other areas such as computer supported collaborative work-based environments and human work performance (Bedny, Karwowski & Bedny, 2001; Collis & Margaryan, 2004; Engeström, 2000; Grossman, Smagorinsky & Valencia, 1999; Worthen, 2004). In the context of online learning environments and community practices, Activity Theory has been applied in several studies (Barab, Schatz, & Scheckler, 2004; Baran & Cagiltay, 2010; Jonassen & Murphy, 1999). Other areas where Activity Theory has been applied as a framework or an analytical tool include language learning experiences (Allen, 2010; Gibbons, 2003; Gifford & Enyedy, 1999; McCafferty, Roebuck, & Wayland, 2001) social construction of knowledge (Engeström, 2000), and human-computer interaction (Kaptelinin, 1996; Kaptelinin & Nardi, 2006; Kaptelinin, Nardi, & Macaulay, 1999; Kuutti, 1996; Nardi, 1996) and teachers' pedagogical content knowledge development (Williams, Eames, Hume & Lockley, 2012). Other studies that used Activity Theory to understand the use of technology in education include Blin (2004), Hu and Webb (2009) and Mlitwa (2007).

Informed by the studies in the overview of literature on Activity Theory, in capturing the depth and breadth of participants' experiences of engaging in educationally purposeful activities, Activity Theory is an appropriate and a comprehensive approach in this research. Through the lens of Engeström's (1987) Activity Theory framework, the learning processes that are facilitated by various synchronous and asynchronous educational technologies can be analysed explicitly. Thus, my research focuses on how existing e-learning tools and other factors affect and influence learner engagement in activities in a range of online learning environments at the University of Waikato.

Chapter summary

This chapter comprised three sections. The first section included a review of learner engagement and its various forms in the literature that included the history and definitions of engagement, types of engagement, research on learner engagement in higher education and in New Zealand and also online learner engagement. This chapter also included a review on the aspects that are related to

e-learning in education and the developments and current status of e-learning in the New Zealand context.

The third section of the chapter outlined the evolution of theories of learning and their impacts on online learning environments. From the strengths and weaknesses of each view, the section concluded with the appropriateness of the use of socio-cultural approaches in understanding the ways learning takes place in online learning environments which is relevant to the context of this research. The latter part of this section also provided a brief overview of literature that has used Activity Theory as a research tool. In the next chapter, the methodology and the methods of this research will be described.

Chapter 3: Research Methodology, Framework and Methods

Introduction

This chapter begins with a description of the research question on which the study is centred. Next, the methodology of this research that includes the research paradigm, qualitative research methods and a case study approach is discussed. Then Activity Theory, the research framework for the study is described. This section includes a description on how Activity Theory is used as a research framework and also the pragmatic integration of Activity Theory in my study. The following section outlines the research methods, sampling, data collection procedures as well as a discussion of trustworthiness and contributing factors such as credibility, transferability, dependability and confirmability. The final section of the chapter is a description of the data analysis procedures of this study.

Research question

This study centres on investigating both students' engagement with e-learning activities, and the mediational factors existing within the e-learning activities they undertook. In order to explore these factors, my study focuses on learning activities facilitated via educational technologies in three different e-learning contexts in a university in New Zealand. In order to investigate the issues related to students' engagement with e-learning activities, the study addresses the following research question:

> What key mediational factors affect university students' engagement in e-learning activities?

Research methodology

It is crucial to locate any research inquiry within an appropriate methodology. Methodology connotes the researcher's stance, assumptions in the research

process, data collection, data analysis and interpretation (Lincoln & Guba, 1985) and also what is "important, legitimate and reasonable" in carrying out research (Patton, 2002, p. 69). Guba and Lincoln (1994) define a research paradigm as:

> …a set of *basic beliefs* (or metaphysics) that deal with ultimate or first principles. It represents a *worldview* that defines, for its holder, the nature of the "world", the individual's place in it, and the range of possible relationships to that world and its parts. (p. 107, italics in original)

Guba and Lincoln call such set of beliefs and related methods a paradigm. In a similar vein, Bogdan and Biklen (2007) explain that "A paradigm is a loose collection of logically related assumptions, concepts, or propositions that orient thinking and research" (p. 24). A paradigm is thus a way to view the world. The philosophical beliefs about paradigms guide us in the ways we think and act (Mertens, 2010).

Positivist/ Post-positivist, Interpretivist/ Constructivist, Transformative and Pragmatic are the most common paradigms (Mackenzie & Knipe, 2006). Researchers decide on appropriate methods for data collection and analysis for a particular study based on the paradigm and the research questions they have selected (Mackenzie & Knipe, 2006). Adapted from Guba and Lincoln (1994, 2005) and Morgan (2007), Mertens (2010) outlines common beliefs associated with the main paradigms (see Table 3.1).

Table 3.1
Basic beliefs associated with main paradigms

Basic beliefs	Post positivism	Constructivism	Transformative	Pragmatic
Axiology (nature of ethical behavior)	Respect privacy; informed consent; minimize harm (beneficence); justice/equal opportunity	Balanced representation of views; raise participants' awareness; community rapport	Respect for cultural norms; beneficence is defined in terms of the promotion of human rights and increase in social justice; reciprocity	Gain knowledge in pursuit of desired ends as influenced by the researcher's values and politics
Ontology (nature of reality)	One reality; knowable within a specific level of probability	Multiple; socially constructed realities	Rejects cultural relativism; recognizes that various versions of reality are based on social positioning; conscious recognition of consequences of privileging versions of reality	Asserts that there is single reality and that all individuals have their own unique interpretation of reality
Epistemology (nature of knowledge; relation between knower and would-be known)	Objectivity is important; the researcher manipulates and observes in a dispassionate, objective manner	Interactive link between researcher and participants; values are made explicit; created findings	Interactive link between researcher and participants; knowledge is socially and historically situated; need to address issues of power and trust	Relationships in research are determined by what the researcher deems as appropriate to that particular study
Methodology (approach to systematic inquiry)	Quantitative (primarily); interventionist; decontextualized	Qualitative (primarily); hermeneutical; dialectical; contextual factors are described	Qualitative (dialogic), but quantitative and mixed methods can be used; contextual and historical factors are described. Especially as they relate to oppression	Match methods to specific questions and purposes of research; mixed methods can be used as researcher works back and forth between various approaches

In attempting to capture the depth and breadth of participants' learning experiences in online learning environments and the multiple realities of a particular setting, my study sits most comfortably within the interpretive paradigm. The basic principle of this interpretive or constructivist paradigm is that knowledge is socially constructed (Mertens, 2010) and researchers understand this social construction process from the viewpoint of those who experience it first-hand. Also, a fundamental goal in qualitative research is to capture the subjectivity of human experiences (Cohen, Manion, & Morrison, 2011). Thus, in focusing on capturing the multiple realities of students' engagement with e-learning activities from their own viewpoints, it is appropriate that I locate my research within the interpretive paradigm and use qualitative methods for data collection.

Activity Theory as a research framework

With Activity Theory, scholars are able to examine and document successful and unsuccessful incorporation of activities in particular learning environments. This theory is thus likely to be of value to my focus examining students' engagement in e-learning activities and the various mediational factors that affect their engagement. Stahl (2006) for example, states "Activity Theory emphasizes engagement in a whole activity structure including tasks, people, artefacts, and social structures" (p. viii). This view connects with my approach. Therefore, I intend using Engeström's (1987) Activity Theory as a research and an interpretative tool.

Pragmatic integration of Activity Theory framework

Activity Theory provides a framework for understanding and analysing human activity. However, integrating the Activity Theory framework in an educational context requires some alterations to the terminology. According to Engeström's (1987) Activity Theory framework, the basic elements of activity systems comprise –*instruments, subjects, objects, rules, community, division of labour* and *outcome.* Engeström's use of the Activity Theory framework is limited to work-related contexts, and thus the terminology does not easily translate to an

educational context. This specialized abstract terminology of Activity Theory can be confusing at times. For example, in Activity Theory, the term *object* is used instead of objective to refer to the purpose of an activity. Semantically this use can be considered correct; however, practically, in referring to the purpose of an activity in a classroom, this creates confusion, as the term *object* can mean a real object i.e. a computer or a book. The term *object* generally is used as a noun, part of a noun phrase or as a pronoun that refers to a person or thing that is affected by the action of a verb in a sentence. In Activity Theory, the term *object* means a purpose or an objective of an activity. This is further complicated with different terminology used to refer to the elements of activity system in the literature. Therefore, to suit the needs of my research as well as to avoid confusion, the following terms specified in Table 3.2 are adopted in this thesis. The table below shows the terminology related to Activity Theory, in the literature, and how I adapt it in my thesis.

Table 3.1
Activity Theory framework terminology

Original terminology used in Activity Theory framework by Engeström's (1987)	Terminology used in the literature	Terminology used in this thesis
Subject	subject, agent, actor, respondent	participant
Instruments	tools, artefacts, mediating tools	tools
Object	object, motive, stimulus	objective
Rules	rules	rules
Community	community, players	community
division of labour	roles, division of labour	roles
Outcome	outcome	outcome

My specific terminology adaptation related to the elements of Activity Theory is associated with the following meanings:

- *Participant*- refers to the principle participant(s) of the activity—the students. Participant(s) accomplishes an objective through the use of tools.

- *Tools*- can be physical (such as a computer, a pen), mental (a plan), psychological, symbolic or abstract (a language, an experience) or virtual (functions of a website). Tools mediate the objective of an activity and assist in transforming an objective into an outcome. This element shows the principle of mediation in an activity.

- *Objective*- is the purpose of an activity which can be a motive. The objective is transformed into an outcome and the objective distinguishes actions and sub-activities in an activity system.

- *Rules*- are the norms, practices, expectations that control or influence actions and interactions in the activity system. The *rules* can be implicit or explicit depending on specific communities.

- *Community*- represents the co-participants of an activity other than the principle *participant(s)* who share the same *objective* of an activity. In the case of my study, *community* includes peer students, lecturer and a teaching assistant. This element shows the collective nature of an activity.

- *Roles*- represent the distribution of roles, tasks and responsibilities among principle *participant(s)* and co-participants (*community*) of an activity. This element also denotes status and power divisions.

- *Outcome*- refers to a desired result of an activity. Objectives are transformed into an outcome through tool mediation.

For my purposes, I developed of an activity system model for a synchronous virtual classroom (see Figure 3.1) which was carried out in one case study using Engeström's Activity Theory framework to demonstrate ways that learning activities can be overlaid in the frame of Activity Theory.

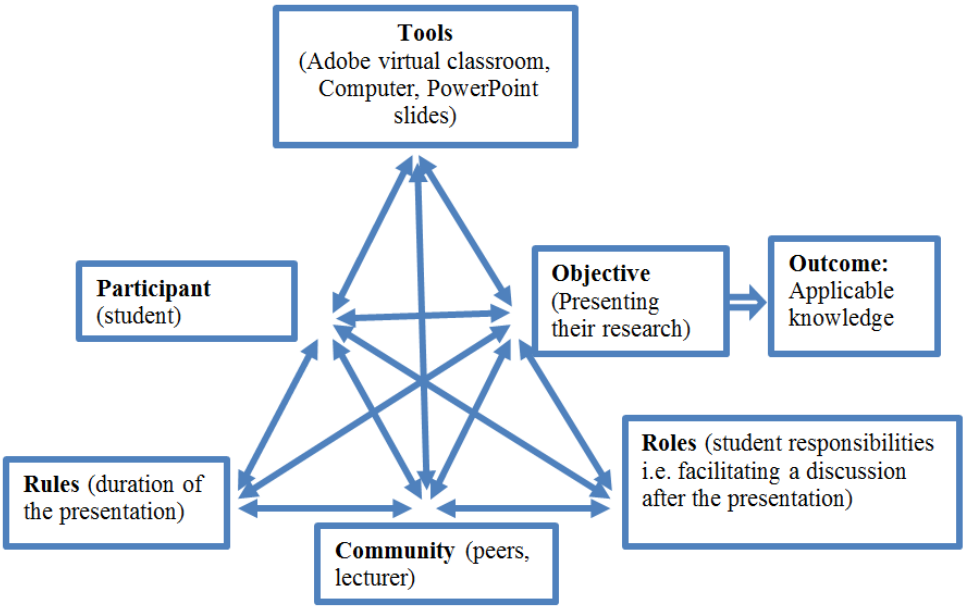

Figure 3.1. Virtual classroom activity system

In this model, *participants* are the students, *tools* include virtual classroom, computers and other learning practices. The *participants* accomplished an *objective* through the use of *tools*. A central factor to consider here is the way that students engage with *tools* to achieve their *objectives* that are transformed into *outcomes.* The *tools* mediate this process.

Qualitative research methods

Qualitative research which uses a phenomenological or naturalistic approach focuses on subject matter in natural settings (Hoepfl, 1997; Savenye & Robinson, 2005). It is broadly defined as "any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification" (Strauss & Corbin, 1990, p. 17). On the other hand, Preissle (2006) highlights various common practices in qualitative research:

> qualitative research is a loosely defined category of conceptually informed research designs or models, all of which elicit verbal, visual, tactile, olfactory and gustatory information in the form of descriptive narratives

> like field notes, recordings or other transcriptions from audio and video tapes, and other written records and pictures or films. (p. 686)

Diverse labels such as interpretive inquiry, naturalistic inquiry, ethnography and phenomenology are used in various disciplines to refer to specific types of qualitative research (Preissle, 2006). Qualitative researchers attempt to understand phenomena without manipulating the subject matter or the natural setting, while recognising that their presence is likely to have an influential effect thus, they tend to be interpretive and descriptive. Savenye and Robinson (2005) state that qualitative research techniques are "conducted in natural settings without manipulation of the environment, therefore, allowing researchers not to predict or describe causality, but to describe in detail what is happening" (p. 68). Conducting research in a natural setting in which participants' behaviour and their interactions can be observed allows researchers to gain insight into both what is happening, as well as participants' opinions about their experiences. Through the voices of multiple participants, researchers are able to provide detailed descriptions of what is happening in particular contexts. For instance, research on an educational phenomenon in a classroom where students are involved in a learning process allows researchers to study and observe explicitly the students' behaviours and interactions. Thus, they can provide detailed accounts of participants' experiences through their voices for others.

A natural setting is a characteristic of qualitative research (Lincoln & Guba, 1985, Patton, 2002). Several other characteristics of qualitative research are identified in the literature and the following section provides an overview of some of these which have implications for my study.

A characteristic of qualitative research is that people's experiences are a main source of data. Lincoln and Guba (1985) affirm that researcher's ability to process and check the accuracy of data with the participants immediately in the context where they were created is another characteristic of qualitative research. In this way, a researcher is able to clarify participants' views for verification purposes. In reconstructing participants' "constructions of reality", qualitative researchers also tend to negotiate "meanings and interpretations" with the participants (Lincoln &

Guba, 1985, p. 41). In constructing interpretations and meanings of data in my research, I also need to consider negotiations as a vital process in order to report manifold realities of this educational phenomenon through the eyes of the participants. Thus, the views of my research participants were summarized and shared (negotiated) with the participants either orally or in written form for verification.

Qualitative data gathering methods include interviews, observations, questionnaires and documents. These methods make the interactions that take place between the researcher, the participants and the object more explicit and show to what extent the researcher describes the phenomenon with researcher's own stance. In addition, using different ways to collect data enhances the credibility of the findings. Thus, in investigating issues related to students' engagement with e-learning activities, I decided that qualitative research methods were the most appropriate way to collect data. The main data collection methods included individual interviews with the participants, observations of learning activities, document analysis and a student profile questionnaire. These methods are described in detail later in the data collection methods section of this chapter.

In addition, a case study approach was used in describing the manifold realities of the contexts of my research. In order to grasp students' viewpoints on their experiences of engaging in e-learning activities, I focused on three diverse case studies within the University of Waikato. This leads to the next section.

Case study approach

Case studies are considered an appropriate mode of reporting within a qualitative research paradigm. A Case study reporting method is used to describe manifold realities of a specific context, depicting real people in real settings. This allows the readers to understand ideas more explicitly (Cohen, Manion, & Morrison, 2011). Weerakkody (2009) states that:

> A case study uses just one or a few cases, instances or 'objects of interest' to analyse a complex, contemporary phenomenon within specific limits of

> time (When?) and space (Where?) and examines it from various viewpoints to understand the multiple realities or diverse perspectives of the informants or research participants. (p. 228)

Thus, case studies allow researchers to examine and understand a complex phenomenon explicitly from different viewpoints of research participants in a specific context. Crowe et al. (2011) define a case study as "a research approach that is used to generate an in-depth, multi-faceted understanding of a complex issue in its real-life context" (para. 4). A case study approach allows readers to build their own tacit knowledge and allow researchers to study observable facts about humans in their natural settings (Gillham, 2000). When conducting research in a natural setting, researchers study things as they are in a particular setting without manipulating the environment. For example, observing students in a classroom in their everyday context as opposed to taking them out from that context.

According to Stake (2003), there are three types of case study: intrinsic, instrumental and collective. An intrinsic case study is undertaken when a particular case is innately interesting and unique and the researcher should be able to distinguish the uniqueness of the case from other cases. An instrumental case study provides a general understanding of a phenomenon in which researchers may illustrate matters that are subtle. A collective case study provides a general understanding with a number of instrumental cases in the same site or different sites.

Yin (2009) illustrates the types of case study designs and their uses and points out that using a single-case method has its own rationale; however, there is also a possible vulnerability, as researchers may find out at a later stage that it is not an appropriate case, thus resulting in misinterpretation. In that sense, researchers believe that it is appropriate to use collective or multiple-case design which includes two or more cases; nevertheless multiple-case design requires a wider range of resources and time.

Considering potential vulnerability of single-case method, I employed a multiple-case design. Examining a few cases in order to understand a specific phenomenon is believed to be an effective method. In order to capture realities of multiple students' engagement with e-learning activities from different viewpoints, I focused on three diverse online learning contexts (case studies) within the university. These diverse groups were observed and studied in their online learning environments as well as in available face-to-face environments where learners interacted and constructed their knowledge. Each of the cases unfolded in un-anticipated ways. These findings will be discussed in the latter part of this thesis. It should be noted that a case study approach was used in this research not as a unit of analysis, but in the organization of data collection as well as in the analysis. Therefore, the findings of my research are arranged according to individual cases which can be read as a holistic unit.

As with all the case study methodologies, the research context was limited to one university in New Zealand and three subject domains, so the findings are not necessarily generalizable to other contexts. However, the use of multi-cases enables the readers to identify commonalties among diverse cases as well as their teaching and learning contexts, and thus facilitating transferability of the research findings.

Research process

In capturing participants' experiences and viewpoints, I used several qualitative methods of data collection. This allowed me to gain multiple perspectives of the context as well as to triangulate and validate the interpretations. It was vital to select appropriate case sites that would enable the research question of my study to be answered. As criteria for appropriate case sites, three different courses in diverse fields that had an online component or were fully online were considered. Once potential case sites were identified, the respective lecturers were approached to discuss the possibilities of participation in my research and the data collection process. After gaining their approval, another meeting was held with these lecturers before the data collection process to obtain their informed consent.

Since two of the courses I selected as my case sites were fully online, I did not have the chance to meet the students in person at the beginning of the course. Therefore, I prepared a short video that provided information about my research and I emailed the link of the video to the lecturers. Together with the video link, I also sent a link to an online survey. This was designed to gain an understanding of participants' background information, computer skills and general technology use. The lecturers agreed to put the links on Moodle site of their courses so that the students could access the information.

Sampling procedures

Two primary sampling methods as described by Sarantakos (2005) are probability and non-probability sampling. In using probability sampling which is related to quantitative research, researchers choose a sample that represents the population under investigation. The representative sample is then used to make generalizations to the population. In using non-probability sampling, researchers do not attempt to make generalizations using random samplings. The sample size in qualitative research can be small and selected before and/or during the research process (Sarantakos, 2005). Cohen, Manion and Morrison (2011) identify several methods of non-probability sampling, including convenience, quota, purposive, dimensional and snowball sampling. I chose to use convenience sampling. In this convenience sampling method, researchers select participants that are easily accessible. Cohen, Manion and Morrison stress that this method is mainly used in research in educational contexts, where student and teacher participants are involved.

My convenience sampling procedure was consistent with Sarantakos' (2005) non-probability sampling approach. Three case sites from diverse disciplines were identified and the participants were recruited based on their interest and availability.

Description of the sample

What follows describes each of my case studies in turn.

Case study one

This course was offered in semester A of the academic year, and was part of a Post Graduate Diploma in Education, taught fully online for a period of 12 weeks. All class interactions took place via the university LMS, Moodle. Other synchronous and asynchronous activities were facilitated via Moodle and Adobe Connect virtual classroom.

Weekly online discussions were structured into four modules, and each module lasted for three weeks. The resources, such as reading materials and YouTube clips were uploaded on the Moodle site. Students were to read the articles and contribute to discussion forums initiated by the lecturer.

The synchronous and asynchronous activities of this course were carried out as individual assignments. Assignment one (30%) was to research and create a 3-4 minute presentation to be uploaded on YouTube supported by presentation notes. Assignment two (30%) was to prepare a PowerPoint or equivalent presentation on a subject-related issue to be presented via the virtual classroom to other members in the class. The third assignment (30%) was to write a review report on a particular device related to the subject. The weekly online discussions (10%) also contributed to students' final grade.

The lecturer who taught this course had been a primary and secondary teacher before teaching in universities in New Zealand. Ten students enrolled in this course, comprised of 9 locals and 1 international student. In total, 7 of these students participated in my research. The activities selected for observation in this study were asynchronous online discussion forums (weeks 2, 5 and 10) and the synchronous virtual classroom presentation (Assignment two).

Case study two

This case study was a course in a Graduate Diploma of Teaching program. In general this course can be taken by people who already have a bachelor's degree and who want to become a teacher in the related field. The course was taught fully online in 12 weeks in 2012. All class interactions took place in the university LMS, Moodle, and most of the activities carried out in this course were asynchronous. Teaching resources such as reading materials and podcasts were uploaded on the Moodle site.

The asynchronous activities in this course comprised three components which were carried out in the form of individual assignments. Assignment one was class discussions carried out from weeks 2-12 worth 30% of the total marks. Students were to read the articles and contribute to discussion forums following some specific rules and guidelines specified (these will be elaborated in the findings chapter of this thesis). In assignment two, students prepared a PowerPoint presentation (25%) for a fictional conference accompanied by a personal reflection (15%). Assignment three was to create a visual piece of personal artwork (15%) using only natural resources. This was also supported by an individual reflection about this creative journey (15%). For the purpose of the analysis of this research, the discussion forums (weeks 2, 5 and 10) and the PowerPoint presentation (assignment two) were selected as raw data.

In total, 81 local and international students enrolled in this course. They were divided into three groups and taught by three lecturers separately. These three groups were given specific names by the lecturers; however, for ethical reasons in this thesis these three groups are called group one, group two and group three. Three students from group two had watched my video that gave information about my research and completed the online questionnaire which was made available on the LMS. These three students who showed interest in my research (belonged to one class) were observed online and interviewed twice during the semester. In order to capture how this course was designed and taught collaboratively by three lecturers using the LMS, as well as to understand the pedagogical beliefs of

individual lecturers, all three lecturers were also interviewed. All three lecturers involved in this course have had experience teaching with ICT.

Faye, group one lecturer was a qualified primary teacher who had also worked in a digital classroom. After completing her honours degree, she became a lecturer in the same university in the graduate diploma program, and has been working in this program for over five years.

Laura, the group two lecturer, has worked in a few different tertiary institutions. She has experience teaching in distance learning and ICT integrated programs, and also has worked in the graduate diploma for over three years. The students who showed interest in participating in my research were in Laura's group. This makes Laura's group a research focus.

Michelle, the group three lecturer, worked as a teacher and then as a lecturer at university. Apart from her teaching experience, she has been involved in and held various positions in associations in the subject-related area. She also has worked in ICT integrated programs for a number of years.

Case study three

This course for the Post Graduate Diploma in Teaching was offered in semester A of 2012 academic year. The structure of the course included lectures, class presentations and an online discussion. The class hours were from 4pm to 7pm each Tuesday. The components of the course included an online discussion worth 10%, two face-to-face oral presentations worth 10%, and three written assignments. These are: Summary, Impact and Questions (30%); Summaries and position paper (20%); and Final report on a self-chosen topic (30%). For my purposes, I focused on the online discussion component of this course that was supported by Moodle. There was a required text book for this course and a recommended subject-related dictionary. The supplementary readings were provided on a CD-ROM to students at the beginning of the course. There were nine students in the course comprising both local and international students who

are or wanted to be teachers. Out of these nine students, five students participated in my research.

The lecturer teaching this course is an experienced academician who has worked in different countries for over 40 years mostly in teaching, teacher education and administration. The lecturer also had a teaching assistant who is a PhD student in the university. The teaching assistant conducted 3 of the lectures and helped with the assessment tasks of the course. Both the lecturer and the teaching assistant were interviewed twice during the semester.

Data collection procedures

Data were gathered through interviews, observation of online activities and document analysis, collected throughout the duration of the courses. Depending on the case study and the context, some face-to-face observation took place. The following were the sources of data:

- Profile Questionnaire (demographic details)
- Online activity observation (discussion forums, assignments)
- Face-to-face activity observation
- Individual interviews with students
- Individual interviews with lecturers
- Documents (course outline, marking guidelines, resources for students e.g. tutorial plans, activity descriptions)

These methods are described in detail below.

Student profile questionnaire

Gillham (2000) states that "Questionnaires are at the most structured end of the continuum and are not usually used in case study research; but they can have a place at least in simple, factual information collection" (p. 59). I used a questionnaire to gather demographic details, characteristics, and background information about the participant students. I made available a semi-structured

online student profile questionnaire on the Moodle sites at the beginning of the courses. Student participants had to provide basic information such as their gender, ethnicity, computer skills, previous experience with online learning technologies, preferred learning technologies and the reasons for their preference. They were asked to leave their email address at the end of the questionnaire if they were interested in participating in the interviews.

Online activity observations

In order to observe online learning activities in which students were engaged, I had to gain access to students' online participation. This was an ethical process in line with university guidelines. Once they consented, I monitored the nature of their participation to develop an understanding of learner engagement in online activities. Apart from these methods, I observed students' engagement with e-learning technologies, peers and lecturers in the three case studies. In addition, observations enabled me to capture the actions— scaffolding, peer support and co-construction that took place in the learning process.

Case 1 and case 2 courses had 12 weeks of online discussion forums and case 3 had an online discussion up to week 7 of the semester. Due to the large number of postings, week 2, 5 and 10 discussion forums from each course were selected for the analysis.

Apart from the discussion forums, other online activities were also observed. For instance, I observed the synchronous virtual classroom activity, which was an assignment task in case 1. This activity involved students in making a live presentation to other course members in the virtual classroom. The lecturer issued the web address for the virtual classroom and the participation details on the Moodle site.

Face-to-face observation

Face-to-face participant observations allow researchers to describe what goes on, who is involved, where and when things take place and the interactions among

these in a particular context. Among the three case studies, only case study three had face-to-face 3 hour weekly lectures. Each week, on a rotating basis, two students were supposed to lead an in-class discussion of ideas discussed online in the previous week. This activity took place during the first 1 hour and 15 minutes. In order to observe whether there was a continuation of online discussion in the face-to-face classroom, I observed two of these face-to-face in-class discussions. This allowed me to see the differences in students' participation in face-to-face discussions compared to online discussions. These two observations took place one at the beginning and one in the middle of the course.

During class observations, I took notes of the learning activities, how students were interacting with each other, scaffolding and learning in collaboration. Also, I made notes about the socio-cultural setting, classroom layout, group activities and lesson objectives. Students did not seem to consider me as a researcher in the classroom. In other words, they expected me to participate in learning activities and discussions. However, I adopted a moderate participant role. This allowed me to be in different groups and observe the learning process, what enriched and what hindered their active participation in learning activities. Based on the observations, I asked several questions to triangulate and confirm the findings. The observation notes were then coded and analysed in order to answer the research question.

Individual interviews with students

In addition to observations, I used interviews as a primary method of data collection. Interviews with the participants allowed me to gain both in-depth knowledge and opportunities to clarify issues (Marshall & Rossman, 2011). Through in-depth interviews, unobservable behaviour, feelings as well as the way people interpret their world can be captured (Merriam, 2002). This occurred during the interviews I conducted too.

Interview types vary based on the types of questions; structured, semi-structured or unstructured. For the purpose of my research, semi-structured questions were set. This was to ensure the flexibility and coverage of all the important aspects of

participant views. Students were selected based on convenience sampling method for individual interviews. Convenience sampling was adopted based on the availability and interest of the participants. In the interviews, they were asked to respond to a series of semi structured questions as well as to make comments on the e-learning activities they were engaged in the online learning environment. The participants were interviewed twice within the duration of the course; at the beginning and at the end of the course. Each interview lasted for 30-50 minutes and they were audio-recorded with participants' permission.

These interviews were carried out face-to-face or via Skype based on participants' preference and convenience. The date, time and the place of these interviews were discussed with the interview participants via email or phone one week prior to the date of the interview. The day before the interview, I sent them an email reminder to confirm it.

Individual interviews with lecturers

In order to understand lecturers' pedagogical practices and how they interpret and define objectives of learning activities, they were interviewed twice during the course. The semi-structured interview questions were related to their experiences in teaching with technology, what technologies and activities they used in the course, the way they carried out learning activities and what they had to say about student engagement. The date, time and the venue of the interviews were arranged one week prior to the interview via email. The themes or key areas of interest to be covered in the interview were also sent to them. As with the student participants, I sent them an email reminder to confirm it. The duration of the interviews with the individual lecturers was about 30-50 minutes and the interviews were audio taped with their permission.

Additional documents

Documents such as the course outline, guidelines for assessment (assessment criteria), activity descriptions, and other resources for students such as tutorial plans were also collected for analysis purposes. These documents contained the

rules and guidelines for the learners and were therefore important for my study, as they provided additional information about mediators that existed within an activity.

Trustworthiness

Lincoln and Guba (1985) argue that a qualitative study is trustworthy if it is credible, transferable, dependable and confirmable. Each of these criteria are discussed below.

Credibility

Credibility which is presenting participants' world thorough their own perspectives is considered important in qualitative research. In achieving credibility, researchers are:

> first, to carry out the inquiry in such a way that the probability that the findings will be found to be credible is enhanced and, second, to demonstrate the credibility of the findings by having them approved by constructors of the multiple realities being studied. (Lincoln & Guba, 1985, p. 296)

Achieving credibility, Merriam (2002) and Lincoln and Guba (1985) suggest some strategies. In the following section the techniques that were integrated in my research are illustrated in detail.

Persistent observation

Persistent observations allow researchers to understand participants in their natural environment and gain insights of their behaviour. Observational data are generally deep and detailed (Patton, 2002). Persistent observation was adopted as a method to enhance the credibility of my research. It was vital for me to observe online learning activities in each case study. The asynchronous weekly online discussion forums in all three case studies were continuously observed. Other relevant activities of each course were also observed as and when they took place.

The observations allow researchers to gather what took place and how it took place. The persistent observation of the learning activities allowed me to understand the participants in their natural setting and capture how they interacted with each other in constructing knowledge in collaboration.

Triangulation

Triangulation is another technique that can enhance the credibility of research findings. By using different methods of data collection such as interviews, observations and questionnaires simultaneously, a researcher can triangulate data. Sarantakos (2005) describes various methods of triangulation that include collecting data at different times, mixing qualitative and quantitative research methods, using several investigators, and using different sample groups. Following Sarantakos' methods, I employed time and method triangulation. For example, I used different data collection methods such as an online questionnaire, individual interviews with students, individual interviews with lecturers, relevant documents and online activity observations. I also observed available face-to-face classes. In using time triangulation, the interviews with students and lecturers were carried out at different times at the beginning and at the end of the course. Online activity observation was also time triangulated by regularly observing weeks 2, 5 and 10 discussions. These weeks covered the beginning, middle and end stages of this activity broadly corresponding with the time triangulation of the interviews. These multiple methods assisted me to "view a particular point in research from more than one perspective, and hence to enrich knowledge and/ or test validity" (Sarantakos, 2005, p. 145)

Peer review

As part of establishing credibility, peer review or debriefing sessions were also vital. In these debriefing sessions, the peer is to challenge the researcher by probing the biases, and clarifying meanings and interpretations. With these, the peers assist the researcher to enhance the quality of the research. Peer review processes were carried out on a regular basis with my supervisors throughout the research process. At times, I was challenged to justify my interpretations and clarify meanings. In order to enhance the credibility of my findings, particularly

during data analysis process, the codes of a sample set of my data were peer reviewed by my chief supervisor. Miles and Huberman's (1994) assert that "definitions become sharper when two researchers code the same data set and discuss their initial difficulties" which they refer to as "check-coding" method (p. 64). Adopting Miles and Huberman's (1994) method, I prepared (with pseudonyms) and gave a set of students' and lecturers' interview transcripts and observational data to an experienced researcher. Once she coded these data, I compared them with my codes. These codes were similar although some of the phrases were worded differently. The peer review process with the experienced researcher and constant debriefing sessions with my supervisory panel assisted me in strengthening the credibility of my data analysis.

Member checks

A critical strategy that can contribute to increasing the credibility of the findings is member checks. The researcher checks data, interpretations and conclusions with the participants. Member checks can be formal and informal. In member checks, the research participants are able to react to what they represented as realities. For instance, by looking at a summary of an interview my participants checked for accuracy and the adequacy of the written representations. This strategy was used to increase the credibility of my study. The individual interviews with students and lecturers allowed me to clarify ideas and probe their opinions. Upon request, full or summary interview transcripts were also sent to the participants for verification. At times, this member check process was an oral event. During the second interview with individual participants, I summarized their first interview and reminded them of the context and the focus of my research. I was concerned about checking the full written transcripts with the participants and requesting them to comment on the content. This is because it could add to their workload and cause anxiety and result in unsuccessful collection of credible data (Westberry, 2009). Therefore, an option was given to the participant to request a summary or a full transcript of the interviews.

Transferability

Transferability in qualitative research is the degree to which the study can be replicated in other contexts. However, as Lincoln and Guba (1985) argue, the degree to which findings can be transferred depends on the reader and not the researcher. A researcher is not able to be specific about the external validity of the research. He or she is only able to provide sufficient descriptions so that the readers can come to conclusions as well as relate them to their own experiences. Stake (2003) argues that a single case cannot be generalized; however, it is quite possible that readers can relate the researcher's interpretations to their own experiences and similar contexts. In order to enhance the transferability of my research, I chose multiple-case design. The detailed context descriptions of each case and the learning activities offer readers a range of contexts to consider. The cases vary in discipline, activities, class size, technologies, curriculum design and lecturer experiences. Therefore, it is hoped that these diverse aspects of multiple cases will assist readers to identify similar contexts and the value of the findings.

Dependability

Dependability refers to whether findings are stable and replicable. Lincoln and Guba (1985) mention that some of the techniques of dependability seem to overlap with the strategies in credibility. The authors suggest that auditing can be a key method in achieving dependability. Bryman (2012) suggests that it is vital to keep complete records of the research process such as forming a research question, selecting participants, writing field notes, interviewing and transcribing them and analysing data. In terms of adopting an auditing approach or audit trail, peers can act as auditors during the research process. An audit trail in a qualitative study "describes in detail how the data were collected, how categories were derived, and how decisions were made throughout the inquiry" (Merriam, 2002, p. 27). I therefore developed my own audit trail. The audio recorded interviews, transcripts, online questionnaire, observation notes and video recordings of online activities have been saved in virtual formats and stored in the qualitative data management tool, NVivo. Earlier drafts of research analysis, chapters, information and consent letters and ethical approval documents have also been saved in virtual formats and stored in separate folders on my personal computer.

Confirmability

In qualitative research, confirmability refers to the 'neutrality' of interpretation that is free from personal beliefs, assumptions and judgements (Sarantakos, 2005). Merriam (2002) suggests that reflexivity is a strategy that is related to confirmability in qualitative research. By acknowledging a researcher's personal views, beliefs and assumptions, reflexivity can be achieved. Keeping a research journal or creating memos throughout the research process is one reflexive strategy (Merriam, 2002). Researchers' reflections, ideas, problems, questions and issues related to research and interpretations are therefore ideal entries in a journal or a set of memos. In enhancing the confirmability of my research, I kept a diary. This was crucial in recording important information and ideas. Mine was an online journal, in the form of a blog. This blog was created before the data collection process began and was regularly updated with important information, personal beliefs, assumptions and ideas. This blog recorded my research experiences, noting the limitations, and frustrations I faced as a researcher throughout the process. While analysing data, I also recorded my personal views in the form of memos in Nvivo, a data management tool. I later referred to them when I was writing up my findings and discussion chapters. This reflective process helped confirm credibility, triangulations, reliability and confirmability of my research.

Ethical considerations

This research has been approved by the Human Research Ethics Committee, The University of Waikato in November 2011. Ethical issues related to this research have been considered at all stages that are according to http://calendar.waikato.ac.nz/assessment/ethicalConduct.html

The ethical considerations related to this research include:

- **Informed consent**: The students and the lecturers of three case sites were contacted before the data collection process began. Based on the data

collection methods, relevant consent forms and introductory letters that provided details of the research and the data collection procedure were sent to all the participants of the study and their consent was obtained prior to data collection.

- **Confidentiality**: The data and personal information collected for this study are kept in a secure place and the data will be used for the PhD thesis, journal articles, and conference and seminar presentations. The data will be destroyed after five years. The completed PhD thesis will be made available on the internet by the University of Waikato. Only my supervisors and I will have access to raw data and information about my research and will not be shared with any other external party for any reason.

- **Anonymity:** Participants in this research are anonymous, as pseudonyms have been used for them. Thus, the participants are unlikely to be identified by any references made in the research.

- **Participants' right to decline**: The participants, invited to complete the following, were also given the choice of declining participating in any of them, or not answering specific questions:

1. A student profile questionnaire
2. Individual interviews with student participants
3. Individual interviews with lecturers
4. Class observation (online)
5. Face-to-face class observation (was available in case study 3)

All the participants were briefed at the beginning regarding the methods and procedures of the data collection process. Participation in this research was totally voluntary. The participants knew they could withdraw at any time.

Data analysis procedures

In qualitative research, "data are, so to speak, the constructions offered by or in the sources; data analysis leads to a reconstruction of those constructions" (Lincoln & Guba, 1985, p. 332). In the process of reconstruction, a researcher's interactions with data sources tend to shape them to make "meaningful wholes" (p. 333). Thus, the analysis of data is inductive.

I analysed data by triangulating from multiple data sources derived from multiple strategies. The online learning activity was recognized as the focus of the data gathering in this research. Concurrent with data collection, I carried out an informal preliminary data analysis by identifying the emerging themes and issues related to online learning activity. Gathering and analysing data concurrently indicate that both the data collection and analysis process were not linear. The preliminary analyses and interpretations assisted me in generating questions for the second round of interviews. A second stage of data analysis occurred after completing the data collection phase. In analysing data, the relevant units of data were identified and categorized according to Activity theory as a method of typology.

As the first step in analysing interview data, all interview transcripts were imported into NVivo, my data management tool. Then relevant units of data related to online learning activities were selected and coded according to the elements of Activity Theory as outlined in Chapter two (see Figure 2.4). Under each element, there were several sub-themes. Over the analysis process some of these sub-themes were merged or discarded based on how significant they became. This rendered the process dynamic over time. Later, some extracts of the transcribed interviews were incorporated as quotations in this thesis to help answer the research question.

Each case study comprised 4-5 learning activities within the semester. However, two activities from each case were observed and selected for the data analysis. Selecting these two activities made it easier to develop an in-depth analysis given the constraints of a thesis time frame. In order to understand the nature of activities, they were interpreted via the Activity Theory framework. For example,

in the virtual classroom activity as shown in Figure 3.1, the participant label refers to the student(s) who are the focus of this study. The objective in the diagram is the purpose of an activity which can be a motive. In this case, students' purpose (objective) was to present their research to an audience (other members of the class). The tools used in this activity in order to transform students' objective included physical tools (computers), mental or conceptual tools (learning strategies and models) and virtual tools (functions that were available in the virtual classroom). The rules for this activity included the duration of the presentation (10 minutes), relevant literature and references (following APA format) and a written script or notes (1500 words). The community of this activity included the facilitator who is also the lecturer of this course plus the members of the class. Roles defined students' responsibilities. For example, as part of their responsibilities, one peer had to review the allocated student's presentation and the notes before the activity took place. The same peer also had to raise three questions for discussion after the presentation.

In order to gain a complete understanding of the activities carried out in each case, I took into consideration participants' views on these activities, observation notes and the descriptions of activities in the course outline in the analysis of relevant data. Examining these activities via the Activity theory framework allowed me to understand the complexities, relationships and mediations that existed within the activity systems as well as between the elements of activity systems. As a method of triangulation, the observation notes for these activities were also imported into Nvivo, coded and categorized according to the Activity Theory framework outlined earlier.

Analysing discussion forums, which was a common activity across all three case studies, was challenging. In capturing factors that affecting students' engagement in this activity, participants' views were a primary source of data. The way these online discussions were run in each context was different and they were very much subject-related. Therefore, the content of the discussion forums was not analysed, rather the nature of students' participation in weeks 2, 5 and 10 discussion forums was selected for analysis. This included students' interactions that took place in communication spaces, additional documents and resources

uploaded during that particular week on each Moodle site of the course, organization of these materials and feedback students received. Participants' first-hand experience gathered via interviews was also incorporated in answering the research question of my study.

Activity systems do not stand in isolation, but they overlap and are linked with other activity systems. As a result, any activity system is influenced by other activity systems as well as the environment. For example, students' experience in an online learning activity is different from a teacher's experience. In addition, within an activity system, among the elements of the activity system and also between activity systems, contradictions may occur. These contradictions take several forms such as conflicts, problems, obstacles and tensions; however, they are helpful for development of activity systems (Kuutti, 1996). Thus, in the process of the analysis and interpretation, contradictions which were in the form of constraints, frustrations and misunderstandings that took place in the activity systems were also considered and illustrated in the findings as well as in the discussion chapters of this thesis.

The initial online profile questionnaire, which outlines participants' skills and preferences in terms of learning with online technologies, learning styles and previous experiences of learning with online technologies was a starting point for the data analysis. In discussing the factors that affected students' engagement in e-learning activities which links to the central research question of this research, links are made to students' skills and preferences as stated in the profile questionnaire. In addition, the affordances and constraints of the e-learning tools and their influence on learner engagement identified during the data analysis process are also illustrated in the discussion chapter of this thesis.

Chapter summary

This chapter has outlined the research methodology and methods. This study used an interpretive paradigm and qualitative data collection methods in order to explore factors affecting students' engagement in e-learning activities. Data were mainly gathered through semi-structured individual interviews with students and

lecturers, observations of online and face-to-face activities, an online profile questionnaire and relevant documents. In attempting to better understand the educational phenomenon— students' engagement in e-learning activities, I focused on three different online learning contexts (case studies) at a University. Activity Theory was used as a research framework in my study. This research also incorporated the criteria: credibility, transferability, dependability and confirmability in order to ensure the quality of this research. In the analysis of data, relevant units of data were identified and categorized according to Activity theory as a method of typology.

The next chapter presents the findings of this research.

Chapter 4: Findings

Introduction

This chapter presents the findings from the three case studies in the form of a descriptive and interpretive commentary. It has three main parts which takes each case in turn, using Tools, Rules, Roles, Community and Contradictions as key themes to organize the findings.

To address the research question: What factors affected students' engagement in e-learning activities in an online learning environment? I arranged key findings by individual case study in relation to the elements of Activity Theory that acted as mediators in the online learning environments. The key findings are supported by direct and paraphrased quotes from participants.

Case one findings

This Post Graduate Diploma course was taught fully online for a period of 12 weeks and delivered via Moodle. The participants included five female students (four New Zealanders and one from Middle East), two male students (New Zealanders) and the lecturer (male). The activities observed which provided the data for analysis included synchronous virtual classroom activities and a discussion forum that was facilitated by the LMS. The main themes identified in case one included Tool mediation, Rule mediation and Community mediation.

Tool mediation

The sub-themes related to the main theme Tools included the affordances, difficulties, limitations and frustrations of tools, language as a mediator, importance of a structured course design as well as the sub theme make-it-easy for-students. These sub-themes are represented in the right hand axis in Figure 4.1. These sub-themes are discussed in relation to different tools that mediated students' participation in case one.

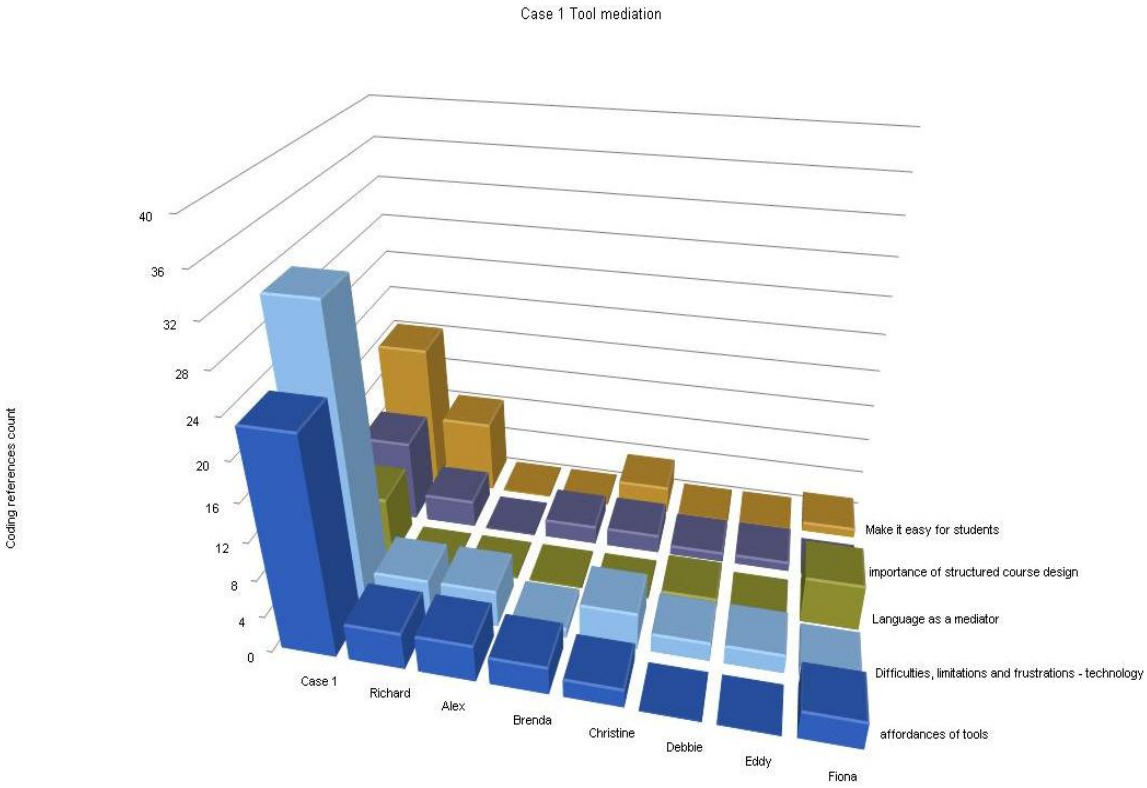

Figure 4.1. Case study one sub-themes emerged under the main theme Tools (NVivo, matrix coding query)

Virtual classroom

The Adobe Connect virtual classroom, as a tool, facilitated a synchronous activity in this case study as an individual assignment. The dates of presentations during week 10 were pre-determined and posted on the Moodle site. Students could choose the day that best suited them to present their work (out of three days from 7.30 to 9 pm). The following figure represents the Activity Theory framework applied to the virtual classroom activity.

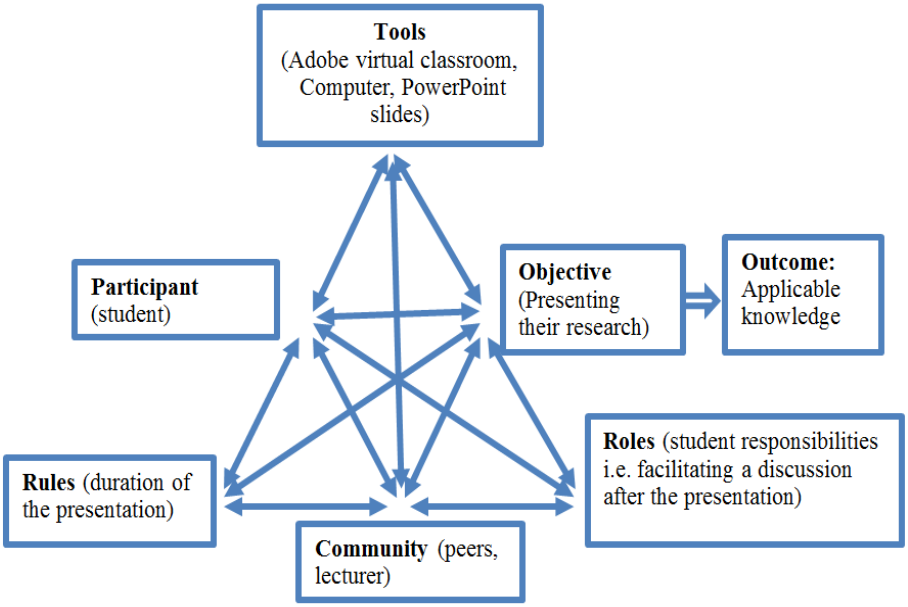

Figure 4.2. Virtual classroom activity system

With reference to Figure 4.2, in the synchronous virtual classroom activity system:

- The *participant(s)* represented the student(s) who were the focus of this study.

- The *objective* was the purpose of an activity which can be a motive or purpose. In this case, students' purpose (objective) was to present their research to an audience (other members of the class).

- The *tools* that were used in this activity in order to achieve students' objectives include physical *tools*- computers, conceptual *tools*- learning strategies, models and virtual *tools*- functions that were available on virtual classroom.

- The *rules* for this activity included the duration of the presentation (10 minutes), relevant literature and references (following APA format) and a written script or notes (1500 words).

- The *community* of this activity included the facilitator who is also the lecturer of this course and the members of the class.

- *Roles* defined the students' responsibilities. As part of their responsibilities, one peer had to review the allocated student's presentation and the notes before the actual activity and also the peer was to raise three questions to be discussed after the presentation.

For students to access this password-protected virtual class, they clicked on a specific URL, entered their password and joined the activity. Figure 4.3 shows the layout of a typical virtual classroom that include video/audio, participants, PowerPoint slides of the presenter, text chats, file sharing and polling features.

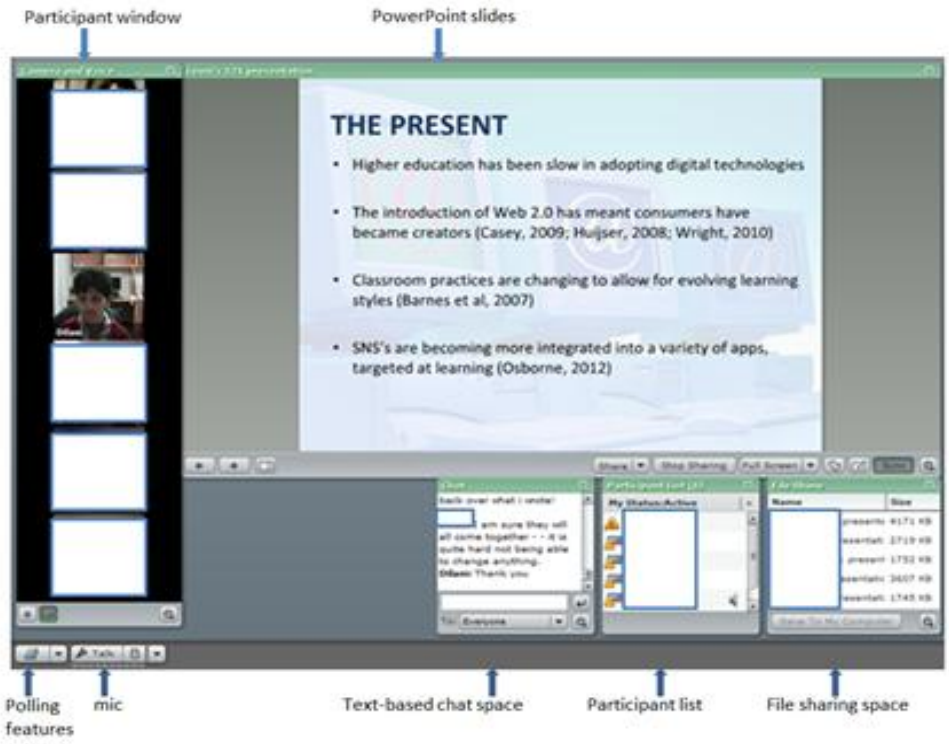

Figure 4.3. Virtual classroom activity (9 May observation)

Based on the interviews and observations of virtual classroom activity, the findings suggested that the students' experiences of learning with the virtual classroom were associated mainly with the affordances, difficulties and limitations of this educational technology. The affordances of the virtual class

allowed participants to see and hear each other in real time. Students considered synchronous collaborative learning valuable. Alex, for example, commented:

> *I would like to see more synchronous. Only because I like seeing people when I'm talking to them and stuff like that. I like that backwards and forwards that can happen very easily in that environment*. (Alex, student interview 2)

Another feature of this virtual classroom that supported students' active participation was being able to have oral discussions in real time right after each presentation. As part of students' responsibilities, each student was nominated by the lecturer to ask three questions of another student to provoke a discussion. The dates, list of the names of presenters and the reviewers were posted on Moodle two weeks before the activity. Discussions after each presentation meant that students could clarify issues related to the topic immediately as well as provide some peer feedback. When Alex was asked what he thought about the reviewing of notes and facilitating a discussion after each presentation, he stated that "*I think it caused us slightly deeper interaction with what the others have done. I thought that was quite useful"* (Alex, student interview 2). Thus, this activity seemed to create deeper interactions among students compared with the discussion forums. As a group, they were also supporting each other by giving words of encouragement after their presentations. The words exchanged included *"very interesting", "Well-done"* and *"excellent presentation".*

Apart from the video and audio functions, the virtual class also included the option of a text-based chat. This was particularly useful when students had questions to ask either in private or in public. They could do so before Richard, the facilitator/lecturer, joined the group and in between presentations. An example of a text-based chat is shown below.

> ***Debbie:*** *Why am I coming up as 'guest'?*
> ***Debbie:*** *you must have heard me*

Alex: *Hi Debbie - you've come in as 'Guest', if you close out and come back in you should get a chance to put in your name. I'm backing you, so I hope your nervousness isn't too bad*
Alex: *All the different styles make it interesting :) imagine if they were all the same :(*
Alex: *Hi Debbie - not sure why that didn't work... I'll investigate*
Debbie: *I've just tried coming in again but I don't see a guest tag now*
Alex: *It has remembered you and brought you back in as 'Guest' again - maybe Richard can tell you how to fix that*
Richard: *Debbie - quit your browser and re-enter with your name and not guest*
Alex: *Hi Debbie - did you hear that*
Debbie: *Yes*
(7 May observation).

On the other hand, students also felt that there were limitations with the virtual classroom. They mentioned that they were attracted to this course for its flexibility in terms of time, place and pace. However, the lecturer pointed out that the synchronous activities like the research presentations using virtual classroom, required careful planning in terms of time. Some of the students were in different countries and when time zones are different, it is hard to coordinate synchronous activities. In Richard's opinion:

> *Why students are after these papers is because they like flexibility. If you're tied on to it, students over there in Sudan or somewhere, they might not be able to get up at 2 o'clock in the morning every two weeks to do that.* (Richard, lecturer interview 1)

The stability of internet connections is also an issue. Some students may not be able to participate in the activity because of this. One student mentioned:

> *It gave that flexibility to choose the night that suited you the best whereas if we had more synchronous opportunities, probably it won't suit unless you have the dates right at the beginning of the course. Then things can go*

> *wrong like thunder and lightning, storm and you struggle with your equipment and you miss out because you can't get on it that time*. (Christine, student interview 2)

This was particularly an issue for Gail, who participated from a Middle Eastern country. Due to a slow speed internet connection that was caused by an unstable political situation in the country, Gail could not hear what the others were saying nor could she do her presentation or facilitate and join discussions. Although the lecturer gave her a one-to-one session to present her research via Skype the next day, it was a disappointing and frustrating experience for her. Richard explained that:

> *I had her notes and I had her PowerPoint slides and I also had a Skype conversation with it. The issue was there, the bombs are going outside the window and probably it had something to do with it, but from her point of view, it was frustrating because she had prepared and she did a good job*. (Richard, lecturer interview 2)

It was apparent in the observations that Gail experienced long delays in sending and receiving sounds and messages. Even to ask how Gail's day had been the lecturer had to write in the chat area "*tell us about your day*":

> ***Richard:*** *tell us about what you are up to Gail*
> ***Gail:*** *I'm getting a massive delay getting your sound*
> ***Richard:*** *press talk button Gail*
> ***Gail:*** *sorry Richard, what did you ask me to do?*
> ***Richard:*** *tell us about your day*
> ***Richard:*** *got the last bit of that but not the first*
> ***Gail:*** *I'm getting a huge overlap in the sound from different people talking*
> (10 May observation)

At one point, Gail was trying to hear what was being said and she logged out and logged back in thinking that the connection would be better. When she logged back in her microphone was on and Alex's presentation was interrupted for a

while. Richard wrote again asking her to click the microphone button off. She could not hear anything the other participants were saying towards the end of the activity. After Alex's presentation, it was Gail who was supposed to lead a discussion. She did ask one question; however, because of the delays, she wrote that "*Alex is cutting out and I am getting more than one person talking at once… might be hard for me to lead a discussion!"* (Gail, 10 May, observation).

Then it was Gail's turn to present and Richard uploaded the presentation slides for her. All the participants could see the slides except Gail. She said that it was still loading on her computer. Richard offered to move the slides for her, but Gail did not manage to see her own slides nor the messages Richard sent. After trying for about 10 minutes, Richard decided that he would give her a private session or a Skype session the following day to present her assignment. She could not figure out what was happening as the other students were saying bye to each other at the end of the session. This suggested that although online courses provide more flexibility to learners and the ability to interact with each other in real time, synchronous activities are dependent on equal robustness in internet quality.

Findings indicated that another significant limitation of this tool is that when class sizes are large, it is difficult to allocate time slots. As Richard said, *"the more students you have the harder it is. Also how many times you have to do it. By the time Thursday night came, I've had enough*" (Richard, lecturer interview 2). Considering the constraints of the virtual classroom Richard appeared to be unsure of its best use, and mentioned that "*in using virtual classroom as I'm using it more, as I go along I am still little bit unsure about its best use* (Richard, lecturer interview 1).

Participants' views also suggested that because there was limited capacity for only one speaker to talk at a time, discussions took longer. Sometimes, participants have to repeat their utterances many times if two people talk at the same time. Eddy said:

> *On the virtual classroom it's so stilted. We saw the pictures of everybody and then we were like "how am I going to raise my hand or wave" and so,*

> *it very much went from one person to another person and back.* (Eddy, student interview 2)

Eddy pointed out that students had to take turns to talk and that allowed them to talk only one at a time. The findings also indicated that some technical issues caused frustration:

> *The virtual classroom was a little frustrating. I had a fast enough speed internet, but somehow the audio one time sounded twice and there was an echo. Someone was giving the presentation and I missed the whole bunch of it. I had technical problems on that.* (Eddy, student interview 2)

Students' experiences indicated that the virtual classroom activity was challenging. They were not relaxed when it was their turn to present their research, because they were worried about potential connection issues. For example, Debbie explained, *"I wasn't terribly relaxed when I did my presentation because I was thinking, oh my God, I'm not going to get on"* (Debbie, student interview 2). Debbie felt that the virtual classroom activity was *"tremendously difficult"* (student interview 2) and she was pushed far beyond her comfort zone.

Students felt that as an assessed task worth 30%, they preferred to have more practice before the actual virtual classroom activity. Christine said, "*Possibly I think it's showing up in the forum at the moment that we do need to have done a bit more of practice in that virtual classroom"* (student interview 2). The students found it to be stressful going into the virtual classroom and using it, having no experience apart from the quick introductions they did as a practice session. In Christine's point of view:

> *It's quite stressful going into it knowing that you are looking for 30 marks and you have had no experience of using it apart from a quick introduction which for me didn't work very well because of the sound, so it would be good to be able to do a few things in it ahead of assessment*. (Christine, student interview 2).

Although the lecturer facilitated a practice session for this synchronous activity, some of the students had trouble setting their cameras. Also, some of them could not hear properly, so the practice session was not as beneficial as it could have been for the students. Christine explained:

> *The first practice session…I thought that was a bit of a disaster. Although I stayed there the whole time, I heard hardly anything and that was a little bit erratic. I noticed that a few others had some other problems*. (Christine, student interview 2)

Brenda suggested that *"it may have been easier if I could have collaborated with somebody"* (student interview 2). She believed that working with another person would have helped her to be more confident and it would have been less stressful than managing on her own.

Despite its limitations, students seemed to prefer more synchronous activities, because they could have more *"human interactions"* where they could use *"a lot of cues"* (Alex, student interview 2) like facial expressions. It meant that participants could interact with each other in real time, enabling them to have a two way communication. Eddy said, "*If there was a little more of any form of synchronous interactions, it may have helped get to know one another earlier on* (Eddy, student interview 2). This suggests that synchronous interactions can help people get to know each other better, and that communication with physical cues was more *'human'* than asynchronous interactions. Alex stressed that although the virtual classroom *"wasn't flowing more like we can talk like we would be sitting in front of each other just in person, but when face-to-face is not possible, it's better than not having it* (student interview 2).

Learning Management System

This fully online course was delivered via the university learning management system—Moodle. As a tool, Moodle facilitated the design of the course as well as weekly discussion forums. Figure 4.4 shows the course layout in Moodle.

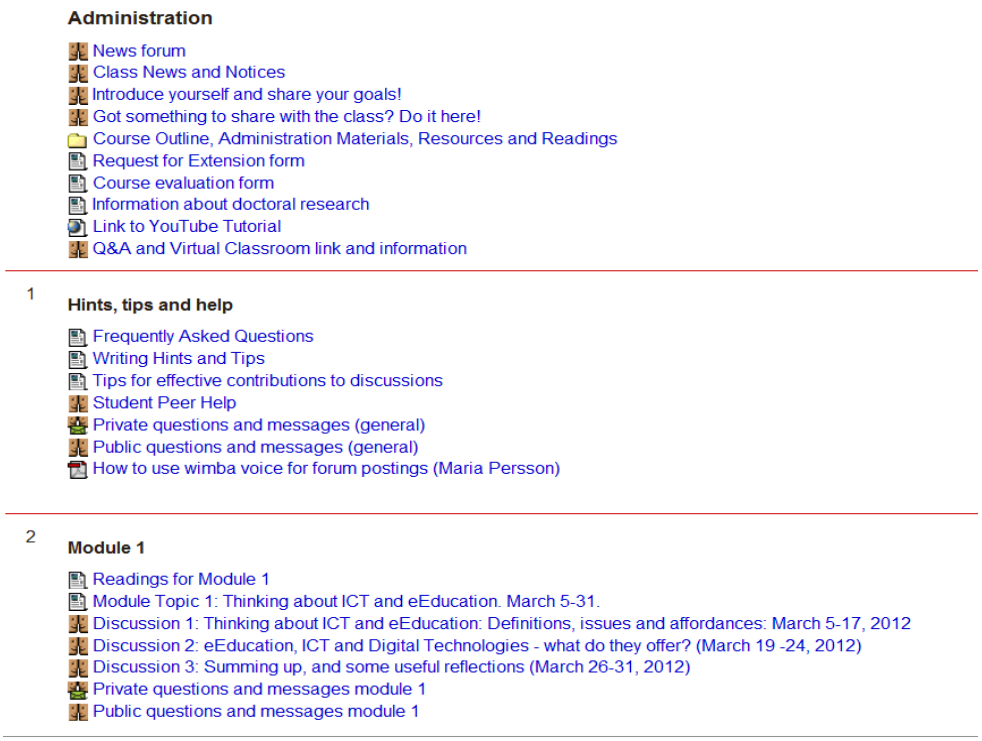

Figure 4.4. Case study one Moodle course layout

Richard explained that it is vital for online courses to be well-structured with the same order in each module, as "*patterns are important in online learning"* (Richard, lecturer interview 2). He explained:

> *A lot goes down to the fact that I must stick to the uniformity and the design of the interface. Everything is neat and tidy and the same order for each module and everything is the same way, so it's predictable.*

Richard deliberately embedded all the resources such as reading materials, YouTube clips, helpful tips and guidelines for writing and assignments within the texts on Moodle. In Richard's opinion:

> *The paper looks uniform to them, as everything is embedded in them. There are no boxes or folders full of papers for students to work their way through, but all are embedded within the texts or hyperlinks and everything follows a logical progression.* (Richard, lecturer interview 1)

He believed that embedding resources in the text could "*make the experiences easy as possible we can for them, as they should not have to wrestle with the interface or find resources to be able to learn"* (Richard, lecturer interview 1). The importance of a structured course was also highlighted by the students and they appreciated that the lecturer *"has been a very good coordinator and his work is structured"* (Christine, student interview 2). Students also mentioned that all the information is available to read in their own time. Brenda acknowledged that the course has a logical organization of materials and concepts that help students to understand the subject better.

> *We read all those papers where things haven't been going that well. That was fascinating because we kind of looked at the history and then we looked at the potential benefits and then we looked at how things are not going that great, but we already got ideas of potential benefits. I like the way he puts things together*. (Brenda, student interview 2)

Brenda is referring to the reading materials that Richard has included to support the topics that are covered in the course.

In designing the course, Richard created several spaces in which students could interact and communicate. Figure 4.4 shows these spaces. These include class news and notices, private and public communication spaces, sharing spaces, peer support spaces, FAQ and Q & A spaces for each module. Through these several options the students had plenty of choice. In Richard's view, such options should be deliberately included in online courses. A strategy that suits one group may not work for another. Therefore, considering the needs of that particular learning group, it is important to provide a variety of communication options when designing online courses.

Students mentioned that these spaces were useful when they needed help with their assignments. Fiona stated that "*when we have difficulties in assignments and discussions we have a place in Moodle, we can ask the teacher or other friends in the same group"* (Fiona, student interview 2). This was also apparent when

Christine was looking for help with one of her assignments where she had to make a YouTube video clip:

> *Making the YouTube clip really was a disaster. I thought that was quite frightening and I honestly didn't have a clue what to do. One day I asked 4 people at work and no one could help me. And then I sent out a question on the public Question place. Alex came in and sent me an email how to do it. To me, it was little bit like a miracle because I had no knowledge of how to do either of those the Movie maker or the YouTube*. (Christine, student interview 2)

In this case, Christine was struggling with one assignment where she had to create a 3-4 minute video to be uploaded to YouTube (or equivalent online multimedia tool). Through asking for help, she found out that Alex had the technical knowledge she needed. This demonstrates how important those Q & A spaces were. In situations where they needed assistance, more capable peers like Alex came in and guided them through the process. Other general questions that were shared and answered on the public question space ranged from various practical information students needed answers to, such as internet speed requirements, editing functions of Moodle discussions, assignment due dates, reference styles and computer brands. For example, Alex wanted to find out about editing time on Moodle.

> *Re: Public questions and messages (general)*
> *By Alex- Monday, 5 March 2012, 11:59 AM*
>
> *Just a question regarding posts in the forums etc.*
> *When we post something it says we have 30 minutes to edit it (or in another area it said an hour). It seems that the notifications come through via email after that 'editing' time. Are the posts visible before the editing time expires or is it like a 'draft' phase where no one can see them until the time has passed?*
> *Thanks*
> (Alex, Public questions and messages (general))

Another well used space in this course was the sharing space. This space was continuously filled with information about software—PDF reader, screen capture, as well as information on embedding audio into postings, using shortcuts, uploading URLs and docking blocks. Students acknowledged that sharing ideas about technology helped them in their teaching and learning and was particularly useful in their jobs, even though they were not particularly knowledgeable about technology. Debbie explained:

> *These are wonderful little instruments that everybody else knows and I don't…so we share things that might be helpful and it's a great advantage. I'm never going to be brilliant at technology, but I might be able to make it useful to me in my job little bit more I think.* (Debbie, student interview 2)

Overall, both the lecturer and the student participants stressed the importance of a well-structured course that included several spaces for sharing ideas and helping others.

In terms of the asynchronous forum discussion activity that was facilitated by Moodle, student participants reported both positive and negative opinions. One common idea they shared was that discussion forums as an asynchronous activity gave them more time to reflect especially if they were shy or had problems with English as a second language. In Alex's opinion, "*those second language speakers, when they are put on the spot it's a challenge, but on forums they have more time to reflect and be prepared"* (student interview 1). Debbie said that as a shy person she never talked in face-to-face tutorials during her first degree, as she thought whatever she said had already been said by other students. She did not feel that she added any value. In contrast, having more time to reflect, she believed that in discussion forums everybody says something and thus, online forums are excellent facilitators of discussions. Brenda shared similar ideas in terms of experiences of online discussion forums:

> *I think on forums we have been able to engage with the content. They are much more valuable than the tutorials that you did in the class. Some*

> *people in the tutorials don't read. Some people go to the tutorials to learn what the readings are all about. Other people want to talk about the content because they have read it. Some people have no idea what's going on, but everyone wants to learn. In the tutorials, you can't manage all those different learning needs, but this asynchronous communication makes everybody do the readings before they comment and that makes it more valuable not only had you done the reading and understood it. Sometimes you have to take some kind of notes because you want to add that to the forum. Then again you have to add your bit in order for it to work. I have been amazed by how valuable that tool is*. (Brenda, student interview 2)

Brenda preferred online discussion forums to face-to-face tutorials because in face-to-face tutorials only some students get a chance to participate in discussions. She believed that online discussion forums encouraged everybody to read and take notes in order to participate in the discussion. They could not just be passive listeners, as they might in face-to-face classes, as she had been.

However, students felt that discussion forums in this course were rather *"official"*. Because they did not see people in discussion forums, it took a while to get to know people. Alex confirmed that saying *"sussing people out slowly from forums"* (student interview 2). Richard felt that humour played an important role in feeling comfortable in online discussions:

> *Because I'll be nervous as they are. You've got to make them see you as a person who they can talk with and identify the person with it. Humour is part of that and as you go along they know when you pull their leg and you know. That's really important, so they feel comfortable and relaxed to be able to interact with me and others. And responding to those everyday*. (Richard, lecturer interview 1)

Although Richard, the lecturer believed that generally humour helps students to lessen nervousness and increase interactions, Alex emphasized that in discussion forums, it is hard to have a sense of humour without physical cues.

> *I'm thinking of a couple of discussions we've had where I haven't quite been sure what perspective the person was coming from whereas if you see them saying it, you can often judge a bit more from some of the physical cues. I mean when I write, I write in some ways with the tone I have in my mind, but it can be sometimes sarcastic. You can make it come out, but that doesn't fully come out with the intonation and the timing and everything.* (Alex, student interview 2)

Alex explained that he prefers more '*human interactions'* where they use a lot of cues whereas in discussion forums these physical cues are missing. This makes it hard to have a sense of humour. This was also apparent in some other students' point of view. Brenda stated that even though the discussion forums are quite rich with different perspectives, *"but really our forum discussions are quite dry. You know the first time Alex made a joke with me, I was like, what, it's not funny"* (student interview 2). She also mentioned that it is hard to be funny in online forums and if *"somebody cracks a joke and you don't like it or you can't tease, you can only be kind. You can't engage in that whole range of human interactions"* (Brenda, student interview 2). Although students generally agreed that there was a good interaction in the discussion forums and they were all good at keeping it content focused, Alex mentioned that:

> *If there's a scale from 1 to 10, I would probably give forums about a 4. They are valuable, but as far as enjoyment goes, I would probably mark them down at about a 4.* (student interview 2)

All in all, as a learning experience, students did not fully enjoy the discussion forum activity.

Language

Apart from the virtual tools that facilitated activities, the English language seemed to affect one student's participation in learning activities. In this case, Fiona who

is a non-native speaker of English, had some difficulties. She mentioned that at times she could not understand what the others were talking about. Fiona said:

> *I think sometimes I feel that I'm lost in discussions. Actually in this paper, I don't participate much because as I said I'm lost in this conversation. I need time.* (Fiona, student interview 1)

Since Fiona could not follow them she mentioned that she only read the discussions. When she was asked for the reasons why she couldn't follow them, she said that:

> *When they used slang I didn't understand. I try to understand the general meaning. Sometimes they use short forms like letters. Sometimes even Richard uses this. And other difficulty is continuous reading because sometimes they talk a lot and I think they talk from their experience not related with readings.*

She also had difficulties in doing assignments, as she found it hard to understand what exactly needed to be done, but she managed to clarify things with the help of her fellow classmates:

> *I found difficulties in doing assignments because I didn't understand, but I asked the others and the things became clearer*. (Fiona, student interview 2)

When Fiona was participating in the virtual classroom activity, grammar and pronunciation were difficulties (7 May observation). She seemed to read her slides and she mentioned that she was wondering whether her peers could understand her presentation. As part of the virtual classroom activity, students reviewed one of their peer's presentation notes and facilitated a discussion by asking three questions of the presenter right after their presentation. Providing her views regarding this process and how language became an issue in this case, Debbie described that:

> *Well from my point of view the person who asked me questions, that was Fiona. Fiona has issues with English as a second language and the questions she asked me were not exactly around my presentation. They were more about who I was and what I was doing, so I didn't find her questions particularly useful.* (Debbie, student interview 2)

The findings suggested that Fiona appeared to be struggling in participating in activities in this course as a result of not having a sufficient command of the (English) language. This was probably exacerbated by the kinds of New Zealand English idioms used by other participants that she was unfamiliar with. In her view, since the course was fully online she had an advantage, as she had more time to think and reflect when writing asynchronous responses. Fiona emphasized that "*because of language, it is better to learn online because I have more time to read"* (student interview 1).

Rule mediation

The assessment for this class was based on three assignments and discussion forums each week. In participating in these activities, students had to follow the rules and guidelines specified in both the course outline and in documents uploaded for specific activities. The following section outlines the findings related to rules in the asynchronous Moodle discussions and the synchronous virtual classroom activity.

Rules and guidelines of activities

While the specifications for discussion forums stated that *"contributions to discussions are not directly graded in this paper"* (assessment information document), the course outline spelled out that *"discussion is a critical part of the work you will do in this paper and your 'attendance' is essential"* (course outline). There were no specific rules given other than the word limit in the assessment information document. For example, it said, *"Postings should be pithy and to the point, limited to approximately 100-150 words each"*. However, some helpful guidelines for good discussion contributions were listed down as part of the assessment information document:

> *Good discussion contributions occur when you have: made clear, concise and relevant comments to show you understand and are engaged with the topic; developed and extended the ideas and thinking of other contributor*. (course outline)

Richard had a lenient view on the rules and guidelines for participation in activities in this course. He believed that by imposing too many rules in discussion forums, the postings could become futile:

> *I'm not one of these people that say, you got to quote from X number of journal articles per forum or something you know. If they want to do it, that's fine. How they want to do it, that's fine too. They have got rich experiences they bring to it and you can tell whether they have done their readings from their presentations. I found once again another evolution in the course, this requirement you know you must reference…bla...bla...bla...you get sticky, stifled, manufactured comments and that's just crap. It's just a different feeling. The readings are there heaps of them. I just tell them "look, Just pick a couple or three that interest you and read. I don't expect them to read all 50 out there*. (Richard, lecturer interview 1)

Richard also acknowledged that he is not focusing on the regularity or frequency of participation, but the quality of the discussions around which the criteria are built:

> *We have marking criteria and what I look at it is, it's not frequency and it's not regularity and it's the quality of the discussion and the evidence of thinking around the topic. That's what the criteria reflect. I'll do what I can do to encourage them, but I can't stand over them and say you must do it…otherwise what you get extremely screwed up, pity, pathetic little comments that they mean nothing anyway.* (Richard, lecturer interview 1)

Christine also had a perspective on the regularity of participation in discussion forums. She felt that since it was not clearly specified how frequently they were to contribute to discussion forums, she found that it was little hard to decide how often she should go in (although in one section of the course outline it stated *"To obtain a pass in this paper you must: make regular contributions to online forums and discussions (i.e. min 3-4 weekly)"*. She also emphasized that the challenge was to go in and say what she wanted to say before the others did:

> *There is no point saying it again. I think I was highlighted that… when you go in to say something, it's already there. It does seem that it's a good idea to go in and do it quickly at the beginning of the forum before there are too many other postings.* (Christine, student interview 2)

In the virtual classroom synchronous activity, there were specific rules and guidelines that governing students' participation. The students had to select a subject-related topic and prepare a 10-minute PowerPoint or equivalent presentation to be made to other group members in the virtual classroom. The rules and guidelines around this activity were given in the course outline and detailed criteria that included rubrics for different grades were included in the Assessment 2 criteria document along with the maximum 10 minute duration:

> *Your presentation will inform your audience of background to your chosen issue/consideration (past, present and perhaps future) and the findings in literature/research that may inform future decision-making around your issue/consideration. Your presentation will raise and answer key questions on the issue/consideration that are relevant to your chosen context (and the use of digital technologies in that context). Your presentation should conclude with an overall recommendation or discussion questions (etc.) others could take away for further exploration. Your presentation should use a range of references and scholarly resources in justification of arguments and perspectives.* (assessment 2 criteria document)

Clarification of rules

Students emphasized that certain rules for the virtual classroom could have been clearer. The virtual classroom seminar sessions, over three evenings of an hour and a half each, had time for 3-4 student presentations to take place. Students were given the choice to come in if they wanted to listen to their peers' presentations and support them. As part of the virtual classroom, students were to review the presentation and notes of another member of the class. The purpose of this reviewing process was to encourage discussions and interactions. It was expected that the reviewer would read, review and raise 2 or 3 questions to lead a brief discussion of the presentation. Debbie found out that she had not put her presentation slides and the notes the correct way through the review process. She thought that the way to do it was not stipulated explicitly:

> *After I sent out my PowerPoint I said "ah I mucked up" because Richard emailed me saying "where are your notes?" When I saw Eddy's PowerPoint slides, when I had to peer review, he had done his presentation slides and notes separately and I put mine underneath each slide which was optional. Richard didn't stipulate, and we had to do it our own way, but when I saw exactly how Eddy had done, I thought "oh God" I thought I'm going to fail.* (Debbie, student interview 2)

Debbie put this down to the presentation expectations not being clear enough. She was therefore unclear about how to do the presentation:

> *We had to learn and do it in that environment, but it was our assignment straight up. So I didn't know and basically I read the script and felt really uncomfortable. I was supposed to be looking at people and seeing reactions, but I was reading and I was stilted.* (student interview 2)

Since Debbie was not sure of the level of formality, she said that she decided to present it in a formal way although she preferred to do it more informally:

> *I would have liked and I was thinking before, whether I can present it from outline notes. But I wasn't sure of the expectations and I wasn't sure of the*

> *level of formality because this was for an assignment. If I go on talking, or distract a little bit or I don't get as much good information. I wished I could do it more informally, so I could connect with the people, but it was a formal assignment.* (Debbie, student interview 2)

Brenda noted that her peers had not kept 10 minute limit. She also noted that they were reading their notes instead of presenting to an audience. According to her, "*you can't be in an online classroom and just read* (student interview 2). My observations supported Brenda's observation too. Most of the students tended to read their notes and not look at their peers when they were presenting. By contrast, Brenda said that she tried not to read her notes with the intent of presenting in a more relaxed and in an informal way.

Regarding the duration of the presentations, Brenda felt that the presentations "*should have been timed out*" (student interview 2) and also could have been structured in a different way:

> *I think it could be structured differently because I get the feeling that the other two people that I watched, read their notes whereas I would have handed in those notes.* (Brenda, student interview 2)

Brenda's thought that "*the rules could be clearer. The question of going overtime is interesting because we all have a certain amount of time* (interview 2), but some students did not seem to follow the rules. This is because in a previous instance when students had to do a YouTube video clip, they were to produce a 5 minute video with 100 words. Christine explained what went wrong when she followed the rules in making that video clip and what she learnt from that:

> *It had to be 5 minutes and 100 words. I took that literally. I made sure that it was 5 minutes and 100 words. Then one criticism Richard made was that I hadn't done a long enough conclusion. Of course I cut it out because I couldn't fit it into 5 minutes. When I saw a few of the others theirs were 7 or 8 minutes. I learnt from that then the next one, the PowerPoint, you see I learnt from my 5 minutes, so I realized that the 10 minutes is just a... I*

didn't worry about the 10 minutes at all, so that took some of the stress away. (Christine, student interview 2)

Community mediation

The sub-themes emerging under the theme *community* included peer collaboration and interaction, peer support, sharing, learning from peers, sense of belonging and community building. These aspects were facilitated by the structural design of the paper within Moodle.

Some of the structural strategies used in the design of this paper allowed students to get to know each other better from the beginning. These structural strategies included the social communication spaces for the purposes of personal introductions, general sharing, and private and public Q&A.

Richard explained that structural strategies that supported a sense of community should be deliberate. He also insisted that it was important to be careful in choosing different strategies to suit the learners' needs. Creating a community "*can be the ways you form groups, strategies you use, sometimes the strategies you use with one group works well for them, but not with others…"* (Richard, lecturer interview 1).

The personal introductions the participants shared at the beginning of the course included details about themselves and families, their goals and also their photos. Students valued these personal introductions, as it helped them to get to know each other a little better. As Fiona explained, in face-to-face classrooms there is a chance for students to get to know each other better, as they meet each other often, unlike in a fully online environment. She said that the detailed introductions helped to know more about other students in the class: *"at the beginning of the paper we had to introduce ourselves giving details, not just the name"* (Fiona, student interview 1). The importance of sharing their photos with the personal introductions was also emphasized by Debbie.

> *It was better than I thought. You introduce yourself to others and you see a face and then …when you are reading … replying you are imagining that personality.* (Debbie, student interview 2)

The private and public communication spaces that Richard created were another structural strategy that helped students to clarify things as well as 'get help' from peers or the lecturer. When students needed help, they felt reassured when someone helped out when they posted a request in Moodle.

> *Yes, I feel it (the sense of belonging) and when we have difficulties in assignments and discussions, we can ask the teacher or other friends in the same group.* (Fiona, student interview 2)

When they were interacting, sharing their knowledge and experience, and offering and receiving help, they felt part of a community. Students also mentioned that even though they saw only each other's pictures, they felt that they were friends. Both students and the lecturer mentioned several aspects and ways a community or a sense of belonging can be created. In Richard's perspective, making a community or creating a sense of belonging to a community takes place in stages and then the students feel a sense of obligation to each other. This was also echoed in other students' views. For example:

> *I did feel that I belong to a learning community. It's been a process and it took time.* (Debbie, interview 2)

Referring to the forum discussion activity, participants mentioned that language is influential when it comes to building communities. According to the lecturer, language plays a significant role in forming learning communities. How formal or informal the language is, as well as humour that comes through that language seems to be important in forming groups. Some students also identified other elements such as the class size and also the lecturer's presence in activities as contributing factors in building a community. Students explained that:

> *Connecting with people…I think the class size has got something to do with that too. A nice small class might make connections a lot easier*. (Debbie, student interview 2)

> *What helped (in creating a sense of belonging) possibly more in this case was that the lecturer was interacting.* (Debbie, student interview 2)

The majority of the students explained that the sense of belonging to a community was created in this context largely by the virtual classroom activity. Students admitted that they did not have a sense of belonging at the beginning of the course, but it developed over time with real-time interactions. Describing how the sense of belonging developed over time particularly with the help of virtual classroom, one student said that *"I didn't have it (sense of belonging) at the start, I think the virtual classroom helped with that for me"* (Debbie, student interview 2). However, regarding the virtual classroom activity, one concern raised by a student was that *"making it safe is more important than making that community in a way"* (Brenda, student interview 2). Brenda described that they already belonged to several communities in their lives. However, she also acknowledged that it was valuable to have a supportive group that helps in assisting learning. While acknowledging that it is vital to have a learning community to aid learning, Brenda did not favour having too many communities in her life:

> *Actually we already have our own communities…I don't need it (the community), but it's very useful and valid and it's aiding our learning and that's more important*. (Brenda, student interview 2)

In terms of teacher's presence, all the students clearly stated that they preferred him to be there. Alex, for example, put it this way:

> *Definitely, it's better that he is there. It's like he is present… I mean if we were in face-to-face situation, with the nature of some of the people in the course we probably would have very dynamic conversations without him...he wouldn't need to be there. However, he does guide us, he ends it*

> *with the things he likes us to consider, so that has been good.* (Alex, student interview 2)

Others provided various reasons why they preferred the lecturer to be part of the discussions. Brenda, for instance, thought that their participation and contribution "*need to be acknowledged. Otherwise why are you doing it?"* (Brenda, student interview 2). Others pointed out that he needed to be there in order for them to be guided:

> *I think his presence is absolutely vital. I hate not to have Richard there. He directs and he sort of tells us and I think we'll be like a head going to 100 different directions if we didn't have Richard. I'm very grateful that he is there.* (Debbie, student interview 2)

Christine mentioned that the tutor's presence was important when it comes to students' participation. In addition, she believed that the lecturer's presence helped them to get the depth of knowledge.

> *What has been interesting is that the week that we had another guest, she didn't come very much and I noticed that it wasn't quite good. In my opinion, Richard has been a very good coordinator and his work is structured. I found that he needed to be there to get the depth of knowledge.* (Christine, student interview 2)

Richard also thought that his online presence and participation in discussions was important. He said, *"You can correlate strongly the relationship between students' participation and tutor presence"* (Richard, lecturer interview 2).

Case two findings

This case study was one course in a Graduate Diploma of Teaching program. It was taught online for 12 weeks in the first semester of the year. All class interactions took place within Moodle. Most activities were asynchronous. The

participants in this case study were firstly, the three lecturers (Faye, female British; Laura, female New Zealander; and Michelle, female Australian). Each was in charge of one group. Secondly, three students agreed to participate in the research (females from New Zealand and India; and a male New Zealander). The three students who were in Laura's group (group two). This makes Laura's group the main focus of the findings.

The main themes illustrated in the following section include Tool mediation, Rule mediation, Community, Contradictions, Divergent course objectives and Cultural aspects identified in case two.

Tool mediation

I observed the students' PowerPoint slides which they prepared for the fictional conference scenario and the Moodle asynchronous forum discussion. I also used the course design as a source for data analysis. The sub-themes emerging under the main theme Tools, comprised affordances of tools, constraints of tools, importance of structured course design and the presentation of materials which are shown in the following figure. These sub-themes are discussed in relation to different tools that mediated students' participation in this course.

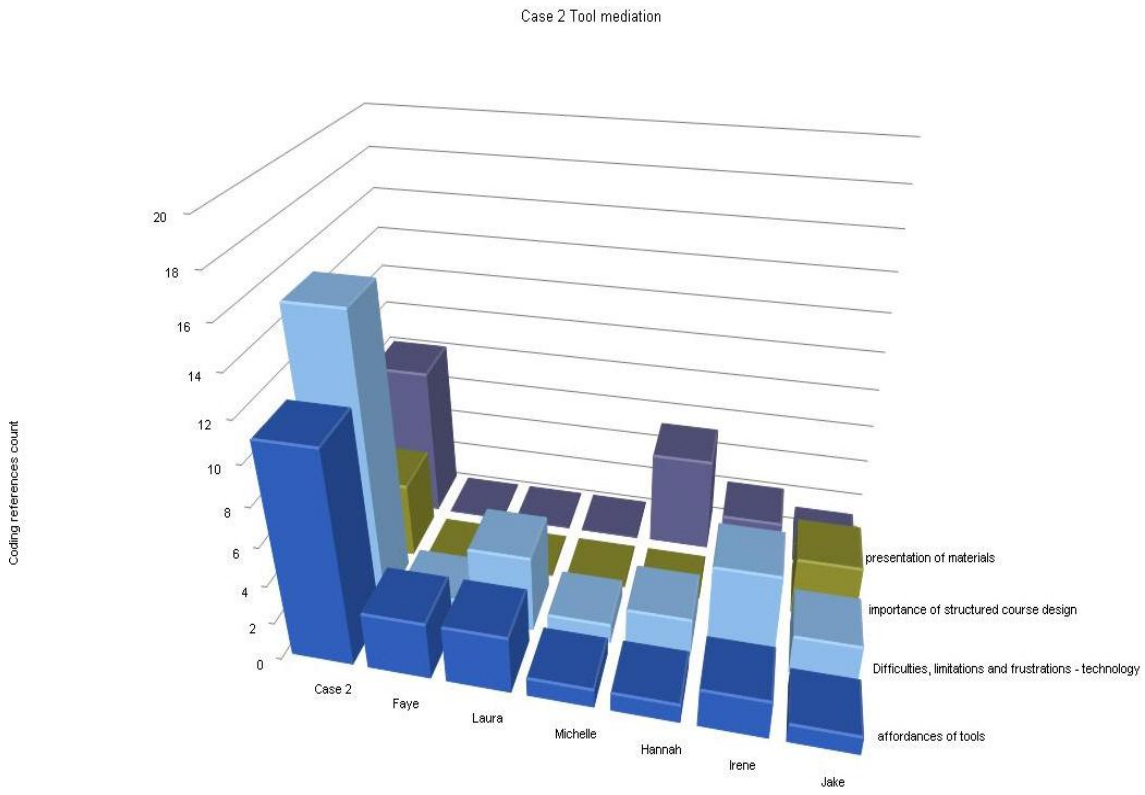

Figure 4.5. Case two sub-themes emerged under the main theme Tools (NVivo matrix coding query)

Learning Management System

In this case study, the themes emerged under the main theme Tools were related to the affordances and constraints of Moodle that facilitated asynchronous activities. The sub-themes were also related to the design of the paper that included the layout and the presentation of course materials.

In each lecturer's group (group one, group two, group three), students were again divided into three sub-groups (i.e. group two A, group two B and group two C) in discussion forums. The group members were rotated every four weeks. The rational for grouping students was to have a meaningful discussion among members in sub-groups. Students did not get to know who their group members were until they took part in discussions. Only the lecturers could see all the three groups in Moodle. The students only had access to their individual sub-group (A, B or C) and the resource materials on Moodle page. The reading materials and YouTube clips for each week were uploaded to Moodle in specified places for

different weeks. This implies they were uploaded over time. Students were to read the articles or watch the Youtube clip before they participated in the discussion forum initiated by one of the lecturers. This was usually the coordinator, Michelle, but in some weeks other lecturers (Faye or Laura) adopted this role. Plenary Podcasts provided information, instructions for assignments and also feedback regarding discussion forums. However, lecturers had their own way to provide feedback in their own groups. For example, Laura posted a feedback podcast at the end of each week providing feedback to her students.

All three lecturers said that uploading Podcasts was important and useful to students because the podcasts provided more time for student reflection. This was, they said, important for the international students. Faye pointed out:

> *We have a lot of people who have English as a second language. It gave them time to reflect. They always have a voice. The Podcasts and things really helped with the content because they could rewind it and go back.* (Faye, lecturer interview 1)

Faye explained that in asynchronous discussion forums, students who are speakers of English as a second language have more time to read, understand and form their answers before posting to discussion forums. This meant they could also edit their replies as they reflected. She mentioned that:

> *They can revisit what's been happening with the discussion forum they have time to read and they have time to craft the reply and then they can get it edited. So, actually reflection is important.* (Faye, lecturer interview 1)

The students felt that studying online gave them flexibility because of their other commitments. Irene, as a mum, felt that she "*can pick and choose the times to study/post to forums"* (Irene, student interview 1). Jake had similar views and he explained:

> *I'm learning with forum, lecture on audio file etc. You can just pause, go and make a coffee and then come back to it. You don't have to sit through the entire lecture. This is far more flexible. It's there and you can rewind if you want to check things. It definitely makes learning at your pace. You are able to learn when you want to learn rather than being stuck in a class.* (Jake, student interview 1)

Laura explained that Moodle allowed her to monitor students' progress over time. Although it was time consuming and an involved process, she believed that it was useful:

> *Individually I go through each student because Moodle allows you to look at each individual student. I fill out a little chart every week like you know what kind of grade they would get for that week even that's an overall grade and at the end of the whole course that kind of pulls together. Actually, that's quite an involved process, but it really gives you an insight into those students and their thinking.* (Laura, lecturer interview 1)

Laura also valued the asynchronous nature of the online course. For example, she could look at students' work as well as give a lecture while at an overseas conference during the semester:

> *Me going to a conference in the middle of the course was not ideal, though there wasn't much choice about that. Having said that, the online platform did mean that I could talk to students and read their work on the other side of the world.* (Laura, lecturer interview 2)

Michelle also liked the flexibility of this course. Michelle worked from home most of the time and she found it convenient to talk to her students via voice files.

> *I'm often away from my office, so I work from home on my laptop where I've got the same access to that kind of software. Particularly, voice files were really helpful and useful and also I was uploading images and stuff.* (Michelle, lecturer interview 1)

Students also found the Podcasts were a useful way of receiving feedback on their forum postings. Hannah, a student of Laura's group mentioned that "o*ur lecturer does podcasts (feedback) and it's very useful for me and I said don't worry about the duration. I really like to have them"* (student interview 1).

On the other hand, when the participants were asked about any constraints while they were engaging in activities in this course, they explained how they were frustrated due to various reasons. For example, Irene felt that in discussion forums she was not able to express her ideas adequately:

> *My difficulty stems from rather not being able to articulate my thoughts adequately. For example, in a face-to-face setting, you could have a two-way conversation and you can continue the conversation until your point has been put across. I find the online discussions somewhat stilted and I personally am finding them a little intimidating.* (Irene, student interview 1)

The inability to have a two-way communication in asynchronous activities contributed to Irene's frustration. She also mentioned that she had some issues with downloading Podcasts in this course:

> *I did have one other issue. In this paper there were a couple of downloads that I actually couldn't do. You remember last week Faye and Laura did a funny Podcast, I couldn't download that.* (Irene, student interview 2)

This was also acknowledged by Irene's lecturer, Laura. She also had difficulties downloading the same Podcast:

> *The students had some difficulties I think getting into the Podcasts. Even I tried it at my home computer and it wasn't easy and it took me hours to download that drama thing. That can really preclude full participation*. (Laura, lecturer interview 2)

The findings highlighted that "*there were Moodle moments"* (Irene, student interview 2) where students had issues posting messages and assignments. Jake stated that the frustration caused by Moodle turned into a benefit when the lecturers gave them an extension on assignment one. Jake said, "*Last week Moodle had some moments, but we got an extension on the assignment. YES!!! So when technology breaks down that can be a benefit"* (Jake, student interview 1). All three lecturers were aware that Moodle caused some issues from time to time. Faye believed that it was because *"the whole system was overloaded"* (Faye, lecturer interview 2). In Laura's perspective, "*it wasn't so bad this year as last year"* (Laura, lecturer interview 2).

Michelle believed that although there were some issues with Moodle, the accessibility of the paper was not interrupted. She commented:

> *Occasionally, people had some internet issues; they were not program specific though. Nothing more than that because the accessibility within the paper was still really good.* (Michelle, lecturer interview 1)

Michelle said that personally she did not have any difficulty and she "*thought it was a great paper to play with some of the technology"* (lecturer interview 1).

Laura experienced another frustration. She was, at one point, locked out of the one-to-one communication space on Moodle for some time. These communication spaces were there for students to ask questions in public or in private from their lecturers, but she could not access it to provide support. Laura described her experience:

> *In the one-on-one space I assumed that I hadn't heard from any of my students in the whole course. And then, quite recently, a student emailed me and said "you haven't answered my question on one-on-one space". When I tried to go in I discovered I had been locked out of it, so I had no way of knowing. Then I went in and I had about 10 questions that I had not been able to respond to, spanning several weeks. I had to go back and say "I'm really sorry". That was a bit of a glitch and I'm just hoping that,*

> *that didn't put them off. I mean obviously this one student had then thought "oh well if it's not answered, I'll send an email," but that's not how I wanted it to be. I wanted to be responsive and immediate. I think the technology stuff has to be right for this to be effective. I think it was because when I was initially brought into the course, I was brought in on the wrong criteria. But it's all resolved now and I find the students are very generous with us in this regard (well, I guess the appraisals will reveal to what extent!).* (Laura, lecturer interview 2)

In Laura's opinion, one cannot separate the technical and pedagogical issues in online courses. She commented:

> *I don't think you can separate the technical from the pedagogical when you are online. I think they are connected, but the technical is the pedagogical. It's the way you speak, the language you use and therefore, if that fails in some way then you have to take responsibility for what happens at the other end. This requires a very hands-on teaching style.* (lecturer interview 2)

Laura's views implied that it may be a technical or a pedagogical difficulty; the lecturers are held responsible if there are difficulties.

Presentation of materials

The teaching materials in this paper included journal articles, Youtube clips, PowerPoint slides and Podcasts. Students' voices indicated the way they felt about the presentation of these teaching materials in this course. For example, Hannah argued that *"there are no books for reading and that's really a big drawback"* (student interview 2). She preferred to print the articles at the university, as it was cheaper for her, but she also pointed out that when the lecturers uploaded the materials on Sunday nights she did not have time to print and then read and post:

> *In the beginning they posted it on Friday what we have to do on Monday, so those of us who are working in the week, we could have Saturday and*

> *Sunday. Believe it or not, just one day goes for printing and filing. And lots of papers have big pictures on them and if you want to use your printer it's a waste of money. Actually I go to university and print through the laser printer which is cheaper. If you have to arrange all that going and coming and it all takes time. Then we have Sunday to read and post, but the last two weeks or something they gave on Sunday night.* (Hannah, student interview 2)

When Hannah was asked why she thought it was good to have time to read during the weekend and then join the forum discussion on Monday, she explained the difficulty she faced when the materials were posted on Sunday night:

> *Then you have Monday morning to print, then Tuesday we read, and already people have posted. You see we had five topics and I read one topic and I go there, and then I see everybody has read some other topic, so I feel like being respectful and I go back and read that article. Then I go back again, and then they have changed that article. Seriously, this is what I faced today, so I just stopped for a while and I was just sitting in front of that for 2 hours trying to find whether there's any connection between what they said about the other article I read, but no connection, so I went to other subjects and then I did that.* (Hannah, student interview 2)

Hannah emphasized that many students preferred to have the reading materials in the form of a book, as it was convenient for them to read. She was able to cite comments posted in a communication space which was known as "community hub". This was common for all the courses in the Graduate Diploma program. In this space, students raised the issue of having a book instead of several articles every week. She explained that:

> *Everybody wanted the book for reading. We all asked for it, and then a lecturer said that we can't have it, but afterwards she agreed because the request continued. Now she has agreed to it, but until I see it, I don't believe it you know. They might say they haven't. They have to be*

> *organized enough to think of the materials 4 months in advance*. (student interview 2)

This issue was also highlighted by Irene and she mentioned that having no hard copy of a set of readings was "*actually, a bit of a pain"* (student interview 2). She believed that if they had a set of readings, they could easily get back to them when they wanted to refer to them. However, when Michelle, who is the coordinator of the course, was asked about the issue of providing a hard copy of readings, she had a different perspective. She believed that by giving the articles every week to students, they could ensure that the latest publications were used. Although students were desperate to have a printed book, she mentioned that giving articles every week worked out well.

> *The process of putting the readings online rather than in a hard copy has worked well because as the 12 weeks have unfolded and new papers have been published that are related to the subject area that are quite new and exciting, so we can upload and talk about them*. (Michelle, lecturer interview 1)

In terms of the presentation of materials, Irene had difficulty following some of Laura's Podcasts that were uploaded for group two. This was mainly because she has a hearing difficulty:

> *One other thing is Laura's Podcasts, they are often hard to hear because she sets the volume too low when she is recording. And I'm little bit deaf and it has to be dead quiet for me to concentrate. In some of them she had music playing in the background it was a great pain.* (Irene, student interview 2)

Jake explained why some of the students could not open some of the Podcasts uploaded in this paper. In his opinion, they were recorded using different formats and some students couldn't download them. As a suggestion he said planning and testing should be done before the course starts for a smooth run:

It seems that some of the Podcasts you could sync with iTunes and you could automatically download, but then the other Podcasts were not through iTunes and it was in different formats. Maybe it was in an audio file or just the iTunes thing and not everyone has iTunes, so they should do just the audio Podcast and keep it nice and simple. I suppose it's trying out different things and seeing what's best. As we were told we have to be up-to-date with technology. Just realizing that it's an evolving process, but still being aware that things have to run smoothly like there's testing and everything, but should plan it properly. (student interview 2)

Structural design of the Moodle page

There were several communication spaces that included news forums, one to one, Q&A, a notice board and social café spaces in this course. These spaces were used as and when students needed to clarify issues, get information and share their ideas. The following screenshot shows the Moodle page with these communication spaces.

Figure 4.6. Case two communication spaces on Moodle

Laura's group did not use the social café much. Laura mentioned that *"I do know that in Faye's social space, her students are often in the cafe a lot and my students never use the cafe to my knowledge"* (lecturer interview 2). When the students were asked what they thought about the provided communication spaces Jake commented that:

> *It's kind of you look at the top of the page and it looks to be a bit excessive and it's been repeated in every paper. It's good to have the one-to-one chat with the lecturer. I suppose it gives the people appropriate places to post their things, it's kind of difficult to remember to check into everything. I've got to click on that to make sure that…and things can get lost in that. I missed a couple of Podcasts and ended up like there was one release late in April I think, I didn't see it until a couple of days ago. It's ok, I don't*

> *think I missed anything, but it is a fact that information can be missed when you have all these things to check for all the information.* (Jake, student interview 2)

Jake here explained that some spaces are a repetition (e.g. News forum in Figure 4.6). Since the Podcasts were uploaded in a few different places, it was confusing for students. He suggested that:

> *It's good to keep all that in one place; I think keeping all the information that is being out that week in that week. I think there has also been instances like "this is for your information, there is a Podcast there" and then there is a Podcast in another place and so it's very confusing where to look for them. It'll be good to kind of have more structure in that "this is where you put the Podcast".* (Jake, student interview 2)

Students' suggestions also included organizing all the resources and information weekly:

> *You've also got supporting information, that's another thing. I realized that I hadn't got my assignments back because it was in the notice board and I neglected to check that. It has been good if we had the supporting information on what discussion is on that week, and then you have the Podcast and everything and also information like "Hi your assignment is ready" and you can go and check it to get the marks. Just try and keep it more like week by week.* (Jake, student interview 2)

> *And I think all of the critical information should be in one place in the week that it's relevant to. Because sometimes like Laura's Podcasts are in Laura's notice board, and sometimes I just check them and it's a Podcast. So, everything relevant to a certain week should be in one place.* (Irene, student interview 2)

In assignment one, where they had to draw on the discussions and the provided literature, students were to create a PowerPoint presentation for a fictional

conference. This was to be accompanied by a written 1000 word reflection based on a set of reflective questions given and uploaded on Moodle. However, students were not sure whether they were to include notes in the PowerPoint presentation and some of the students posted questions in the Moodle communication space asking for clarifications. When students got the answers to their questions from the lecturers, the students realized that they had been given contradictory information. One lecturer had asked them for example, to *attach notes* while another asked them *not to* include them. In Irene's point of view, one person should have given instructions regarding assignments:

> *There was confusion there. Laura actually gave us wrong information. I think one person should deal with the actual sort of what is required for the assignments.* (Irene, student interview 2)

When presenting teaching materials as well as information regarding assignments, students expected lecturers to have more coordination. Hannah, for example, commented that:

> *Actually when our lecturer talks, it is way above too because we are still at the initial stage. We had Maori health perspective with one teacher and we were struggling the whole week. Then the next week another lecturer gives us a PowerPoint presentation on that (what we were struggling with) in a clear way. So there should be more coordination and planning together and more help you know. They are doing their best to their knowledge, but somehow it's not sufficient for us*. (Hannah, student interview 1)

Rule mediation

There were three assessed activities in this case study. These were online discussion forums (30%), a PowerPoint presentation for a fictional conference and personal reflection (40%), plus some artwork accompanied by a personal reflection (30%). In participating in these activities, students followed some rules specified in the course outline. The following section outlines findings from two

of these activities, the discussion forums and the PowerPoint presentation. This section focuses on themes emerging from the main theme: Rules.

Rules that guided students' participation in activities

Rules, according to Activity Theory refer to the "explicit and implicit regulations, norms and conventions that constrain actions and interactions within the activity system" (Engeström, 1993, p. 67). The course outline of case study two specified rules and guidelines for all the assignments, but did not include the rubrics for marking. The paper outline clearly stated that students' *"contribution to the online discussion forums is compulsory. Failure to meet this requirement may result in a fail grade for the paper"*. It also outlined the marking criteria for online discussions:

- *A minimum of 3 contributions per weekly topic.*
- *Links to a minimum of two relevant sources per discussion.*
- *Makes connections to own experiences.*
- *Extends on groups ideas and brings in new perspectives.*
- *Incorporates both Māori and Western perspectives where appropriate.*
- *Articulation of views is thoughtful, clear, and relevant.*

(course outline)

Apart from these *rules* stated in the course outline, students had also been informed at the beginning of the graduate diploma that their postings should not exceed 150 words. Faye commented on the marking criteria and the rationale for grading the discussion forums and she said:

> *So, we kind of have general criteria for each discussion forum, so there is a consistency throughout the program otherwise it's really confusing. So, that's the reasoning behind the grades for the discussion forums. With the other assignments we allocate marks depending on what it is we are asking them to do. Within all of our criteria we always ask both Maori and Western views to be considered and because it's a bicultural curriculum*

> *and it's important that people look from both lenses, but other than that the criteria will be supporting the assignment.* (Faye, lecturer interview 1)

However, Hannah seemed to find it hard to follow so many rules in discussion forums. She said:

> *They have marking criteria. Every post should have 2 references, I was thinking how can I get my 2 references, how can I get somebody to answer the message, how can I say it in 150 words? How can I do so many things? We are just focusing so much on those things. It's more hard work.* (student interview 2)

In Hannah's view, meeting all the criteria and getting your message across *"is like a real gymnastic"* (student interview 2). Referring to some other rules like including Maori and Western perspectives, Hannah commented:

> *The worst part is they are grading us for Maori perspectives, implications that has for the teacher they have these 5 things, references and all. Everybody is like...even if they want to write properly it's not humanly possible. All the rules in the world are there and they are doing a paper on creativity which is crushing our creativity.* (student interview 2)

Hannah seemed to be frustrated and suggested that there should be fewer rules:

> *I think there should be fewer restrictions like APA referencing is not a must, language is not a must. Because you are not marked for your language in any writing style, so we are thinking of the content rather than how we are putting it into our own words especially for non-native speakers it's very difficult. I think even the native speakers find it difficult to organize their thoughts.* (student interview 2)

Hanna's views highlighted that as a non-native speaker she found it hard to meet all the criteria and get the message across because there is also a requirement of the standard of language.

Clarification of rules

Regarding references that students had to incorporate into their forum postings, there was some confusion that was shown in Laura's notice board. Based on Laura's voice file uploaded as week four discussion feedback, students were to link 2 sources of literature per post and 6 sources per week whereas in a previous discussion they Community Hub, common to all four papers of the Graduate Diploma course, Faye had mentioned that they were to incorporate 2 sources per week and not per post. After having a discussion about this with Faye and Michelle in the teacher's space, Laura confirmed that it is 2 sources per week and apologized that she misinterpreted the text (course outline).

Another issue was that students were also not sure whether to include the reference in forum postings if it was from another paper in the same course:

> *There was some confusion at the beginning of the semester, but it was cleared up. It would have been good to have said in the course outline "for the forum posts, this is how you reference" because for a couple of weeks people were just putting in-text referencing even for content that was from another paper, but then they (lecturers) actually asked us to cite the full reference at the end of the forum post if the reference is from another paper. We started doing that. It would have been good to have the heads up at the top of the paper. Hopefully that doesn't affect our marks on those posts.* (Jake, student interview 2)

Laura's week 4 discussion feedback also talked about assignment 2, which was to prepare PowerPoint slides for a fictional conference and write a 1000-word reflection. This was to be based on a framework given. Laura, in her voice file, instructed students to include notes for PowerPoint slides apart from the 1000 word reflection. This was again confusing for students, as Michelle in her plenary voice file—*a chat about assignment one* uploaded on Moodle in week 4, had given instructions asking not to include notes for PowerPoint slides. This confused students whether to include or not to include the notes. In the end the lecturers decided that students did not have to include the notes. Hannah had a frustrating experience associated with this confusion:

> *I had a word limit for the reflection and I thought the PowerPoint goes with the reflection, so whatever I included in the reflection, I didn't include in the PowerPoint and whatever I included in PowerPoint I made sure that I didn't include it in the reflection. I thought both of them went together and I got a reply saying that "you did elaborate your points on your PowerPoint", but they marked the PowerPoint and reflection separately. How can you? Forget about the notes, but we have the reflections and you imagine that they go together. How can you mark separately? Seriously, that was very frustrating.* (Hannah, student interview 2)

Hannah assumed that the slides and the reflection went together and she did not repeat the same content in both. However, the slides and the reflection were marked separately and this was a disadvantage for her and she was frustrated. In Hannah's point of view, students should have included the notes in the slides, as it would have helped the lecturers to understand the presentation better. She pointed out that:

> *I just took it for granted thinking that we have to put the notes. Because how can you do a presentation without notes. We were so stressed out. We had so much work to do and when they said "no you don't have to do the notes", I thought "ok they are going to use their imagination and understand". I was happy because I had less work to do, but then again you don't get a good grade because you didn't put notes and they don't know what you would have said. You attend conferences and you see only 5 PowerPoint slides and the presentation is fantastic. And then you see sometimes the PowerPoint slides are brilliant like in my other course one guy asked a computer person to do the slides for him and it was brilliant, but when you sit there only you know what they say. You can't grade a PowerPoint presentation without the notes.* (Hannah, student interview 2)

Students highlighted that the unclear rules created confusions that frustrated them in this course. These frustrations also appeared as contradictions in this context.

Community mediation

The *community* of this context comprised the lecturers and students. However, lecturers did not participate in discussion forums and therefore in terms of participating in activities they were not part of the *community*. Students' opinions on the lack of "teachers' presence" in discussion forums will be discussed under the 'contradictions' heading for case two. In this section however, the lecturers' intention to build a community of learners and a sense of belonging is illustrated in relation to students' views.

In terms of the *community* aspect, Faye stressed that within the graduate diploma, they work hard at the beginning to develop a culture of a community of learners. Referring to a topic that required students to discuss their personal experiences, Faye stated that:

> *People are sharing their ideas and in doing that I hope that they find their way around their environment sharing things among themselves...getting to know each other little bit better and hopefully starting to build those relationships to build that community…and to foster a sense of belonging within the program.* (Faye, lecturer interview 1)

Faye argued that sharing ideas and experiences would help students to build a community where students feel a sense of belonging. This linked directly to the lecturers' attempts to build a community of learners. To help students build closer relationships with each other, they were given a netiquette guide at the beginning of the graduate diploma program. This netiquette guide is, according to Faye, useful for developing social presence and building relationships:

> *We have a netiquette guide at the beginning where we talk about how we communicate online because that's really important. So, people know. You know just as what we do in everyday life, just come in and say hello. These things are really important for social presence and again for building relationships, so we have a netiquette guide, so people have an idea of how they are going to communicate.* (Faye, lecturer interview 2)

This was; however, not necessarily all students' experiences. Irene, for example, mentioned that she partly felt a sense of belonging to a learning community at the beginning when she came to the university during the 3 day orientation of graduate diploma program. She did not feel the same in the online environment. She said, *"if I had a sense of belonging, that would have been due to those three days and not so much because of online environment"* (Irene, student interview 2). Hannah never felt a sense of belonging even towards the end of the course. She said, *"I don't feel a sense of belonging at all even now. Even at the end of the course I don't feel it"* (Hannah, student interview 2). The findings suggested that although community building was one of the lecturers' goals, in this case, almost all the students did not feel a sense of belonging or being part of a learning community.

Contradictions

In case study two, findings revealed that several contradictions occurred. These included contradictory opinions, communication issues, grading issues, misunderstandings and frustrations. These contradictions were identified within and between some of the elements of the activity system.

Issues on grading

Laura, the lecturer of group two, mentioned that she did not mark the first assignment—the PowerPoint slides they prepared for a fictional conference and the reflection on that, as she was on international conference leave. She noted that, "*I didn't in the end mark the first assignment because I was away, but I did have a look at a few and I was very pleased with it"* (lecturer interview 2). She mentioned, "*They (Faye and Michelle) managed to get somebody who had already taught the course previously"* to mark group two students' assignments (lecturer interview 2). However, related to the marking of assignment one, Hannah expressed her concern and stated that she is worried that someone else is marking their assignments.

> *At this moment my frustration is I know for sure that they are not correcting my assignments. Somebody else is correcting. It's like I got the name of somebody else who has corrected my assignment*. (Hannah, student interview 2)

When Laura was asked whether she is going to get help with marking their second assignment or discussion forums, she mentioned that she is not going to get help with marking. However, the students were not informed of any of these arrangements or plans. Laura mentioned that she makes sure that she marks the discussion forums, as only she knows how the students have been contributing throughout the weeks. Laura commented:

> *No, I won't get help with that. It'll be just me. The discussions, I have to mark because I'm the one who has been following them. If I haven't given them feedback by now then I consider it would be unethical of me to fail them, any of them, because if they hadn't been doing what was required I should have gone in at least half way through the course and said that in a personal space. That's my responsibility and I think there is a lot on the lecturers in this particular way of teaching to be really responsive*. (Laura, lecturer interview 2)

Communication issues

With Laura's absence and students not being made aware that someone else was assessing them, the situation got further complicated, as the students were trying to communicate with Laura, assuming that she was their assessor. Irene described that after she submitted her assignment, she realized that she had forgotten to include references, so she sent a message to Laura in her one-to-one space asking whether she could send her references to Laura. Since Laura was away, Michelle, the coordinator looked after Laura's group (as agreed in the teacher's space) and accessed Laura's one-to-one space with students. Irene was not aware of this arrangement and also the fact that someone else marked her assignment. Irene said:

> *I sent a note on Moodle in the one-to-one space saying could I resend the assignment and Michelle sent a reply saying "yes just send it", but I don't think Laura got it because the feedback says that it's with incomplete references.* (Irene, student interview 2)

Irene believed that although Michelle replied giving permission to send the references, her message or references did not seem to reach Laura. This was seen as a gap in their communication link. Prior to this incident Laura also experienced an issue that she was locked out of one-to-one space for a period of time.

There were also complications about messages not being answered in a timely manner. Hannah, for example, wrote to her lecturer and asked for an example of an artwork so that she could get an idea what exactly she needed to do for the last assignment. In her interview, she mentioned that when she didn't get a reply from them quickly enough, out of frustration she began her assignment, making her own art work:

> *I asked them to send me an example before the two week holiday because that was really a good break you know. Then I didn't get a reply for a very long time. That was a drawback because I somehow started doing something that was completely different from what they showed later*. (student interview 2)

Different opinions on 'teacher's presence'

The lecturers in this paper did not participate in the weekly discussion forums, but they uploaded feedback in the form of voice files and plenary podcasts in most of the weeks. Faye attested that, *"our philosophy in the program is not going to the discussions during the week because it does interrupt the flow of what people are saying"* (lecturer interview 1). Faye described that "*…these discussions are democratic in their design and as far as we want to be democratic…we are there and we have different ways of having our presence felt"* (lecturer interview 1). Michelle shared similar views regarding teachers' presence and she explained that

if the lecturers are there, the students may not freely express their opinions. Michelle commented:

> *I'd much prefer that we go in at the end or beginning in the week to do the voice file, we have found and it might be different in different programs. I think it allows them more opportunity to have honest discussions with each other.* (lecturer interview 1)

On the other hand, students felt that they were left on their own and they were not sure whether they were on the right track without the teacher's presence. The students seemed to need some kind of guidance and acknowledgement on their contributions. For example, Hannah mentioned:

> *I did another course and the lecturer used to be part of our online discussion and led us through it. That method is better because you feel the presence. Your teacher is there, you feel like that you know. But here they say "happy discussion" and they post it. I know they are reading it. There's another way of doing it. I don't know, for example this is the end of 3rd week and I haven't got any feedback what I have been doing, so I really don't know whether I'm doing the right thing.* (student interview 1)

Hannah also believed that it would have been better if she could do assignments with other peers. When she was asked whether she preferred to work on assignments collaboratively she commented:

> *definitely, if I have an assignment and I ask you "I have got all these points, do you think I should do it this way or that way and tell me which point is good" because even if you have flatmates they are not interested in those things. They have their own things to do. It's nice to discuss and it's reinforcing what you learnt with your peers*. (Hannah, interview 2)

Regarding 'teacher's presence', Laura's opinion differed from Faye and Michelle. Laura was keen to have a dialogue with her students rather than responding with a plenary talk at the end of the week. She said that:

> *Well, as I said the discussion voice files, my voice files to the students were my way of having a genuine dialogue with them when I couldn't go into their online space, so I think it would be best to establish a way of having that dialogue as a reciprocal exchange - not just mere responding as an end point, like a plenary.* (Laura, lecturer interview 2)

She also said, *"If the dialogue is not there, it's no more than a transmission exercise",* emphasizing that Faye and Michelle's views were different. Laura believed that a two way communication was important for her, since she could then enter into a dialogue with her students. She said:

> *I know possibly when you talk to Faye and Michelle they'll have a very different rationale for why they wanted it to be separate, but I want to have the dialogue. Dialogue to me is not "you speak and then I respond", it's an on-going reciprocal thing. I think that I would like to have more of that in this course.* (Laura, lecturer interview 2)

She mentioned that *"there were times in the discussions I would have quite liked to go in and steer it in a different direction"* (lecturer interview 2). However, when she did this she felt that her presence was not acknowledged in students' subsequent discussions. Laura wondered:

> *Sometimes deliberately I go in half way through the week and give them feedback thinking that it might alter, impact effect on something what they are doing, but then they seldom mention me in their discussions unless it comes from the main space– it's like I'm not there and I don't' know whether this is because we don't have a strong enough relationship or there is a different understanding of what my role is.* (lecturer interview 2)

However, when Laura was asked whether she meant that the lecturers should participate in discussion forums, she was not sure whether that was what she wanted.

> *I'm ambivalent on that one; I've done it in other classes. I don't know whether that's the answer either because as long as it's assessed…perhaps the problem is that we are assessing. We are asking people to be critical, and thoughtful and risky in a way because it takes risks to be critical. And it takes risks to put alternative ideas out there and we are grading it*. (lecturer interview 2)

Alternatively she suggested that if she had a choice she preferred not to grade all the discussions, but a just few of them and let the students have more free discussion:

> *I think in a way, if it was my choice, I would prefer not to grade but instead create a kind of capacity to 'free fall' it I call it...free fall thinking. It's somewhat constrained, with the grading. Maybe I wouldn't grade all the discussions. I might grade perhaps the last three or various parts rather than all, but it's not up to me.* (lecturer interview 2)

She also did not favour changing the group members every four weeks, thinking that it disrupted community building:

> *…the groups keep changing and I still haven't fully understood how that works. If that was me personally I would want to keep the same group so that you create a community of practice across a smaller set of students. I'm not the coordinator you know. I'm just trying to fit in as best I can with my program that isn't my own– I am kind of like a 'guest'*. (lecturer interview 2)

Divergent course objectives and cultural factors

The lecturers in this course generally wanted students to have a good understanding of the subject by engaging with the content, co-construct knowledge and build a learning community. Most students mentioned that they wanted to broaden their knowledge about the subject matter and improve their teaching practices in future. However, Hannah had rather a different intention in

doing this course. She explained that "*I'm doing this because there are job openings in this field. At least in some parts of New Zealand"* (student interview 1). She hoped that this course would give her an opportunity to live in New Zealand.

> *I want to settle down here. When they came to get people from India that's what they mentioned. If you want to get that, you have to do this course, so that's my reason for taking this paper.* (student interview 1)

It was interesting to note that Hannah assumed one of the objectives of discussion forum activity was to develop confidence to take part in online forums in future.

> *They are teaching us to do online discussions; if that's the process we are going through. It's like a torturous process, but we are going through that. At the end of the year, now I'm like 20% okay. If I see an online flashy forum I can go and reply. Before that I didn't have the confidence to do that….All I'm talking about online forums that are there for teachers. I think they are training us to do that in the end. I think at some point, if you become part of an association, you go and discuss things. I think they are training us for that.* (Hannah, student interview 2)

Towards the end of the course when Hannah was asked whether her overall objectives were met, she replied that she did gain some skills she needed, but her dreams were not met. In terms of learning she did not feel that she gained a lot from the course and she also added that her frustrations and dissatisfactions were due to not initially understanding that this course was online:

> *(Long silence) I think the objectives are met, but dreams are not met. The objectives are met means they equipped me with a few skills that I needed to work, but your dream is like you want to gain so much from the course you know. You have come to a developed country and you think your course is going to be great, but then it's not anybody's fault because I should have made sure and the agent should have told me that it's online*

> *and all that. In my situation it's quite different I think. I'm more frustrated because of all that.* (Hannah, student interview 2)

Hannah further explained how online courses are received in her country and the fact that it is not recognized if one has an online qualification. She explained:

> *In India we have correspondence courses and nobody respects correspondence courses anymore. Correspondence course means distance course. If you have a certificate with a distance course it's not recognized at all. People say "she did it in a correspondence course and she's got a job, how can she get a job?" people look down on them*. (Hannah, student interview 2)

Coming from a different background and culture, Hannah seemed to be influenced by her cultural beliefs in mentioning that she was coming from a face-to-face context and in her opinion, she preferred to interact with peers face-to-face, and she found it hard to manage her online learning:

> *This is hard work and we are still in the process and online courses are evolving. We are stuck in this and we have come from face-to-face contexts and backgrounds. Anyway my personality is different, so it depends on the personality as well.* (Hannah, student interview 1)

Case three findings

Case study three was a 12-week semester A course in a Post Graduate Diploma. This course comprised both face-to-face and online components. The students enrolled in this paper were both local and international students. The volunteering research participants included the lecturer (male British), the teaching assistant (female from Malaysia), three New Zealanders (one male and two females) and two international students (females from China and Vietnam). Case three findings comprise four main themes: Tool mediation, Rule mediation, Community and Contradictions, which are discussed next, in order.

Tool mediation

My study focused on the Moodle online component in this course. The supplementary readings were provided on a CD-ROM to students at the beginning of the course. The students were also expected to have the recommended text book and a subject-related dictionary for this paper.

In the online component, students were to read two articles or chapters from the textbook as specified for each week in the course outline. They then had to summarize one of the articles, write an impact statement (how the article impacted on them) and pose two questions about which they would like feedback, answers or comments from their peers. Then they posted the summary, impact statement and the questions in Moodle. As the next step, the students selected two of their peers' questions and responded to them within a given period of time. This activity represented 40% of marks they received (30% for the Summary, Impact statement and Questions (SIQ) and 10% for comments and feedback).

Then the second part of this activity included a face-to-face lead in-class discussion. Each week, on a rotating basis, one or two students were to lead an in-class discussion of ideas discussed in the articles (or book chapters). The presenters were to develop their own questions based on the readings, or read through the SIQ assignment questions that they found particularly interesting and then lead the class discussion. This in-class discussion represented 10% of the marks they received.

Figure 4.7 shows the sub-themes that emerged under the main theme Tools in the online activity. Tool mediation in this context refers to the use of Moodle in facilitating SIQ activity—the affordances and constraints of this learning technology, language as a psychological tool and the presentation of materials as material tools that mediated students' participation in this case.

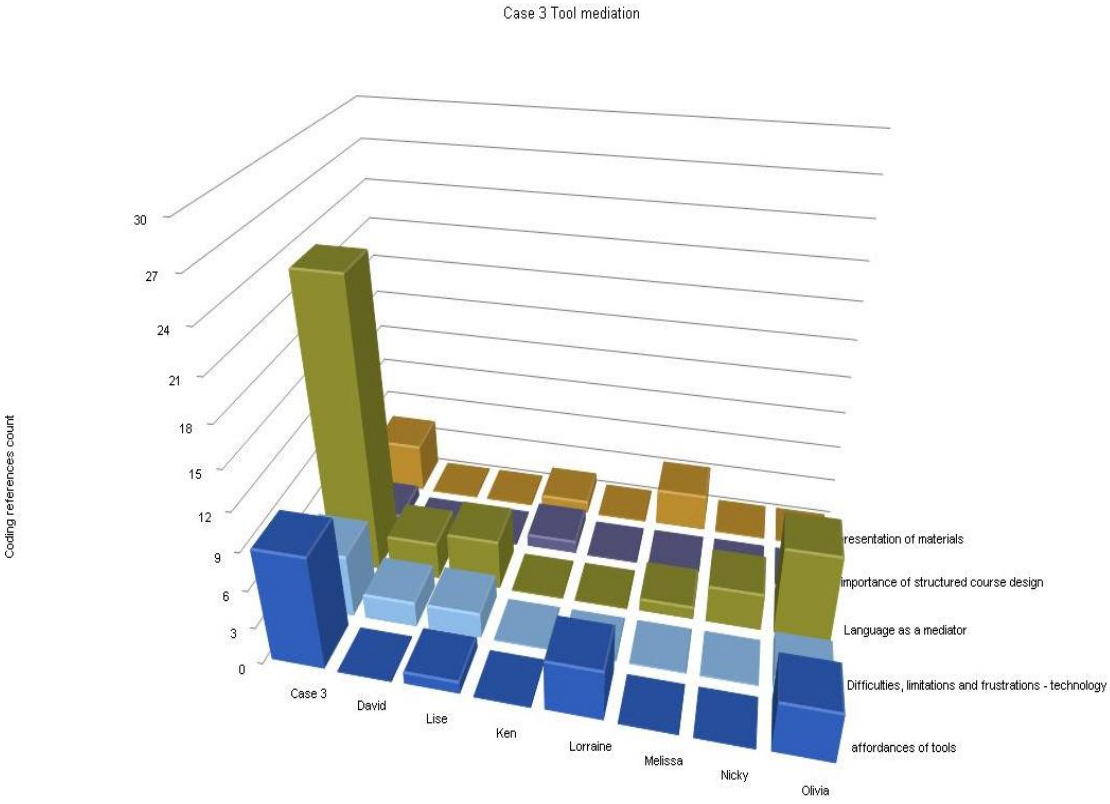

Figure 4.7. Case three sub-themes related to Tools (NVivo matrix coding query)

Learning Management System

Participants in the SIQ Moodle online synchronous activity of this course highlighted the affordances and constraints of this educational technology were highlighted by the participants. The student participants valued the fact that they were able to read their peers' postings before they posted theirs. Lorraine stressed that Moodle was useful because they could compare their work with their peers:

> *Yeah, I think it's helpful to do your summary first and jump onto Moodle and have a look and see how someone else has written it, just do a*

comparison. Sometimes, I'm shocked to see how quickly or how differently someone else can summarize an article. It's quite good for comparison and stuff. (Lorraine, student interview 1)

Olivia also shared similar ideas regarding Moodle for their SIQ activity. She mentioned that by discussing ideas via Moodle, it provided them with a platform to interact with each other and also they had more flexibility in terms of time. She read her peers' comments before she commented on other students' SIQs:

Before I comment on other people's SIQs I will read other people's comments first and that gives me ideas. I like to see other people's comments first. (Olivia, student interview 2)

Students believed that because they could read all their peers' SIQs, they had a choice in terms of selecting whose questions they would answer. Lorraine said:

The Moodle is good in some ways. I like being able to read what other people write and the impact statement particularly is interesting,what they write and what they think and how it has affected them. And then they send questions and respond to other people's questions. So, you can choose. I chose two different questions from two different people last week. I got the questions I felt like doing, so in that way, it's good. (student interview 1)

As noted by Olivia, "*discussing online is useful"*, as it allows students to "*read many times"* (student interview 1) in their own time. When Lise, the teaching assistant, was asked her opinion and what she thought about the effectiveness of Moodle she commented:

It was good because I used that to send the lecture notes beforehand. David (the lecturer) also used that to send the slides beforehand, which is good. Also students actually were communicating and making discussions using Moodle, I mean doing SIQ. People learn from others ideas and responses, they go and read and then you can see that people are contributing knowledge and you start to see different perspectives, the

answers to a certain issue and you learn from there, so Moodle is quite good in that sense. And I see it as a way of blended learning; I mean you learn through discussions. (Lise, teaching assistant interview 2)

However, Ken (student) thought that online discussions did not contribute much to their learning and they could do away with it. He commented:

I feel that it's sort of arbitrary. I don't think it really contributes for the discussions, I mean I've got to say that some people really enjoy reading SIQs, but I would never read someone else's' SIQ. I wasn't interested in reading someone else's summation of an article. I mean I couldn't see the point of having to read someone else's summary. I didn't think I get much…I mean I could, but I didn't need to. Once I was getting good marks, I didn't want to read them. (Ken, student interview 2)

Once Ken decided that other's ideas did not help him, he *"less and less invested on it"* (student interview 2) and online discussions stopped after week seven of the semester. In Lorraine's view, not having to do SIQs *"was an answer to prayers"* (student interview 2). Ken thought that if Moodle discussions are used in the course *"might as well we should make a bigger deal of it*" and link them to the next discussion, but in his opinion *"Moodle discussions did not contribute to anything"* (Ken, student interview 2).

When David, the lecturer was asked about his experiences of using educational technologies he replied that "*I use technology and I'm trying to keep up with technological innovations"* (lecturer interview 1). He explained that he uses computer technology in all his classes, but he also expressed his views on the use of Moodle in his classes as a difficult task:

I got rather naive with class forum which is a predecessor to Moodle and I'm equally naïve with Moodle because it is not simple. I think that we teachers need to be skilled in building it. We don't get this, it's thrown at us. And we have to lead things rather than add things. Building up a Moodle website even for simple purposes I want, which are interactive are

> *unnecessarily painstaking. There is not enough IT support.* (David, lecturer interview 1)

At the beginning of the course both the lecturer and the teaching assistant expected that students may face technical difficulties when they participate in the online activity. Lise mentioned that *"it could be a pain when Moodle is down. I can't do my marking, as I can't download and that's a bit irritating"* (teaching assistant interview 1). She also said that she prints students' SIQs and provides feedback on the hard copy or pastes their writings on a word document and uses track changes to give feedback. According to her, *"it's much easier to print them out and even I can do track changes, whereas using Moodle I can't do that"* (Lise, teaching assistant interview 1).

In terms of the design of the Moodle page, there was one space for students to introduce themselves to each other at the beginning of the course; however, only David, Lise, Lorraine, Olivia, Melissa and one other student introduced themselves using this space. There were six separate individual forums (with the title "personal introduction") for each introduction. Other than this space, there was a synchronous chat space, but nobody used this space to communicate with each other. Lorraine said:

> *There was chat line, but we didn't use it. I posted something once like "Hi everyone, hope you are doing alright" and no responses. They don't even think that they can do it, and they are busy with other papers.* (Lorraine, student interview 2)

Lorraine suggested that "*it would have been nice if we chatted a bit more with each other"* (student interview 2). Figure 4.8 shows a screenshot of the Moodle page for this paper that shows the weekly blocks for SIQ, class announcement, personal introduction and chat spaces.

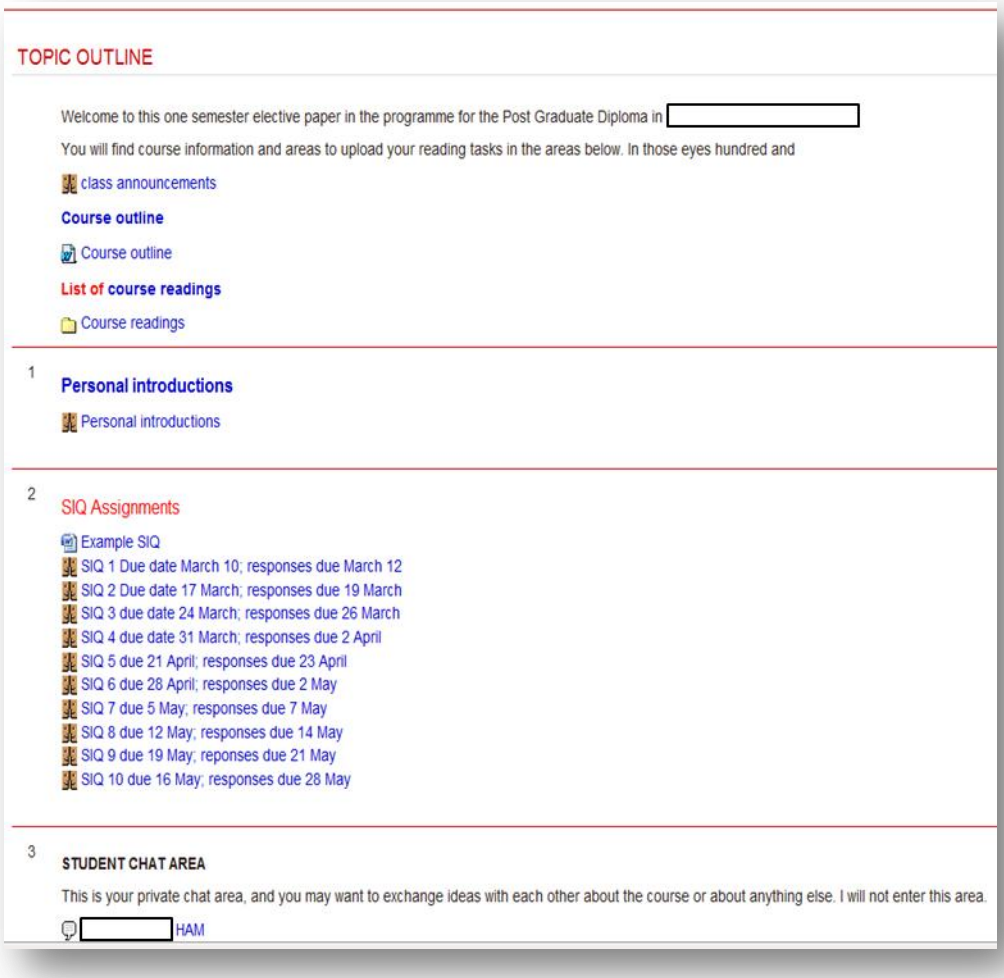

Figure 4.8. Case three Moodle page

The findings suggested that the students, teaching assistant and the lecturer used email as a tool for communication. Lorraine said *"we have got access to our lecturer we just send an email and ask a question and he replies"* (student interview 1). Nicky also pointed out that the lecturer "*gave feedback in the private email"* (student interview 2). David explained that he likes to use email to send feedback and other information to students:

> *I prefer to send them email feedback and other information. I might send them a note saying "here is some extra reading". I prefer to do that by email because I think that the students would look at Moodle site when they have to do the SIQs, but they are going to get their email and if they want feedback it's easy for them to get that directly rather than they have to take action like getting into Moodle and say "has my feedback come in*

yet"? As you see I use it minimally, so the technology is also email communication. This is little bit more personal and easier. As I said, I dictate the feedback and I simply copy it onto the email and that's the easiest than me going into Moodle. I'm using my email all the time. I find using Moodle rebarbative. (lecturer interview 2)

Lise, the teaching assistant mentioned that she used the class announcement space to send the PowerPoint slides of David's lecture notes. The following screenshot of class announcements (Figure 4.9) shows that Lise uploaded lecture notes only three times during the semester. The screenshot also includes my invitation for students to participate in my research.

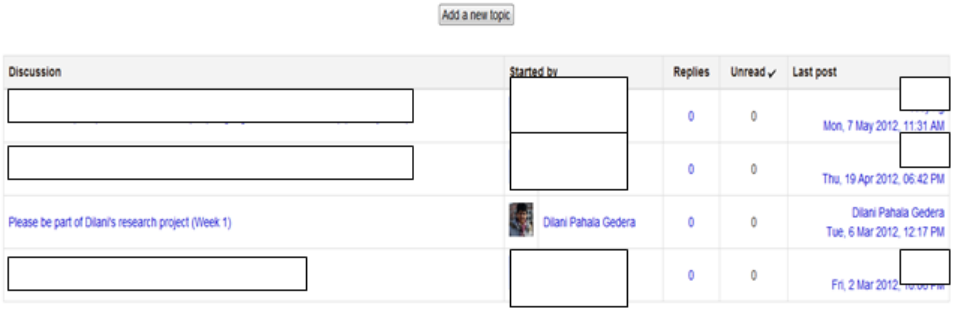

Figure 4.9. Class announcements space (Moodle) of case three

One other issue raised by a student was that she did not feel engaged with the online SIQ activity. This could be related to the design of the course. Melissa compared online and face-to-face activities and commented that in the in-class discussions they could ask for clarifications while they were listening to other people, but their online discussions were not really discussions. In SIQ online activity they just wrote answers to questions to fulfil the requirement for the grade.

I feel more engaged in the face-to-face ones, listening to everyone else's ideas. You think 'oh that's a good idea' and then you keep asking for clarifications, but on the SIQs, it's just itself really. You just write it down; you have your 2 questions. I only do that to fulfil one of the requirements for the grade. (Melissa, student interview 2)

Regarding students' responses to two questions of their peers, when the lecturer was asked whether he wanted the students to choose two questions and respond rather than having a discussion online as a whole group where everyone could participate, David replied that "*I think the format that I do, works. Since it works I think I have been doing it for a number of years"* and he did mention that "*an alternative would have been as you said to have as a whole class"* (lecturer interview 2). In this case, having individual forums did not seem to encourage the students to have a discussion online as a group.

Language

A number of students seemed to have difficulties with the language in this course. Lise emphasized that *"language wise, in terms of writing the SIQs a few students had a lot of problems trying to express themselves"* (teaching assistant interview 1). David was aware of students' difficulties and the level of their English language competency and mentioned that *"some of the students struggled with the language"* (lecturer interview 2). Particularly referring to two international students in the class, he commented:

> *There was one young student who had no teaching experience at all and another had none too. They were also second language users and they were struggling away. Particularly at the beginning and in one case, the English competence was very low. And she had problems with her reading and her writing. And still I would regard her writing as inadequate. That's a problem.* (David, lecturer interview 2)

Olivia was one of these students for whom English was a second language. She seemed to have problems with her writing, listening, speaking and reading skills. She described some of her difficulties and how she felt about it in this course.

> *It's quite hard for me because my English level is not enough to do this course. And also the textbook is hard to read and understand. Every time I do the SIQ, I spend one day to read and write. It's just like a nightmare. I*

find it very hard to get the points which one I need to write and all. (Olivia, student interview 2)

When I write, I'm nervous about my grammar problem. When I see a high level student, at first, it's quite hard to get what they say, the content. So, I read my classmates posts and I pick some very good words and try to remember and use them when I write. Also I choose some other papers because I want to improve my listening as well. It's hard for me to understand listening. (Olivia, student interview 1)

At the same time she acknowledged that she found it useful to use Moodle than to discuss face-to-face, as she said she has more time to think when it is online.

I like to use Moodle. I find that I have more freedom to talk my opinion. Because my speaking is not very good and when I want to express something it's quite hard. If I write, I have more time to think and I can ask questions and comment. (Olivia, student interview 2)

At the end of the course, Olivia was asked about her learning experience. She expressed her dissatisfaction and frustration with the course. She acknowledged that her level of English was not sufficient for this course and as a result, she found it hard to understand the course content. When she was asked whether her objectives were met, she replied, "*Actually, I don't think so. I learnt little bit. This course actually made me lose my confidence* (student interview 2). She further explained:

...I think 99% I'm not happy that every week I have to do SIQs. I feel just like tired. We have 3 hours of class, but most of the time we try to read and understand. (Olivia, student interview 2)

David, the lecturer noted that in face-to-face classes, the native speakers tended to ask questions and he commented, "*People who asked me questions tended to be the native speakers. That I expected because it is difficult to formulate a question when you are trying to process it"* (David, lecturer interview 2).

Nicky, another international student, had similar issues with the English language, particularly speaking in front of the class:

> *In front of this class in this university, I'm very worried and nervous. It's because of my English. I don't have enough words*. (Nicky, student interview 2)

> *In lead in-class discussions I have some difficulties, for example, I don't know how to express my idea in a comfortable way in front of the class, but the SIQ is okay. I can write down things. One difficult thing is I have to spend more time than other classmates.* (Nicky, student interview 2)

She felt that doing SIQ online was better, as it gave her more time to think and write the answers. She noted that it took time for her to think in her first language and then translate it into English.

> *SIQ in Moodle, I felt better. In fact I can have more time to answer. Only I have to spend more time and I felt that it's okay. When I do lead in-class discussions sometimes I have the idea in my first language, but I can't immediately translate it into English.* (Nicky, student interview 2)

Olivia also compared face-to-face and online contexts and said, "*If it's in-class you can't get what they say, so discussing online is useful. You can read many times"* (student interview 1). All the non-native students seemed to struggle to convey messages while they were participating in lead in-class discussions, as highlighted by Lise:

> *Some of the students even have difficulty conveying messages orally not only written. When they are doing the lead in-class discussions they are not really sure what they are trying to convey. Other students need to ask for clarifications.* (teaching assistant interview 2)

The class observation also revealed similar findings regarding face-to-face class discussions in this course. For example, Nicky and Melissa were the students for the lead in-class discussions on 3rd April. Although it was supposed to be a discussion based on their online comments on SIQs of that week, it seemed like a presentation that was based on David's previous lecture. Melissa, a New Zealander, started talking and explained what the students were going to achieve, beginning with some learning activities on language learning strategies. In each activity she gave clear instructions to the students and they seemed to follow exactly what she asked them to do. First, the students were to mime what they saw on a piece of card that denoted their learning style i.e. learning by looking, learning by listening. Students engaged in the activity and they seemed to enjoy moving around the class. This was followed by another activity where students who had the same style of learning were in one group, so there were three main styles—Kinaesthetic, Auditory and Visual and there were three groups. Students were asked to match the learning activities with the main learning styles. The activities and the learning styles were written on small pieces of paper. For example, they matched people who like charts or liked trips with Kinaesthetic learning style. At the end, students were given the answer sheet and they were to check on their own. This activity was also interactive. Group members discussed and matched together. Melissa and Nicky talked to the students and helped them during this activity.

The third activity on learning styles and matching activities for vocabulary learning, was also carried out by Melissa. Students brainstormed activities they use in classes to teach vocabulary. After brainstorming in groups, Melissa asked for ideas from all the groups and wrote their ideas on the whiteboard. Most students discussed and brainstormed in their groups. However, there were a few students who were very quiet and did not talk much although they were listening to others. Even when contributing ideas to be written on the board, only Ken and Lorraine who are native speakers, talked.

Melissa's fourth activity followed, in which there were three labels named activities for Kinaesthetic learners, activities for visual learners and activities for auditory learners given to groups. Students had to match, again, the learning styles

to vocabulary leaning activities. After three minutes, they passed their matched set on to another group. This swap occurred twice more. At the end, one member of the group presented the ideas written on the paper they had by then to the class. Again it was Ken and Lorraine were giving answers aloud. Melissa asked Olivia to read some of the answers, but she had great difficulty, so Ken read some answers to help Olivia.

Nicky conducted activity five. She explained to the class that they were to match examples with their learning strategies. For example, a Social strategy – cooperate with others. She divided the class into two. Each group had about six students. After the first part, Nicky handed out another paper that had three more strategies of learning and she asked students to come up with activities that matched with all six strategies. However, since Nicky was not a native English speaker, students did not understand her instructions clearly. It then took some time to do this activity. She was asked a lot of questions to clarify what they had to do. After this activity Nicky asked for answers from both groups. Again Ken and Lorraine talked. David the lecturer also talked for some time to time. While Nicky was trying to get answers from each group, a discussion took place simultaneously. Ken's group talked about how students learn in authentic contexts and they were talking about students in Japan, how they learn and Ken told a story of a friend who learnt Japanese by going to a bar every night. Lorraine mentioned how she used to take students home and teach them while baking. Nicky neither joined in nor interrupted their conversation. She was waiting in front of the class for them to end it and then get the answers to her questions. Nicky seemed very soft spoken and also she could not get the message across because of the language barrier. Since her instructions were not clear enough, students were talking and wondering what to do and started other conversations among themselves.

Melissa took over again for activity six. This involved a singing activity and students seemed to enjoy going in front of the class performing in groups. Melissa seemed to plan and time her activities well and she managed to get the students to engage with the activities without any distractions, as she gave clear instructions and also she kept them focused. The findings suggest that the non-native speakers had difficulties in terms of conveying their message across in lead in-class

discussions compared with native speakers and there was an unbalance of student participation in activities.

Another area where students had difficulties in terms of the English language was their readings. Both non-native as well as native speakers felt that the readings were quite dense in this course. For example, Melissa said, *"The readings are "heavy" and written by research academics who have not taken into consideration the language of the practitioners at classroom level"* (Melissa, student interview 1).

In terms of language, Lise believed that *"Language and length are very important for the lecturer"* when it comes to SIQ assignments (teaching assistant interview 1), but commenting on how he sees students' language competence in this course David said:

> *I have a view with this. When they are writing although they are supposed to be teachers of English, I'm aware that teachers' competence of English varies. I don't downgrade them for language, but I do say that "I couldn't make sense of this and therefore, you haven't got your point across".If they are making minor, surface level errors I would suggest they do that, but I don't do anything about grading. I treat them academically as the same.* (David, lecturer interview 2)

Presentation of materials

The teaching materials in this course were the readings—textbook and journal articles that were distributed to the students on a CD at the beginning of the semester. There was a space allocated on Moodle for course readings, but only the list of the readings were uploaded as a word document, not the actual articles. In face-to-face lectures David, the lecturer used PowerPoint slides and Lise uploaded slides for three lectures during the semester. The rest of the time, David emailed them to students the day after each lecture. Apart from the three lectures Lise conducted, David did the rest.

Both local and international students generally felt that the textbook was hard to understand:

> *That textbook is too much. I don't like that Brown's text book. I just can't get the gist of it. You have to read over and over again. Some of the articles in the CD he gave us, some of them are ok to read. I could understand them, but Brown is hard. The textbook is not easy to understand.* (Melissa, student interview 2)

David was aware that the students did not like the textbook because of its density, but he believed that students accepted it:

> *First they complained about the density of the textbook which I don't think it is dense, but then I would, wouldn't I? Eventually they found that although some of them still expressed difficulty, they came to terms*. (David, lecturer interview 2)

A number of students felt that David presented too many PowerPoint slides in one lecture. They believed that other methods could be incorporated:

> *Well I would say in terms of technology, I'm finally sick of PowerPoint. There must be other ways to do it. That's more on lecture presentation I suppose.* (Ken, student interview 2)

> *And the PowerPoint slides are just too much…40 over slides yesterday. And how it's been designed like it's the same sort of fashion from a text book and it's just put down in there, but then he explains what these mean, still you know it's from the text book. Death by PowerPoint that's what they call it.* (Melissa, student interview 2)

When David was asked about PowerPoint slides he and Lise used in lectures, he mentioned that *"PowerPoint slides are dynamic technology"* (lecturer interview 2) and the students could refer to them later when they go home. He accentuated

that both of them made changes to the slides to suit the learners in this class. He said:

> *I did my usual lectures which I make some changes to what I have done in the past and I was pleased that Lise made at least three lectures and she was using my PowerPoint slides which she adapted and personalized in a number of ways.* (David, lecturer interview 2)

Melissa emphasized that Lise's lectures were the same as David's:

> *It was the same as David's in terms of PowerPoint, death by PowerPoint. It was to me same like that you know she just reads from the textbook and there wasn't enough clarifying on her part, so David would help her out there. We had questions and we rushed as well, she did sometimes ask "ok can you just talk amongst yourselves", but I don't think it was effective.* (Melissa, student interview 2)

All in all, Moodle learning management system, English Language and teaching materials were the three sub-themes that emerged under the main theme Tools in this case.

Rule mediation

This section will outline the findings that are related to the rules and guidelines of the SIQ (Summary, Impact and Questions) online activity component and the discussions that took place online and face-to-face.

Clarification of rules and guidelines

First, as stated in the course outline, the weekly SIQ assignment that comprised 30% of the final grade based on a reading assigned to a particular week. It *"should highlight the essential issues in the reading and should be focused and concise"* (course outline). In the first line of the assignment, students were to write the date and the correct reference according to APA style, and were also instructed that the summary of the article should not exceed 400 words. Together

with the summary, students were to write not only an impact statement of 50 words describing how the article influenced their thinking but also two questions they would like their peers to answer or comment on. All the three items were to be submitted on Moodle by 9pm on the Saturday before the next class. The students' discussion of two of the questions posted by another peer had to be submitted by 9am on the Monday before the next class. This activity comprised 10% of the final grade. It was followed by a lead in-class discussion that carried 10%, based on the online discussions. The SIQ activity was carried out in weeks 1 to week 7 of the semester. The marking criteria for SIQ assignment is shown below:

Table 4.1
Marking criteria for SIQ assignment (course outline)

Summary	50%	Key points are identified and presented clearly, concisely, and coherently with respect to the word count
Impact	25%	The impact statement demonstrates independent thought and critical thinking. The thinking is clearly influenced by relevant ideas from outside the specific article being summarised – e.g. by reference to other readings and/or personal experience
Questions	10%	The questions and the justification for them are clearly and logically expressed. The thinking is clearly influenced by, and makes reference to, relevant ideas from outside the specific article being summarised.
Structure	15%	Each SIQ is clearly and logically structured and written in an appropriate academic style. All referencing should conform to APA standard

In the Moodle discussion where students responded to two questions posted by their peers, there were some instances when some students did not receive any answers or comments. Lisa's view about this was:

> *I'm not so strict about that as long as they have responded to two questions. I noticed that some people don't respond to some other friends. I must understand that they are working. All these factors I have to take into consideration. They are working and they are mature students, so as*

long as they respond to two students, that's good enough. (Lise, teaching assistant interview 1)

David also seemed lenient in terms of marking criteria and the assessment of SIQs. He mentioned that:

> *The lowest grade I gave was a C+. It was an SIQ and there were criteria, but I didn't follow them. With regards to lead in discussions, Lise did that, but I felt that the criteria gave me an idea what to look for. Since I've written them, I didn't need to follow them, but everyone was so different. Actually by formulating those for myself like a lesson plan, they gave me guidance, but I didn't strictly follow them*. (David, lecturer interview 2)

Although there were marking criteria (Table 4.1), Melissa felt that there were no rubrics or details that showed how their assignments were graded or how to improve their grades:

> *I don't know how he grades or what the criteria are like…there are no rubrics or anything. No any sort of assessment criteria I suppose, but just writes things like "you cover the points, you got it on time..." we should be shown that this grade gets this…which is what the other people in my class have been asking for because I want to improve and know how I can improve my B+ to an A, but we are not given the specifics, so it's a generalised conversation.* (Melissa, student interview 2)

From the students' perspective, *"it was too much to do SIQs every single week…and then on the Monday 9am all the SIQs have to be in…* (Melissa, student interview 2). Lise also believed that writing the summaries using 400 words, including references according to APA and sending them before a certain time of a day of the week was not easy for some students. At the beginning, they found it hard to do the SIQs without proper guidelines. They were not sure what exactly should be written. They expected the lecturer to *"give some clarity"*:

> *And like in the first one that we did, that was the first time I've done anything like that and I thought that it could have been it's just a run through and then we could have gotten feedback on them and then start grading us from then on. But it was just "do your SIQ" and no one really knew what it was. He gave us an example of one, but still didn't have an idea what we should do.* (Melissa, student interview 2)

Ken too found it hard to understand what questions were acceptable as part of SIQ:

> *I didn't know what questions were acceptable. Sometimes when I see a question I tend to figure out what people wanted to talk about, but I never was bothered because what's the point? In the end you don't try and make a question popular, so you get the most responses. That's not quite what we are after.* (Ken, student interview 2)

Overall, the students felt that they needed some clarity, specific feedback and guidance to improve their grades in this course.

Community mediation

The community of this class comprised the students, lecturer and teaching assistant. In terms of participating in activities, only students took part in SIQ online activity, but in the face-to-face in-class discussion activity, both the lecturer and teaching assistant joined the students. On Moodle page, there were no specific spaces for the students to communicate or interact with each other (as shown in Figure 4.8 on page 175). However, there was one space for personal introductions which was used only by a few students to introduce themselves to the class and a chat space which was never used.

The lecturer David believed that they "*started as a group of strangers"* and "*ended up as a little community of learning"* (David, lecturer interview 2). The students in the class had similar views and when they were asked whether they felt a sense of belonging to a learning community they said "*Yeah…it's because of*

the small size I suppose. And some of us see each other in other classes" (Ken, student interview 2) and "*Definitely I think everyone feels a sense of belonging"* (Lorraine, student interview 2).

However, most students argued that the sense of community was mostly related to face-to-face contexts:

> *Definitely in the classroom I suppose because we have to work with a partner to work on the lessons you know. We all had to do the lessons.* (Ken, student interview 2)

> *Yeah, I do, in the face-to-face one. Because we do other classes together we see each other and do things together and stressing out about same assignments, so you know you have each other.* (Melissa, student interview 2)

Providing a detailed explanation of why she felt a sense of belonging to a learning community more in the face-to-face class Lorraine commented:

> *Definitely the face-to-face class stuff, the discussion. It's nice to see what people have written and it's interesting because it gives you more understanding of them and their background of either teaching or just learning a second language. It is interesting and I've been amazed how well people have answered the questions "wow look at that Melissa that's very deep", but the face-to-face stuff always appeals to me more. In the classroom, just participating in the discussions and it's active and fun. David (the lecturer) takes part in them as well like I was in a group with the Vietnamese girl and David. We had to use our second language yesterday and try and communicate, so she spoke Vietnamese and I spoke Chinese and David spoke Italian. We had to try and communicate without really understanding each other that well and then use body language. David was very funny, so we laughed and laughed. It was fun*. (Lorraine, student interview 2)

Overall, students in case study had a sense of community mainly due to face-to-face interactions.

Contradictions

In case study three the lecturer and the teaching assistant did not participate in the online discussions, but copied all the students' work from Moodle and pasted it in a word document in order to provide feedback. The feedback was given in the form of a short paragraph and was sent via email by the lecturer. In terms of feedback, the students' pointed out that they needed for more specific comments; however, the lecturer and the teaching assistant assumed that the feedback and comments they provided were helpful. In addition, the students' participation (student roles) in activities in this case study did not seem to be balanced. In the following section these contradictory issues are discussed.

Student-lecturer different opinions on feedback

David (the lecturer) described how the students' SIQs were graded. First, Lise (the teaching assistant) looked at students' SIQs and comments to other students and then she graded them, adding a paragraph of feedback. Then David added his comments and emailed the feedback to students. David believed that he provided detailed feedback. As he explained:

> *Lise would look at the SIQs and draft feedback which she would send to me and then I would add to that on the SIQs. And then I also looked at their responses to the questions and gave some detailed feedback. For instance, with the SIQs not much you can say, you did the right lengths, you covered the main points Lise did that and sometimes I added to that. And she gave a grade and I generally I accepted the grade although I tended to up it rather than lower it in most cases. Then I would dictate my comments on their responses patching into Lise's SIQ comments and then I would email it to the students individually and copy it to Lise.* (lecturer interview 2)

Lise who is a PhD student, commented positively on her experience of providing feedback to students in this course, partially because it was her research area. She said that she *"learnt a lot in giving feedback"* and she also commented:

> *My style of providing feedback has changed a lot compared to the past partly because of my studies and also both the theoretical and the practical applications. So, my views of providing feedback, has changed tremendously. And I will not provide feedback that I used to give in the past.* (teaching assistant interview 2)

However, the students' felt that the feedback they received on SIQs seemed to not be specific and detailed enough. Lorraine mentioned:

> *He gives feedback on our SIQs. His feedback is quite distinct, quite short. I find the previous lecturer (when she was doing another paper) is little better because when we get our feedback, we get our SIQ in the printed format handed to us and little bit highlighted that's good and little comments on the side. Whereas in this course our lecturer says you need to consolidate more or you did cover the main points, but it would be nice to have little bit more like an arrow going this is a bit too long. The previous lecturer's style was more specific in that sense*. (student interview 1)

Ken had similar expectations and he mentioned that he preferred "*more explicit feedback. I'd like to know how I can get an A+. It'll be really helpful"* (student interview 2). Melissa also felt that she needed some specific feedback that can guide her to improve her grade.

In general, in terms of feedback, students and the lecturer had opposing views in case study three.

Imbalance of student participation (student roles)

The imbalance of student participation was mainly related to *participant roles* in this case. The lead in-class discussions took place during face-to-face class hours weekly and these in-class discussions were supposed to be based on online discussions. Each student presented at least twice during the semester and only the second presentation was assessed by Lise and David. By looking at students' presentations David commented:

> *Those lead in presentations varied. Some of them were little bit too trivial, a little bit too schoolish whereas the recent one was really excellent. It was a series of activities which led one to the other.* (lecturer interview 2)

In the in-class discussions, students were to work with a partner to plan and present their ideas. One particular student had an issue with working with their partner in lead in-class discussions. Lorraine explained that the male student she had to work with did not contribute much and she had to do it all by herself, but in the end he expected to get the same grade as Lorraine. She also stated that "*I didn't want to work with him and no one was putting up their hands, so David said "how about him and Lorraine", I just said "ok", but I wasn't happy. It wasn't very good"* (student interview 2). She described what took place:

> *I had to work with him on a lead in discussion and he was pretty bad because he had done no preparation for it. I did the whole thing and then I was a bit stressed and tired at that time because I had other things on. We didn't even get together properly to practice how we are going to do it. In the end, I said to him "you say that and you say that and I'm doing the rest" because I thought I do all this work and if he stands out there and goes "ah now we are going to …" I thought that's not good. It was a bit embarrassing because at the end David said to him "Why didn't you talk much"? He (group member) is very impolite and he never even said "Lorraine thank you, you did all the work", only what he said was "oh I hope we get the same mark" and I was like "oh wow"*. (Lorraine, student interview 2)

When Lise was asked about the imbalance of student participation in activities, she said that some students were domineering, taking over the whole discussion leaving the other student behind. She said that even she was not sure how much they had contributed, but she assumed that they had done their part and graded their work. Lise said:

> *The lead in discussions maybe they have problems because there is one dominating the whole discussion. Taking over the whole discussion and leaving the poor person behind as if the other person is not doing their work at all. And you are not sure whether this person has contributed, but you try to think positively and think that person has*. (teaching assistant interview 2)

The issue of imbalance of participation was also apparent in the classes I observed. For example, Nicky was presenting with Melissa in the first round of presentations and Nicky's presentation was brief compared with Melissa's presentation (3 April, Observation). In the second round of presentations, Nicky presented with Ken and most of the discussion parts were done by Ken whereas Nicky talked very little (15 May, Observation).

In general, during face-to-face in-class discussions, students' participation did not seem to be balanced. Some of the students felt that they did not have an opportunity to clarify things and most of the time only one or two people talked in the class. Lorraine said that *"certain people like me and Ken interrupt quite a lot and ask questions"* (student interview 2). In David's point of view, "*people who asked questions tended to be the native speakers. That I expected because it is difficult to formulate a question when you are trying to process it"* (lecturer interview 2). However, Melissa who is also a native speaker felt that she did not have an opportunity to ask questions:

> *When David is teaching, there should be opportunities for people to do some feedback within this class…face-to-face interactions because there is a guy called Ken and he is always putting up his hand and asking questions and clarifications, and there is no time and David doesn't set up*

> *that. There is no time for us to ask questions and feedback from other people and join the conversation because I have a lot of questions too.* (student interview 2)

It is apparent from Melissa's comment that students needed a well-designed opportunities to interact and communicate in this course. Although this course had both online and face-to-face spaces, the mechanisms for this did not appear to be structured.

Divergent objectives

David mentioned that on the whole, he was *"satisfied with the balance of the course"* (lecturer interview 2). However, some students raised a concern regarding the objective of the main in-class activity which was supposed to be based on the online discussions on SIQs each week. According to David, *"the purpose of that (online discussions) is to get them to interact online because the first part of their next class is a discussion of those issues"* (lecturer interview 1). The course outline specified the details of the in-class discussion as:

> *Each week, on a rotating basis, one or two students will lead an in-class discussion of ideas discussed in the articles (or book chapters). This is not a presentation or summary of the reading, as you may assume that everyone in the class has already read it. In order to start the discussion, you can develop your own questions about the reading, or you can read through the SIQ assignment questions posted by your classmates and select the ones that you find particularly interesting or salient (10 minutes maximum). You will then lead the class in an exploration of issues discussed in the readings.* (course outline)

Ken pointed out that although the lead in-class discussion was supposed to be based on online discussions on SIQs, students practiced rather a different method where they developed activities but without not many discussions.

> *People seem to develop and develop until it becomes whole lot of activities that have become less and less useful. I think it has become like people feel obliged to do a certain amount of lead in a certain amount of activities and ask "have you finished" and "have you finished" and "let's move on" and less discussions.* (Ken, student interview 2)

According to Ken, the activities students put together for lead in-class discussions were from one slide of David's previous lecture and Ken considered it rather an ineffective method of leading a discussion.

> *So far the lead in is quite didn't...yeah it didn't really...I was hoping that there'll be comments on what we've done, but it was totally you know…I mean one lesson and totally different expressions and they all came from one slide of classroom projection. There was one particular slide taken from 30 or whatever and that was the chunk of the lead in. I was like "I don't even know what these terms are or there's no use to me". I want to get excited and something that interests us, be more useful and get stuck to a smaller area of discussion, discuss more deeply rather than…you know*. (Ken, student interview 2)

He suggested that there should be a link between SIQs and lead in-class discussions. As he said, "*Probably it's good to get that linkage of SIQs and lead in discussions and the discussions we have are being further in-class at the beginning and then we continue it"*. In linking these two activities, he said, "*The person who does SIQ and the lead in has to take all of the questions asked and look at whatever everyone is interested in and may be misunderstandings and go from there…draw over it"* (student interview 2). Ken emphasized that when that linkage is not there, students naturally feel that they should not worry about such activities that do not take them anywhere.

> *It's interesting and it's amazing to see that as a learner, if the teacher doesn't link something up, pretty soon you think "wow, I'm not going to even bother with those things because it's not going anywhere" and what I*

need to do it to focus on the assessment which is different. (Ken, student interview 2)

Overall, students' and lecturer's opposing views on feedback, imbalanced student participation and divergent objectives of learning activities reflected some contradictions that occurred in this case study.

Chapter summary

In summary, this chapter was divided into three main sections representing the three cases. In the first section, the findings from case one were arranged under three main themes—Tool mediation, Rule mediation and Community. Through participants' views the mediation of these three constituents in the activity system of case one were elaborated. In this context, the tool mediation referred to the affordances and constraints of educational technologies used—Adobe Connect virtual classroom and Moodle that facilitated activities. Language and the structural design of the course were also seen as tool mediators in this context. The second theme, rule mediation illustrated the rules and guidelines students had to follow when engaging in activities in this course. The students' views suggested that the rules and guidelines could have been clarified more. The community aspect which was the third theme highlighted how the structural strategies used by the lecturer in the design of the course facilitated peer collaboration and created a sense of belonging to a learning community in this case.

In the second section, the main themes from case study two comprised Tool mediation, Rule mediation, Community building, Contradictions and Divergent objectives and Cultural factors. Tool mediation referred to the use of Moodle in facilitating asynchronous activities as well as the design of the course Moodle page. The course materials as physical tools were also seen as a mediator in this case. There were rules and guidelines the students had to follow in participating in activities and the students' voices implied that these rules and guidelines could have been clarified more. Some contradictions were identified in activity systems of this case that were in the form of miscommunications, misunderstandings and

frustrations. The findings from case two also highlighted some cultural factors in one student's case.

The third section reported the findings from case study three and the main themes that developed from the analysis were Tool mediation, Rule mediation, Community and Contradictions. Under the theme Tool mediation in this case, the findings that were related to the affordances and constraints of Moodle as a virtual tool, language as an abstract tool and the course materials as physical tools were described. In terms of rules and guidelines, although there were marking criteria, they were not strictly followed by the lecturer. The students' indicated that they needed more specific comments to improve their grades. The findings also suggested that the link between the online and the face-to-face discussion components was weak. There were some contradictions that appeared in the activity system of this case in the form of tensions and frustrations. These tensions were related to the students' and the lecturer's opposing views on providing feedback, and also the imbalance of student participation in activities. Overall, the students felt they needed more opportunities for interactions and discussions in this course.

Chapter 5: Discussion

Introduction

This chapter analyses the findings of the three case studies reported in the previous chapter of this thesis with reference to the research question:

> What key mediational factors affect university students' engagement in e-learning activities?

This chapter is arranged according to the sub-activity systems of Engeström's (1987) Activity Theory framework:

- Participant -**tool**- objective
- Participant -**rule**-objective
- Participant -**community**-objective
- Participant -**roles**-objective

The analysis demonstrated that the mediators affecting students' engagement were *Tools*, *Rules*, *Roles*, *Community* and *Contradictions* that emerged within and between activity systems. These sub-activity systems demonstrate how each mediator influenced the way students participated in learning activities, represented in Figure 5.1.

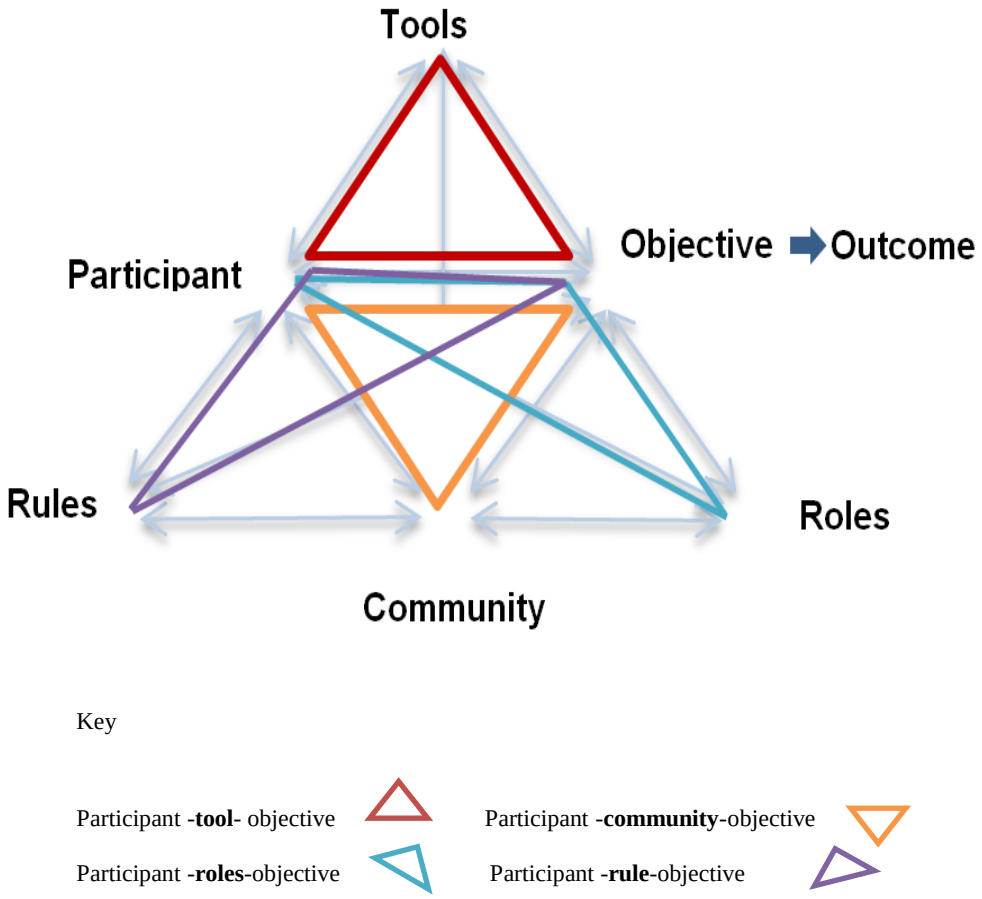

Figure 5.1. Activity Theory framework with sub-activity systems (adapted from Engeström, 1987)

Apart from these sub-activity systems shown above in Figure 5.1, the contradictions identified within and between elements of activity systems, and between activity systems are discussed in the latter part of this chapter. These contradictions cannot be represented within the above activity system structure (see Figure 5.1), but were an important finding from this study (see page 228).

Participant-tool-objective

Vygotsky introduced the concept of tool mediation—that is when human beings come across an object in the environment—a stimulus, they do not act on it directly, but through the mediation of various tools. These tools are described as "anything that mediates subjects' action upon an object" (Russell, 2002, p. 70). Engeström's (1987) Activity Theory framework emphasizes that human beings

not only act on their environment both individually and collectively with the use of tools, but also they learn with tools. These tools can be both external at a primary level—books, computers, networks, and internal at a secondary level—concepts, models, language (Russell, 2002). Humans' social and cultural practices influence the way they use tools and in return their practices are shaped by tools. This was evident in my research where the tools shaped how students participated in learning activities and their practices influenced the way they used the tools.

The diagram in Figure 5.2 represents the *participants* (students) achieving their *objectives* of learning activities by using *Tools*, for example presenting their research to the members of the class by using tools such as computer, notes, virtual classroom and PowerPoint slides. These tools acted as mediators between the participants and the objectives (learning goals in activities) and influenced the way students participated in learning activities in all three case studies.

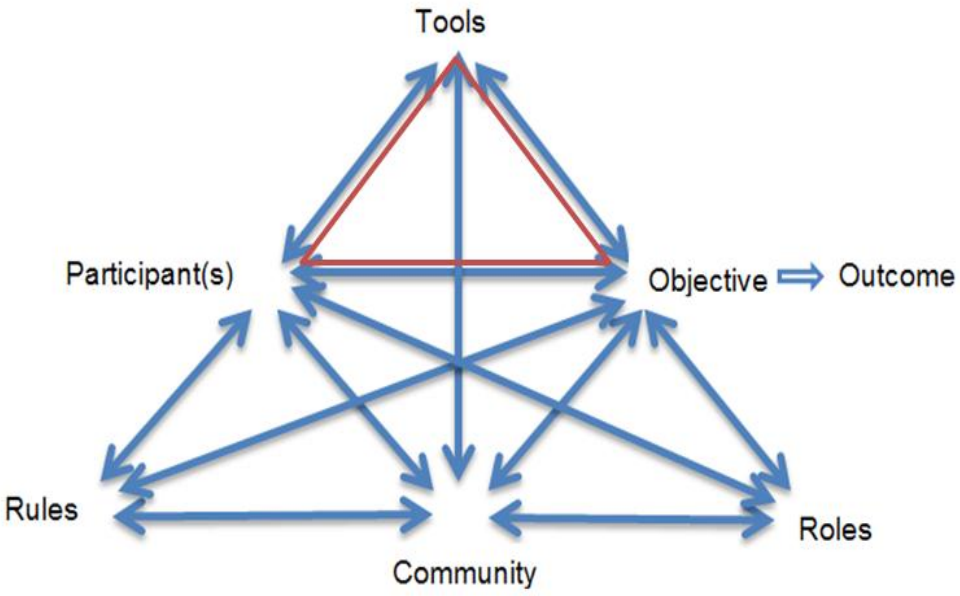

Figure 5.2. Participant-tool-objective sub-activity system

The social and cultural tools that mediated students' learning in three different (fully online and blended) learning contexts included not only the educational technologies such as the virtual classroom, discussion forums, but also the

structural design of the courses, the teaching materials as well as the (English) language.

The participant-tool relationships in activity systems allowed me to observe several affordances and constraints of tools that mediated students' learning. In online learning environments, affordances refer to the potential benefits students can obtain with the help of learning technologies while constraints denote the limitations of these tools that may hinder students' active participation in activities. However, it should also be acknowledged that these online learning technologies are related to several other context-bound elements (such as the reliability of the network, accessibility, participants' skills and opportunities for collaboration and interactions) that may shape the use of these tools. The following sections discuss how the virtual, conceptual, material and psychological tools influenced students' active participation in the three case studies.

Virtual tool: Virtual Classroom

The affordances of the virtual classroom provided several benefits to students, for example the software that was used allowed the participants to see each other in real time. Participants perceived this as a benefit, helping them to get to know each other better. In synchronous learning, instant feedback and the interactions with peers and the facilitator increase motivation and student learning (Schullo, Hilbelink, Venable, & Barron, 2007). Also, by having audio and video features, the virtual classroom facilitated reciprocal communication among participants where they could clarify issues and provide instant feedback as they were engaging in the activity. In addition, as highlighted by Alex (student), having an opportunity to review each other's work and have a discussion after each presentation caused *"slightly deeper interaction"* among students. Students acknowledged the value of being able to have a lot of physical cues, thus *"more human interactions"* in the virtual classroom compared with asynchronous interactions. Consistent with Falloon's (2011) study, students in my research context indicated that they preferred virtual classroom experiences earlier on in the course to get to know people better, rather than towards the end. Students have been "*sussing people out slowly from forum discussions*" and if they had more

synchronous opportunities from the beginning of the course, they would have got to know each other better and faster (Alex, student).

On the other hand, the constraints of the virtual classroom tool affected students' participation. Like most synchronous tools, the virtual classroom required people to be online in real time despite different time zones. As both the lecturer and Schullo, Hilbelink, Venable and Barron (2007) noted, arranging the schedules to participate at specific times can be troublesome. Students appear to be attracted to online courses because of their flexibility (Daymont, Blau, & Campbell, 2011). If students have to participate at a given time, then that element of flexibility is diminished. In addition, as the students and the lecturer pointed out, when the student number is higher (for example 25 students), it is harder to schedule enough sessions. In this case study the student number was ten and the sessions took place from 7.30 – 9.00 pm at night during the working week. Because of the limited capacity for only one speaker talking at a time, discussions took longer than the scheduled time and students had to wait until their turn came to talk. Unexpected technical difficulties also caused frustration for some students in the virtual classroom activity. In Eddy's (student) case, due to technical difficulties which resulted in an echo, he lost the opportunity to listen to a peer's presentation. The person who was affected most due to technical difficulties was Gail (student) who participated from a Middle Eastern country. Although the technical difficulties were related to an unstable political situation in the country, for Gail it was a frustrating experience, affecting her full participation in this virtual classroom activity.

Participating in virtual classroom activities can be challenging for some students if they lack knowledge of the functions of the virtual classroom. For instance, most students in the context of my research felt that the virtual classroom activity was challenging and they were not relaxed when they were participating in this activity, which may partly be as a result of unfamiliarity with the virtual classroom. Most of the participants would have liked more practice before the actual virtual classroom activity took place. The single practice session that was available for them was not sufficient and students even felt stressed knowing the risk of going into the virtual classroom, as it was an assessed task which

represented 30 marks. Having little experience in its use, students lacked knowledge to make the best use of it. This clearly affected the students' active participation.

Students needed *multiple knowledges* to effectively participate in virtual classroom activity, a conclusion which is consistent with Falloon's (2011) findings. Students generally struggle to transfer communication practices and skills from face-to-face to virtual classes (Falloon, 2011) and the students' interactions and participation are influenced by the mediating tools. The multiple knowledges Falloon discussed constitute three categories: *technical*—how to set up devices like cameras, log-ins and navigating the virtual classroom; *procedural*—the conventions and required etiquette when interacting with peers; and *operational*—how to make best use of the tools that are available for communication in a virtual classroom (2011, p. 443). The students' lack of knowledge and familiarity of the tool (virtual classroom), influenced the way students participated in the activity. This indicates how tools can shape what humans do and conversely, over time, how people's experiences shape the way tools are used. However, in spite of the constraints of the virtual classroom, most students preferred to have more virtual classroom activities because of the presence of physical cues and "more human interactions".

Virtual tool: Discussion forums

Moodle as a tool provided the opportunity to facilitate class activities in all three case studies. One affordance of Moodle was that with other personal and professional commitments, students had greater flexibility of time, place and pace for learning via Moodle asynchronously (Holmes & Gardner, 2006; Manir, 2009). The analysis showed that non-native English speakers in case study three benefitted the most from asynchronicity, giving them more time to reflect on Summary, Impact statement and Questions (SIQs), as they could read their peers' work before they drafted their responses.

Moodle also assisted lecturers in monitoring students' progress over time. This was particularly evident in case two where the lecturer was monitoring students'

participation and contribution in discussions forums in order to award final grades.

Moodle discussion forum was one common activity across all three case studies. One objective of the discussion forum activity was to discuss a range of topics that are related to the subject/field. Some of the students in case study one made analogies to face-to-face discussions and emphasized that online forums are a *"much more valuable"* tool than tutorials (Brenda), as everyone had to read the articles before starting a discussion and also, they all had an opportunity to be part of the discussion. This highlights the fact that in online discussions students' cannot be passive "listeners" as they can with face-to-face lectures or tutorials, as their participation and presence is obvious in online environments. Despite the affordances of Moodle discussions, the findings also showed that a majority of students did not enjoy discussion forums, as in their opinion, the discussions were rather *'dry'*, *'official'* and *'stilted'*. Having no physical cues and humour, the students did not enjoy the discussion forum in this case. Neither did it increase students' interactions. In spite of the limitations of the synchronous virtual classroom, compared with asynchronous discussion forums, they preferred synchronous activities because of the physical cues and the reciprocal communication opportunities that were available in synchronous activities.

In the second case, the objective of the discussion forum activity was to critically reflect and critique the topic questions posted on Moodle. One aspect that was highlighted by both Irene (student) and her lecturer, Laura, was the difficulty of having a reciprocal dialogue in online discussions. Irene found it hard to express her thoughts adequately in online discussions compared with a face-to-face setting where she could continue conversations until she was confident her message was understood. The analysis suggested that this made Irene feel frustrated and it affected the way she participated in discussion forums.

Unlike case studies one and two, in the third case, the discussion forum was used differently. In this case, the discussion forum was used as a place for students' to submit their summaries and answer two questions posted by peers (SIQ activity). Referring to the online SIQ activity, most of the non-native English speaking

students acknowledged that *"discussing online is useful"*, as they could read their peers' work before they drafted theirs and they also found it easier to express their ideas in writing than speaking in front of their peers. This supports the idea that discussion forums not only facilitate collaborative learning, but also provide opportunities for reticent students to express their ideas in a non-threatening way compared with face-to-face discussions (Kirk & Orr, 2003). However, the online discussions in this case study stopped after week seven. This was due to the fact that neither dynamism nor dialogues were going on in discussion forums, as the design of the forum was not a threaded whole-class discussion, but individual posts and students just posted answers to two questions which was an end point to discussions. The design reflected David's (the lecturer) low technological and pedagogical knowledge in designing the online component that affected students' interactions and participation in online discussions. Although his views suggested that lecturers need more IT support to use a complicated system like Moodle, the issue of applying pedagogical expertise to LMS design seems more relevant.

Conceptual tool: Structural design of the course

Anderson et al. (2001) state that "Thoughtful design of learning activities is critical to the attainment of educational outcomes" (p.15). The design and the way courses have been structured are a vital factor that is associated with students' experiences of learning online. In relation to the design of the courses, participants in the three cases had different experiences even though all used Moodle as the common learning management system. This is partly due to the varying level of pedagogical expertise that was applied to the structural design of Moodle to support the class activities.

The analysis demonstrated that in one case the Moodle page was well-structured and the lecturer deliberately used several design strategies in its development. In particular, the lecturer's design in embedding all the teaching materials and resources within texts and hyperlinks in logical order made students' learning experience as easy as possible. The strategies suggested by Savenye, Olina and Niemczyk (2001) in providing students with easy access to hyperlinked resources and materials that are well-organized in modules support such practices.

Organizing materials and resources appropriately is a crucial factor in effective online courses which show lecturers' pedagogical thinking and knowledge.

One other strategy the lecturer applied in this case was the creation of several spaces for the students to interact and communicate in each module, which enhanced their interactions. These spaces not only developed sociability among students, but also allowed them to learn from more capable peers, a notion which is aligned with Vygotsky's (1978) concept of the Zone of Proximal Development (ZPD). This is explained as the distance between what individuals can achieve on their own and what can be achieved with the help of others. This concept was evident in case one where students achieved more by interacting with each other than on their own. For example, more capable students assisted their peers to achieve their objectives by introducing and sharing about useful software such as PDF reader, providing tips to show how to include a video clip into a post, and suggesting how to dock blocks as well as offering technological knowledge. The analysis also suggested that the sharing of information and knowledge helped students to get to know each other better as members of a learning community.

In another case there were several virtual social and communication spaces available for students. However, the analysis indicated that students were confused at times because of the duplication of some of these spaces, and lack of organization of materials and resources in terms of weekly modules. For instance, uploading podcasts in two different places led to confusion. Students' suggestions included uploading all the information and resources in one place relevant to that particular week or module, which would be consistent with Savenye, Olina and Niemczyk's (2001) suggestions about designing, developing and delivering online courses.

The online design for case three did not have communication spaces other than one space for personal introductions, which was used by only four student participants at the beginning of the course. Although there was also a synchronous chat icon, students never used it. There were no spaces for asynchronous communication, or a Q&A space for students to clarify issues; however, the lecturer used email as the method of communication, which he thought was more

personal and less complicated. The lecturer's (David's) preference to send feedback, information and lecture notes via email rather than via Moodle demonstrated his limited knowledge about a range of Moodle features, including the email subscription as well as one-to-one communication functions on Moodle. This was evident in his comment:

> *I prefer to send them email feedback and other information. I might send them a note saying "here is some extra reading". I prefer to do that by email because I think that the students would look at Moodle site when they have to do the SIQs, but they are going to get their email and if they want feedback it's easy for them to get that directly rather than they have to take action like getting into Moodle and say "has my feedback come in yet"? I'm using my email all the time. I find using Moodle rebarbative.* (David, lecturer interview 2)

The evidence points to his lack of pedagogical understanding about the learning needs of his students, coupled with his limited knowledge of how to use Moodle to leverage those needs, adversely affected students' participation.

Not only the design of the online course, but also the design of the online activities is vital in online courses. In particular, the design of online activities can affect students' learning and community building (Dennen, 2005). This was reflected in the online SIQ activity (where students posted their summary, impact statement and questions they needed feedback on), as students did not feel that they were engaged in a discussion. Instead they felt this activity fulfilled what was required for a grade. This was an effect of the design of the site and so students were not encouraged to engage in discussions. The lecturer's use of individual forums where each student posted summaries, impact statement and questions instead of threaded, whole-class discussion forums did not facilitate discussions or interactions among students as a group. The lecturer's comment, "*the format that I do, works. Since it works I think I have been doing it for a number of years"* and "*an alternative would have been as you said to have as a whole class"* demonstrated his limited technological, pedagogical knowledge (TPK) in designing this online learning activity (Koehler & Mishra, 2009). David's

(lecturer) low TPK perhaps led to negative perceptions about Moodle and reflected in the way he designed and delivered the online component of his course. Overall, the analysis suggested that because of David's (lecturer) limited knowledge about the features of Moodle, and the apparent mismatch between what he believes in students' best learning interests compared with students' online behaviours, the online tasks appeared to frustrate rather than help his learners.

Material tools: Resources and materials

Having a range of teaching materials such as audio files and video clips in addition to journal articles can be an effective way of teaching; however, easy access to these teaching materials is vital in online courses (Savenye, Olina, & Niemczyk, 2001). The participants in case study two acknowledged that being able to learn from podcasts is beneficial, as it gave them flexibility to learn when and where they want to learn. However, these teaching tools also affected the way students participated in class activities. Savenye, Olina, and Niemczyk (2001) observed that generally students do not enjoy reading on the screen and course designers should consider whether text books or other formats of reading are required. Similarly, most students in case study two thought the same as Irene (student), that having no hard copy or a set of readings had *"been a bit of a pain"*, as they had to wait for the lecturers to upload the materials, then some downloaded and printed them weekly. Students preferred to have access to teaching materials earlier on, in particular the course readings, so that they could use them when and where it was convenient.

Even though podcasts proved to be a beneficial tool to both lecturers and students in their teaching and learning activities, an important consideration emerged from my research with regard to the development of teaching tools. One student (Irene) found it hard to learn from Podcasts because of her partial hearing loss. The reason for her difficulty in hearing the Podcasts was because Laura (lecturer) preferred to play music while she was talking, and this came through as background noise in the podcasts. Since the podcast were weekly recorded, this

could be prevented if the lecturer was aware of the students' needs and disabilities at the beginning of the course.

The format of material tools such as podcasts can also affect students' active participation. Some students in this class could not download some podcasts because of the format of the recording. This precluded students' full participation in this aspect of the course, an issue which was also highlighted by Laura (lecturer). Students' suggestions included recording the podcasts as audio files to keep them simple and accessible to all, and testing the files before the course starts. One solution for such cases is to plan thoroughly all the components of courses before they start (Almala, 2007).

The material tools that are used in delivering content knowledge can affect the way students learn. For example, using PowerPoint slides solely in the course delivery can make students bored and uninterested in lessons. The students comments *"sick of PowerPoint"* (Ken, student) and *"death by PowerPoint"* (Melissa, student) indicated their expectation of having a range of course delivery mechanisms. This is consistent with Koehler and Mishra's (2009) views on teachers' technological content knowledge (TCK) that is, delivering content (subject matter) in an effective manner using appropriate technological tools enhances good pedagogy. Therefore, it becomes significant for the teachers to have an understanding of other technological tools that can be used to effectively deliver content.

As a whole, lecturers' pedagogical knowledge affected the way they developed and incorporated the material tools such as PowerPoint slides and Podcasts in their lessons. The importance of pedagogical knowledge could be seen in the ways lecturers planned and executed learning activities as well as the way they delivered the course content.

Psychological tool: Language

Learning is mediated by cultural tools that include language (Russell, 2002). Language as a cultural as well as a psychological tool mediates and thus affects the way human beings learn. Russell explains it this way:

> Human learning, unlike much animal learning, is mediated by cultural tools. Most human learning, from a very early age, is not the very simple result of stimuli or inborn cognitive structures, but rather a complex result of our interactions with others mediated by tools in the culture, including language. (p. 65)

Human learning is thus shaped by the interactions that are mediated by the physical and psychological tools of the culture. Language was especially relevant as a factor, in case study one and three. Most non-native English speakers' participation in activities in these cases was limited because they grappled with the academic language requirements of the content.

Consistent with the findings of Sari, Pagram and Lim's (2010) study, the main reason for Fiona's (student) lack of participation in learning activities was language barriers. She was *"lost in discussions",* as she could not understand some parts of the discussions. Since most of the other students were native speakers of English, they often used slang and abbreviations in their discussion posts that were hard for Fiona to understand. She also had trouble understanding the assignments, but she asked her peers for help and managed to understand what to do. Her difficulties in understanding, pronouncing and presenting ideas were apparent in the virtual classroom activity. Because of her insufficient command of English, the questions she asked of Debbie (student) after her presentation as part of the discussion were not very useful. In this case, not only Fiona's proficiency in English limited her participation in activities, but also it affected her peers' participation as well.

Similarly, a number of students in the other case study had difficulties with the use of English and they *"struggled with the language"* (David, lecturer). In

Olivia's (student) case, she was frustrated when she could not understand the content and it greatly affected her participation in activities in this course. Her comment, *"This course actually made me lose my confidence"* showed how deeply she was affected. Language as a psychological tool limited her active participation in learning activities in this case. Because of the difficulties she faced in the course she was neither satisfied with the course nor did she achieve her objectives.

Generally, the non-native speakers in case study three were unable to express their ideas adequately both online and face-to-face. However, they felt slightly better in the online component, as they had more time to read other students' work before forming their answers. In the face-to-face context when the students were asked questions, they found it hard to respond immediately, as they needed more time to think in their own language and then translate it into English. The analysis also revealed that it was native speakers who asked almost all of the questions in the face-to-face classes. The non-native speakers' feeling of nervousness and anxiety distinctly affected their participation in learning activities. This also created an imbalance in face-to-face discussions when non-native speakers were paired with native speakers.

In summary, this section focused on the participant-tool-objective sub-activity system. In this research, the virtual tools (virtual classroom and Moodle), conceptual tools (strategies used in the Moodle design), teaching tools (Podcasts and PowerPoint slides), and (English) language as a psychological tool affected students' active participation in learning activities. Within the participant-tool-objective triangle (see Figure 5.2), the tools mediated and shaped the way students participated in learning activities. It was also evident that the participants' (students' and lecturers') experience, knowledge and skills affected the way they used these tools.

Participant-rule-objective

The rules in this study were another mediator that affected students' active participation in activities. The rules refer to the "explicit and implicit regulations,

norms and conventions that constrain actions and interactions within the activity system" (Engeström, 1993, p. 67). Past studies have used Activity Theory as a research framework identifying Tools, Rules and Division of labour as mediators in activity systems (Benson, Lawler & Whitworth, 2008; Groves, Susie, & Dale, 2004; Park, 2009; Wortham, 2008). However, these studies do not specifically discuss rules that mediated students' active participation in online learning environments, but mostly refer to rules and norms related to workplace relations, face-to-face learning contexts and course management systems. Therefore, in the absence of literature relevant to rule mediation and students' active participation, this section is based solely on the findings and analysis of my research.

The red triangle in figure 5.3 shows the participant-rule-objective relationship in an activity system as the focus of this section.

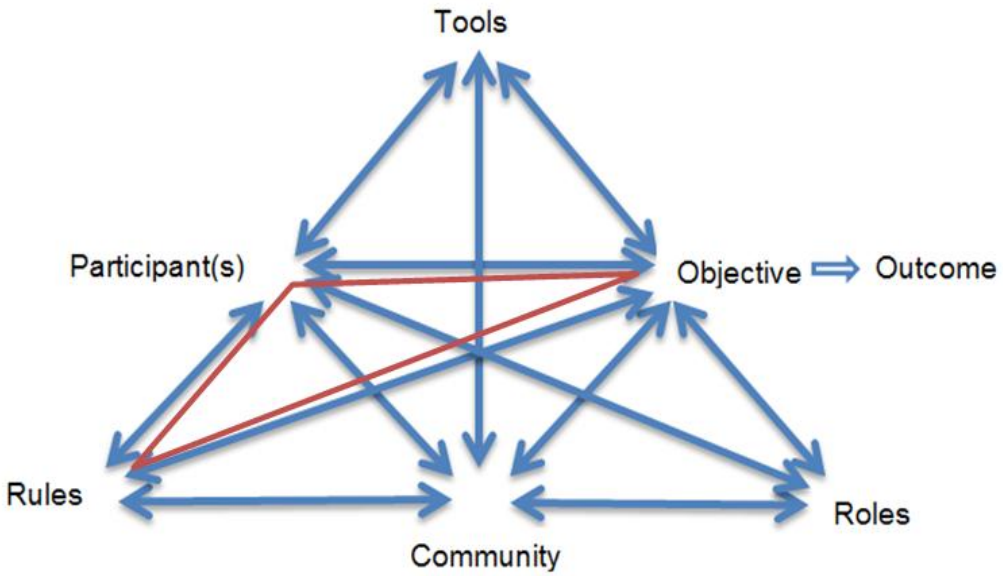

Figure 5.3. Participant- rule-objective sub-activity system

In terms of the rules and guidelines of learning activities, students needed specific details and clear regulations to be able to fully participate in activities. Uncertainty about the level of formality as well as unspecified expectations of their participation in the virtual classroom activity affected students' engagement. Being in a new learning environment, students not only had to learn the virtual

classroom as a tool but also present their research following implicit rules. For instance, some students were not sure whether to read their notes or engage with the audience when presenting. As a result of not knowing the level of formality, most students read their notes instead of presenting in an interactive way. Although they felt uncomfortable with it, they did not want to present in an interactive way, as the virtual classroom activity was an assessed task and students did not want to take a risk. It was evident that the *"lack of clarity of the expectations"* (Debbie, student) affected the way students participated in this learning activity. The analysis revealed that students preferred to have rule-bound activities with more specific information about participating in activities.

Also, some of the students had difficulties as a result of not having clear rules and guidelines regarding the format for the written task. As part of the virtual classroom students had to submit the PowerPoint slides to the lecturer along with their notes. Since students were not asked to follow a specific method to include notes, for example, underneath the slides or separately, students submitted their notes the way they thought was correct. Their experience with this task indicated that the rules were not stipulated explicitly enough and students had some latitude in their interpretation. As a result, students thought they had done it the wrong way and they were anxious thinking they were going to fail the assignment.

The analysis also showed that some of the rules and guidelines that were stated in the course outline were not observed in some instances by the lecturer. For example, although there was a 10 minute rule students had to follow for the virtual classroom activity, the lecturer did not time the presentations and enforce the rule. As a result, the students who followed the time rule were disappointed and frustrated when some of their peers took more than 20 minutes for their presentation. Evidently, the rules, guidelines and expectations should have been clearer to facilitate students' full participation in activities. By clarifying the rules governing the duration of the presentation in the virtual classroom, the level of formality, the expectations and format of the written task, the lecturer could enhance students' participation and satisfaction in the learning activity.

In contrast, in case two, the students' active participation was affected by having to follow too many rules and guidelines. For example, participating in the discussion forums s was compulsory and the students had to follow several rules such as the word limit, references, both Western and Maori perspectives, academic language and so on. This appeared to frustrate students because they focused on following the rules rather than getting their message across. This was evident when Hannah said:

> *I think there should be fewer restrictions like APA referencing is not a must, language is not a must. Because you are not marked for your language in any writing style, so we are thinking of the content rather than how we are putting it into our own word especially for non-native speakers it's very difficult. I think even the native speakers find it difficult to organize their thoughts.* (student interview 2)

In this class, some of the rules related to learning activities confused students rather than assisting their participation. For instance, as a result of receiving contradictory information regarding reference style and number of sources they were to cite, students were confused and frustrated. The rules should have been clearly spelt out in the course outline, for example how many sources they should incorporate per posting and which reference style to follow when they include sources.

The same way, students were confused when they received contradictory information related to the inclusion of notes for the PowerPoint slides students prepared for a fictional conference as their assignment two. They were not only confused but also it affected their grades as a result of not having clear communication among teachers and students. In order to avoid such confusions, lecturers should have their own roles and responsibilities. For example, one lecturer could have given all the information, rules and guidelines about assignments in this case.

In the third case study, students expected to have clearer rules and guidelines to be able to fully participate in the SIQ activity. The lecturer, David, and the teaching

assistant, Lise seemed to be lenient in terms of the rules of the activities. They were aware that students had work, family and other commitments to attend to, so they did not strictly follow whether each student had managed to get their peers to respond to their questions posted as part of SIQ activity. The analysis indicated that it was too much to do SIQs and hand in by 9 a.m. each Monday. This could be one of the reasons why the online SIQ activity did not continue after week 7. Students also found it hard to understand what the lecturer expected them to do in the SIQs at the beginning. Similar to case study one, students needed specific guidelines that could help them to do their SIQs.

The lack of clarity and criteria in terms of feedback on SIQs was also an issue related to rules and guidelines in this case study. David's (lecturer) comment *"there were criteria, but I didn't strictly follow them"*, clearly showed that he did not observe the rules he set up. As a result, students were not sure how their work was graded. Most students in case three expected to receive more specific feedback. The analysis suggested that students needed more explicit feedback in order for them to improve their grades which denoted the need for clear rubrics as marking criteria spelt out in the course outline.

Overall, explicit and implicit rules can constrain or liberate activities to varying degrees. The rules generally provide students with guidance and procedures that are appropriate in interacting with peers and in achieving goals of the activities (Engeström, 1993). In the context of my research, the use/absence of rules and guidelines acted as a mediator when students' activities were not rule-bound in case one and three, where they preferred more clarity and specific rules and guidelines. On the other hand, in case two the students had activities that they felt were too rule-bound, and consequently they had to concentrate too much on the rules rather than the content, and so precluded their full participation in activities.

Participant-community-objective

The concept of community has been discussed by numerous scholars in different contexts; however, as far as I can determine, it has not been discussed in relation to the element of community in Activity Theory in the literature. As the analysis

and discussion of this study developed, the themes that emerged under the main theme, community, became more significant than was initially anticipated in my study. Therefore, it is appropriate at this stage to incorporate into this discussion some of the literature related to community and community building. Among many aspects of the concept of community discussed in relation to my findings in this section, it seems that there is a strong relationship between the element of community in Activity Theory and aspects of community in Community of Inquiry Framework (CoI) (Garrison, 2011). Therefore, the following section demonstrates the participant-community-objective relationships through the aspects of community in Activity Theory as well as Community of Inquiry framework.

The aspect of community in activity systems can be considered similar to the sense of community that has been researched extensively in socio-cultural settings. The history of the term communities of learning traces back to the year 1991 when Lave and Wenger coined the term community of practice in their discussion of the social nature of learning. However, Swan, Garrison and Richardson (2009) state that in the early works of Dewey (1959) there is evidence of an awareness of this concept as he believed that educational experience was a combination of interests of the individual and community, and individual development depended on community. The term 'community' is defined in many different ways in education literature. Often, 'a community' is defined as a group of people who share a common goal, boundaries that define members and non-members, rules that govern their behaviour, interactions and respect, trust and support for each other (Vesely, Bloom, & Sherlock, 2007). When the interactions and collaborations of communities are directed towards a goal of constructing knowledge, they are known as communities of learning.

Past studies about online learning communities vary from a focus on the characteristics and features, to models of online learning communities. One of the common and key aspects discussed related to online learning communities is 'social presence'. Lehman and Conceicao (2010) define social presence as "being there" and "being together" in a learning process as a virtual community (p. 3). 'Social presence' was one of the themes that emerged in my study, as students

clearly expected the lecturers to be 'present' and be there as part of their online learning community. Social presence helps create engagement, interactions and a sense of community. In addition, the potential social interactions that can take place among the members of a community can enhance learning outcomes and alleviate possible learner isolation in virtual learning environments (Palloff & Pratt, 2007).

Garrison, Anderson and Archer (2000) introduced a model of online communities of inquiry that consists of 3 forms of presence: social, cognitive and teaching. According to Garrison (2007), social presence is the capability to form relationships that are personal and purposeful. The three major facets of social presence are "effective communication, open communication and group cohesion" (p. 63). Cognitive presence occurs through collaboration and reflection and is described as "the exploration, construction, resolution and confirmation of understanding" (p. 65). Teaching presence is related to the three categories: "design, facilitation and direct instruction" (p. 67). Palloff and Pratt (2007) suggest that participating in an online course does not create and sustain online learning communities, but the notion of community should be considered when designing online courses, which was also reflected in the analysis of my study.

In tertiary learning contexts *community* is seen as a vital aspect that can facilitate collaborative learning (Garrison, 2007). In an activity system, the element of community comprises all the people who are involved in an activity together with the participant(s) sharing the same objective(s) of an activity. In the case of my study, students and the lecturer(s) and a teaching assistant (in case study three) comprised the community. The red triangle in the following figure shows the participant-community-objective relationship in an activity system.

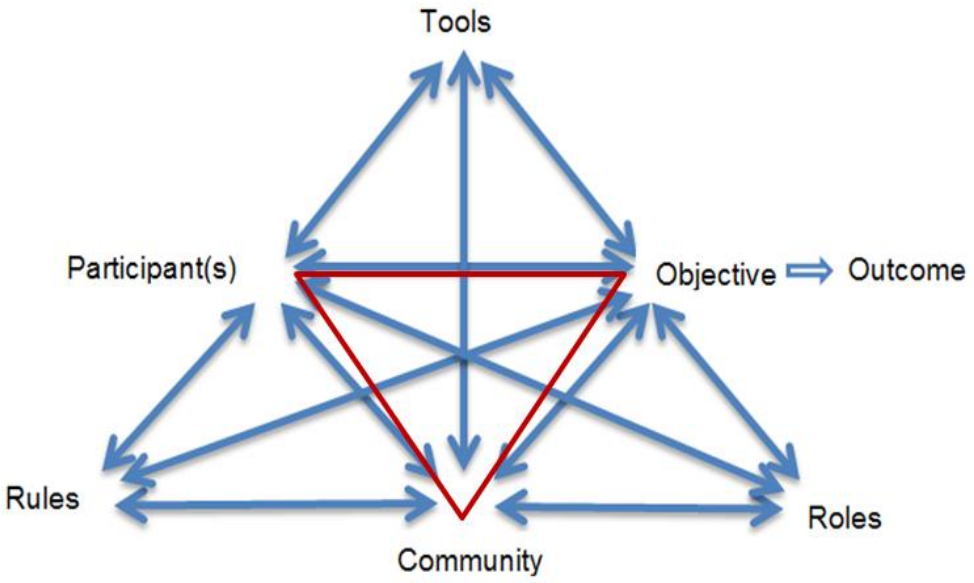

Figure 5.4. Participant-community-objective sub-activity system

The community aspect was reflected through the students' active interactions that took place while they were engaging in class activities. Students benefitted and learnt from more capable peers through regular interactions. Wenger's (2006) definition that "communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (para. 2), thus supports the notion that functioning within a community is seen as a key to enhancing performance.

One aspect that can foster communities is by providing students with opportunities for interactions. For example, the lecturer's deliberate attempt in creating structural strategies such as social, communication and sharing spaces clearly facilitated closer connections among students in case one. This is supported by Schwier's (2007) views that "communities cannot be created; rather they emerge when conditions nurture them" (p. 18). For instance, in case study one, the detailed personal introductions that were uploaded together with photos helped students to get to know each other at the beginning of the course. Also, the photos they uploaded helped them to create an image in mind when they communicated with each other and thereby formed a sense of belonging to a learning community. Students made analogies to face-to-face learning

environments and acknowledged the importance of getting to know each other in fully online contexts, as they did not have chances to meet each other face-to-face in online environments.

Another significant use of the communication spaces was that students helped each other when they needed assistance with assignments. The collaborative nature in building and scaffolding knowledge in this context could be explained through the concept of Zone of Proximal Development (Vygotsky, 1978). Students managed certain tasks with the help of more capable peers. For instance, Alex (student) had technical knowledge about making YouTube clips and assisted Christine (student) throughout the process. Therefore, developing a community of practice which was assistive and supportive aided in refining students' understandings of the subject and was also useful in completing their assessment tasks.

Some important factors that can strengthen learner engagement are relationship building, community building and sense of belonging (Anderson et al., 2004; Jones, 2008; Willms, Friesen, & Milton, 2009). Students in the context of my research felt a sense of belonging to the learning community for various reasons. For some students, it was a process and that took time while for most of the students it was the virtual classroom activity that allowed them to have more 'human interactions' and thereby have a sense of belonging. This is also supported by Finkelstein's (2006) view that as an asynchronous tool, while discussion forums facilitate community building, synchronous discussions create a sense of community in online learning environments. Similarly, Shullo et al. (2007) state that students frequent interactions in synchronous systems "improves attitudes, encourages earlier completion of coursework, improves performance in tests, allows deep and meaningful learning opportunities, increases retention rates, and builds learning communities" (p. 2). The findings of my research are also in line with Khoo's study in which she highlights the value of online learning communities in facilitating positive learning experiences in socio-cultural settings. Overall, the synchronous tools used in the context of my research facilitated both the building of a learning community and positive learning experiences (Finkelstein, 2006; Shullo et al., 2007).

One explicit student expectation in this case was the lecturer's presence in learning activities which was a vital factor that helped students to create a sense of belonging to a learning community. Almost all the students clearly expected the lecturer to be part of discussion forums in this context because they believed that the lecturer needed to be there to direct, guide and provoke them to think further and also to help develop a depth of knowledge. The students felt that *'he is present'* (Alex). This is consistent with Lehman and Conceicao's (2010) teachers' social presence as "being there" in a learning process (p. 3). Findings of my research regarding lecturer's presence and students' expectations were also consistent with the findings of Forbes' (2012) study where both groups of students valued reciprocal participation in discussion forums. Students' analogies to face-to-face contexts highlighted their expectations of the teacher's presence in online contexts where other means of having dynamic conversations are not possible. In addition, the students expected the lecturer to acknowledge their participation and contributions online. Christine's (student) comparison to the weeks they had guests to facilitate the discussion forums shows her expectations of the facilitator to be there throughout the week. This is perhaps because the students were present throughout and she expected the facilitators to also be there throughout.

Richards' (lecturer) views indicated that there is a strong correlation between tutor's presence and students' participation in online discussions; this aligned with the students' emphasis on teacher's presence in online learning activities. There is substantial support for tutor's presence and students' participation in the literature. One example is the review of literature conducted by Tallent-Runnels, et al. (2006). Similar to the findings of my research these studies highlight that the students' active participation is influenced by the reciprocal interactions of the staff (Dennen, 2005). The findings of the qualitative study carried out by McIsaac et al. (2006) on students' and teachers perception of interactions in online courses replicate some of the perceptions of my research participants. They found that students' interactions and positive learning experiences could be promoted by the teacher's effort in providing immediate feedback, participating in discussions, encouraging social interactions and using collaborative learning strategies.

It was the three lecturers who jointly taught a course and emphasized community building as one of their main objectives. Considering the importance of regular interactions, there were several spaces for students to communicate with each other in the Moodle site. Although the students were provided with a social café space to get to know each other better and a netiquette guide to communicate with mutual respect in building closer relationships, the students did not make full use of this social space. While some students (in Faye's and Michelle's classes) used this space, none of Laura's students used this space to communicate or share their ideas. This could be due to the fact that the students' focus was just to successfully complete the course, and also because students did not have a close connection with their peers or lecturers in this case.

Power relations among lecturers teaching the same course can result in contradictions and frustrations among students. For example, contrary to Michelle's and Faye's (lecturers) views, Laura's (lecturer) opinion demonstrated her desire to have reciprocal dialogue with her students. However, Laura's comment *"I'm not the coordinator you know. I'm just trying to fit in as best I can with a program that isn't my own– I am kind of like a 'guest'"*, denoted that she did not have the power to make the changes she would like, based on her pedagogical beliefs. Most practices in this course were predominantly based on Faye's and Michelle's pedagogical beliefs. Lecturers' beliefs as well as contradictory views regarding their participation in discussion forums created tensions and frustrations in some students, as their expectations were not met. These frustrations and tensions can be theorised as contradictions that emerged within the activity systems, and are further discussed under the theme Contradictions.

Students generally did not feel a sense of belonging to a learning community in this class. It seems as though the level of lecturer participation in discussion forums and online dialogues influences the student's sense of belonging to a learning community. In terms of this belonging, Irene felt a partial sense of belonging to a learning community when she came to the university during the 3 day orientation, but not in the online learning environment. Hannah on the other hand, did not feel a sense of belonging to a learning community even at the end of

the course. The analysis suggested that in this case students did not feel the teacher's presence, as the lecturers were not part of the learning community that they were trying to build. In addition, supporting Laura's (lecturer) view on keeping students in the same group and not rotating them every four weeks could help build learning communities across smaller groups where they could feel a sense of belonging.

The lecturers' belief that students' democracy is diminished by the teachers' participation in discussion forums affected students' engagement in this case. In fact, not all literature supports instructor's involvement in discussion forum activities. For instance, Ben-Peretz and Kupferberg (2007) and Hew, Cheung and Ng (2010) state that students have more liberty in expressing themselves when teachers do not get involved in online discussions. However, in the context of my research, students' views contradicted the teachers' views and the literature on this issue. Although the lecturers preferred 'overseeing' students' conversations without getting involved in them, the students felt that they were left alone without their teacher's guidance and feedback. Hannah's comparison of the current course to a previous course where the lecturer took part formed her expectations for this course. Hannah particularly wanted to get some guidance and feedback on her contributions so that she could see whether she was on the right track. Although Laura (lecturer) posted an audio podcast to her students at the end of each week providing regular feedback on their discussion forums, it was more general comments to the whole class rather than specific individual comments. While receiving general feedback is valued more than not receiving any feedback, individual feedback has more effect on student's active learning (McIsaac, Blocher, Mahes, & Vrasidas, 2006). In addition, as Anderson, Rourke, Garrison, and Archer (2001) emphasize, facilitating discussion forums by acknowledging and encouraging participants' contributions is vital in maintaining students' motivation and engagement in online learning.

Studies also indicate that staff reciprocation is related to students' active participation in discussions and satisfaction with their learning (Dennen, 2005; Tallent-Runnels, et al., 2006). Lack of teachers' guidance and feedback in terms of student participation in online discussions can encourage shallow student

participation. Teachers' role is to scaffold knowledge as part of the knowledge construction process, and when the teachers are not involved in this process, students' learning can be ineffective (Tallent-Runnels, et al., 2006). Generally, in this case the students felt that they needed feedback on their contributions and also preferred the teacher's presence in discussion forums where they could have more guidance. If the students were provided with more opportunities to have reciprocal communication with the lecturer and the peers as well as allowing them enough time to foster relationships within groups, the students would have felt a sense of belonging to a learning community and worked better in this context. Also, providing necessary conditions and opportunities by asking them to work on assignments collaboratively, the students would have felt a sense of belonging to a learning community.

In terms of lecturers' 'hands-off' approach, considering online discussions as a 'pedagogical space', lecturers could still provide students with more freedom for autonomous learning, if they consolidate some strategies in participating in discussions. For example, by giving students a 'wait time' (Rowe, 1986), lecturers could provide some 'space' and freedom to express their ideas without dominating the conversation. Wait time here refers to giving students some time to think and respond (Rowe, 1986). Secondly, without interrupting the flow of the discussion, lecturers could probe students to think about another aspect of the topic or ask a question in relation to what students have contributed (Brookfield & Preskill, 2005). In addition, lecturers could summarize what students have discussed so far and make short statements like 'what do you think of this aspect…'. Lecturers could also suggest some extra readings or resources in response to what they have been discussing so that they could get more in-depth understanding of the concepts related to the topic.

Having both face-to-face and online components in the third case study, the community aspect was seen by the participants rather differently compared with case one and two. In this context, the community comprised the students, their lecturer and a teaching assistant. The analysis indicated that the students did only what is required when it came to the online SIQ activity which was to post their summary and answer two other students' questions. It did not continue or develop

as a threaded discussion and therefore, no reciprocal communication was evident. This was consistent with Thomas' (2002) study, where the structure of the forum discussion did not encourage collaborative knowledge construction among students. This has some implications for teachers' pedagogical and technological knowledge when integrating technology in their teaching and that will be discussed in the next section.

In terms of community building, almost all the students in this class felt that they belonged to a learning community. It was evident that in this case that it was the face-to-face interactions that caused them to feel a sense of belonging to a learning community. One reason for this could be the fact that the students had to work with another student face-to-face in class discussions and they also had opportunities to work in groups as participants of the face-to-face discussion activity. Students compared face-to-face and online activities in this case. While students valued reading online how students answered their peers' questions that included their background, experiences and knowledge; they enjoyed learning in the face-to-face environment, as there were reciprocal collaborations and also the lecturer was part of this activity. This was consistent with the findings of the study conducted by So and Brush (2008) on the relationships of the students' perceived levels of collaborative learning, social presence and overall satisfaction in a blended learning environment. In both contexts it could be seen that the students did not feel a strong need to have interactions online, as they had opportunities for face-to-face interactions.

Another reason for students not feeling a sense of belonging to a learning community in the online environment could be because of the way the online activity was designed. In the online SIQ activity students went into separate forums instead of participating in a threaded discussion (whole class discussion). This demonstrated the lack of facilitation for collaborative and reciprocal communication among students while engaging in this activity, which also reflected lecturer's lack of pedagogical thinking and strategies. In addition, the absence of the lecturer's and the teaching assistant's presence in the online activity could also be considered as one of the reasons why students did not feel a sense of belonging in the online context. Therefore, the students only did the

minimum amount of work required in order to achieve a passing grade, and the students did not engage fully in this online activity.

Because the design of the courses had an influence on student participation in class activities, it is relevant to examine how lecturers' technological and pedagogical knowledge influenced the course design and consequently affected students' engagement.

Lecturers' pedagogical knowledge

The analysis indicated that the design of the courses affected students' active participation in learning activities. Generally, the way lecturers design courses and include certain strategies in online courses is influenced by the teachers' pedagogical as well as technological knowledge (Koehler & Mishra, 2009). This analysis can be framed within Koehler and Mishra's Technological Pedagogical Content Knowledge (TPACK) model shown in Figure 5.5.

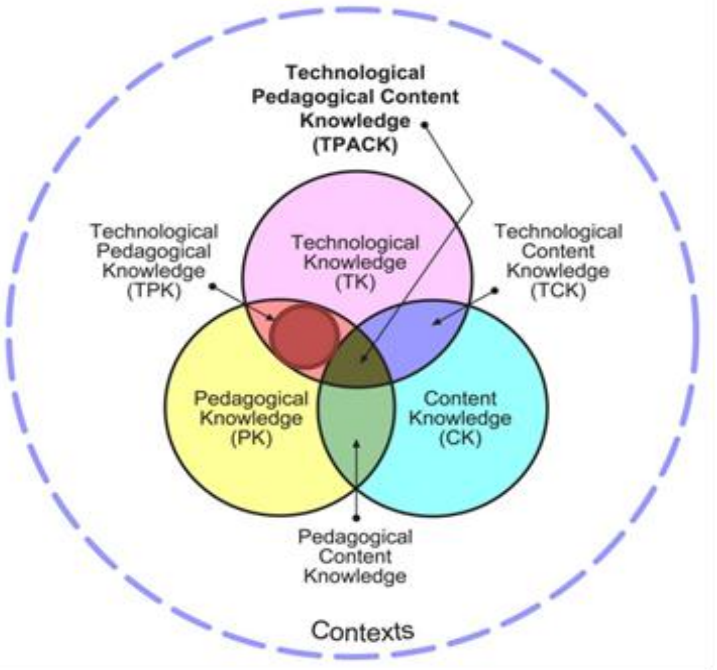

Figure 5.5. TPACK framework (adapted from Koehler and Mishra (2009)

Lee Shulman first introduced the idea of Pedagogical Content Knowledge (PCK) in 1987. According to Shulman (1986, 1987), PCK is the synthesis of teachers' pedagogical and content knowledge in which teachers relate what they know about the subject (content knowledge) to what they know about teaching (pedagogical knowledge). Extending Shulman's ideas on PCK, Mishra and Koelher (2006) introduced the Technological Pedagogical Content Knowledge (TPACK) model which attempts to identify the types of knowledge needed by teachers in teaching with technology. The TPACK framework goes beyond looking at the three main forms of knowledge (Technological, Pedagogical and Content), and emphasizes other forms of knowledge that arise from the intersections between the primary forms of knowledge. An example is teachers' Technological Pedagogical Knowledge that is highlighted by the red circle in the Figure 5.5 that can frame the analysis of the relationship between lecturers' technological and pedagogical knowledge (TPK) and course design.

TPK represents how teaching and learning can be understood when technological tools are used in specific ways. Koelher and Mishra (2009) argue that "knowing the pedagogical affordances and constraints of a range of technological tools as they relate to disciplinarily and developmentally appropriate pedagogical designs and strategies" (p. 65) can make learning more comprehensible. It was evident in my research that the lecturer's TPK influenced the way the courses were designed, which in turn affected the way students participated, for example in the SIQ online learning activity. First of all, in this course there were no communication spaces for students to interact and co-construct knowledge apart from the face-to-face lecture hours in which only a few students had the opportunity to ask questions or share ideas. When the students could not clarify issues or share their ideas with the class due to time constraints in the face-to-face environment, the lecturer could have facilitated their interactions by creating a communication space such as a Q&A section or a discussion forum online. Secondly, the format of the SIQ activity also showed the lecturer's lack of understanding of the affordance of Moodle online discussion forums. The format of the online SIQ activity led students to post their replies to their peers' questions in individual forums instead of a whole class discussion. In addition, the lecturer's preference to send students' feedback, lecture notes and other information individually via

email suggests his limited use of Moodle functions which underpins his inadequate TPK.

In attempting to position lecturers' PCK in relation to Activity Theory, lecturers' PCK can be conceived as *tools* in a learning activity system because knowledge can be considered a tool that mediated participants' action. However, in a learning activity system, since lecturers' PCK does not directly mediate students' participation in the learning activity (but indirectly though the design of the course/activity), and also lecturers are not the main participant of the learning activity system, the lecturers' PCK in designing courses can be better explained with the third generation Activity Theory (Figure 2.5 from the Literature Review chapter). This expanded version of Activity Theory enables the capture of relationships that take place between activity systems (Engeström, 2001) by looking at related activity systems other than the main activity system. For example, while the online SIQ activity is the main activity system in the third case study, another related activity system that should be taken into consideration is the lecturer's designing of this course. The following Figure 5.6 shows a potential activity system for designing of a course that is related to the main activity system (online SIQ activity system).

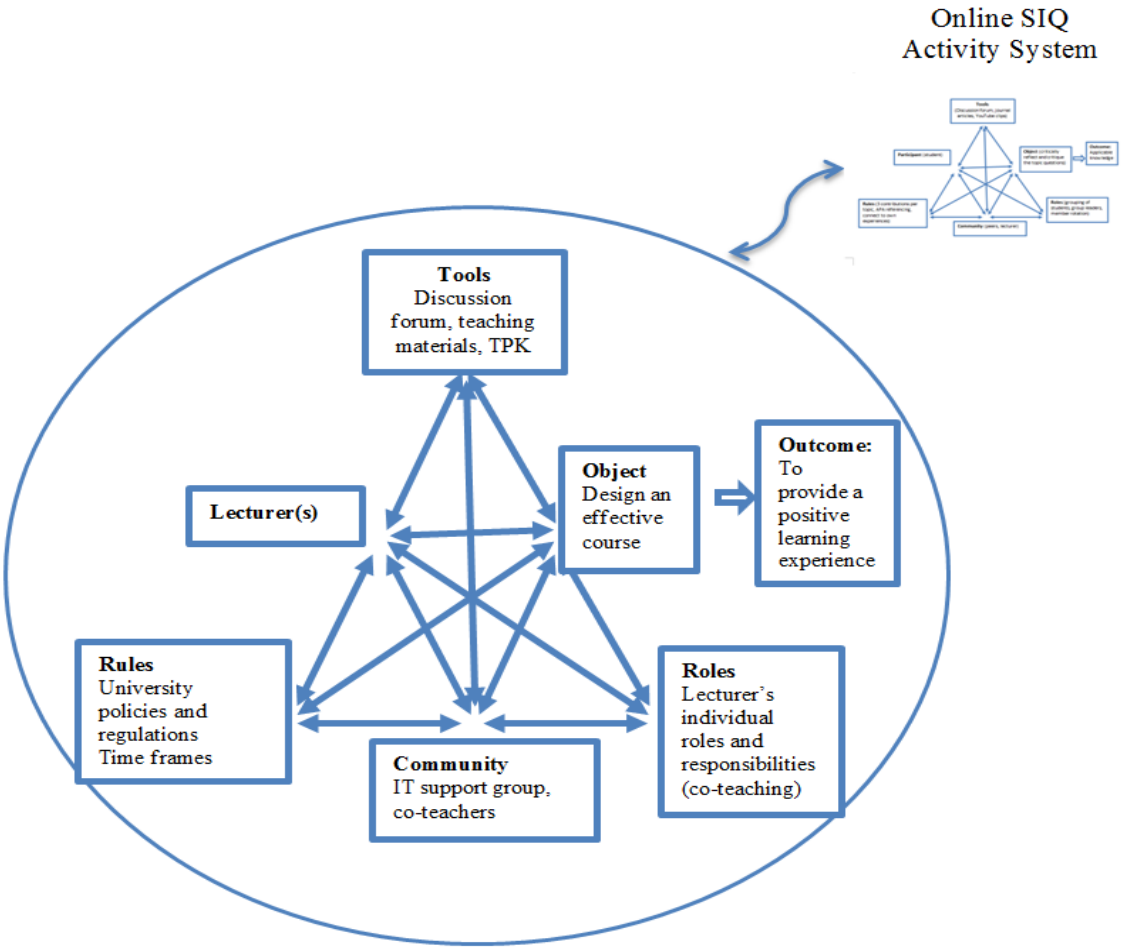

Figure 5.6. Course designing activity system

While the lecturer's TPK, which could be described as naïve, influenced the way he designed the course and the online activity in case study three, the course design and the absence of strategies in facilitating interactions and collaborative learning affected students' active participation in learning activities. The absence of these deliberate strategies is symptomatic of lecturer's low pedagogical content knowledge (PCK) which is coupled with a similar lack of technological pedagogical knowledge (TPK) where Moodle is concerned. On the other hand, the well-structured course design that included some deliberate strategies in case study one was underpinned by the lecturer's more sophisticated PCK as well as TPK. Consequently, it influenced the way students' participated in learning activities in this case and gained a positive learning experience.

Contradictions

Contradictions constitute a key principle in Activity Theory and they appear as conflicts, ruptures, breakdowns and tensions in activity systems. Contradictions are defined as "a misfit within elements, between them, between different activities, or between different developmental phases of a single activity" (Kuuti, 1996, p. 34). Engeström (1987) proposes four levels of contradictions (1) primary, (2) secondary, (3) tertiary and (4) quaternary. The primary contradictions occur within the elements of activity systems (e.g. within the community). Secondary contradictions arise between the elements of an activity system (e.g. between the community and participants), tertiary contradictions arise when activity participants face situations where they have to use an advanced method to achieve an objective (e.g. when they are introduced a new technology), and quaternary contradictions occur between the central activity system and outside activity systems. As illustrated by the red arrows in Figure 5.7, in my study, contradictions emerged within and between (primary and secondary) the elements of the activity systems as well as between the main activity system and its neighbour activity system (quaternary).

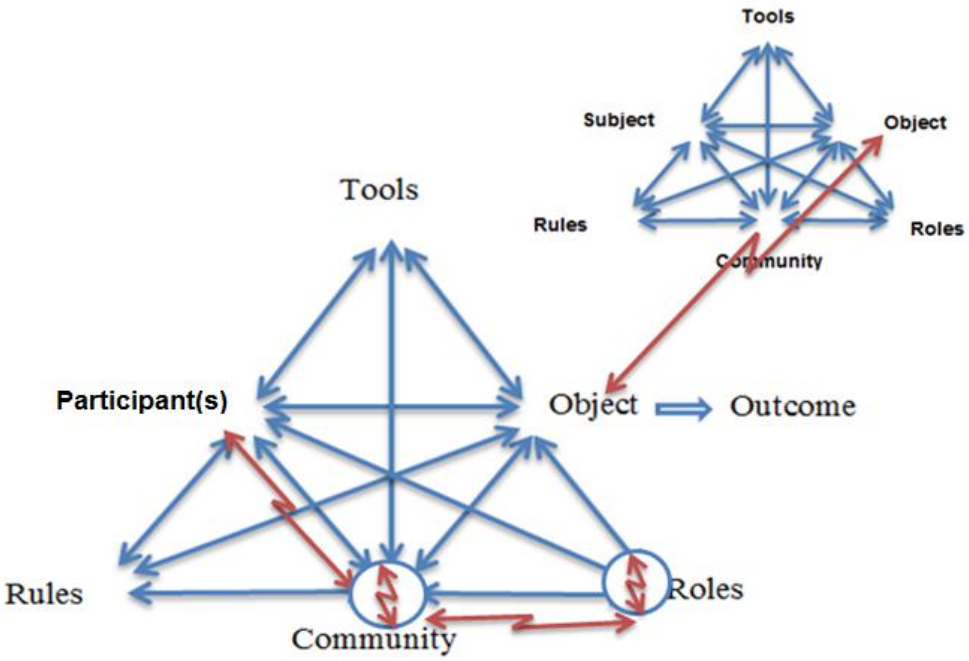

Figure 5.7. Contradictions within and between activity systems

The analysis revealed that the contradictions in case study two occurred in the form of issues related to (1) grading, (2) communication and (3) opinions on 'teacher's presence', and these contradictions led to misunderstandings and frustrations among students. The contradictions identified in this case were within and between the elements: *participants* (subjects), *roles* (division of labour) and *community* of the activity systems.

The issue of grading was related to marking students' first assignment and occurred between the *participants* and the *community* (secondary contradiction). The contradictions related to the issues of grading and communication caused frustration and tensions among students. Not knowing why their lecturer did not mark the assignments, students were frustrated and worried. Students' concern about someone else marking their assignments could have been avoided if the students were given clear information on why Laura (lecturer) did not mark the first assignment, and an assurance that she would moderate them and would mark the rest of the assessments. As a result of these contradictions, students were frustrated and therefore, affected their active participation in learning activities. In this regard, the lecturers failed to build relationships with the students maintaining clear communication which is a key facet of social presence (Garrison, 2007).

The fact that students were not informed of Laura (lecturer) not marking their first assignment further complicated issues when the students wanted to communicate with Laura regarding their assignments. In Irene's case when the marker did not receive her message or her references, it affected her grade. The gap in the communication link was due to the fact that the lecturer's roles and responsibilities were not clearly specified and the students were not informed of the contingency plans in the absence of a lecturer. These frustrations and tensions could have been avoided by providing clear specification of the lecturer's roles and responsibilities and also by maintaining effective and open communication among lecturers and students (Garrison, 2007).

Moreover, the contradictions occurred within the element *community* and between the *participants* and the *community* regarding opinions on 'teacher's presence', and created frustrations and tensions among students in this case study. Since the

contradictory views on 'teacher's presence' overlapped and were discussed in detail in the previous section participant-community-objective, this will not be repeated in this section.

Cultural differences and beliefs can also affect students' participation in online learning activities (Shattuck, 2005). Due to Hannah's (student) background and cultural beliefs about online courses, her learning experience was somewhat negatively affected. The fact that she found out this course was online only when she came to New Zealand made her feel frustrated. Coming from a context in which face-to-face learning was the norm, she preferred face-to-face mode of learning and found it difficult to manage her online learning. Her preference to interact with her peers face-to-face and her dissatisfaction with the online course was influenced by her cultural beliefs. She stressed that in her home country nobody respects online courses and people look down on the ones who have learnt via online courses. These cultural beliefs affected the way she recognized her online course. Her opinion that the teachers were training them to learn how to take part in online discussion forums indicated her unfamiliarity with the online environment and her lack of understanding of the objectives and the role of discussion forum activities.

The analysis revealed that the opinions of the *participants* (students) and the *community* (lecturer and teaching assistant) on the SIQs feedback were contradictory in the third case study. Contradictions occurred between the elements: *participants* and the *community* (secondary contradiction) as well as within *roles* (primary contradiction) of activity systems. The lecturer, David and the teaching assistant, Lise believed that they provided a lengthy paragraph of feedback that was useful for the students; however, the students' views demonstrated that they were quite disappointed that they did not receive specific feedback that could guide them to improve their assignments and grades. Students' comparison to the previous course in which they received explicit feedback, which they found satisfying, informed the students' expectations in this course.

The imbalance of student participation that emerged as a primary contradiction in activities was related to the element *roles* in the in-class discussion activity system in this case. In the case of Lorraine, although it was paired work, she had to prepare the presentation all by herself and in the end, her working partner expected to get the same mark. In the literature this is known as the 'free riding' problem associated with group work where some students are reluctant to contribute to tasks. Lorraine was unhappy with this situation, as she was under stress juggling the presentation with her other commitments. In this case, there was no specific way to assess students' individual contributions, but the lecturer assumed that they all contributed equally in activities. One way to solve this problem is to carefully consider group as well as individual efforts put into the task and award marks (Davies, 2009).

Similarly, the student *roles* in the in-class discussions were not balanced. The presentation conducted by Nicky (non-native speaker) and Melissa (native speaker) at the beginning of the semester and the presentation by Nicky (non-native speaker) and Ken (native speaker) at the end of the semester were apparent examples of imbalanced participation in activities in this case. Consistent with the findings of Freiermuth's (2001) study, when native speakers were paired with non-native speakers, because of their different language competencies, the native speakers tended to dominate the discussion. The literature suggests that when native speakers and non-native speakers are mixed in learning activities, opportunities for non-native speakers are limited (Freiermuth, 2001). Warschauer (1996) accentuate that, in particular, Asian students do not feel comfortable in participating in oral discussions due to their previous experiences. This could be because in many Asian countries, it is uncommon to have oral discussions as part of learning activities. The non-native speakers in the case of my research were also mostly from Asian countries.

However, some of the native speakers in the class were also quite frustrated and disappointed, as they felt that they did not have enough opportunities in the class to ask questions and clarify issues related to the lesson. This could be interpreted as lecturer's poor pedagogy, as there were not enough opportunities for questions in the class; however, this issue could possibly be addressed by the provision of

an online space for asking questions and interacting with each other without limiting themselves within the four walls of the classroom.

Engeström's (1987) forth level contradictions (quaternary) refer to the contradictions that occur between the central activity system and neighbour activity systems. Activity systems are never isolated as the constituents of one activity system are somehow always related to other activity systems. For example in my research, the unit of analysis was the activity system (the main activity system); however, when studying contradictions, if a neighbour activity system is interconnected with the main activity system and relevant to the study, it is important to study all the connected activity systems. This was evident where contradictions occurred between the virtual and physical classroom activity systems.

In the activity system of the online SIQ activity, the neighbour activity system was the in-class face-to-face discussion activity. These two activity systems were related because of the linked objectives of two activities. David (lecturer) affirmed that the objective of the online SIQ activity was to "*get them to interact online because the first part of their next class is a discussion of those issues"*. The lead in-class activity was becoming less constructive when the students realized that it was not linked up with the online discussions. Although it was stressed in the course outline that the class discussions were to be based on the SIQ online questions or students' own questions on readings, it was interesting to note that almost all the in-class discussions were a series of activities based on David's (lecturer) previous lecture. This was also supported by Ken's (student) views.

> *So far the lead in is quite didn't...yeah it didn't really...I was hoping that there'll be comments on what we've done, but it was totally you know…I mean one lesson and totally different expressions and they all came from one slide of classroom projection. There was one particular slide taken from 30 or whatever and that was the chunk of the lead in. and I was like "I don't even know what these terms are or there's no use to me". I want to get excited and something that interests us, be more useful and get stuck*

to a smaller area of discussion, discuss more deeply rather than…you know.

The contradictions arose between these two systems when these activities were not planned and carried out in a way that linked the objectives of two activity systems. As a result, the students were frustrated and it affected their participation in activities. Students' suggestions included that those who do the lead in-class discussion should first consider online questions (posted by the students) and based on students' ideas, questions and concepts, they should then develop the face-to-face discussion activity.

In summary, the contradictions that affected students' participation in e-learning activities were related to the issues of grading, communication and different opinions on 'teacher's presence'. These issues resulted in miscommunication and frustrations in students in this case. Contradictory views were also revealed on feedback which revealed the students' expectations in this course and their disappointment in not receiving explicit feedback on their performance. The analysis revealed that students needed more opportunities for interactions and discussion in this course. The missing linkage between the virtual (online) and physical (face-to-face) activity systems also affected the way students participated in the activities.

Chapter summary

The intent of this chapter was to analyse the findings from three case studies reported in the previous chapter within the structure of an Activity System framework. With reference to the research questions of the study, this chapter included four main sections (sub-activity systems)—Participant-**tool**-objective, Participant-**rule**-objective, Participant-**community** objective, Participant-**roles**-objective and contradictions that represented the main mediators that affected students' active participation in this context.

The tools that mediated students' active participation in e-learning activities included the virtual tools (virtual classroom and learning management system that

facilitated synchronous and asynchronous activities), the conceptual tools (strategies used in the design of the course Moodle page, communication spaces), the material tools (journal articles, Podcasts, PowerPoint slides) and psychological tool (English language). In terms of the explicit and implicit rules, the use/ absence of rules and guidelines also acted as a mediator when students were participating in activities in the online environments.

The community aspect was a significant theme and influenced the way the students participated in learning activities. Some of the influential factors related to the aspect of community included the synchronous learning activity, teacher's presence, class size and communication spaces that were (un)available for sharing and interaction.

Another factor that influenced students' engagement with learning activities in this case was the design of the courses and the (un)availability of certain strategies. It was evident that the way the courses were designed was influenced by the lecturers' level of Technological Pedagogical Content Knowledge (TPK).

The contradictions that emerged in the form of frustrations, tensions and miscommunication occurred within and between activity systems in my research. These contradictions that affected students' full participation in e-learning activities were related to the issues of grading, communication and different opinions on feedback and 'teacher's presence' as well as the missing linkage between the online and face-to-face activities.

The next chapter includes the conclusions of this research.

Chapter 6: Conclusions

Introduction

The aim of my study was to explore mediational factors that affect students' engagement with e-learning activities in online learning environments and the study was structured around the central research question:

> What key mediational factors affect university students' engagement in e-learning activities?

In answering the research question, the findings in Chapter 4 were presented in the form of three case studies, the discussion in Chapter 5 was arranged according to the sub-activity systems of Activity Theory, and this final chapter begins with the conclusions that arise from the discussion in the previous chapter and is organized according to the key themes. The chapter also provides some recommendations for the effective design of online courses. This is followed by methodological contributions of the study and a comprehensive definition of learner engagement. The latter part of the chapter includes limitations of this study and some potential directions for further research.

Key themes

The following section outlines the conclusions that arise from my research.

Learning support and language

One of the key mediators that affected students' engagement in the three case studies was the tools that were used to support learning. These tools included the educational technologies (virtual tools), the learning materials (material tools), the design of the course (conceptual tool) and the English language (psychological tool).

First, the virtual tools influenced the way students participated in learning activities. The affordances and constraints of the educational technologies used in the case studies indicated that while mediating students' participation in e-learning activities, the asynchronous and synchronous virtual tools served different purposes in these learning contexts. Asynchronous activities provided the learners with more time to reflect and make their contributions, whereas synchronous activities facilitated reciprocal communication where students could clarify issues and receive and provide instant feedback. With physical cues and other audio and visual impacts, the virtual classroom activity provided students an opportunity to build closer connections among participants and a sense of belonging to learning communities. However, due to unfamiliarity with the virtual classroom environment and lack of procedural, technical and operational knowledge, students were not relaxed when they were participating in the virtual classroom activity. Therefore, it can be concluded that students need multiple knowledges to be able to make best use of virtual classrooms.

It is vital to have easy access to learning materials in online courses (Savenye, Olina, & Niemczyk, 2001) and this was evident in my research. The material tools such as audio files, video clips, journal articles and screencasts mediated students' active participation. This was mainly because the resources (articles, instructions and videos) were embedded within texts and hyperlinks and this provided students with easy access to learning materials. On the other hand, the format of these learning materials also affected the way students participated in learning activities. For instance, when the Podcasts were recorded using different formats, students had trouble downloading them, and therefore students did not have easy access to them.

Also, the design and structure of courses affected students' engagement in this context. As a conceptual tool the design of the courses played a crucial role associated with students' experiences of learning online, and was influenced by lecturers' technological, pedagogical knowledge (TPK).

Language (English) which is considered a psychological as well as a cultural tool, also affected most of the non-native speakers' active participation in learning

activities in this context. This led the students to feel frustrated at times and affected their level of confidence. Therefore, it can be concluded that language as a psychological tool can inhibit students' active participation in activities.

Subject communities

The aspect of community is vital in facilitating collaborative learning in particular in tertiary learning contexts (Garrison, 2007). The members of a community can, by supporting each other, enhance learning outcomes and alleviate possible learner isolation in virtual learning environments (Palloff & Pratt, 2007). In the context of my study the development of an online learning community enhanced students' learning. Some deliberate strategies like creating spaces for communication both in general and in specific modules provided students with opportunities to work collaboratively, share ideas and useful information and learn from each other. These interactions also facilitated closer connections among students.

Based on the analysis, I conclude that deliberate efforts and strategies that facilitate online learning communities influence the way students participate in learning activities. If teachers provide necessary conditions, for example by including spaces (chat, sharing, Q&A), students can build these connections, scaffold and co-construct knowledge in online courses. Another conclusion that can be drawn is that teacher's presence in learning activities like discussion forum is valuable in the process of co-constructing knowledge and also in creating a sense of belonging to a learning community. However, it is important for teachers to be mindful not to dominate the activity i.e. discussion, but to probe and encourage students to consider alternative aspects that could delve deeper into issues discussed.

Learning activity rules

Explicit and implicit rules and guidelines of activities can constrain or liberate activities to varying degrees, as they provide students with guidance and procedures when engaging in activities (Engeström, 1993). The rules of learning

activities in all three case studies acted as a mediator and influenced the way students participated in activities. These rules and guidelines included the format of written or oral presentations, duration or length, level of formality, assessment criteria/marking guidelines and referencing guidelines. Therefore, this leads to the conclusion that in order to facilitate and enhance students' active participation in e-learning activities, clear rules and guidelines are necessary. These criteria/rubrics relevant to particular tasks must be clearly spelt out in the course outline in order to enhance participation.

Lecturers' Technological Pedagogical Knowledge (TPK) in designing online courses

Teachers' Technological Pedagogical Knowledge (TPK) plays an important role in how courses and learning activities are designed in online learning environments (Koehler & Mishra, 2009). In particular, understanding which tools and designs are appropriate and effective for particular activities enables teachers to develop effective teaching practice. Also, it is vital to understand the affordances and constraints of technological tools before integrating them in teaching. Teachers' limited TPK can influence the way they plan and execute learning activities. In conclusion, one lecturer's limited TPK influenced the way he designed the course and executed the SIQ online activity in the case of my study. Consequently, it affected students' active participation and also prevented them from having a positive online learning experience.

Contradictions in Roles and Classes

Contradictions can be characterized as conflicts, ruptures, disturbances and breakdowns (Engeström, 2001). Contradictions can be "the motive force of change and development" (Engeström & Miettinen, 1999, p. 9) if they are acknowledged or resolved. In the context of my research the contradictions occurred were related to participant roles and physical and virtual classes.

Participant Roles

As a result of not having specific roles for lecturers teaching the same course, students received contradictory information from different lecturers which made the students confused and frustrated. In addition, the students were not informed of the lecturers' special arrangement to get their assignments marked by an external party in the absence of one lecturer in this case and this made the students frustrated. In relation to student roles, pairing up students who have different levels of competencies (i. e language in this case) resulted in imbalanced student participation in activities and as a result a student was frustrated when she had to do the bulk of the work, but both students received the same grade. These frustrations were identified as contradictions that precluded students' full participation in activities. The main conclusion to be drawn from the contradictions identified in this study is that the lecturers' and students' roles inhibited students' active participation in learning activities.

Physical and virtual classes

Another contradiction occurred between online and face-to-face activities, which were not clearly delineated. When the face-to-face classroom activity was not based on the online activity (as was specified to be the intent in the course outline), students found that the linkage of face-to-face and online activities was missing. As a result, students found the virtual as well as physical classroom activities less useful. In conclusion, in mixed modes of delivery, clear and explicit relationships between the various modes are necessary in order to maximize student engagement in all the learning activities.

So, the key mediational factors that affect university students' engagement in e-learning activities are the virtual, material, conceptual and psychological tools that support learning. These different categories of tools are a unique contribution of this thesis. Other mediators that influenced students' engagement included subject communities, rules of learning activities, Lecturers' Technological Pedagogical Knowledge (TPK) in designing online courses and contradictions that occur within activities and between physical and virtual classrooms.

Recommendations

As a result of the analysis of this research, a number of effective pedagogical strategies in designing online courses became evident, and are suggested below. These strategies may help avoid some pitfalls that have been revealed in the research and consequently enhance students' active participation in e-learning activities. However, it should be noted that the context of my research was limited to one university and three subject domains in New Zealand. Thus, the findings may not be necessarily generalizable to other contexts. However, with the diverse case studies that include different students, lecturers, courses and range of technologies such as blended, fully online, synchronous and asynchronous, readers may be able to make links between the findings and their own practices.

- In terms of educational technologies, it is beneficial for students to have both synchronous and asynchronous activities in fully online courses. It may also be useful to have synchronous tools early on to both facilitate a sense of community and prepare students for later tasks assessed via such technologies. However, time zones may be an issue in this regard and if the learners are from different time zones, planning synchronous activities at a time that is suitable to all the participants can be a challenge. This also includes teachers spending time at night participating in learning activities. In addition, with synchronous activities, teachers may have to spend more time planning, organizing and assessing students' work, as often in online courses teachers need to communicate with learners and assess their work on an individual basis.

- The way course content and related resources (learning materials, guidelines/instructions, notes) are organized in online courses is another vital factor that can influence students' active participation in learning activities. Therefore, it is sensible for resources and materials to be logically ordered, perhaps by module, topic or week. For example, arranging the content and resources according to the topics/blocks and then relevant headings (e.g. Block: Communication, Heading: Notice board) so that students do not get confused by having to search in different

places for things. Also, by grouping regular communication spaces - such as Q&A, sharing spaces, social communication, personal introductions and notice board, confusions can be avoided. If hyperlinks to resources are used within tasks/texts, then student search time and potential confusion can also be reduced. Furthermore, if digital materials like podcasts are recorded in a commonly recognized format, downloading issues can be minimised.

- In terms of teachers' Technological Pedagogical Knowledge (TPK), it would be beneficial to have regular training sessions in institutions for the staff to upskill themselves in educational technologies as well understand the pedagogical purposes of using educational technologies in their courses. This will aid them in integrating appropriate technologies effectively in their courses which in return will benefit students. Institutions could also make these sessions compulsory to attend to make sure all the staff make best use of available educational technologies in order to provide a positive learning experience to students.

- Teacher's presence in learning activities like discussion forums is valuable in the process of co-constructing knowledge and also in creating a sense of belonging to a learning community. However, it is important for teachers to be mindful not to dominate the activity i.e. discussion, but to probe and encourage students to consider alternative aspects that could delve deeper into issues discussed.

- In order to avoid confusion and miscommunication, it is important for the lecturers to have their separate roles (i.e. one lecturer should be in charge of giving instructions specifically for assignments) when sharing the same course. In terms of students' roles, lecturers should be mindful not to pair up students who are at different competency levels related to specific tasks.

- In implementing e-learning activities in blended learning contexts, it is crucial to make sure that the linkage between the objectives of the virtual and physical classes are well established.

Methodological contributions of the research

Methodologically, this study adds to the growing body of work that uses Activity Theory as a research framework in educational contexts. Activity Theory provided a framework to guide data collection, analysis and interpretations of my study. The framework allowed me to recognize the total structure of each course and learning activities as activity systems and examine how different elements of activity systems influenced and affected each other in the three case studies.

It also provided me with a lens to identify the contradictions that emerged within and between activity systems in the case studies observed. The contradictions manifested themselves in the form of tensions and frustrations and affected students' engagement in learning activities. In addition, by using activity as the unit of analysis, I was able to encapsulate multiple perspectives about students' participation in learning activities at the individual as well as collective levels.

However, using Activity Theory as a research framework in my study was not without difficulties, mainly because of the confusing terminology. For example, in linguistic terms, *object* generally means a noun, noun phrase or pronoun that refers to a person or thing that is affected by the action of the verb in a sentence. In contrast, in Activity Theory the term object means a purpose or an objective of an activity. Therefore, to mitigate this issue in applying Activity Theory terminology I used terms that were appropriate in the context of my research. The original terminology, adapted terminology in the literature and the terminology used in my research were explained in the Methodology chapter of this thesis. The Activity Theory terminology used in my research may provide clearer understanding of the elements of activity systems in educational contexts.

Learner Engagement Definition

This study also offers a comprehensive definition for online learner engagement. My initial definition for leaner engagement was: *students' active participation in online learning activities*. However, after a thorough review of the literature and the findings from the analysis of the data, a more comprehensive definition has been developed.

In exploring the factors that affect students' engagement in e-learning activities in three online learning contexts, this research revealed how factors such as sense of belonging, collaborative ways of learning, interactions with the technology and content as well as social and academic connections with peers influenced their active participation in socio-cultural settings. These findings indicate that a more appropriate definition of online learner engagement is therefore:

Students' active participation in e-learning activities (i.e. discussion forums, virtual classroom and others) in achieving learning goals where students:

- feel a sense of belonging to a learning community
- use collaborative ways to co-construct knowledge
- interact with the content and technology, and
- maintain social and academic interactions with the peers and the lecturer

These facets can enhance students' learning experiences, and therefore lead to positive outcomes.

Limitations of the study

This study used a case study approach and the research context was limited to three subject domains in one university in New Zealand, so the findings are not necessarily generalizable to other contexts. However, with rich descriptions of the case studies provided in this research about the students, lecturers, courses as well as the range of technology—fully online, blended, synchronous and asynchronous, practitioners will be able to draw conclusions that resonate with their own practices.

By using Activity Theory as the research framework, this research examined the relationships between different elements in an activity system (for example, participants, community, tools) and also how they influenced each other. However, one limitation of Activity Theory in this case is that it does not account for the wider setting in which the activities are situated.

Directions for further research

Given that this research is an Activity Theory analysis of mediational factors that affected students' active participation in e-learning activities in three courses, further research could build on a macro-level analysis of the phenomenon. For example, using the third generation Activity Theory framework, researchers can explore factors that affect students' engagement in e-learning activities at program and university level where different activity systems have an impact on individual courses.

In addition, further research can be carried out by examining the history of activity systems and this may allow researchers to investigate inherent systemic contradictions that lead to tensions or conflicts within a course or program. With a critical theory approach, by making the participants aware of these tensions in activity systems and by offering suggestions researchers can help improve practices as part of resolution of conflicts. Also, researchers can observe how students build technical, procedural and other skills needed in learning with educational technologies over a longer period of time that can affect their participation in learning activities.

The data analysis of this study comprised individual interviews with students and lecturers, observation of learning activities and document analysis. While I considered observation of learning activities a primary method of data collection, the content of the subject area was not within the parameters of this research. A researcher who has the subject area knowledge could examine the content of discussion forums and other learning activities to explore what factors mediate students' engagement in relation to the subject matter.

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Appendices

Appendix A: Ethical approval

Dr Chris Eames

Centre for Science and Technology Education Research
School of Science & Engineering
Te Pūtaiao me te Mātauranga Pūkaha
The University of Waikato
Private Bag 3105
Hamilton, New Zealand

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THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

To: Dilani Gedera
Date: 3 Nov 2011
From: Dr Chris Eames
Subject: Ethics Sub-committee Report on Ethics Proposal

The Faculty of Science and Engineering Human Research ethics sub-committee has considered your proposal An Activity Theory analysis of mediational engagement with e-learning activities in tertiary level education in New Zealand

The proposal as attached is approved. If you wish to vary the terms of the approved application in any way, please contact me to request an amendment.

Good luck with your research!

Signed .....

Appendix B: Information and Consent letters

Information letter: Course Coordinator/HOD

Dilani Pahala Gedera
Centre for Science and Technology Education Research
The University of Waikato
Private Bag 3105
Hamilton 3240
New Zealand

16 January 2012

The Course Coordinator/HOD
Department of _____
Faculty of _____
The University of Waikato

Dear_____

Request for permission to observe _____

I am currently working on my PhD at the University of Waikato. The working title of my study is *An Activity Theory analysis of mediational engagement with e-learning activities in tertiary level education in New Zealand*. The aim of this research is to examine the factors that affect students' engagement with e-learning activities in tertiary level education in New Zealand. My study may benefit teachers, trainers and instructors as it aims to find out affordances and constraints of some of the existing e-learning tools in this context. The course coordinators and designers are also able to consider using the findings of this research in deciding on suitable technologies or learning management systems. This research has been approved by the Faculty of Science and Engineering Human Research Ethics Sub-committee of the University of Waikato. The outcome of my study will be presented as a PhD thesis, in academic journals and at academic

conferences. The completed PhD thesis will be made available on the internet by the University of Waikato. For this research, I would like to obtain your permission to approach the relevant instructor and observe the learning activities in _____.

I would like to see how students are engaged in e-learning activities and the affordances and constraints of the educational technologies used. In order to gain a thorough understanding of this, I would like to observe all forms of online interactions that take place in this course. For this, I would like to request to have synchronous and asynchronous guest access to e-learning activities. In case of a participant who has not given his/her consent is part of an activity, this student's contribution will be omitted and not included in my study.

I would also like to interview the instructor of the class twice face to face during this course (30-50 minutes each) to obtain their views on technology enhanced learning and the pedagogical purposes of utilizing these technologies for teaching. Apart from these, depending on the case study, face-to-face classroom observations (maximum up to 2) may take place as well.

In order to obtain demographic details of the students, I would like to send out the electronic version of a student profile questionnaire at the beginning of the course. And also with your permission, I will interview some of the students in the class to obtain their experience of participating in the learning activities. They will be interviewed twice during the course and with their permission, the interviews will be audio recorded. I will conduct these interviews before or after the class hours either face to face or via web conferencing facility based on their preference.
As the researcher, I assure you that the class will not be interrupted for any reason. The data will be coded when collected so, no identification will be revealed. At the end of the study, you will be sent a summary of the outcomes of this study.

If you wish to contact me directly for further clarification or any matters related to your participation in this research, please call me at 021-0514935 or e-mail me at dgp3@waikato.ac.nz. If there is a need, you may like to contact my chief

supervisor, Assoc. Prof. John Williams at the Centre for Science and Technology Education Research, The University of Waikato, Private Bag 3105, Hamilton 3240, New Zealand, you can email him at jwilliam@waikato.ac.nz or call him at 8384035.

If you agree to grant me permission to observe the course _____, please sign the consent form attached. I will then collect it from you.

Thank you

Yours faithfully

(Dilani Pahala Gedera)

Consent form: Coordinator/HOD

Title of Research: An Activity theory analysis of mediational engagement with e-learning activities in tertiary level education in New Zealand

Researcher: Dilani Pahala Gedera

I am currently working on my PhD at the University of Waikato. The aim of my research is to examine the factors that affect students' engagement with e-learning activities in tertiary level education in New Zealand. This research has been approved by the Faculty of Science and Engineering Human Research Ethics Sub-committee of The University of Waikato. I would like to obtain your permission to have access to e-learning activities in the course _____.

In order to obtain demographic details of the students, I would like to send out an online questionnaire at the beginning of the course. And I would also like to interview a maximum of 30% of the students in each course.
By granting permission to observe this course you can:

1. ask any questions regarding the research and clarify things at any time;

2. withdraw your consent at any time; however, if you withdraw your consent, instructors or the students of this case study will not be approached. In addition, the case study will no longer be used in this study.

3. contact my chief supervisor, Assoc. Prof. John Williams to get further clarification about the interview or the research at the Centre for Science and Technology Education Research, The University of Waikato, Private Bag 3105, Hamilton 3240, New Zealand, you can email him at jwilliam@waikato.ac.nz or call him at 8384035.

4. contact me directly at 021-0514935 or e-mail me at dgp3@waikato.ac.nz

I have read and understood the information letter and I would like to grant permission to observe this course.

Name of the coordinator/HOD: _____

Signature: _____ Date: _____

Researcher: _____Date:_____

Information letter: Instructor

Dilani Pahala Gedera
Centre for Science and Technology Education Research
The University of Waikato
Private Bag 3105
Hamilton 3240
New Zealand

16 January 2012

Department of _____
Faculty of _____
The University of Waikato

Dear _____

Request for permission to observe _____

I am currently working on my PhD at the University of Waikato. The working title of my study is *An Activity Theory analysis of mediational engagement with e-learning activities in tertiary level education in New Zealand*. The aim of this research is to examine the factors that affect students' engagement with e-learning activities in tertiary level education in New Zealand. My study may benefit teachers, trainers and instructors as it aims to find out affordances and constraints of some of the existing e-learning tools in this context. The course coordinators and designers are also able to consider using the findings of this research in deciding on suitable technologies or learning management systems. This research has been approved by the Faculty of Science and Engineering Human Research Ethics Sub-committee of The University of Waikato. The outcome of my study will be presented as a PhD thesis, in academic journals and at academic conferences. The completed PhD thesis will be made available on the internet by the University of Waikato.

For this research, I would like to observe the learning activities in _____. Based on the objectives of the study, I would like to see how students are engaged in e-learning activities and the affordances and constraints of the educational technologies used. In order to gain a thorough understanding of this, I would like to observe all forms of online interactions that take place in this course. For this I would like to request to have synchronous and asynchronous guest access to e-learning activities. In case of a participant who has not given his/her consent is part of an activity, this student's contribution will be omitted and not included in my study.

I would also like to interview you twice face to face during this course (30-50 minutes each) to obtain your views on technology enhanced learning and the pedagogical purposes of utilizing these technologies for teaching. Apart from these, depending on the case study, face to face classroom observations (maximum up to 2) may take place as well.

In order to obtain demographic details of the students, I would like to send out the electronic version of a student profile questionnaire at the beginning of the course. And also with your permission, I will interview some of the students in the class to obtain their experience of participating in the learning activities. They will be interviewed twice during the course and with their permission, the interviews will be audio recorded. I will conduct these interviews before or after the class hours either face to face or via web conferencing facility based on their preference. The transcribed interviews will be sent to you for verification.

As the researcher, I assure you that the class will not be interrupted for any reason. I am aware that all the students and the instructor have access to online posts and if they are reported verbatim, the posts can be identified. I am sensitive to this issue and I will not use data that may cause potential harm to the participants. I will ensure that the names of the research participants will not be revealed in the thesis as the data will be coded and the names will be removed completely. At the end of the study, you will be sent a summary of the outcomes of this study.

If you wish to contact me directly for further clarification or any matters related to your participation in this research, please call me at 021-0514935 or e-mail me at dgp3@waikato.ac.nz. If there is a need, you may like to contact my chief supervisor, Assoc. Prof. John Williams at the Centre for Science and Technology Education Research, The University of Waikato, Private Bag 3105, Hamilton 3240, New Zealand, you can email him at jwilliam@waikato.ac.nz or call him at 8384035.

If you agree to participate in this research study, please sign the consent form attached.

Thank you

Yours faithfully

(Dilani Pahala Gedera)

Consent form: Instructor

Title of Research: An Activity theory analysis of mediational engagement with e-learning activities in tertiary level education in New Zealand

Researcher: Dilani Pahala Gedera

I am currently working on my PhD at the University of Waikato. The aim of my research is to examine the factors that affect students' engagement with e-learning activities in tertiary level education in New Zealand. This research has been approved by the Faculty of Science and Engineering Human Research Ethics Sub-committee of The University of Waikato. For this research I would like to:

- Observe the students' engagement in e-learning activities and the affordances and constraints of the educational technologies used during _____ course.

- In order to obtain demographic details of the students, I would like to send out an online questionnaire at the beginning of the course. I would like to invite up to a maximum of 30% of the students in your class to participate in two interviews within the duration of the course.

- I would also like to interview you twice to obtain your views on teaching technologies, e-learning activities and learner engagement that take place in this course. The interview will take about 30-50 minutes and I would like to audio record them with your permission. The outline/ summary or full transcribed interview will be sent to you for verification.

By agreeing to participate in this research you can:

1. ask any questions regarding the research and clarify things at any time;

2. correct, edit or delete any parts of the transcript of the interview within two weeks after you receive the transcript;

3. have access to your data at any time;

4. withdraw your consent at any time; however, if you withdraw your consent from this study, students will not be approached and the case study will no longer be used in my study.

5. contact my chief supervisor, Assoc. Prof. John Williams to get further clarification about the interview or the research at the Centre for Science and Technology Education Research, The University of Waikato, Private Bag 3105, Hamilton 3240, New Zealand, you can email him at jwilliam@waikato.ac.nz or call him at 8384035.

6. contact me directly at 021-0514935 or e-mail me at dgp3@waikato.ac.nz

I have read and understood the information letter and agree to take part in the research study *An Activity theory analysis of mediational engagement with e-learning activities in tertiary level education in New Zealand.*

Name of the instructor: _____

Signature: _____ Date: _____

Researcher: _____Date:_____

Information Letter - Student

Dilani Pahala Gedera
Centre for Science and Technology Education Research
The University of Waikato
Private Bag 3105
Hamilton 3240
New Zealand
____February 2012

Dear student participant

Request for participation in research study

I am currently working on my PhD at the University of Waikato. The aim of my research is to examine the factors that affect students' engagement with e-learning activities in tertiary level education in New Zealand. This research has been approved by the ethics committee of Faculty of Science and Engineering Human Research Ethics Sub-committee, The University of Waikato. The outcome of this research will be presented as a PhD thesis, in academic journals and at academic conferences. The completed PhD thesis will be made available on the internet by the University of Waikato.

For this research, I would like to observe the learning activities in _____. Based on the objectives of the study, I would like to see how you participate in e-learning activities. I would also like to know what the educational technologies that are used in your course offer you and also what difficulties you face in using them. Participating in this research may provide you a better understanding of student participation, the difficulties you may face in e-learning activities and this may help you to engage in activities in an effective way.

In order to gain a thorough understanding of this, I would like to observe all forms of online interactions take place in this course. Depending on the case study, face

to face classroom observation may take place as well. As part of the study, I would like to ask you to complete an online questionnaire to collect some demographic information such as age, gender, computer skills and preferred educational technologies. To gain a deeper understanding of your experiences I would like to interview you twice during the course. These semi structured interviews will be conducted by me either face to face or via video conferencing facility, based on your preference. These interviews will be audio recorded with your permission. The transcribed interviews will be sent to you for verification. At the end of the study, you will be sent a summary of the outcomes of this study.

In agreeing to participate in this research you can:

1. ask any questions regarding the questionnaire, interview or research at any time;

2. remain anonymous as the data will be coded and names will be removed completely;

3. withdraw consent at any time; however, if a participant withdraws from my research, permission will be sought from him/her to use the data obtained from the individual up until that point. In case of a participant who has not given his/her consent is part of an activity, this student's contribution will be omitted and not included in my study. Participation in this research will be totally voluntary and will not affect you academically.

If you wish to contact me directly for further clarification, please call me at 021-0514935 or e-mail me at dgp3@waikato.ac.nz or, if there is a need, you may like to contact my chief supervisor, Assoc. Prof. John Williams at the Centre for Science and Technology Education Research, The University of Waikato, Private Bag 3105, Hamilton 3240, New Zealand, you can email him at jwilliam@waikato.ac.nz or call him at 8384035.

If you would like to participate in this research study, please read and sign the consent form attached.

Thank you

Yours faithfully

(Dilani Pahala Gedera)

Consent form: Student participants

Research Title: An Activity Theory analysis of mediational engagement with e-learning activities in tertiary level education in New Zealand

Researcher: Dilani Pahala Gedera

I am currently working on my PhD at the University of Waikato. The aim of my research is to examine the factors that affect students' engagement with e-learning activities in tertiary level education in New Zealand. This research has been approved by the Faculty of Science and Engineering Human Research Ethics Sub-committee, The University of Waikato.

If you agree to participate in this study, you will be requested to:

- Complete an online questionnaire at the beginning of the course. This will take up to 5 minutes to complete.

- Participate in two interviews which will take about 30-50 minutes each. I would like to audio record the interview and transcribe it in order to obtain a clear and accurate record of your views. The outline/summary/the full transcribed interview will be sent to you within two weeks after the interview for verification.

- Take part in online activity observations

The completed questionnaire and digital tracks of recorded interviews and the transcripts will be saved in my password protected personal computer. The data collected from online activities will be typed and saved in my password protected personal computer and the names will be removed completely. If any parts of online activity data are self-identifying, I will be careful not to report them word for word.

Only my supervisors and I will have access to raw data and information about this research and will not be shared with any other external parties for any

reason. The personal information and other data will be used only for academic purposes, for instance the data will be used for the PhD thesis, journal papers, and conference and seminar presentations. The data will be destroyed after five years.

You will be anonymous in this research; nobody will know that you have been interviewed. After collecting data, the names will be removed and the data will be coded. Therefore, you will not be able to be identified in any reference made in the research.

In agreeing to participate in this research you can:

1. refuse to answer any particular question, or terminate the interview at any time;

2. ask any questions about the interview or the research at any time;

3. correct, edit or delete any parts of the transcript of the interview within two weeks after you receive the transcript;

4. have access to your data at any time;

5. withdraw your consent at any time; however, if a participant withdraws from my research, permission will be sought from him/her to use the data obtained from the individual up until that point. In case of a participant who has not given his/her consent is part of an activity, this student's contribution will be omitted and not included in my study.

6. contact me directly at 021-0514935 or e-mail me at dgp3@waikato.ac.nz or if there is a need, you may like to contact my chief supervisor, Assoc. Prof. John Williams at the Centre for Science and Technology Education Research, The University of Waikato, Private Bag 3105, Hamilton 3240, New Zealand, you can email him at jwilliam@waikato.ac.nz or call him at 8384035.

I would like to:

complete the questionnaire for this study yes/no

take part in the interview yes/no

take part in online activity observation yes/no

Signature: Participant _____ Date_____

Signature: Researcher_____ Date _____

Please pass the signed form to your instructor.

Appendix C: Student Profile Questionnaire

I am currently working on my PhD at the University of Waikato. The aim of my research is to examine the factors that affect students' engagement with e-learning activities. This research has been approved by Faculty of Science and Engineering Human Research Ethics sub-committee, The University of Waikato. For this research, I would like to observe face to face/online learning activities in your paper.

As a student participant, all you need to do is to:

1. complete a survey (5 minutes)

2. participate in two interviews (30-50 minutes each) and with your permission, I would like to audio record the interviews.

In agreeing to participate in this research you can refuse to answer any particular question, or withdraw your consent at any time.

If I am unable to resolve any issues with participation in this research, please contact my chief supervisor, Assoc. Prof. John Williams at CSTER, The University of Waikato. His contact details are jwilliam@waikato.ac.nz and 07-8384035. If you have any queries, please email me at dgp3@waikato.ac.nz or call me at +64210514935.Thank you. Dilani

Please note that by completing this survey, you agree to participate in the survey and allow me to observe all forms of interactions going on while you are participating in online/face to face activities in your paper.

* Required

1. My area of study in this paper is *

- eEducation (From correspondence to eEducation)

- ○ Early Childhood Education
- ○ Applied Linguistics

2. I am a

- ○ Male
- ○ Female

3. Which country are you from? _____

4. Please provide your ethnicity (if applicable) e.g. Pakeha, Maori, Chinese _____

5. Which internet capable devices do you often use when you are studying? (you can choose more than one option)

- ☐ Desktop computer
- ☐ Laptop computer
- ☐ Tablet device (e.g. iPad, kindle)
- ☐ Smart phone
- ☐ Other: _____

6. How often do you use above mentioned devices for your studies?

- ○ Everyday more than 5 hours
- ○ Everyday 2-4 hours
- ○ Everyday less than 1 hour
- ○ Every week 3-5 times
- ○ Every week less than 3 times
- ○ Other _____

7. Where do you study via internet access OTHER than the university?

8. Which of the following have you used while studying previously? (You can choose more than one option or none)

- ☐ Discussion forum
- ☐ Video conferencing
- ☐ Blogs
- ☐ Panopto
- ☐ Podcasts
- ☐ Virtual classroom
- ☐ Google docs
- ☐ Other:

9. If you ticked at least one option above, how would you describe your learning experience?

10. I prefer to work

- ☐ on my own when I'm in face to face contexts (e.g. classroom)
- ☐ on my own when I'm online (e.g. virtual environment)
- ☐ in a group when I'm in face to face contexts
- ☐ in a group when I'm online

11. How do you expect online learning technologies to assist your learning in this paper (e.g. use of discussion forum, virtual classroom, blogs for learning)?

12. I think I am tech savvy and I enjoy using techy stuff generally.

	1	2	3	4	5	
Strongly agree	○	○	○	○	○	Strongly disagree

13. I am happy to be contacted for two short interviews. *

- ○ Yes
- ○ No

14. If you said yes to participate in the interviews, please provide your email address.

Appendix D: Interview Schedules

Lecturer

Interview 1: At the beginning of the course

Areas of discussion

- Your work experience, courses taught, technologies used, no of years of experience using teaching technologies etc.
- The paper objectives, nature of subject, teaching technologies to be used, and pedagogical purposes of using them
- Your objectives and goals/ what you hope students to achieve in this paper
- Your opinion about online teaching technologies, preferred teaching technologies
- Your participation in activities, student participation issues e.g. who doesn't contribute, strategies to urge them to participate, student grouping
- Difficulties students or you may face in carrying out activities
- Assessment criteria for activities, marks allocated or incentives given for participation

Interview 2: At the end of the course

Areas of discussion

- Your objectives and paper objectives (whether objectives were met)
- Overall difficulties you faced in carrying out activities in the paper
- Difficulties students faced in doing e-learning activities (difficulties with the activity, learning technology used, guidelines, or anything related)
- Your opinion about students' engagement (active participation) with e-learning activities in this paper
- Objectives of carrying out activity 1 & 2 (Note: This is based on two activities I observed in this paper)
- Factors that affected their engagement in (activity 1 & 2)
- Your opinion on teaching technologies used in this paper, affordances, likes and dislikes.
- Changes you would like to make or use another type of teaching technology if you were to enhance their engagement.
- Your overall experience teaching the paper using online teaching technologies.

Students

Interview 1: At the beginning of the course

Areas of discussion

- Your background, education, reasons for taking this paper
- Your objectives, prior knowledge about the subject
- Your preferred methods of learning e.g. lecture or activities, face to face or online
- Your preferred methods of communication, social networking sites
- Your opinion about learning with technology, advantages/disadvantages
- Your opinion about online learning technologies in this particular paper/ difficulties

Interview 2: At the end of the course

Areas of discussion

- Activity conducted in week (names of 2 activities), Description of the activity, nature of activity, rules or guidelines you had to follow.
- Difficulties faced, strategies used in doing (activities 1 & 2). Any help received.
- Your opinion on teacher's purpose of doing these 2 activities.
- How it would have been different if you did the activity on your own/in a group, did you feel a sense of belonging studying in this class?
- Your opinion about the appropriateness, likes and dislikes of online learning technologies used.
- Were you engaged in these e-learning activities reasons for engagement/disengagement
- Your objectives (whether your objectives met)
- Your overall learning experience with educational technologies