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**Developing an Online Learning Community:
A Strategy for Improving Lecturer and Student Learning Experiences**

A thesis
submitted in fulfilment of the requirements for the degree

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by

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University of Waikato

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***To my parents,
Gregory and Annie,
Who loved unconditionally.***

Abstract

Many researchers and practitioners are appealing for more innovative approaches where online lecturer use of technology is guided by a clear philosophy of learning to engage students in more meaningful learning. This research aimed to better understand teaching and learning in an online learning environment through the development and application of an appropriate pedagogical framework to facilitate successful learning experiences. To achieve this aim, a qualitative interpretive methodology was adopted to case study an online lecturer and his 14 students' experiences in a semester long fully online asynchronous graduate Research Methods course in a New Zealand tertiary institution. The study had three phases.

Phase 1, the Review Phase, was a baseline survey to elicit the views of various online lecturers and their students on the nature of online learning and how learning can be successfully facilitated in such environments. The findings and recommendations from the literature led to identifying five guiding principles to frame the development of a pedagogical intervention. The principles, which map onto five key sociocultural ideas, depict learning as a mediated, situated, distributed, goal-directed and participatory activity within a socially and culturally determined learning community.

Phase 2, the Designing the Intervention and Implementation Phase, concerned designing an intervention to facilitate student learning experiences. An emergent and iterative strategy, the negotiated intervention strategy, framed the collaborative design process used by the researcher to work with the case study lecturer. Teaching strategies supporting each of the guiding principles were shared with the lecturer, planned for and implemented in the case study course.

Phase 3, the Evaluation Phase, examined how successful the intervention was in terms of three planes of participant development: personal, interpersonal and community. The key findings from this research highlight successful online teaching and learning experiences as involving active and changing participation in a learning community. This participation is framed and shaped by the use of authentic and relevant tasks that situate activity; interaction and teamwork to tap

into cognition as distributed; goal-directed activities; and Web-based technological tools and activities to mediate action. Participation is realised through the kinds of roles members of the community adopt in support of intellectual, social and emotional development over time.

Overall, the findings confirm the value of a sociocultural approach in the design and facilitation of online learning experiences. 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. These ideas inform our understanding of appropriate conditions for successful teaching and learning and have important implications for guiding teaching-learning practices in online learning environments.

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I can do all things through Him who strengthens me (Philippians 4:13)

Publications Arising from This Thesis

The following peer-reviewed publications and presentations are based on the research and findings from this thesis:

1. **Khoo, E., Forret, M., & Cowie, B. (2009).** Developing an online learning community: A model for enhancing lecturer and student learning experiences. In Atkinson, R. J. & McBeath, C. (Eds.), *Same places, different spaces. Proceedings ascilite Auckland 2009* (26th Annual ascilite International Conference, Auckland, 6-9 December 2009) (pp.528-532). Auckland, New Zealand: The University of Auckland, Auckland University of Technology and Australasian Society for Computers in Learning in Tertiary Education (ascilite). <http://www.ascilite.org.au/conferences/auckland09/procs/khoo.pdf>
2. **Khoo, E., Forret, M., & Cowie, B. (2008).** *Online learning communities: A strategy for improving learning.* Paper presented at the Distance Education Association of New Zealand Conference 2008 (DEANZ 2008), 17-20 August 2008. Retrieved from the DEANZ 2008 Conference Web site: <http://www.deanz.org.nz/home/images/stories/conference/2008/khoo-etal-reviewedpaper.pdf>
3. **Khoo, E. (2006, January).** *The Negotiated Intervention Strategy: A case study on online teacher development.* Paper reviewed and presented at the International Conference on Distance and Collaborative E-Learning (DCEL), Kuala Lumpur, Malaysia.
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5. **Khoo, E., Forret, M. & Cowie, B. (2005).** *Teacher development in online teaching: A negotiated intervention strategy.* Paper presented at the Australasian Society for Computers in Learning in Tertiary Education Conference (ASCILITE 2005), 4-7 December. Retrieved from the ASCILITE 2005 Conference Web site: <http://www.deanz.org.nz/home/images/stories/conference/2008/khoo-etal-reviewedpaper.pdf>
6. **Khoo, E. G. L. (2005).** Extricating the Web of learning: The case for learning communities. In C.-K. Looi, D. Jonassen & M. Ikeda (Eds.), *Proceedings of the 13th International Conference on Computers in Education (ICCE2005)* (Towards Sustainable and Scalable Educational Innovations Informed by the Learning Sciences, Volume 133, Frontiers in Artificial Intelligence and Applications) (pp. 736-739). Amsterdam, The Netherlands: IOS Press.
7. Forret, M. & **Khoo, E. (2004).** Extricating the web of learning: Student views on effective Web-based learning environments. In K. Fernstrom (Ed.), *Readings in Technology in Education: The Proceedings of the 5th International Conference on Information Communication Technologies in Education (ICICTE)* (pp. 214-221). Athens, Greece: National and Kapodistrian University of Athens.
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9. **Khoo, E., Forret, M., & Cowie, B. (2003).** Extricating the Web of learning: Identifying the characteristics of effective learning environments In M. Barker, A. Campbell, R. Coll, B. Cowie, C. Eames, A. Jones, et al. (Eds.), *Science and Technology Education Papers-2003 (STERpapers 2003)* (pp. 93-107). Hamilton, New Zealand: Waikato Print, University of Waikato.
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Preface

Getting the kids hooked in for the graduate courses...I'm constantly racking my brain as to how to get them more involved and get more interaction going...Because it seems to me as though they are not necessarily engaging. I don't know whether the resources aren't catchy enough or whether there's nothing I can do, whether it's actually them in the sense of they just haven't got the time or they just don't see it worthwhile. I tear my hair out. I don't know what to do to change it and I don't have the time to change it which is probably part of it as well (Laura, lecturer interviewee, p. 21).

Online teaching and learning is hard work. For novices, it represents challenges ranging from the basics of grappling with the “switch on” button on the computer to actually trying to teach or learn productively and efficiently in the online environment. Though touted by the powers-that-be in institutions as the way forward and viewed as a panacea in higher education, translating online learning effectively to those who really matter - the learners and their teachers is a very different picture. The above quote from Laura succinctly highlights the challenge faced by online lecturers. If lecturers are at a loss as to how to wield the technology effectively, what more their students? What kind of quality learning experience can they expect and actually receive in their online courses?

My interest in how computers are used to facilitate the teaching-learning process began in an Education programme in the early 1990s in a Malaysian university. Eventually, when the Internet became accessible in Malaysia, my first thoughts as a young university tutor were, “Wow, how can we use it to make our teaching and students’ learning experiences more interesting and effective!” I became disillusioned when the early efforts and finances undertaken by the government and tertiary sector in general went into procuring more hardware and software and into sending educators by the droves to attend professional development workshops aimed at merely providing training in basic computer and Internet skills. There has to be more than this. How do I engage my students with this? I wasn’t satisfied with merely putting powerpoint slides of my lectures online for students to access. It was not evident in any of the professional development workshops how the technology could be translated and integrated into a classroom lesson or lecture more efficiently in order to engage students in effective learning experiences. As highlighted in Laura’s quote, the challenge in teaching using the Internet or online technologies involves more than just getting the technicalities

sorted. It alludes to a complex interplay of factors influencing good teaching be it in a face-to-face or online distance learning situation. The teacher's role in establishing the appropriate and conducive environment for learning becomes crucial. What is often highlighted is the ability of the technology to help students learn better, relegating the teacher's role second to that of the technology used. This is worrisome in the current mushrooming commercialisation of online distance learning programmes offered by educational institutions worldwide to reach pockets of students from traditionally less accessible backgrounds or geographical locations. There have also been troubling reports from distance learners' (and teachers) revealing the serious challenges faced in the online teaching-learning process. They result in a lack of motivation on the part of the online teacher and/ or learners, high dropout rates, tutor absence or lack of preparation, and lack of support when facing technical difficulties etc.

I embarked on this research project to better understand how to enhance and implement high quality learning experiences in online courses particularly for tertiary learners. This thesis documents my research journey and that of those who have collaborated with me at the University of Waikato without whom it would be impossible to understand the rich complex processes involved in online teaching and learning and the benefits derived from an online class that is well conducted. I am indebted to those who have chosen to work alongside with me. It has enriched me in many ways beyond my own expectations and, most importantly, given me insights into understanding how successful online learning experiences can occur and the nature and circumstances that give rise to them.

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Chapter 1

Introduction

E-learning is distinguished, in a paradigmatic sense, from what went before. It represents a new 'learning ecology'. This is not just another add-on, but a technology that is transforming our educational institutions and how we reconceptualise and experience teaching and learning (Garrison & Anderson, 2003, p. 122-123).

1.0 Introduction

This research arises out of my personal concerns for improving students' learning experiences in online learning environments at the tertiary level. This is in line with my observations that online classes are being designed with little consideration of sound pedagogical frameworks to underpin and guide the teaching and learning experiences in the online class.

To expound on this issue, this chapter outlines the background leading to the research and introduces the key ideas and research questions addressed in this study. Attention is given to the New Zealand context in which this study is situated. The chapter also discusses the scope of the research and provides an overview for the chapters in this thesis.

1.1 Background of the Research

The introduction of the Internet and online learning has generated much interest from educators and students keen to exploit its potential in distance education. The increasing popularity of online learning is a result of a merger between the fields of distance education, computer-mediated communication (CMC), and World Wide Web technologies (Porter, 1997). Although the general characteristics of distance education have remained the same over time, the way in which distance courses have been delivered has changed substantially with the development of new technologies. Distance education is observed to have evolved historically through four phases or generations (Rumble, 2001):

1. The *Correspondence* phase based on print technology;
2. The *Broadcasting* phase where radio and television were used extensively;
3. The *Multi-media* phase based on print as well as telecommunications

- technologies such as audio and video-conferencing; and,
4. The *World Wide Web* phase based on online delivery via the Internet.

At the same time three social changes have also been noted in distance education:

1. A growing acceptance of distance education, and its expansion;
2. A change of perception of distance learning, from low status to acceptance, with increased confidence as its methods are adopted across education as a whole; and,
3. The evolution from an essentially modernist form of education into a post-modernist phenomenon with a focus on the student as consumer, on flexibility and on global reach (adapted from Rumble, 2001).

Distance education in the form of online learning is becoming increasingly recognised and accepted as part of mainstream education (Rumble, 2001). Educators, policy makers, governments, researchers, and organisations are commending its merits in creating educational and training opportunities to develop the competitive edge in the Information Age and in making such opportunities more accessible to potential students, including those formerly excluded due to the confines of distance, space and time (Daniel, 1998). Furthermore, increasing affordability and pervasive use of information and communication technologies (ICTs) specifically, the Internet and Web-based technologies are driving the demand for distance education. These technologies, embedded with a variety of CMC and learning tools such as text, video, audio and communication resources, currently surpasses previous modes of distance learning by bringing the classroom to the regular desktop. They allow the rapid exchange of information implying that distance learning course materials can be continuously updated to incorporate current references to daily events in a much faster turnaround time compared to postal correspondence between a tutor and student (Mason & Kaye, 1990). The key contribution of current Web-based technologies lies in the tools for communication and interaction between the lecturer and student and between students and their peers; allowing the potential for a higher level of student engagement in the teaching and learning process and for more authentic learning resources and environment (Bonk & Dennen, 1999). These technologies facilitate education and training opportunities that go beyond the confines of a traditional classroom increasing the demand for open and

distance-based learning programmes (Dhanarajan, 2001). In response, four types of distance learning organisations have developed (American Federation of Teachers, 2001):

- Existing higher education institutions that have developed or are developing distance education programmes such as e-Cornell, NYU Online, the University of Illinois On-line, and the SUNY Learning Network;
- Corporate-university joint ventures, including those that provide course management systems such as Blackboard, Campus Pipeline, eCollege, as well as those that package and distribute courses or content from existing institutions such as UNext.com, Global Education Network and Universitas 21;
- Full virtual universities such as the University of Phoenix Online, Western Governors University, University of the Arctic, Canada's Athabasca University, the UK's Open University, South Africa's UNISA, India's Indira Gandhi Open University and Japan's University of the Air; and,
- Corporate university or training institutions such as the Corporate University Xchange and Click2learn.

Other initiatives include the formation of international educational consortia, as well as mega-universities spanning national boundaries (Bonk, Cummings, Hara, Fischler, & Lee, 2000). Such institutions are forcing traditional universities to compete for students by re-examining their practices in order to provide higher quality standards in teaching-learning and research (Trindade, Carmo, & Bidarra, 2000).

Allen and Seaman (2007) observed three trends in the demand for online courses in the United States: the number of online students have more than doubled from 1.6 million students taking at least one online course in 2002 to the 3.48 million in 2006, online course enrollments have overtaken the rate of growth of the total higher education student population as indicated by the 9.7% growth rate for online enrollments compared to the mere 1.5% growth of the overall higher education student population, and finally, nearly 20% of all higher education students have taken at least one online course in 2006. Such important advances in ICTs, Web-based technologies and societal expectations are fuelling the demands for a new form of education; one that is affordable, efficient, easily accessible,

open, flexible, well-designed, and based on learner-centred learning environments (Khan, 2000; Mason, 2003).

Over this period, there has been a pedagogical shift, in both face-to-face and distance contexts from transmissive to constructivist approaches in teaching using CMC tools (Rumble, 2001). As such, while many are enthusiastic and convinced of the educational potential of the Web, there are others who question the quality of teaching and learning in such learning environments and are demanding evidence of the effectiveness of such initiatives in engaging students in deeper and more meaningful learning processes. Tertiary institutions are still observed to be adopting a technicist approach and slow to respond to the development of online courses guided by sound pedagogical frameworks to ensure quality learning experiences and outcomes are not compromised. Brown and Duguid (1996), for instance, describe universities as “schizophrenic combinations of high-powered computational infrastructure and highly conventional institutional practices” (p. 11). Teaching is still very much transmissive, student learning passive, and knowledge viewed as a commodity to be delivered to students. Oliver and Herrington (2000) warn that if opportunity, competition and efficiency rather than pedagogical imperatives drive the introduction of ICTs in education then new learning technologies are likely to be simply added to the existing list of available resources and used in superficial ways akin to the notion of *gift-wrapping* (Fischer, 2003). In this case, traditional content is simply delivered using a new medium. Lai (1997) notes this will only result in superficial skills such as *electronic page turning* and information transmission amongst students rather than any hoped for changes. In addition, studies have confirmed that simply providing students with access to the Internet is no guarantee that worthwhile learning will take place (Collins, Neville, & Bielaczyc, 2000; Swan, 2001). The Internet is but a tool, a vehicle for a teaching and learning to take place. Lecturers therefore need to consider how the technology itself can best be integrated into their teaching and learning repertoire to engage students in deeper and more meaningful teaching and learning process and outcomes.

There is research of lecturers eager to adopt new technologies, or perhaps coerced into using new technologies, but whose adoption is superficial and technicist rather than effecting meaningful change in either the teaching or learning (Brown,

2001; Nitza, 2007; Perkins, 1985). A seminal study by Mioduser, Nachmias, Lahav and Oren (2000) evaluated teaching practices of 486 educational web sites to confirm the prevalence of ineffective, out-dated pedagogy in online courses. Of the online courses sampled in their study, only 5% provided students with opportunities for problem solving, only 4.6% provided opportunities for creation and invention, while 42% involved rote memorisation and another 52.5% were concerned with information retrieval. Mioduser et al.'s study highlighted the fact that online learning was driven more by a technicist approach than by effective learning theories or consideration of student needs. In another study, Bonk (2001) surveyed online lecturers in the United States who had shared their online teaching materials in repositories such as the World Lecture Hall or the Multimedia Educational Resource for Learning and Online Teaching (MERLOT.org). He found that only 23% to 45% of these lecturers adopted online activities related to critical and creative thinking, hands-on performances, interactive labs, data analysis and scientific simulations, even though 40% had acknowledged the importance of such activities in online learning environments. This revealed a gap between lecturers' preferred and actual online pedagogical practices due to a lack of consideration for a pedagogical framework appropriate to achieving the learning goals in the class. Current studies in online learning only marginally address the pedagogical aspects of the online learning environment, opting instead to focus on issues such as satisfaction, compensation, ownership, course load and job security (Bonk & Dennen, 2003). This dearth of focus on pedagogical frameworks in online learning led Mioduser et al. (2000) to conclude, "For every one step ahead for technology there are two steps back for the pedagogy" (p. 73). Cuellar (2002) aptly pointed out that, "resources for lecturers on the technological how-to's of web-based course development are readily available, however what is lacking is the pedagogy, or the 'art of teaching' in web-based courses" (p. 5). As can be seen from the above examples, there is a resounding call in the literature for a focus on the pedagogical philosophies when adopting technologies to improve learning (see also Bonk & Cummings, 1998; Collis, 1997; Forsyth, 1998; Hiltz, Coppola, Rotter, Turoff, & Benbunan-Fich, 2000; Jonassen, 1996; Khan, 2000). Successful online learning environments need to address a complex interplay of social, psychological and emotional factors that are quite different from face-to-face situations (Berge, 2000; Bonk & Dennen, 1999; Collis, 1997; Davis & Denning, 2001; Mason, 2001; Oliver & Herrington,

2000; Palloff & Pratt, 1999). Successful online learning is not simply the transfer of traditional teaching methods into the online setting, as recognised in the quote that introduces this chapter.

This section then has highlighted concerns regarding online teaching and learning practices that are driven more by the technology rather than a careful consideration of the pedagogy and students' needs. Such a technicist approach can result in the superficial adoption of technologies rather than effecting meaningful change in either the teaching or learning. This research sets out to address the call and gap identified in the literature and to explore and better understand online teaching and learning in a New Zealand tertiary institution. A brief description of the development of online learning in the New Zealand tertiary sector is, therefore, warranted before addressing the research aims.

1.1.1 Online Learning in the Tertiary (Higher Education) Sector in New Zealand

New Zealand, an archipelago located in the south west corner of the Pacific Ocean, is a long and narrow country consisting of two main islands with a total land area of 26.9 million hectares. It is approximately the same size as Japan or the British Isles (Ministry of Agriculture and Forestry, 2008, ¶ 1). It, however, only has a population of 4 million people: 15% are *Maori* (indigenous Polynesian inhabitants), 74% are of European descent (or *Pakeha*) with other significant ethnic groups such as Indians, Chinese and Pacific Islanders (Statistics New Zealand, 2008, p. 1, 14). Although Maoris are well outnumbered by Pakehas, both Maori and Pakeha cultural views remain significant and underpin many aspects of New Zealanders' way of life.

Despite being an isolated country geographically, New Zealand's isolation has been minimised to an extent through the adoption of a range of Web-based technologies (Campbell, 2004). Since 1999, New Zealand has consistently been among the top 10 Organisation for Economic Co-operation and Development (OECD) 30 member countries in terms of the number of Internet Service Provider (ISP) accounts, Internet hosts, domain name registrations and secure servers per head of population (Howell & Obren, 2003). The percentage of people with Internet access from any location in New Zealand increased steadily from 22.2%

in 2000 (UMR Research, 2007, ¶ 4) to 72.3% in 2006 placing New Zealand in 10th position out of the 30 countries in the OECD (Statistics New Zealand, 2007, p. 162). A growing trend for Internet use in distance education in the New Zealand tertiary sector is also observed.

The public tertiary education sector in New Zealand is currently composed of eight universities (all universities in New Zealand are public universities), 20 polytechnics/institutes of technology, and three *wananga* (Maori learning institutions) (Ministry of Education [MoE], 2008). Of these, the universities are becoming increasingly accessible to students. For example, there has been an increase in the number of students from 128,981 in 1994 to a total of 156,797 students in 2002 (MoE, 2002). From these figures, the percentage of students enrolled in post-graduate degrees constitutes 7.8%, and 37.3% for undergraduate degree respectively in public institutions in 2002. Interestingly the percentage of students aged under 25 was 47.2% in 1999 but decreased to 42.0% in 2002, while the percentage of students considered as mature students (25 years and above) was 52.8% in 1999 but increased to 58% in 2002. The percentage of part time students attending courses in public institutions also increased from 48.2% in 1999 to 52% in 2001 to 48.4% in 2002 (partly due to a change in the classification of full and part time students in 2002). These indicators portray the demand for increasing access to university education and academic and training opportunities, a changing student population with a rising number of mature students and an increasing interest among those pursuing part time studies; all of which drive the demand for online distance teaching and learning programmes. Although newly introduced in the last decade, online distance learning efforts at the tertiary and schooling level are already gaining impetus through the positive responses from key distance learning institutions such as Massey University, the Open Polytechnic of New Zealand and the New Zealand Correspondence School (Bewley, 2004).

Governmental support for online teaching and learning initiatives ensures New Zealand does not lag behind in this Information Age. The New Zealand MoE provides strategic direction for such initiatives and has centrally funded a series of e-learning projects. The adoption of online learning or e-learning in the tertiary sector was “to facilitate tertiary education providers working in partnership to

develop e-learning, to improve access to tertiary education, and to ensure that New Zealand continues to be internationally competitive in e-learning” (MoE, nd-d, ¶ 5). In 2001, the Ministry established the E-Learning Advisory Group (ELAG) to consider the opportunities for integrating e-learning capability into the tertiary education sector. Three ELAG recommendations included: the establishment of the e-Learning Collaborative Development Fund (eCDF) involving the investment of ¹\$NZ28 million dollars; the launch of an electronic portal to support tertiary level online learning efforts in New Zealand; and the establishment of an e-learning leadership centre through funding a consortium of tertiary education providers to coordinate the development of e-learning research within the tertiary education sector and manage both the portal and the eCDF (E-LAG, 2002, p. 8). The eCDF was accessible through contestable funding from 2003 to 2007 “to improve the tertiary education system’s capability to deliver online learning that improves education access and quality for learners” and “to help achieve the co-operative and strategic implementation of e-learning in tertiary education organizations” (MoE, nd-a, ¶ 1). Further funds were allocated to the Tertiary e-Learning Research fund (TeLRF) for “research into tertiary e-learning in New Zealand in order to provide a more comprehensive context and framework to inform strategic investment and decision making around e-learning for tertiary education organisations” (MoE, nd-c, ¶ 1). Additionally, the proposed consortium, E-Learnz, was established with membership from nine tertiary education providers to develop a centre of excellence in e-Learning in New Zealand. E-Learnz has already started on projects to develop and promote collaboration in e-Learning across the country (E-Learnz, 2003, ¶ 14). In 2004, ELearn (the tertiary e-learning portal) was created to facilitate the development of an online community of practice to share e-learning information in New Zealand (MoE, nd-b, ¶ 1). A document titled *Taking the Next Step* outlined the government’s vision for “a networked, flexible education system offering accessible, relevant and high-quality learning opportunities to all New Zealanders” through the Interim Tertiary e-Learning Framework (MoE, 2004, p.6). Figure 1.1 summarises the government’s vision, five guiding principles and seven key action areas.

¹ The exchange rate for the New Zealand Dollar to the American Dollar is \$NZ1.00 = \$US0.57.

The Interim Tertiary e-Learning Framework

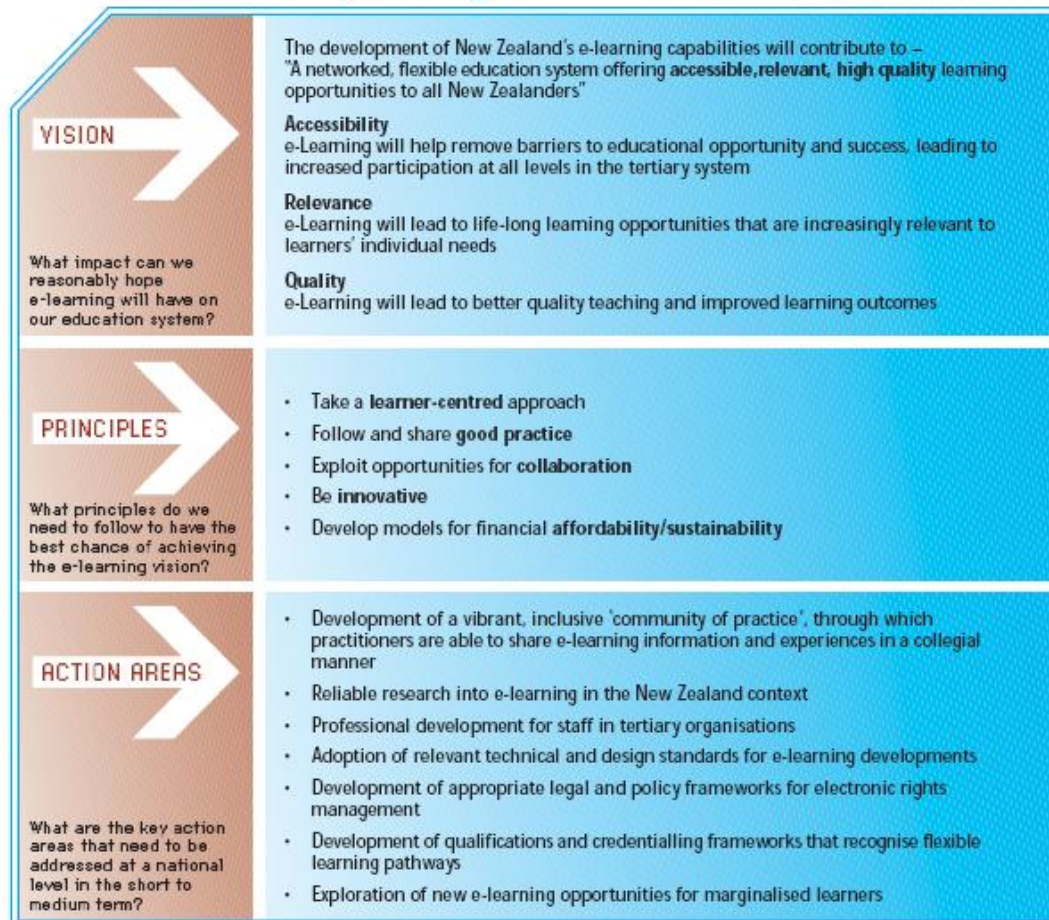


Figure 1.1. New Zealand Interim Tertiary E-Learning Framework²

The framework highlights how e-learning efforts in New Zealand need to be guided by five key principles: adopt a learner-centred approach, follow and share good practice, exploit opportunities for collaboration, explore innovative and creative ways of using e-learning and be based on financially affordable or sustainable models. These are translated into seven action areas. An action area of interest for this research includes 'reliable research into e-learning in the New Zealand context' (see Figure 1.1). This focus highlights New Zealand's distinctive identity and the need for e-learning to be relevant to the New Zealand context (Milne & Suddaby, 2005). Several of New Zealand's unique qualities for consideration when developing an online learning environment include a focus on learner-centred teaching, a long history of a mix of campus-based and distance

²From *Interim Tertiary E-learning Framework* by Ministry of Education, 2004, Wellington, New Zealand: Ministry of Education. Copyright 2004 by Ministry of Education. Reprinted with permission.

education, striving to be a bicultural nation, and being a geographically remote country with a highly respected education system and open to new ideas and experiences (ELAG, 2002, p. 16). Furthermore, with public and political pressure for provisions to be made for distance learners' needs including concerns for learner support and reducing student isolation, flexibility in learner entrance into formal educational institutions (Bewley, 1996; Higgins, 1998), and attention to quiet innovations in teaching style and emphasis on teacher support (Campbell, 2004), New Zealand's distance education strives to "evolve its own worthwhile and well respected national character" (Bewley, 2004, p. 23). The Interim Tertiary e-Learning Framework, supported by the government's Tertiary Education Strategy 2002-2007 and the Tertiary Information Strategy (MoE, 2004), provides a useful reference for online learning practice in the tertiary sector. It is intended to be subsumed by an integrated online learning strategy encompassing all levels of schooling in the future. The keen governmental interest has resulted in the establishment of a set of e-learning quality guidelines for the New Zealand tertiary sector (Milne & Suddaby, 2005). These guidelines provide support for lecturers and students and inform lecturers, managers, resource persons interested in online learning of good teaching practice, assistance in the design of learning and provide an evaluation framework to evaluate the quality of online learning materials. Overall, these initiatives highlight the strategic importance of online learning to the entire New Zealand education sector.

In line with government support for online learning initiatives in New Zealand, online distance teaching and learning research literature in New Zealand during the period of 1998-2003 has risen according to Baker, Ferguson, Roberts and Fielden (2003) who surveyed 40 research papers. Their survey revealed the dominance of qualitative case studies in most subject domains and a growing use of constructivist epistemology and approach in online learning research and practice. They recommend a more focused and strategic research direction at the institutional and national levels, a broader research database to promote collaboration among New Zealand tertiary institutions and for research targeting the sociocultural and learning differences of students studying in the New Zealand online learning context. These findings support Marshall's (2005) survey findings of e-learning capability within New Zealand tertiary institutions highlighting the need for broader institutional systems and processes supportive of effective e-

learning adoption and implementation. Finally, Hegarty et al. (2005) examined the role of staff development in adopting online learning and its impact on efficacy and working practice to conclude that most professional development activity for online learning adoption was “not adequate to assist staff to fully develop their capability and potential for e-learning as they were mainly providing a beginning competency” (p. 2). They recommended a multi-faceted approach to online learning adoption that included funding, academic time release for development, and using a team approach to course development. These studies indicate that although some progress has been made in adopting and incorporating online learning at the tertiary level, the New Zealand tertiary sector can still benefit from a more informed understanding of successful online learning practices and experiences.

The next section describes online learning initiatives undertaken at one of the eight public universities in New Zealand, the University of Waikato, which also provides the context for this research.

1.1.2 Online Learning at the University of Waikato, New Zealand

Established in 1964, the University of Waikato is one of New Zealand’s eight public universities. Instituting electronic education or eEducation is one of the key objectives in its University Strategic Plan. In 1997, the university first introduced its online supplemented courses (a combination of both face-to-face and online approaches) for teacher education at the School of Education. Known as the Mixed Media programme [MMP], it was the first of its kind in primary teacher education in New Zealand. The MMP programme provided the basis and impetus for the development of other online courses at the university and expanded the early initiative to steadily encompass fully online courses offered by other schools and faculty at the university.

To continue facilitating this vision, a specialised centre, the Waikato Innovation Centre for Electronic Education (WICeD) was established in January 2001 to primarily enhance the quality of teaching-learning in electronic or online education and foster the expansion of such opportunities at the University. All online courses are offered over the Internet using the *ClassForum* platform (previously *Top Class*) developed and maintained by WICeD. The University’s

seriousness in pursuing its vision of quality online teaching and learning is reflected in the increasing effort to better understand and advance research and development in areas such as online pedagogy, administration, management, and technical expertise (Campbell, 1997; Campbell, Yates, & McGee, 1998, 2001; Donaghy & McGee, 2003; Donaghy, McGee, Ussher, & Yates, 2003; McGee & Yates, 2000; Taylor & Biddulph, 1999, 2000).

Acting in response to enhancing quality in distance learning is one of the University's graduate centres; the Centre for Science and Technology Education Research (CSTER), which provides the specific context for this research (see Chapter 8 for further details).

1.2 Research Aim and Questions

The general literature indicates intensifying efforts and initiatives in online distance learning by tertiary institutions and lecturers to provide and access educational and training opportunities in a convenient and flexible manner. As discussed earlier, this process is driven more by a technicist approach rather than the integration of a systematic pedagogical framework to engage students in deeper and more meaningful learning processes. This research is conducted in response to these concerns. It aims to better understand teaching and learning in an online learning environment through the development and application of an appropriate pedagogical framework to facilitate successful learning experiences. In the study, a pedagogical framework is taken to encompass teaching-learning strategies developed from a sound view of learning. Such a framework needs to be appropriate to the research context in order to meet the teaching and learning needs of the particular lecturers and students. Additionally, in this study, successful learning experiences refer to experiences which engage online class participants in deeper and meaningful learning processes and understandings.

In order to achieve this aim, the following research objectives are considered:

1. To identify a suitable pedagogical framework to guide the development and implementation of an intervention for improving student learning experiences in an online course. This is achieved by obtaining a better understanding of the nature of online learning and strategies to effectively

facilitate students' learning experiences from the views of online lecturers and their students;

2. To develop an appropriate intervention to improve the teaching and learning experiences in an online course based on the findings from the first objective; and,
3. To assess the usefulness of the intervention from the online lecturer's and students' perspectives.

These aims can be translated into the following two main research questions and their corresponding underpinning questions:

1. What is the nature of online learning?
 - a. How can students' learning be facilitated in online learning environments? and,
 - b. What view(s) of learning can better inform us about the design of successful online teaching and learning practices?

2. How were pedagogical strategies designed to complement a particular view of learning, helpful in facilitating the teaching and learning in an online graduate Research Methods course?
 - a. To what extent do the findings support the efficacy of the view of learning proposed?

1.3 Scope of the Research

Some limitations to the scope of this research exist. They are discussed in terms of the key terms adopted and the research strategy and approach used for investigating online learning in this research.

Many terms have been proposed to describe online learning. They include e-learning, Web-based learning, Web-based instruction, Web-based training, Internet-based training, distributed learning, advanced distributed learning, distance learning, distance teaching, mobile learning or nomadic learning, remote learning, off-site learning, CMC, asynchronous learning network (ALN), electronic conferencing, flexible learning, tele-learning or tele-computing, virtual classroom and remote classroom teaching. All of these imply the use of the Internet in open, and flexible and distributed teaching-learning activities. For the purposes of this research, the term *online learning* is used to describe formal

teaching and learning activities using the Internet and the World Wide Web (Web) to support teaching and learning (Daugherty & Funke, 1998).

Many formats on how online learning can be incorporated into an online course also exist. For example, Bonk et al. (2000) proposed a 10 level continuum to denote the different ways the Web can be incorporated into a course. Levels 1 to 5 refer to informational uses of the Web, for example, to advertise an online course or to share course resources and prior work with potential students. However, Levels 6 to 10 involves the compulsory use of the Web for accomplishing graded assessments of an online course or programme. Lai, Pratt and Grant (2003) also reported that the Web can be integrated in three ways to support online learning: *Web-supported* learning where student web access is voluntary, *Web-enhanced* learning where student access and participation is likely to contribute to their learning and *Web-based* learning where full access and participation online is compulsory. For the purposes of this research, Lai et al.'s (2003) characterisation of Web-based learning is adopted to investigate the development and implementation of a pedagogical framework in a fully asynchronous online course. The term asynchronous refers to online learning interactions that are Web-based and self-paced occurring at any time between participants located at any place, whereas synchronous refers to Web-based interactions occurring simultaneously in real time between participants located at any place.

Additionally, this research adopts a qualitative case study approach in investigating online learning in a one semester Masters level course in the Research Methods subject domain at a particular tertiary institution in New Zealand. This course is jointly offered through CSTER and the School of Education at the University of Waikato. The present study is not intended to produce generalisable results applicable to online courses taught in other subject areas or at other tertiary institutions; instead, it sought to provide an in-depth examination of the development and implementation of a pedagogical framework to improve students' online learning experiences. It is expected that other researchers, educators and policy makers will be able to learn from the lessons gleaned from this research and apply them appropriately to their own context of interest.

Additionally, some potential pedagogical frameworks and approaches could be identified from the general literature to guide the development and implementation of online learning experiences in this study. However, this research is particularly concerned with frameworks that acknowledge the social and cultural aspects of researching educational issues in the New Zealand context. This approach addresses the ELAG's (2002) and New Zealand Ministry of Education's regard for New Zealand's unique qualities when developing online learning environments and recognises caution about undue application of educational findings from international forums in the New Zealand educational context:

The international [educational] research provides a substantial resource...but, when using international research, New Zealand educators and policy-developers need to know if what the evidence indicates works in other countries would apply in the New Zealand context, given regulatory, policy, institutional, cultural, language, professional and other contextual differences (Alton-Lee, 2004, p. 1).

This research hopes to contribute to gaps in understanding how such a consideration can assist in identifying a pedagogical framework relevant and appropriate for this research's aim and context.

It is further hoped that the research outcomes can inform the University of Waikato specifically, and other institutions and educators in general, to play a more strategic and responsible role in the development and implementation of online distance education.

1.4 Thesis Overview

This thesis is organised into 10 chapters. The next three chapters examine the literature on online learning. Chapter 2 is theory-based and surveys the different views of learning useful to understanding how technology-based and online classrooms can be designed, organised and evaluated. It makes the case for the value of the sociocultural approach in understanding learning in online learning environments. Chapters 3 and 4 are research-based literature reviews of the field.

Chapter 3 revisits the themes introduced in Chapter 2 regarding successful learning experiences based on sociocultural ideas to further consider the complex interplay of technology, lecturers and learners in online learning environments. The chapter concludes by affirming the theoretical position for this thesis. Chapter 4 argues for the notion of online learning communities as an embodiment of key sociocultural ideas in facilitating successful online learning within this research's context. Attention is also given to describing the nature of a specific community of practice concerned with the teaching-and-learning of Research Methods as the unique context for this research. Chapter 5 considers the research methodology, research design and data collection methods adopted in the study. Issues related to maintaining the research's quality and ethical considerations are discussed including an explanation of how the data was analysed. Chapter 6 provides the results and discussion from the first phase of the research based on lecturers' and students' perspectives on successful online teaching-learning practices at the University of Waikato. These results are distilled in Chapter 7 to provide a set of guiding principles which affirm the usefulness of the sociocultural position adopted in this research for facilitating successful online learning experiences appropriate for this research's context. This informs the design of the intervention in the subsequent phase of the research. Chapter 8 details the second phase of the research through the use of the negotiated intervention strategy to develop an intervention to improve the teaching-learning experiences in an online graduate Research Methods course. The last phase of the research, which evaluates the impact of the intervention, is reported in Chapter 9. Finally, the discussion and conclusions based on the research findings are drawn in Chapter 10.

1.5 Summary

The above discussion provides a background of the research, which includes the current trends in tertiary education and the contribution of Web-based technologies to fuel these trends. It further situates the study in the context of a New Zealand tertiary institution and details the research aim, questions and scope of the research.

The next chapter reviews the developing theoretical perspectives adopted in online learning environments.

Chapter 2

Perspectives on Learning

2.0 Introduction

The previous chapter highlights this research's general intention to contribute towards a better understanding of successful online learning experiences. This chapter provides a theoretical orientation for understanding how learning occurs by considering five different views of learning to feature their contributions and limitations (Sections 2.1 to 2.5). Each view importantly implies the different ways technology-based class activities can be designed, organised and evaluated. Emphasis is given, in each view, to illustrating important pedagogical ideas and implications for online learning environments. A case is made for the value of sociocultural approaches in understanding learning in online learning environments.

2.1 Behaviourism

Early computer learning systems and online learning programmes were based on the Behaviourist approach to learning. Behaviourism, an individualistic conception of learning, was concerned with overt behaviour that can be scientifically observed and measured. The mind and *inner processes* of behaving organisms were considered a *black box* and denied any role in learning (Skinner, 1974). Learning is seen as a pure behavioural stimulus-response relationship based on conditioning (Motschnig-Pitrik & Holzinger, 2002) and promoted mainly through the manipulation of the external environment (Barker, 2008). Behaviourism based its fundamental ideas from studies on animals in controlled lab settings. It sought to identify general laws of learning applicable to all higher order species (Woolfolk, 1998).

The key proponents in Behaviourism were Thorndike (1913), Pavlov (1927) and Skinner (1974) (Ally, 2008). Ivan Pavlov, a Russian physiologist first described the ideas in classical conditioning and was interested in the learning of involuntary emotional or physiological response (automatic responses to stimuli) such as increased heartbeat, salivation, sweating and so forth. Famous for his

experiment on training a dog to salivate in response to the sound of a bell. Pavlov importantly showed how a neutral stimulus (sound of a bell) became a conditioned stimulus through the pairing to an unconditioned stimulus (food such as meat/ meat powder). Pavlov called this learned association the *conditioned response*. He further demonstrated how learning is indicated through concepts such as *generalisation*, *discrimination* and *extinction*. His work was criticised however for failing to account for human operant (goal-directed) behaviours.

In line with the tradition of scientifically measuring observable behaviour, John Watson was the first to coin the term Behaviourism and established the psychological school of behaviourism to focus the research on animal behaviour using the stimulus-response mechanism. He is known for claiming he could mould any 12 healthy infants using behavioural techniques into any kind of persons he wanted. He importantly introduced key concepts such as *frequency* and *recency* in behaviour training. Other behaviourists promoted the ideas in operant conditioning. Edward Thorndike, for example, experimented with cats in problem boxes. The cats learn to escape, more rapidly after each successive attempt, from the boxes to be rewarded with food (the reinforcer). Thorndike demonstrated behavioural learning as a process of *trial and error* and that reward (or reinforcement) can strengthen the correct responses (Mowrer & Klein, 1989).

B.F. Skinner, on the other hand, experimented with pigeons and rats to study learning through associating consequences and behaviour. His 'Skinner box' isolated and described behaviour that acted upon the environment to show how a desired behaviour can be formed through scheduled reinforcement (Barker, 2008). His key ideas of *schedules of reinforcement*, *punishment* and *rewards*, as strategies to shaping a particular behaviour (Mowrer & Klein, 1989), have pervasive effects even in current education, training, and clinical settings.

From a Behaviourist perspective, learning is viewed as strengthening the stimulus-response association where the teacher is the dispenser of reward and punishments with the student as recipient (Mayer, 2003). Some applications of Behaviourist ideas include behaviour modification programmes; instructional design where learning is defined by specific objectives and analyses of tasks to achieve; improving performance in organisational systems through meticulous

planning, carrying out the objectives and evaluation; managing learning and behaviour in the classroom through the use of tokens, instructional objectives, mastery learning, direct instruction, prescriptive principles, contingency contracts, personalised systems of instruction, positive and negative reinforcement, praise, punishment, chocolate fish, rewards, management, control, assertive discipline, logical consequences, and so forth (Barker, 2008; Driscoll, 2000; Schunk, 2008; Woolfolk, 1998).

Weaknesses with Behaviourist principles, however, include (Lachman, Lachman, & Butterfield, 1979; Mayer, 2003; Schunk, 1991):

- Its emphasis on lower-order skills such as rote memorisation could not account for the teaching of higher thinking skills involving synthesis and evaluation or those that require a greater depth of processing (e.g., language development, problem solving, inference generating, critical thinking);
- Its approach to teaching has been criticised as a form of indoctrination where the teacher controls and directs students' learning to achieve a desired result;
- Learning is viewed as a reproduction of knowledge where students rely on the teacher's authority to shape their 'correct' behaviour; and,
- Behavioural methods have failed in helping students generalise their learning to new situations, are inadequate to account for all kinds of learning, and unable to explain circumstances when young children are able to recognise new language patterns.

Technology-based classrooms that adopt a behaviourist framework typically use computer-based instruction where students have programmed instruction for individual learning purposes such as drill and practice of basic skills (Hung, 2001; Mayer, 2003). From a behavioural perspective, institutions and organisations were keen to adopt online learning and training programmes due to the potential increased access to training, cost effectiveness, speed, and maximisation of the learner's time and retention of learning (Burton, Moore, & Magliaro, 2004; Mason, 2001). The first generation of online learning programmes focused on delivering classroom-based content over the Internet that merely repeat or compile online versions of classroom-based courses (Singh, 2004). Emphasis is given to

the “electronic nature of the content and not the communicative potential of the Web” (Mason, 2001, p. 28). Features such as clearly presented content, facilities for testing the learner and multimedia materials for increasing learner motivation are important to improving learning outcomes in online learning (Mason, 2001). Online learning programmes adhering to behaviourist principles must have clear objectives and learning outcomes for learners, incorporate online testing to assess the individual learner’s achievement and provide feedback, as well as sequence the learning materials from the simple to the complex to promote learning (Ally, 2008). However, criticisms directed towards these early online programmes include their function as “long sequences of ‘page-turner’ content and point and-click quizzes” (Singh, 2004, p. 51). Dissatisfactions with the behaviourist tradition in teaching and learning eventually led to the next wave of views of learning which recognised the central role of the human mind.

2.2 Cognitivism

Cognitivism acknowledges some key contributions of Behaviourism in teaching and learning in circumstances where manipulation of the environmental conditions can facilitate learning. These include strategies such as instructional explanations, demonstrations, illustrative examples and the role of practice with corrective feedback (Ertmer & Newby, 1993). It is, however, less concerned with external or environmental conditions and concentrates on the internal or mental processes occurring between a stimulus and response (Schunk, 2008). It shifted the focus from animal learning in laboratory settings to human cognition, from behaviour to knowledge, from forming stimulus-response associations to applying cognitive processes (Mayer, 2003).

Cognitivism arose from cognitive psychology’s revolt against behaviourist ideas fuelled by the invention of the electronic computer. In the 1950s, the computer’s growing popularity served as a metaphor for human learning and a psychological research tool (Mayer, 1996). Human learning or information processing became analogous to computer processing where both humans and computers participate in cognitive processes such as acquiring knowledge, remembering (or retrieving information), make decisions, and answer questions (Mayer, 1996; Schunk, 2008). Lachman, Lachman and Butterfield (1979) explained this analogy as:

Computers take symbolic input, recode it, make decisions about it, 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 behavioural output (p. 99).

Hence, similar to the computer, humans are thought to receive input or information from the environment, and transform this information into a form of representation that can be manipulated, stored and retrieved for subsequent output. Such forms of internal mental representation are discussed through ideas such as symbols, schemas, concepts, and mental models which can be manipulated at various stages or levels of information processing.

Cognitive theories address complex forms of learning (thinking, memory, reasoning, problem-solving, language, concept formation, information processing) rather than behavioural perspectives (Ertmer & Newby, 1993). Learning is viewed as a process of knowledge acquisition where the teacher transmits information and assists learners to develop more efficient processing strategies to organise the information in a meaningful way. Learners as information processors are active seekers and processors of information and able to attend to, code, select, transform, rehearse, store and retrieve information in their attempt to develop the appropriate metacognitive skills (eg. self-planning, self-regulation) and assert control over their own learning (Ertmer & Newby, 1993; Schunk, 2008). Some examples of cognitive strategies applied in teaching and learning include the use of lectures, textbooks, mnemonics, outlining, summaries, recall of prerequisite skills, synthesisers, advance organisers, analogies, concept or mind mapping, meaningful learning, hierarchical relationships and matrices (Ertmer & Newby, 1993; Motschnig-Pitrik & Holzinger, 2002). They assist learners in structuring, organising and sequencing information to relate new information to prior knowledge and facilitate optimal processing.

Technology-based classrooms informed by cognitivism sought to provide access to information such as tutorials, information databases, encyclopaediae, internet resources, search engines for large scale databases, hypertext presentations and

multimedia lessons (Hung, 2001; Mayer, 2003). Online learning programmes adhere to cognitive principles of learning by incorporating strategies to enable learners to process the learning material efficiently, utilise the processing and multimedia capabilities of the computer to present information in different modes (textual, verbal, visual), encourage and motivate information encoding, use concept maps or ask learners to form their own information maps, allow learners to apply the information in real life to contextualise the learning and facilitate deeper levels of processing, adapt learning materials to suit a variety of learners' learning styles, utilise intrinsic and extrinsic motivational strategies to motivate learners to learn, give learners opportunities to reflect on their learning, and check their progress through self-check questions and exercises with feedback so that they can develop metacognitive strategies to improve their learning approach (Ally, 2008).

Cognitivism, a key theoretical orientation during the 1950s to the 1970s, was eventually criticised for failing to consider the affective, social, and biological bases of human cognition, over emphasising information rather than knowledge and focusing more on laboratory-driven tasks than realistic academic situations (Mayer, 2003). Knowledge from the cognitivist perspective still involved the recognition of complex patterns and mastery of complex techniques. Hence, the teaching approach advocated by both the Behaviourist and Cognitivist traditions remained "direct instruction and practice under conditions designed to optimise motivation and transfer of learning" (Case 1996, p. 77). These paved the way for the next view of learning which stressed active learner construction of knowledge.

2.3 Constructivism

Constructivism advocates learning as the active construction of knowledge. As Salomon and Perkins (1996) notes,

the acquisition of knowledge is not a simple, straightforward matter of "transmission", "internalisation", or "accumulation", but rather a matter of the learner's active engagement in assembling, extending, restoring, interpreting or in broadest terms constructing knowledge out of the raw materials of experience and provided information (p. 5).

Proponents of cognitive constructivism include John Dewey, Ausubel, Bruner and Piaget (Woolfolk, 1998). Piaget, a biologist, constructed a model of how humans made sense of the world through the proposal of his *stage theory*. He maintains humans employ two processes of adaptation: *assimilation* (the utilisation of one's current scheme to make sense of the world) and *accommodation* (the changing of one's existing scheme to make sense of new information). Piaget proposed four cognitive developmental stages that built progressively on each other. The *sensorimotor* stage depicts the major intellectual structures during the first two years of an infant's life. An infant increasingly develops symbolic and logical structures of thinking from *preoperational*, *logical* to *formal* stages of development. Children's intellectual development is inherent in the "internal mental activity in which they engage in as a result of their universal tendency to explore their environment, to build models of it and to reflect on the adequacy of these models" (Case, 1996, p. 78).

Constructivism views learners as actively involved in creating meaning from their experiences to create knowledge instead of being spoonfed knowledge through instruction (Ally, 2008; Ertmer & Newby, 1993; Salomon & Perkins, 1996). The constructivist teaching approach shifts the focus from the teacher to the learner. Teachers do not teach knowledge but adopt the role of coaches and guides to help learners acquire knowledge themselves (Motschnig-Pitrik & Holzinger, 2002). Emphasis is given to the process of guided discovery to engage the learner's natural curiosity and the provision of constructivist activity and collaborative opportunities for exploration and reflection on the results of that activity (Case, 1996; Tapscott, 1998). Constructivist applications in education also saw gaining support for understanding the learner's prior knowledge in order to effect important changes in his or her mental structures (Barker, 2008; Motschnig-Pitrik & Holzinger, 2002). This fuelled research in domain-specific subject areas where educators attempt to generate teaching approaches that are more detailed and content-focused such as investigating contrasts between a child's and scientists' notions about the world (Barker, 2008; Case, 1996). Specific teaching strategies used by constructivists include situating tasks in real world contexts, goal-based learning (based on a learner's individual interests), case-based learning, presentation of multiple perspectives (collaborative learning to develop and share alternative views), social negotiation (debate, discussion, evidence-giving), use of

authentic examples, reflective awareness and providing considerable guidance on the use of self-regulated processes (Ertmer & Newby, 1993; Jonassen, 1994). The main goal of Constructivism is competence, unlike knowledge as in Cognitivism or performance achievement as in Behaviourism (Motschnig-Pitrik & Holzinger, 2002).

Technology-based classrooms embracing constructivist principles are demonstrated through research such as LOGO programming by Seymour Papert. Other common technological tools include databases, concept mapping tools, spreadsheets, expert systems, microworlds, systems modelling tools, visualisation tools, word processors, simulations, hypertext and hypermedia, and computer conferencing tools (Hung, 2001; Jonassen & Carr, 2000).

Online learning programmes embracing constructivist principles provide learners with opportunities to contextualise and personalise information for themselves; adequate time for reflection through embedded questions in the content; generation of a learning journal during the learning process; meaningful learning materials to allow them to make sense of and apply the information; and, a degree of control over the learning process where they can make decisions about learning goals with guidance from the lecturer (Ally, 2008).

Criticisms were, however, raised against this view of learning: the findings that the role of context and personal experience could be more significant in influencing a child's developmental stage (Barker, 2008), arguments against the universality of the context-independent stage theory in all knowledge domains occurring at exactly the same time (Case, 1996), observations that learners do not always engage in effective knowledge construction in open-ended learning environments unless highly motivated, or the fact that such knowledge construction process can occur in relatively didactic environments (Salomon & Perkins, 1996), and, the unlikelihood for individual learners to discover scientific ideas verified and endorsed by the scientific community on their own accord (Driver, Asoko, Leach, Mortimer, & Scott, 1994). Dissatisfaction became apparent as others raised the inadequacy of this endogenous learning perspective to suggest a view of learning as more of a product of complex sociocultural processes (Barker, 2008).

2.4 Social Constructivism

Greeno (1989) challenged three assumptions inherent in earlier views of learning: the fact that thinking resides in the mind rather than in interaction with persons and in social situations, that processes of learning and thinking are relatively uniform across persons and situations, and, the resources for thinking are derived from the accumulation of simple components from the knowledge and skills developed in formal school settings rather than general conceptual competencies developed from one's experiences and innate abilities. He argued that learning and thinking are situated in physical and social contexts, and children are able to develop their own conceptual competence rather than simply apply and acquire cognitive structures and procedure. His and other researchers' work began to recognise the value of social and contextual processes in contributing to learning. Views of learning in the 1990s shifted towards acknowledging the role of social interaction and collaboration in learning.

The proponent of social constructivism, Russian psychologist Lev Vygotsky (1978) recognised the social nature of knowledge and how it is created in interactions. Important ideas associated with social constructivism include the *zone of proximal development* (the difference between an individual learner's achievement while working on his or her own and the potential extent of their achievement with the assistance of more able peers or tutors), *scaffolding*, the role of language in mediating meaning and collaborative learning and problem solving (Schunk, 2008). Learning is the mediation of different views where learners are assisted to discover different perspectives and share meanings. Such social dynamic interactions are thought to lead to individual higher levels of learning (Hung, 2001). Educators adopt the role of a facilitator to scaffold the learning process. Educational strategies adopting social constructivist principles include the use of small group cooperative/collaborative learning, peer tutoring, reciprocal teaching and learning, cognitive apprenticeships (modelling and coaching a novice toward expert performance), anchored instruction (using an anchor stimulus at the onset of a lesson to attract attention and gain interest), jigsaw method, situated learning, and problem-based learning (Ertmer & Newby, 1993; Hung, 2001; Motschnig-Pitrik & Holzinger, 2002).

Well-known examples of technology-based classrooms embracing social constructivist principles are demonstrated through projects such as the Computer Supported Intentional Learning Environment (CSILE) (Scardamalia, Bereiter, McLean, Swallow & Woodruff, 1989), *anchored instruction* (The Cognition and Technology Group at Vanderbilt (CGTV), 1992), *community of learners* (Brown & Campione, 1994) and *practice fields* (Barab & Duffy, 2000). These projects underscore how technology is utilised as an essential tool to promote simulation, interactivity and team and collaborative processes in facilitating the social distribution of thinking (Salomon & Perkins, 1996).

Current online learning programmes and research are heavily based on social constructivist principles as the Web-based technology is viewed to afford learners a means of electronic access and interaction with learning materials, fellow learners and tutors. The focus is on the communicative and interactive potential of online learning rather than content delivery (Mason, 2001). To employ the communication and collaborative capabilities offered in online learning, online lecturers need to develop communication strategies to assist students to find, present, share information and construct knowledge in an effective manner (Anderson & Wark, 2004).

Online learning environments adhering to this view generally have the following characteristics: a shift from individual to collaborative learning, a reflective study programme among teacher and students, opportunities for peer learning through interaction and negotiation, role change of the lecturer from an expert to that of a co-learner, and a student-centred approach to learning in which students become responsible for their own and others' learning (Maor, 2003; Mason, 2001). Examples of research supporting this include Garrison, Anderson and Archer's (2000) online Community of Inquiry model to examine critical thinking, Collis and Moonen's (2001) flexible activity framework to promote the *contributing student*, Grabinger and Dunlap's (2000) Rich Environments for Active Learning (REAL) based on intentional learning, Salmon's (2000) model of e-moderating, Kearsley and Shneiderman's (1998) engagement theory, Moore's transactional distance theory (1990, 1993), and Laurillard's (1993) conversational framework. However, the optimisation of online collaborative learning requires good organisation, design and strong leadership by the online tutor especially at the

initial stages and the need for students to be guided and scaffolded in accepting collaborative strategies (Mason, 2001). There is evidence that significant learning gains are obtained through these strategies by most but not all students (Meyer, 2003; Mason, 2001).

2.5 Sociocultural Views of Learning

The mid-1990s saw the incorporation of ideas centered on *culture* in education. Originally known as *sociohistorical* or *cultural historical*, sociocultural views extend constructivist ideas of learning to include the notion that learning and teaching are fundamentally cultural processes (Barker, 2008). This view embodies the original contributions from the early writings of Russian psychologists and educational theorists such as Vygotsky and Leont'ev and cultural psychologists such as Cole and Engestrom (1993) (Wertsch, Rio, & Alvarez, 1995). In arguing that social and cultural processes are central to learning, this view recognises the role of social interaction in collaboration with others in facilitating meaning-making but more importantly also acknowledges mental processes as situated in a broader community's valued historical, social, institutional and cultural context (Bereiter & Scardamalia, 1996; Brown, Collins, & Duguid, 1989; Cobb & Bowers, 1999; Putnam & Borko, 2000; Roth, 1995). Wertsch (1995) summarises the goal of the sociocultural approach as, "to explicate the relationships between human action, on the one hand, and the cultural, institutional and historical situations in which this action occurs, on the other" (p. 11). Seen this way, understanding how learning occurs requires a focus on how learners participate in particular activities and practices, how they draw on the available tools and artifacts and social networks, and how they use and value the different discourses involved in a local setting (Nasir & Hand, 2006). Sociocultural views of learning locate the fundamental unit of analysis for understanding learning in activity, or cultural practices (Nasir & Hand, 2006; Rogoff, Baker-Sennett, Lacasa, & Goldsmith, 1995).

A lack of clarity, however, exists in many of the common terms used to address sociocultural ideas and practice. Different researchers have different interpretations. There are overlaps between the terms used as well as a lack of researchers quoting from one another's work (Bell & Cowie, 2000; Wertsch et al., 1995). For example, terms such as social cognition (Resnick, 1991; Salomon, &

Perkins, 1998), social constructivist views of learning (Bonk, & Cunningham, 1998; Driver et al., 1994), situated learning (Greeno, 1997; Lave & Wenger, 1991; Resnick, Levine, & Teasley, 1991;), sociocultural psychology (Cole, 1996; Rogoff, 1990), activity theory (Engeström, 1999), apprenticeship (Brown, Collins & Duguid, 1989; Lave, 1988), communities of learners (Brown & Campione, 1994), communities of practice (COP) (Wenger, 1998), distributed cognition (Salomon, 1993), distributed intelligence (Pea, 1993), person-plus (Perkins, 1993), mediated action (Vygotsky, 1978; Wertsch, 1991b) all fall within the broad domain of what is discussed within the sociocultural approach (Bell & Cowie, 2000).

In general, sociocultural theories incorporate several themes (Cole, 1998) but the following five core ideas related to learning are especially pertinent to the purposes of this research (Bell & Cowie, 2000; Brown & Duguid, 1993; Case, 1996; Lave, 1991; Lave & Wenger, 1991; Nasir & Hand, 2006; Rogoff, 1990; Salomon & Perkins, 1998):

1. mediation through cultural tools and artifacts embodying the distributed nature of knowledge/cognition as part of the sociocultural heritage of a community;
2. distributed cognition acknowledging the important role of social others;
3. situated activity in authentic contexts;
4. goals embedded within activities to foster the kinds of desired cognitions and participation; and,
5. increasing individual participation or appropriation (learner undertaking of the ways of acting and thinking provided by their culture) in socioculturally appropriate activities.

It is acknowledged that the key issues surrounding each of these ideas are still being debated. However, the next section examines each one by grounding them in interpretations of particular authors. The final section sets out the theoretical orientation of this thesis as a sociocultural view of learning and briefly discusses the implication of these ideas for this research.

2.5.1 Learning as Mediated by Cultural Tools and Artifacts

The idea of learning as mediated action (Vygotsky, 1978; Wertsch, 1985, 1991b) or learning as mediated by cultural tools, signs and artifacts is especially pertinent

to this research with its heavy reliance on Web-based technological tools for purposes of teaching and learning.

Mediated action refers to human action that makes use of cultural tools as *mediational means* to accomplish a task or objective (Wertsch, 1991a, 1998). Wertsch (1991a) argues that human action typically employs mediational means such as tools and signs. This action can occur externally as well as internally and can be executed by groups or by individuals (Wertsch et al., 1995). He provides an example of mediated action through the track and field event of pole vaulting (Wertsch, 1995, 1998). Although pole vaulting over a 20 feet bar in the air may appear to be an individual achievement, when considered as a form of mediated action, it illustrates the irreducibility of the individual agent (the vaulter) and his cultural tool (the pole). He contends that,

On the one hand, the pole by itself does not magically propel vaulters over a cross bar; it must be skillfully used by the vaulter.

On the other hand, a vaulter without a pole or with an inappropriate pole is incapable of participating in the event, or at best can participate at less than an optimal level of performance (Wertsch, 1995, p. 66).

Because the individual and the tools they use to achieve their goals are irreducible, the term *individual-operating-with-mediational-means* (Wertsch, 1985, 1991b, 1995) is coined to emphasise the importance of both. This connotes the functioning of the individual in relation to his or her unique sociocultural setting and how the setting in turn mediates, influences and transforms certain actions of the individual as a result of the interaction. From this perspective, the unit of analysis is people-in-action, usually with others, using tools of some kind. In Saljo's (1999) words, "learning has to do with how people appropriate and master the *tools for thinking and acting* that exist in a given culture or society" [emphasis in original] (p. 149). Hence, in the sociocultural approach, credence is given to both the psychological and social interactional processes as part of a wider analysis that takes an activity setting into account (Bell & Cowie, 2000; Wertsch, 1995).

Learning as mediated action also embodies two critical Vygotskian ideas. Vygotsky (1978) emphasises sign systems such as human language and its role in

semiotic mediation bridging inter-psychological (social) and intra-psychological (individual) processes. These “mediational means do not simply facilitate an existing mental function while leaving it qualitatively unchanged” (Wertsch, 1991b, p. 91) rather they shape and transform mental functioning in fundamental ways.

Secondly, Wertsch also agrees with Vygotsky (1978) on the role of tools (which can be physical, technical, psychological or symbolic in nature) as social mediators of learning. These tools and signs range from systems for counting, mnemonic techniques, algebraic symbol systems, works of art, writing, schemes, diagrams, maps and mechanical drawings and different types of conventional signs as part of the repertoire in human learning and construction of knowledge (Bell & Cowie, 2000; Case, 1996; Wertsch, 1991b). They embody the accumulated shared sociocultural understandings and heritage of a community and are necessarily situated in the sociocultural context where they are used. Such tools, particularly psychological ones, are seldom invented by individuals nor discovered out-of-context in isolation from others (Cole, 1996; Wertsch, 1985, 1991b, 1995). Individuals can access these tools by their participation in the sociocultural context of a community.

Four important characteristics of learning as mediated action applicable to this research have been further proposed by Wertsch et al. (1995). Firstly, mediated action is an active process where the cultural tools or artifacts involved in the mediation can have an impact only when individuals use or appropriate them. Secondly, the introduction of a cultural tool into a process has a powerful transformatory impact on the speaking, thinking and other forms of human action. Thirdly, mediation involves constraints as well as empowerment. While new cultural tools empower and provide new avenues of action, they usually introduce new forms of limitations as well. Finally, although cultural tools mediate particular kinds of action, there can be unanticipated benefits or *spin-offs* of some kind, dictated by other sociocultural forces, where the same tool facilitates actions other than the original action it had been specifically selected for.

The characteristics of mediated action when applied to the purposes of this research emphasise the role of the Web-based tools, activities and signs such as language in structuring and shaping the online environment for teaching and learning purposes. By participating in an online class, an increasing discursive quality as marked by increasing sophistication in the jargon, terminology and concepts used in the class is expected, as students become increasingly enculturated into the activities within the online research methods class. Additionally, mediated action is particularly important in the online learning context due to the existence of particular affordances and constraints offered by the tools, artifacts and sociocultural setting that will allow for and inhibit certain opportunities in the teaching-learning process. This research will investigate the extent particular tools mediate certain learning opportunities for the participants while limiting others, the extent participants are able to appropriate them when taking part in goal-directed activities to extend their learning and how this impacts on learners' learning and interactions. Finally, an interesting spin-off acknowledged in online learning research is that asynchronous communication provides written records of participants' thinking. This benefit has led to reports of deeper levels of thinking, reflection and questioning by students and teachers. This research will also investigate unanticipated benefits of the tools used in the online class in mediating important learning and interaction opportunities.

Viewing learning as mediated by tools and artifacts is not inconsistent with the notion of learning as distributed between a system of people and the tools they use. This idea is pursued next.

2.5.2 Learning as Distributed Cognition

The idea of learning as distributed cognition where learning is *distributed* between and among important social others and tools to achieve goal-oriented activities is highly relevant in this research. This notion suggests that learning involves more than just the individual learner (person-solo). It involves the learner and his or her surroundings or the person-plus (Perkins, 1993). Pea (1993) opposes the idea of a solitary decontextualised view of intelligence and uses the term *distributed intelligence* to highlight how the resources that shape and enable activities are distributed among people, environments and situations. Salomon (1993) describes *distributed* to mean sharing, for example, the sharing of authority, language,

experiences, tasks, and cultural heritage. The nature of *distributed* then does not have a focus solely on the *inside* of the individual. Rather the focus is on cognition as *stretched over* people, places and things (Lave, 1988). It assumes that the product of an intellectual partnership cannot be attributed solely to one or another partner (Salomon, 1993). Cognition is then accomplished, residing *in between* and jointly composed of the individual, his or her peers and or tools as they work rather than being *possessed* solely by an individual merely as-in-the-head activity or product of the mind (Pea, 1993; Salomon, 1993).

Salomon (1993) maintains that two versions of distributed cognition exist. The radical version adheres solely to the people-in-activity or performance of joint system involving the individual, peers and available tools. It would not be feasible to view any one of these decontextualised from one another /other(s). This radical view has been criticised as performance-oriented and situation determined involving cognitive off-loading onto tools or human partners to allow for cognitive “division of labour” (Salomon, 1993, p. 132). He advocates instead a less radical view to consider the role of both the individual and distributed cognition as interacting in a developmental *spiral and reciprocal relationship* (Salomon, 1993; Salomon, & Perkins, 1998). The argument here is that “not all cognitions, regardless of their inherent nature, are distributed *all the time*, by *all individuals* regardless of situation, purpose, proclivity or affordance” [original emphasis] (Salomon, 1993, p. 113). Hence, in a learning system, distributed cognition can serve the individual’s development of *cognitive residue* and vice versa. Salomon proposes that distributed cognition be viewed more of guidance in situations involving shared activity (e.g. in cooperative learning, teamwork, joint problem-solving etc.). When social partners provide guidance, prod, simulate or direct each other’s participation, such qualitative scaffolding is more likely to result in the development of desired cognitions.

Using people-in-action as a unit of analysis, Pea (1993) identifies two dimensions of distributed intelligence – the social and the material. In the social dimension, learning is a social process involving joint or a social collaborative effort between people with the assistance of peers, experts or tools. It is when people participate in activities such as individual exploration, collaborative efforts with others or guided participation (Rogoff, 1990, 1995) to achieve shared objectives that

distributed knowledge is exploited. In the material dimension, knowledge resides in the available resources such as tools and artifacts. These tools both organise and constrain activity and can range from being social, physical or artifactual in nature (Bell & Cowie, 2000). These are used to achieve results that would otherwise be difficult for the individual alone (Perkins, 1993). For example, tools supporting cognitive capabilities include calculators, computers or symbolic representations such as language, mathematical symbols, graphs, diagrams and a physical environment such as a workbench (Pea, 1993). It is the affordance (Gibson, 1977) provided by these tools that enables learners to access greater opportunities for learning. Pea (1993) highlights the need to attend to the affordances offered by the tools, artifacts and activities employed in educational settings in order to encourage the learner to attend to the relevant properties of the environment or activity such that he or she is able to contribute to distribute intelligence in that activity.

This research builds on the less radical description of distributed cognition to understand ways of improving the learning experiences in the online graduate course through the social and material dimensions. As the participants become enculturated into the social and cultural practices embedded in the online course, they are expected to access the knowledge, understanding and skills distributed across the community within the unique affordances and constraints offered by the available Web-based technology and class resources. Hence, this research would need to consider what and how the participants are learning and the qualitative changes that take place as they participate in a distributory process of learning and knowledge construction.

Viewing learning as distributed among other people, tools, and the cultural context in which learning is embedded augments the view of learning that is situated in a particular social practice, and knowledge as socially and jointly constructed. This is described next

2.5.3 Learning as Situated Activity

Early cognitive theorists view learning as the manipulation of symbols in the head to acquire knowledge and skills applicable to a wide variety of settings. This view is increasingly debated with studies emphasising how cognition and problem

solving abilities are typically context-bound (CGTV, 1993). Terms such as *situated learning* (Greeno, 1997; Lave & Wenger, 1991; McLellan, 1993; Tripp, 1993), or *situated cognition* (Brown et al., 1989; CGTV, 1993; Greeno, Collins, & Resnick, 1996; Kirshner & Whitson, 1997; Resnick et al., 1991; Wilson & Myers, 1999) describe the idea that learning and knowledge are inherently situated in the contexts, activities and culture in which they are used (Greeno et al., 1996). This perspective argues that the physical and social context in which an activity takes place is an essential part of that activity which in turn is an essential part of the learning that occurs within it (Putnam & Borko, 2000). Importantly, learning and activity are irreducible into separate processes (Kirshner & Whitson, 1997).

Furthermore, in contrast to traditional cognitive views of acknowledging the individual learner as the basic unit of analysis, the situated perspective focuses on the broader interactive activity system to include the individual learner interacting with others as well as the tools, materials and representational systems they use (Cobb & Bowers, 1999; Greeno, 1997; Putnam & Borko, 2000). This acknowledges the role of social interaction, and negotiation of shared meaning as critical for novices to construct personal meaning and become involved and enculturated in the beliefs and behaviours of a COP (Barab & Duffy, 2000; Brown et al., 1989; Greeno & Middle School Mathematics Through Applications Project Group, 1998; Jonassen, 1998; Wilson & Myers, 1999).

Viewing learning as situated activity also gives importance to the use of authentic activities as the context for learning and development. For J. Brown et al. (1989), these activities constitute the “ordinary practices” that are “coherent, meaningful and purposeful” (p. 34) to a particular COP-activities similar to practitioners practicing their craft. School and classroom learning and activities are considered generally inauthentic as they are very different from what authentic practitioners do. Ann Brown et al. (1993), however, disagreed with this definition and sought to define authentic activities as envisaged through a community of learners’ perspective. This was to dispute the impracticality of J. Brown’s ideas based on time constraints of enculturating students into practitioner culture and that practitioners do not generally populate schools. They instead viewed schools as having the goal of producing lifelong intentional learners and as “communities where students learn to learn” (p. 190). School-based activities are regarded

authentic to the extent they serve that goal. They argue that such “thinking” or “learning” apprenticeship (p. 223) will foster the kinds of thinking and problem solving skills important to outside of the school setting regardless of whether the activities themselves mirror what authentic practitioners do. Greeno (2006) agrees with this idea of *thinking* apprenticeship with this assertion, “if an aim in education is for students to learn practices of inquiry and sense-making, then learning environments must provide opportunities for them to participate in such practices” (p. 92). This research adopts a similar position to Ann Brown et al. (1993) and Greeno (2006) to acknowledge the kinds of thinking and problem solving skills facilitated by a learning activity to be a criterion for authenticity.

Additionally, as the situated perspective focuses on the activities and practices of learning, there is a need to attend to the affordances offered by a learning activity to encourage students to participate in these activities (Greeno, 1994). Emphasis in a situated learning classroom is given to the learning of both the content and the process of participating in collaborative inquiry to solve authentic problems (Greeno, 2006). Evaluation of learning in situated learning environments typically involve portfolios, story construction or use of scenarios or complex problems and design-based projects (McLellan, 1993, 1996).

This research adopts suggestions (e.g. by CGTV, 1993; Greeno, 1994; Pea, 1993) to pay attention to the particular affordances of a learning activity as some activities afford better opportunities than others in encouraging student participation and collaboration with their peers to develop the kind of authentic thinking and problem solving skills desired. Based on this suggestion, the use of scenarios, cases or complex problems as suggested by McLellan (1993, 1996) is explored in this research as a strategy to create an authentic situated context for learning and evaluation in the online course.

Consistent with the notion of learning that is based on activities situated in authentic contexts is the view that learning is driven by the goals and purposes that are valued in such contexts. This is addressed next.

2.5.4 Learning as Goal-Directed

The notion of learning as goal-directed draws attention to the goals embedded in and valued in activities designed to foster the kinds of learning desired. The importance of recognising and understanding the goals involved in shaping and directing human behaviour is promoted by Activity theorists. As Engeström and Miettinen (1999) observe, “human conduct tends to appear as a string of goal-directed acts of rational actors” (p. 11). Goals are significant and warranted “because behaviours will continue only as long as goals are present” (McDrury & Alterio, 2002, p. 139). In extending Vygotsky’s original writings concerning social and cultural forms of mediation into human activity, Activity theory defines activity broadly as encompassing a set of actions directed towards accomplishing a particular goal (Hirst & Manier, 1995; Hung & Wong, 2000). Scribner (1990) elaborates that the basic dimensions of human activity consists of three facets: structure which is mediated by tools or signs, function which is characterised by goal-directed activity, and mode of development which are both historical and social in nature. Hence, the artefacts, tools and signs utilised in a goal-directed activity act as mediators to transform their significance or meaning in achieving a goal (Cole, 1985; Martin, Nelson, & Tobach, 1995; Wells, 1999; Vygotsky, 1978). As such, the unit of analysis becomes neither the individual nor the social but “*tool mediated, goal-directed action*” (Wertsch, 1985, p. 210). Since activities are characterised as always motivated or goal-directed, such socially determined goal-directed activities help promote the psychological functioning of the learner (Billett, 1998; Martin & Scribner, 1991). Cole (1985) adds that examining such goal-directed activities is a useful basis for understanding the relationship between individuals’ cognitive processes and development and the social sources of knowledge as constituted in the activities and goals located within a particular social context. Accordingly, people are considered to normally “act with a goal or purpose in mind and they act in relation to their sociocultural world” (MacCleave, James, & Stairs, 2002, ¶ 17).

Viewing learning as goal-directed in the classroom means that teaching involves structuring goal-directed learning activities and assisting students to achieve those goals through meaningful and productive social interactions (Smith, Teemant, & Pinnegar, 2004). Students are encouraged to adopt goals of value to the class

community through interactions. These are a central component in carrying out goal-directed actions (Wells, 1999). A possible concern, however, arises when lecturers become focused on their own goals and the need to move forward and their goals are not shared by their students. This raises the need to regularly revisit the learning goals throughout the learning process to allow both lecturers and students to “clarify, re-negotiate or adjust direction” (Smith et al., 2004, p. 139).

Another implication is the importance of understanding the goal or purpose of an activity, and the relation of each step of the process in contributing towards the accomplishment of the overall goal or purpose (Rogoff, Paradise, Mejía Arauz, Correa-Chávez, & Angelillo, 2003). This idea is highlighted in Rogoff et al.’s (2003) distinction between learning through *intent participation* and learning through *assembly-line instruction*. In the former, students are assigned activities where they see and understand the purpose for participating in an activity, for example, to learn about measurement by designing a habitat for animals. In the activity, the goal made sense and was of interest to students. This contrasts with the assembly-line instruction where the goal or purpose of the activity is often not clear to students. In such classrooms, the overall learning process is broken “down into isolated steps” for learners to practice “with little or no chance to see how the steps fit together or the overall purpose of the activity” (Rogoff et al., 2003, p. 189). These implications connote the importance of designing teaching-learning activities to foster goals of value to learners and lecturers and where they are encouraged to participate meaningfully and understand how every step is related towards achieving those goals. To sum up, they highlight learning as a goal-oriented process rather than an incidental outcome (Bereiter & Scardamalia, 1989).

This research builds on the notion of goal-directed learning and refers to the types of goals embedded within situated activities designed to foster the kinds of interaction and participation likely to benefit to participants’ learning in the online graduate Research Methods course.

Viewing learning as shaped by goal-directed activities is related to and supports the notion of learning as participation in the valued cultural practices of a COP. This facet is addressed next.

2.5.5 Learning as Increasing Individual Participation in Socioculturally Appropriate Activities

The idea of learning to participate in socially and culturally appropriate activities comes from the traditional notions of *apprenticeship* in learning craft and trade skill where a novice learner slowly undertakes increasing responsibility of a craft's practice under the guidance of a more expert or skilled craftsman. For Lave and Wenger (1991), participation in practice is the main activity through which learning occurs:

Conceiving of learning in terms of participation focuses attention on ways in which it is an evolving, continuously renewed set of relations...Participation can be neither fully internalized as knowledge structures nor fully externalized as instrumental artifacts or overarching activity structures. Participation is always based on situated negotiation and renegotiation of meaning in the world. This implies that understanding and experience are inconstant interaction – indeed, are mutually constitutive (p. 49-52).

The goal is for the learner to achieve mastery and production of examples of mature practice (Lave, 1991) and to think, perceive as well as behave like the expert (Nuthall, 1997). Lave and Wenger (1991) introduced the term *legitimate peripheral participation* (LPP) to describe the process of how a newcomer attains *membership* (the legitimate right to enter into such membership) into a community of craftsmen by assuming the role of a novice craftsman. Through increasing participation via enculturation in the responsibilities, beliefs, practices, rituals and rules of the trade, the newcomer progressively acquires (or appropriates) the knowledge and skills to move from the periphery to the centre of the community and become active members of the COP. Lave and Wenger (1991) defined a COP thus:

[Community does not] imply necessarily co-presence, a well-defined identifiable group or socially visible boundaries. It does imply participation in an activity system about which participants share understandings concerning what they are

doing and what that means in their lives and for their communities (p. 98).

It is the practice or activity in the COP that fuses the individual to the community, and the community in turn legitimises the individual's practice (Barab, Kling, & Gray, 2004). Social interaction, communication and negotiation of meaning are critical components of this notion of apprenticeship as novices move from the periphery to increasingly engage with the community's cultural and institutional practises before assuming the role of *old-timer* (Lave, 1991) or expert status.

This perspective of learning as increasing participation also implies that the novice learner's learning is heavily shaped by the shifting roles and relationships and formation of identities as he or she becomes incorporated into a COP. For Lave and Wenger (1991) and Wenger (1998), this emphasis on the individual learner's relationship with the people in the community is of primary importance and is emphasised over the relationship of the activity itself to the wider practice although it is the practice that identifies the community (Mayes, 2001). In this process, acceptance and interaction with expert practitioners and others in the community legitimises and adds value to the novice learner's learning as Lave and Wenger (1991) contend,

a deeper sense of the value of participation to the community and the learner lies in *becoming* part of the community...Moving toward full participation in practice involves not just a greater commitment of time, intensified effort, more and broader responsibilities within the community, and more difficult and risky tasks, but more significantly, an increasing sense of identity as a master practitioner (p. 111).

The formation of identities is viewed as a long term, living relations between persons and their place and participation in the COP and is an ongoing negotiation of a way of becoming or a way of being in the social world (Lave & Wenger, 1991; Wenger, 1998). Wenger (1998) and Greeno (1997) characterise such shifts in roles and social relationships in cultural practices as learning that is progressing along identity trajectories. A community's members can assume different levels of participation (Lave & Wenger, 1991, Wenger, 1998) or roles (Kim, 2000). For example, the novice learner can participate by simultaneously performing several

roles ranging from status subordinate, learning practitioner, sole responsible agent in minor parts of the performance, aspiring expert and so forth, each of which implying a different sort of responsibility, a different set of role relations, and a different interactive involvement (Lave & Wenger, 1991). Such changing identities are an integral part of the learning process as Lave and Wenger (1991) claim,

the development of identity is central to the careers of newcomers in communities of practice, and this fundamental to the concept of legitimate peripheral participation. In fact...learning and a sense of identity are inseparable: they are aspects of the same phenomenon (p. 115).

Brown and Duguid (2000) further add that a distinct characteristic of identity formation is learning *about* and learning *to be*. Learning *about* is the accumulation of factual knowledge while learning *to be* is knowing how by application and practice. It is the latter that is important in the notion of social participation and enculturation within the context of a valued community's life and practices.

By viewing the online class participants as *thinking* or *learning* apprentices (Brown et al., 1993) in a COP, this research is interested in examining the development of identities as espoused through the roles the participants undertake as they participate in the class activities and interact with one another to contribute to further the understandings of the community and how they are themselves transformed in this process.

This idea of apprenticeship in COP has been extended into education research with the introduction of terms such as *cognitive apprenticeships* (Brown et al., 1989; Collins, Brown, & Newman, 1989) to situate the apprenticeship within *communities of learners* (Brown et al., 1993; Brown & Campione, 1996; CTGV, 1994). As participants in a community of learners, both lecturers and learners are intentional and acquirers, users and extenders of knowledge, individually and collaboratively to become partners in the interactive, developmental process of teaching-and-learning. The notion of partnership here implies that the goals, knowledge and skills of the lecturer and students evolve together in a mutually influential way in the formation of their identities as knowers and learners in the Research Methods course in this study. Although the lecturer is clearly the *senior*

partner in knowledge and experience of the material being taught and learned, this notion of partnership implies that the aims, strategies and expectations of the lecturer are shared, and perhaps negotiated, with the learners. In this way, the lecturer manages the planned and the emergent curriculum so that teaching-and-learning interact (Wenger, 1998). The pedagogical focus changes to emphasise learning as entry, enculturation, and legitimate participation in valued activities situated within a COP (Brown & Campione, 1996; Case, 1996; Leach & Moon, 1999). Pedagogical strategies supportive of this notion include lecturers and students working together to develop a community of learners emphasising dialogue, lecturer co-learning, peer collaboration, questioning, students bringing knowledge to class and joint knowledge construction (Brown et al., 1993; Wells & Chang-Wells, 1992). Joint knowledge construction activities include student group collaboration to solve authentic problems, developing shared learning goals and histories, forming a sense of identity and belonging in the group, utilising shared workspace to generate multiple perspectives, and involving accountability structures, negotiation of meaning and team products (Bonk, Wisner, & Nigrelli, 2004; Hung & Der-Thang, 2001; Jonassen, 2003, Palloff & Pratt, 1999).

Observations of learning and development embedded within the notion of participation or apprenticeship can be investigated from a multiple level of development perspective – each level distinct in its own right and yet constitutes and mutually informs other levels (Cole, 1996). Such multiple levels of development is of interest in this research and particular attention is given to the sociocultural framework provided through COPs, in particular, Rogoff's conceptualisation of a learning community (Rogoff, 1994; Rogoff, Matusov, & White, 1996) (see Section 4.5) and multiple planes of analyses as they underpin the focus and analysis of this study (Rogoff, 1995; Rogoff, 1997; Rogoff, 2003; Rogoff et al., 1995; Rogoff, Radziszewska, & Masiello, 1995; Rogoff, Topping, Baker-Sennett, & Lacasa, 2002) (see Section 2.5.5.1).

Within the sociocultural orientation, it is acknowledged that the concept of a COP and a related and alternative perspective, Activity Theory (Cole & Engestrom, 1993), provide compelling explanatory power in describing and understanding individuals' changing role in the community or activity system as a function of their developing knowledge (Riel & Polin, 2004). Activity Theory is further

substantiated by a systematic and complex framework of analysing the individual's development of meaning making and the mediating role of artifacts and have been used, for example, to analyse the design of online communities (Ng & Hung, 2003). However, Issroff and Scanlon (2001) investigated the use of Activity Theory in computer-supported collaborative learning environments and concluded that it is more useful as a framework for describing and communicating findings and less effective as a framework for uncovering further insights into designing and interpreting computer-supported collaborative learning activities. Due to the exploratory nature of this research in online learning, the framework of a COP is considered to be more useful and thus chosen over Activity Theory to provide the theoretical description and analytical framework to facilitate the investigation of similar issues but with an emphasis on the social processes of learning within a COP (Gray & Tatar, 2004). Further, the broad analytical framework to investigate learning within a COP will utilise Rogoff's multiple planes of analyses as this is considered to provide a sufficient and broad enough structure to accommodate constructs from related perspectives such as Activity Theory (Gray & Tatar, 2004) and to allow the exploratory investigation of the critical issues in online learning to be examined from different foci without losing sight of the totality of learning in this research's context.

2.5.5.1 Multiple Planes of Development

Rogoff's (1995, 2003) study on multiple levels of development and provides an analytical tool to discern learning and development along three planes of analysis or development in sociocultural activity – personal, interpersonal and community. According to her, each plane must be considered in relation to the others. They are “inseparable, mutually constituting planes comprising activities that can become the focus of analysis at different times, but with the others necessarily remaining in the background of the analysis” (Rogoff, 1995, p. 139). Although each plane can be understood as distinct levels in activity, they further influence and mediate the other two planes to provide a comprehensive analysis of the individual and the active processes of individuals as they participate in shared endeavours in cultural communities. These planes are neither separate nor hierarchical but provide different and complementary foci of analyses on the whole sociocultural activity (Rogoff, 1995). Although each person may appropriate knowledge, skills and understanding individually, the process is shaped by his or her participation in the

social, cultural and historical activity (Cowie, 2000). Rogoff (1995) defined processes for each of the three planes as participatory appropriation (at the personal level), guided participation (at the interpersonal level), and apprenticeship (at the community level). Each of these inseparable processes was explicated through an annual Girl Scout cookie sale in the United States as part of an annual fundraising drive.

In the personal plane of analysis, the process of *participatory appropriation* describes how “individuals change through their involvement in one or another activity, in the process of becoming prepared for subsequent involvement in related activities” (Rogoff, 1995, p. 142). By participating in valued activities, people contribute and learn in a process in which individuals and their social partners “are interdependent, their roles are active and dynamically changing and the specific processes by which they communicate and share in decisions-making are the substance of cognitive development” (Rogoff, 1995, p. 151). Rogoff (1995) contrasts the process of *participatory appropriation* with that of acquisition or internalisation (which played a central role in Vygotsky’s theory) to distinguish between two theoretical perspectives, “the appropriation perspective views development as a dynamic, active, mutual process involved in people’s participation in cultural activities; the internalization perspective views development in terms of a static, bounded ‘acquisition’ or ‘transmission’ of pieces of knowledge” (p. 153). She emphasises that the process of appropriation is the transformation that occurs through participation. At the individual plane, this process of appropriation studies changes or transformation to an individual’s understanding, beliefs, emotions, values, skills and behavior (Nasir & Hand, 2006). The Girl Scouts in Rogoff’s study successfully appropriated their task of cookie sales and delivery by gradually assuming greater responsibility for handling the complicated aspects of the activity, showing more sophisticated planning of spatial routes for delivery and becoming efficient within the context of resources and constraints faced in their situation. In this research, this plane of analysis investigates the online lecturer’s developing understanding (at the intellectual level), responsibilities (at the social level) and attitudes (at the emotional level) towards the teaching of the online Research Methods course. Online students’ developing understandings and increasing sophistication with

research methods ideas (at the intellectual level), responsibilities (at the social level) and attitudes (at the emotional level) are also considered.

The interpersonal plane of analysis focuses on *guided participation* processes and refer to the mutual involvement of “individuals and their social partners, communicating and coordinating their involvement as they participate in socioculturally structured collective activity” (Rogoff, 1995, p. 146). She describes the *guidance* in *guided participation* as the “direction offered by cultural and social values, as well as social partners”, while “participation” involves “observation as well as hands-on involvement in an activity” (p. 142). *Guided participation* can occur explicitly in face-to-face interactions or implicitly at a distance in shared tasks involving familiar peers or distant unknown individuals or groups. *Guided participation* need not be symmetrical (or equal) in interpersonal interactions as a learner “who is actively observing and following the decisions made by another is participating whether or not to contribute directly to the decisions as they are made” (Rogoff, 1995, p. 147). Changes and transformation along this interpersonal plane are marked by communication, role performances, dialogue, cooperation, conflict assistance and interactions with important social others (Nasir & Hand, 2006). Hence, in the Girl Scout annual cookie sale study, emphasis is on the arrangements and interactions between the Girl Scouts and their social partners (peers, parents) using the tools available to sell and deliver the cookies safely to maximise the profits obtained. In this research context, this plane of analysis examines the nature of interaction and participation between the online lecturer and his students and among the students with regard to their intellectual, social and emotional development in the context of the tools and activities utilised to accomplish joint purposes or goals.

The final plane of development, the community plane, uses the *apprenticeship* metaphor to refer to “community activity involving active individuals participating with others in culturally organised activity that has as part of its purpose the development of mature participation in the activity by the less experienced people” (Rogoff, 1995, p. 142). It focuses on the way developing participation is influenced by and shapes cultural and institutional structures and practices. Transformation along this plane involves the development of shared history, shared language, shared rules, shared values, shared beliefs and identities

(Nasir & Hand, 2006). In the Girl Scouts' fund raising drive, the collective activity of planning, selling and delivering the cookies within the constraints and resources provided by the tradition and practices adopted in the Girl Scout movement is examined. In this research, this community plane of analysis considers the broader cultural context of the online course. It takes into account institutional regulations, structures and practices and the tools and activities of the course to consider how they resource and constrain lecturer and student participation. The extent to which participants were able to evolve shared learning goals as part of their apprenticing to learn more about research methods is also of interest.

In this research, Rogoff's three planes of analysis are used to analyse the success of the research intervention strategies in facilitating learning based on participants' personal, social and community learning and development.

2.5.6 Implications of the Sociocultural Approach for Online Teaching and Learning

This research adopts the sociocultural approach as a theoretical underpinning to understand the social and cultural forces influencing learning experiences in an online graduate Research Methods class. Learning from this perspective has the following characteristics (Forret, Khoo, & Cowie, 2006):

- Learning as mediated action. The role of the individual learner and his or her unique social, cultural, historical even institutional context influences the development of mental functioning. As such, the tools and activities used in an online class can greatly influence a learner's developing understandings and the processes involved in developing these understandings. This notion shifts the primary unit of analysis from either individual or social perspectives to a human-in-action, incorporating a collection of people, tools in use and the physical environment (Greeno, 2006). In online learning, the individual, social and cultural processes need to be attended to although most learning and assessment practices in tertiary institutions tend to focus solely on the individual. The notion of mediated action, thus, calls attention to the types of Web-based technological tools and activities likely to mediate rich teaching-learning interactions between participants in the course;

- Learning as distributed cognition. Knowledge is not received ready-made but is actively developed by the learner through social interaction and negotiation with his or her cultural and physical environment. This distributory learning process is aimed at appropriating the intellectual and physical tools of the learner's culture and is mediated through language and participation in culturally validated activities. This is especially important in the light of the affordances and constraints offered by the Web-based technology and class resources. The distributed expertise available facilitates and scaffolds novice learners' learning through more capable peers, lecturers or other experts to overcome the limitations of the individual, unaided human mind (Fischer, 2003; Hung & Der-Thanq, 2001). Of interest in this idea of distributed cognition is the kinds of interactions and participation useful to students' learning within the context of the tools and activities available in the online class;
- Learning as situated activity. The context within which meaning is negotiated influences the nature and meaning of knowledge for the learner. The use of teaching-learning activities situated in authentic and meaningful contexts constitutes an important part of a lecturer's online pedagogical repertoire. Such situated activities provide learners with a meaningful learning experience and fosters the development of cultural practices that are applicable to situations in the outside world. Attention, therefore, needs to be given to developing authentic activities and the affordances they provide that that might encourage learners to attend to relevant ideas and can contribute to distribute intelligence in that activity;
- Learning as goal-directed. All action is goal-directed. Within a teaching and learning context, the lecturer designs activities to foster the kinds of interaction and participation likely to be beneficial to participants' learning in the online graduate Research Methods course. To do this, they need to consider the way different goals for interaction might emerge and or be required if students are to engage with and complete an activity; and,
- Learning as participation in authentic community practices. Learners' learning is shaped by, and, in turn, shapes the communities in which they belong. Learning is viewed as transformatory participation where learners learn through increasing participation in the valued activities of a community. This notion of transformatory participation is upheld in online

classes adopting COPs (Balcaen & Hirtz, 2007; Barab & Duffy, 2000; Hung & Nichani, 2002; Rogers, 2000) and in the deliberate development of learning communities as a pedagogical strategy to draw attention to the entry, enculturation and legitimisation of participation of new student. Ideally, as students become increasingly engaged in the practices of interacting and collaborating to complete online activities they appropriate the knowledge and skills required to progress towards expert-like status. In this process, their interactions and developing relationships and roles with other members of the community are crucial in bringing about the mutual shaping of goals, identities and transformation in participation.

These pedagogical implications serve as a framework for designing a pedagogical intervention in the context of this research.

2.6 Summary

This chapter has overviewed the development of views of learning and their associated pedagogical approaches adopted in online learning. Although learning involves a cognitive process, it can be argued that because this research is concerned with understanding how students learn in an online teaching-learning environment separated by time and distance, where fundamental teaching-learning interactions are mediated only by the Web and its relevant tools, earlier theoretical perspectives that focus on the individual as the unit of analysis are inadequate for explaining learning. How learning is viewed has shifted from an individual focus to encompass a view of learning as mediated, distributed, situated, goal-directed and participatory activity within a socially and culturally determined COP. Chapter 3 revisits these themes and adopts a roles framework to further consider the complex interplay between the technology, lecturers and learners in the context of online learning research.

Chapter 3

Online Learning: Emerging Roles

3.0 Introduction

The previous chapter surveyed the views of learning pertinent to online learning to highlight the potential of a sociocultural theoretical orientation in understanding learning in online learning environments. This chapter narrows the discussion of the literature review to research in the specific context of online learning. It centres its discussion on three key elements in online teaching and learning: the role of Web-based technology in mediating specific opportunities while prohibiting others for both lecturers and students (Section 3.1), the role of the online lecturer (Section 3.2), and, finally, the online student's role (Section 3.3). A roles framework is adopted in analysing the literature, in support of sociocultural ideas viewing learning as a transformation of roles and identities due to participating in socioculturally appropriate activities. For each section, critical issues arising from the literature review are considered and implications drawn for the conceptual and methodological features of this study. The chapter further highlights the complexity of human and technological roles in online learning and points the analysis of the literature towards a sociocultural strategy that can account for such complexities in Chapter 4.

3.1 The Role of the Web-based Technology

Researchers in the past have debated the use of technology in supporting and enhancing learning. Each successive wave of educational technologies has been viewed as a panacea to improving educational outcomes. Some argue that the technology is neutral, being merely an alternative to accessing learning. For example, Clark (1983) insisted that computers are merely vehicles providing the processing capability and access to information for students as "media do not influence learning under any conditions" (p. 445). It is not the attributes of the technology but the teaching methods, teaching tasks and student activities that are crucial for learning. Early studies on the use of the Internet and the Web-based technology in education focused on comparing the selected learning outcomes between face-to-face classes and online classes. Russell (1999) produced the *No*

Significant Difference paper after reviewing 355 studies on distance education during the period 1928 to 1998 to argue that, “there is nothing inherent in the technologies that elicits improvements in learning” but qualified this observation by saying “the process of redesigning a course to adapt the content to the technology” (p. xiii) can improve the course and its outcomes. This agrees with Clark’s view that learning is determined not by the technology but the teaching method embedded in the media (Clark, 2001). Although some variability was found in the results, no significant difference was found in the learning achievements between classes taught online and those taught in face-to-face settings (Bernard, Abrami, Lou, Borokhovski, Wade & Wozney, 2004; Russell, 1999; Sitzmann, Kraiger, Stewart, & Wisher, 2006; Zhao, Lei, Yan, Lai, & Tan, 2005). It can be concluded that students are not at an academic disadvantage if their courses are online but would instead have the added advantage if their courses had adequate interaction and lecturer contact (Nichols, 2007a).

In contrast, others insist that the technology used is not neutral and influences learning by impacting on the learning experience of students or the student themselves (Ellul, 1964; Kozma, 2001; Norman, 1993). As Claxton (1998) argues,

Tools are not ideologically or psychologically neutral. Their very existence channels the development of intelligence...opening up and encouraging certain cognitive avenues, and simultaneously closing down and devaluing others. We are fashioned by our tools and none more so than the computer. For the computer redefines people as ‘information processors’ and nature itself as information to be processed (p. 206).

Supporting this stance, Kozma (1994) was concerned with the ways educators can take advantage of the attributes and capabilities of the technology to influence learning for particular students, tasks and situations. Although the technology can be a vehicle for achieving pedagogical goals, some are better at enabling specific pedagogical strategies than others (Kozma, 1994). Furthermore, McLuhan (1964) claimed that the technology used exerts its own effects on the user propagating the idea that *the medium is the message*. Slay (1999) adds that different forms of technologies invoke or evoke particular kinds of learning behaviour and highlighted qualities that graduates are expected to develop with the use of the

Web such as accessing information, problem solving, communicating effectively, and working autonomously or collaboratively. Levinson (2001) supports the unique impact of the Web-based technology to highlight how the Internet gives ordinary people access to information and knowledge, a domain confined to traditional gatekeepers such as universities and libraries. These examples portray the unique capabilities of the technology in impacting on teaching and learning.

Salomon and Perkins (1996) emphasised that this approach contrasts the effects of *learning with* to the effects of *learning from* technology in teaching and learning. Learning *from* technologies refers to situations when technologies are used to deliver pre-packaged lessons with the intent of the acquisition of particular skills and strategies while learning *with* technologies exemplifies situations where students use “technologies to express and represent what they know” (Jonassen & Carr, 2000, p. 189). Several authors argue for students to learn *with* technologies including online learning to form an intellectual partnership where the technologies can amplify thinking to influence learning. This shift from *learning from media* to *learning with media* describes the qualitative changes that occur in the way learners process information when they are engaged in an intellectual activity using the computer as a tool. The resulting partnership becomes more intelligent than the learner working on his or her own (Hannafin, Hannafin, Hooper, Rieber, & Kini, 1996; Pea, 1993; Salomon, Perkins, & Globerson, 1991).

3.1.1 The Notion of Affordances

There have been resounding calls for educators to consider the unique affordances of a particular technology and its constraints when designing the appropriate learning experiences for their students based on their pedagogical goals and situation-specific tasks (Anderson, 2004b; Bonk & King, 1998; Collins et al., 2000; Norman, 1999). Gibson (1977, 1979) first defined the term affordances based on studies on human visual perception. He explains that “affordances of the environment are what it offers animals, what it provides or furnishes, either for good or ill” (Gibson, 1977, p. 68). Similarly, Pea (1993) defines affordance as the “perceived and actual properties of a thing, primarily those functional properties that determine just how the thing could possible be used (e.g a doorknob is *for* turning, a wagon handle is *for* pulling)” (p. 51). Affordances provide opportunities for action based on an object’s functional property. For example, “telephones

afford grasping and talking and listening, while wireless headsets eliminates the action of holding the phone” (Mazur, 2004, p. 1081). Others have extended the original idea of affordances to include the capacities of a technology in facilitating or constraining different kinds of learning (Greeno & Gresalfi, 2008; Roth, Woszczyna, & Smith, 1996; Yates & Littleton, 2001) or more specifically, how Web-based tools enable or constrain the communication and interaction between the student and lecturer in an online class (Murphy & Coffin, 2003; Ryder & Wilson, 1996).

While any environment can provide some kind of affordances to an actor, the actor also needs to develop an ability to perceive or recognise affordances. This ability known as *attunement to affordances* (Greeno, 1994) develops over time and is shaped by experience and repeated exposure. McMorris (2004) explains how “attunement enables an actor to search the areas of the display that contain the most relevant information. Once the area has been searched, the individual will directly perceive what the situation affords” (p. 51).

Even when an affordance is recognised (or attunement is achieved), the actor needs to have the capacity to transform the affordances into an actual and effective action (Gee, 2008). He explains “an effectivity means that a person can take advantage of what is offered by the objects or features in the environment” (p. 81). Another perspective on how actors take up the affordances inherent in tools lies in the idea of appropriation (Rogoff, 1990, 1995). It refers to “the process by which individuals transform their understanding of and responsibility for activities through their own participation” (Rogoff, 1995, p. 150), while Wertsch (1998) views appropriation as taking something that belongs to others and adapting it one’s need. Therefore, appropriation can be viewed as the intentional utilisation of affordances by an actor (Vatrapu, 2007). It is any tool associated with particular social and cultural practices that are usually being appropriated, for example, language, procedures or technical tools (technology). Researchers interested in situated and sociocultural views of learning see this relational nature of affordances as key in explaining interactions among actors and or between actors and objects (Yates & Littleton, 2001). This notion of appropriation of affordances (Reed, 1991) is adopted in this research.

Differing views on the properties of affordances exist. For some, affordances have both a positive and negative property of an object (Allen, Otto, & Hoffman, 2000; Barnes, 2000; Gibson, 1977). For example, Gibson (1977) explained how a knife affords cutting if manipulated in one manner, but affords being cut if manipulated in another manner. Others refer to the possible activities or actions wielded by a tool as affordances while the absence or diminished capability of a tool for those purposes are constraints (Mazur, 2004; Murphy & Coffin, 2003; Norman, 1999; Roth et al., 1996). Norman (1999), for example, referred to the inability to move the computer's cursor outside the screen as a physical constraint to the user.

Furthermore, others add that the regular use of a tool transforms its affordances into effectivities capable of extending human capability (Allen et al., 2000; Jonassen & Carr, 2000; Ryder & Wilson, 1996). Some authors have argued that understanding the available affordances and effectivities provide a useful basis for comprehending constraints on the types of interaction occurring (Yates & Littleton, 2001). Jonassen (1996) illustrates how Web-based conferencing tools can function as *mindtools* to support, guide and extend students' thinking abilities. Jonassen and Carr (2000) report on how networked synchronous and asynchronous communication tools afford collaborative learning activities that engage learners in a variety of critical, creative and complex thinking skills. This creates communities of learners and supports the idea that students learn *with* computer technologies rather than *from* them.

In this thesis, it is acknowledged that the Web-based technology plays a unique and important role in affording specific opportunities for the lecturer and his students to teach-and-learn *with* as well as teach-and-learn *from* to achieve their teaching-learning goals involving the specific subject of research methods. Hence, affordances refer to the positive benefits flowing from the choice of Web-based technological tools for achieving the teaching-learning purposes. Constraints refer to the opposite, namely the limitations presented by the chosen technological tools. For example, it is the affordance provided by these tools that enables learners to access greater opportunities for learning (Pea, 1993) while the mainly text-based mode of asynchronous communicating represents a constraint in prohibiting speech, verbal spontaneity and important non-verbal communicative cues. In planning for online learning, Sherry (2000) cautions that a delicate

balance exists between the affordances and constraints of many forms of CMC. This precarious balance is dependent on the user's interaction with the tools and the ways in which this interaction allows him or her to maximise the affordances, while minimising the constraints. A closer examination of the specific affordances and constraints of the Web-based technology is needed to better understand the nature and effects of such user-tool interaction.

3.1.2 Affordances of the Web-based Technology

Current studies into the role of the Web-based technology in influencing learning commonly refer to its affordances in enabling particular aspects of distance learning not possible in the past. In the online distance teaching-learning situations, the lecturer and student(s) are generally separated (although there can be forms of hybrid or blended learning environments). The important affordances of the Web-based technology that contribute to online learning's prevalence in distance learning include (Anderson, 2004a; Cornelius & Higgison, 2000):

1) The capacity for removing the time and place dependence of the educational interaction. Liberated from the constraints of time and place, students have the convenience and flexibility of pacing their own learning (Hill, 2000; Meyer, 2003; Ownston, 1997; Porter, 1997; Sherry & Wilson, 1997). They can access their studies from anywhere and usually at any time while balancing work and family commitments (Cole, 2002; Crossman, 1997; Curran, 2001; Hill, 2000; Reeves, 1999; Relan & Gillani, 1997);

2) The ability to support multiple formats of content such as multimedia tools, video, audio, graphics, pictorial content, colour, animation, and text including shared applications and shared workspace (Porter, 1997). Online lecturers and students can adopt more motivating forms of resources to promote active learning compared to traditional distance learning resources (Crossman, 1997; Hill, 2000). Additionally, this ability to support interaction in a variety of formats (text, speech, video, etc.) in both asynchronous and synchronous modes of communication provides a communications-rich learning context;

3) The capacity to support multiple formats is valuable for developing authentic tasks and experiential learning experiences that are context dependent in accord with situated and participative learning practices (Barab & Duffy, 2000; Hannafin,

1997; Herrington & Oliver, 1999; McLellan, 1996; Oliver & Herrington, 2000; Reeves, 1999; Relan & Gillani, 1997; Sherry & Wilson, 1997). These provide learning experiences relevant to the learner and situate authentic practices and feedback in realistic scenarios (Slaouti, 2007). On the other hand, when online learning involves passive learning (i.e. reading large blocks of static material online presented linearly, or used as an electronic book) to achieve convergent learning outcomes, students are less satisfied with their learning experiences (Hill, 1997; Hiltz et al., 2000; Meyer, 2003). Though small proportions of students may prefer and do well in self-paced, solitary learning, the majority reported enhanced learning and support given adequate opportunities to interact with others;

4) Various forms of communication and interaction including synchronous or asynchronous modes are also possible through the Web for learners to give responses and receive specific feedback to their questions or about their progress (Eastmond, 1995). Synchronous communication such as chats is a valuable option for the online lecturer to structure his or her class to meet at certain times for real-time discussion sessions or to clarify important questions raised. Asynchronous forms of communication such as Web-based conferencing are highly valued and have the advantage over face-to-face group discussions of giving students the convenience and flexibility of pausing and reflecting on their ideas before posting them in the online forum. Romiszowski (1997) added that although face-to-face discussions have the benefits of interpersonal, social and non-verbal communication cues they are confined to real time, limited by geographical distance, require time and are influenced by one's personal inhibitions. Liberated from these constraints, students can concentrate on the content of the discussion resulting in more thoughtful and well considered ideas (Berge, 1997; Harasim, 1987; Meyer, 2003; Romiszowski, 1997).

Other reports have found interactions in online learning environments more social and friendly compared to face-to-face environments (Harasim, 2000; McDonald & Gibson, 1998). Berge (1997), for example, notes that asynchronous environments are especially suited for “shy, thoughtful, or hesitant conversationalists and to members of those cultures where answers and responses are considered and carefully framed before presentation” (p. 8). Such learning environments enable students to participate more equitably in online discussions

and collaborative activities seceding from traditional lecturer-led discussion (Bonk & Dennen, 2003; Harasim, 2000). Moreover, online lecturers can intentionally structure their class to optimise individual, paired, small group or whole group communication and interaction to achieve specific learning goals (Berge, 1999; Harasim, 1993). These benefits go beyond the mere delivery of pre-packaged education and challenge the traditional viewpoint of learning confined to the classroom and the role of the lecturer as the expert in disseminating knowledge to the student (Bonk & Dennen, 1999);

5) The capacity of accessing unlimited global resources including content created by the lecturers and peers as well as networking opportunities with experts, professionals, communities or researchers in one's field of interest (Hill, 2000; Kearsley, 2000; Relan & Gillani, 1997; Willis & Dickinson, 1997). The information accessed is usually current, and gives the students the opportunity to further explore a topic of interest through hypertext links to other websites (Ownston, 1997).

Students' viewpoints are broadened with opportunities for discussion, interaction and reflection. They can explore and accommodate multiple perspectives in developing their individual and cumulative knowledge and reflections to form a sense of *intersubjectivity* and common ground (Bonk, Appleman, & Hay, 1996; Dennen & Wieland, 2007; Harasim, 2000; Windschitt, 1998). This advantage is usually exploited in online learning classes that value collaborative learning and a dynamic learning community. Online group projects allow group members from differing geographical localities to collaborate towards shared goals or to solve problems to achieve a common goal. Students have reported on the benefits from active learning activities such as collaboration, social interaction and communication in enhancing their ability to reflect in their assignments, developing a better understanding of concepts and analytical abilities, and cultivating a sense of cohesiveness for them to accomplish more than if they were to learn on their own (Harasim, 1990, 2000; Hill, 1997); and finally,

6) The unique nature of text-based communication in online learning allows learners' thoughts to be captured for further examination, elaboration and extension resulting in richer and more thoughtful online discussions (Harasim,

1990; Ownston, 1997). Levinson (1990) claims that the ability to easily revise one's work gives the writer the capacity to produce a closer fit between ideas/emotions and their expression in writing, and makes text a "much finer, more supple and more propagative tool of the intellect" (p. 9). Mason and Kaye (1990) suggest some benefits of text-based communication,

the downloading of text messages and documents that can then be edited, modified, and uploaded again for others to read, comment on and process. These possibilities change the ways in which text material is perceived and apprehended – the authority of a finished, polished product (e.g. a book) is replaced by something dynamic and modifiable, much more under the learner's control (p. 19).

The textual mode of communication also facilitates learning in allowing learners to assume a sense of anonymity when learning online. Studies have indicated how students are less shy about participating online as the potential discriminating social cues in face-to-face interactions such as physical appearance, gender, ethnicity, socioeconomic status, speech and accent are minimised to a certain extent in online interactions (Dutton, Dutton, & Perry, 2002; Owen, 1993).

Other reports point to the increased opportunities for publishing one's work on the Internet for sharing either on a one-to-one basis or a one-to-public basis such as through threaded discussions and discussion boards as a motivator for students to produce quality work as part of the learning process (Crossman, 1997). This results in enhanced writing skills as students learn to write to engage authentic audiences (Ownston, 1997; Wegerif, 1998).

Collier and Yoder (2002) further report on the changing communication dynamics (e.g. differences between the spoken versus the written word, asynchronous versus synchronous communication, and the advantages of asynchronous interactions) as a result of adopting these technological tools. For example, email communication has been found to be less structured, less constrained by social conventions of communicating and more spontaneous (Windschitt, 1998).

Although the benefits and opportunities that online learning affords to learning are commendable, the limitations of this learning mode need to be considered. Some of the constraints are presented next.

3.1.3 Constraints of the Web-based Technology

Some notable constraints reported in online learning include:

1) A primary emphasis on text-based communication. Students and lecturers can be uncomfortable with this method of communication as they commonly rely upon non-verbal cues such as physical appearance, speech and voice in mediating effective face-to-face communication (Cornelius & Higgison, 2000; Heath, 1998). Shell (1994) pointed out the effects associated with text-based communication: students' online messages are more easily misunderstood; students can feel vulnerable as their thoughts are recorded and preserved for others to read; students can become overly concerned with the appearance of their text, typographical errors and grammar; and the distancing safety of communicating via the Internet can instigate casual inflammatory and hurtful remarks from and between students. Furthermore, students can experience information overload and a sense of dissonance when learning online as they cope with discussion threads, required readings and attempts to navigate through a multiple-media rich hyperlinked learning environment (Harasim, 2000; Hill, 1997; Marchionini, 1988; Shell, 1994; Whittaker & Sidner, 1996). Harasim (2000) adds that online learners also experience communication anxiety due to an uncertainty of the appropriateness of their online messages and whether they were sent to the *right* conference. Online lecturers need to assist students by creating a supportive class structure with helpful guidelines to overcome such "lost in hyperspace" phenomenon (Hill & Hannafin, 1997, p. 39);

2) The asynchronous form of communication has also been blamed for the acute sense of isolation experienced by learners as they feel disconnected from their lecturer and their peers when learning online (Bird & Morgan, 2003; Lake, 1999). Many authors have raised the need for specific strategies to be established to encourage a combination of independent and collaborative work and interaction to overcome this limitation (Collins & Berge, 1996; Lake, 1999; McIssac, Blocher, Mahes, & Vrasidas, 1999; Schulte, 2003). Romizowski (1993) also alluded to the fact that the Web is a multi-level, and multi-speed environment where students

can access resources and also participate in teaching-learning activities over time. This can lead to an overall lack of cohesiveness and pose a challenge for online interaction and discussion especially in terms of managing task-coordination (Harasim, 1993; Harris, 1994; Schrum, 1992; Sherry, 2000);

3) Technical challenges are a chief concern to online students and lecturers. Online learning is heavily dependent on the workings of a computer, modem, and Internet access. A failure or breakdown in any of these components impedes access ultimately prohibiting interaction and communication in online learning (Hill, 1997). Other factors such as bandwidth, speed of communication lines, and the seamless integration of the software application used can also hinder participation in online learning. Novice online students and lecturers will also need to overcome a fear of using the hardware and software. Schrum (1992) reported that the biggest challenge associated with online learning is the frustration resulting from technical failures. Online students and lecturers get frustrated when learning to use the hardware and software, are unable to connect to the Internet and have to wait while the information downloads to the desktop (Schrum, 1992);

4) Students are able to *hide* easily or not participate in online class discussions (lurking) or disappear altogether from the online class. Student lurking is a concern among online lecturers who fear that lurkers are bystanders to course discussions and precluded from beneficial online learning experience, or lack a commitment to the online learning community, or are just free-riding on the efforts of others (Finholt & Sproull, 1990; Kollock & Smith, 1996; Rovai, 2000). The reasons for lurking are varied: lack of self-confidence or feelings of incompetency to post ideas online (Berge, 1997, 1999), lack of confidence on the part of non-native English speakers in their English skills (Katz, 1998), desire to preserve anonymity, privacy and safety, constraints of time and work commitments, and the inability to cope with the sheer volume or poor quality of online messages (Nonnecke & Preece, 2001). Active members generally mistrust those who do not participate, a negative impact that can affect the overall sense of community in an online class (Rovai, 2000). While lurking usually carries a negative connotation online learning, others claim that it is able to meet online learners' personal and information needs (Nonnecke & Priest, 2001). It is also

argued to be a form of LPP (Lave & Wenger, 1991) for students, in the development of online learning communities, as they familiarise themselves with the class and develop the competence and confidence to participate in the class discussions to work towards central participation in the community (McKendree & Mayes, 1997; Preece, Nonnecke, & Andrews, 2004; Subramani & Peddibhotla, 2004; Whittaker, Terveen, Hill, & Cherny, 1998); and,

5) Time and resource management pose a further challenge for online lecturers and students. Bork (2000) has observed how lecturers' workload increased as simple tasks such as replying to emails become demanding with the increase in class size. Other contributors to the workload include marking and dealing with the interactive components in the online class (e.g. discussion forums and chats) where student contribution can range from sporadic to a surge of online messages for the lecturer to respond too (Caplan, 2004). Many researchers have cautioned online lecturers to be aware of the time and resources involved in developing, maintaining and offering an online course (Caplan, 2004; Harasim, 1987; Hill, 1997).

This section has explored the important affordances and constraints inherent in the Web-based technology in influencing learning. The Web technology affords time and place independence access to educational opportunities, multiple formats of learning content in synchronous and/or asynchronous forms of interaction, access to global resources, and the persistence of text-based communication for further examination of learner thoughts and ideas. In contrast, its constraints is exemplified through the impersonal nature of the text-mode of communicating, learner sense of isolation and disconnectedness, frustrations experienced when technical failures occur, lack of student participation or lurking, and the challenges faced in managing time and resources when teaching-and-learning online. Overall, the most valuable contribution that the Web-based technology affords is increased communication and interactivity through email, bulletin boards, chats, and Web-based conferencing to potentially lead to the development of a virtual learning community in enhancing the quality of student learning. This allows the potential for a higher level of student engagement in the teaching and learning process and for more authentic learner centred activities.

Reports on successful pedagogical frameworks of online courses suggest that increased opportunities for student interaction with others exploit the maximum potential of the affordances of the Web, give tribute to social and participative learning practices and are highly valued by most students (Bonk & Reynolds, 1997; Salmon, 2000; Salomon & Perkins, 1996; Swan, 2002). This implies that a closer examination of the roles and functions of the online lecturer and students is warranted to ascertain how they can appropriate the affordances of the Web to mediate important teaching and learning interactions while making provisions for its constraints. Salomon and Perkins (1996) claim that,

learning depends crucially on the exact character of the activities that learners engage in with a program, the kinds of tasks they try to accomplish, and the kinds of intellectual and social activity they become involved in, in interaction with that which computing affords. Computer technology may provide interesting and powerful learning opportunities, but these are not taken automatically; teachers and learners need to learn how to take advantage of them (p. 3).

This signals a warning that although the Web affords interaction and communication, this capacity must be appropriated by the lecturers and students otherwise it remains merely a potential for action. This research hopes to address this point by assisting the online lecturer and students in the research to comprehend and appropriate the affordances of the technological tools to mediate and enhance learning. The next section discusses specific roles online lecturers can play to realise the affordances and facilitate learning in the online environment.

3.2 The Role of the Online Lecturer

The first part of this discussion centres on the importance of the lecturer's role in effecting change in the class. This is followed by an overview of the approaches adopted to support lecturers' transition from face-to-face teaching to online learning environments.

The literature on successful online lecturer practices is replete with best practices and *how tos* in crafting an effective interactive and collaborative learning environment (Collier & Yoder, 2002; Lander, 2001; Sunal, Sunal, Sundberg, &

Staples, 2002; Tallent-Runnels, Cooper, Lan, Thomas, & Busby, 2005). These range from giving prompt feedback to having a strong and regular lecturer presence to carefully structuring the course to encourage peer collaboration. Efforts have also been made to identify competencies and skills required for successful online teaching to occur (Goodyear, Salmon, Spector, Steeples, & Tickner, 2001; Smith, 2005; Spector & de la Teja, 2001). Furthermore, benchmarks and quality standards of teaching in online courses have been proposed to ensure the quality and robustness of online teaching practices (Frydenberg, 2002; Institute of Higher Education Policy, 2000; Lorenzo & Moore, 2002; Online University Consortium, 2004). This is in line with the concerned call in the last few years since the Web's conception to redirect research efforts back to effective pedagogy to enhance meaningful teaching and learning (Bonk & Dennen, 1999; Clark, 1994; Collis, 1997; Curran, 2001; Grabe & Grabe, 2000; Hill, 2000; Khan, 1997; Mason & Kaye, 1990; Robson, 2000; Sherry, 2000).

The important recognition for online pedagogies support the notion that the lecturer's role in any teaching-learning environment be it face-to-face or in an online setting is of key importance (Forret, Khoo, & Cowie, 2005; Matuga, 2001; Palloff & Pratt, 1999, Salmon, 2000). The main difference is that of emphasis as some practices become more prominent while others are downplayed in the transition from face-to-face to online learning environments (Nichols, 2007b). Anderson (2004a) observes:

Learning and teaching in an online environment, are in many ways, much like teaching and learning in any other formal educational context: learner's needs are assessed; content is negotiated or prescribed; learning activities are orchestrated; and learning is assessed. However, the pervasive effect of the online medium creates a unique environment for teaching and learning (p. 273).

It is the different dynamics of the online learning environment that necessitate lecturers to change their role but the nature of this change has no bearing on their fundamental role as teachers in a class (Nichols, 2007b). As Mayes (2001) asserts "it is not new pedagogies that we need, but new ways of providing existing pedagogy efficiently and flexibly" (p. 17) which posed the real challenge for

online learning. How *good teaching* is expressed is just different in an online and face-to-face learning setting (Goodyear et al., 2001). As a result, different ways of teaching, organising and presenting content, communicating with students and evaluating courses become necessary considerations (Ryan, Carlton, & Ali, 2004).

3.2.1 A Roles Framework

Different frameworks and approaches have been proposed in order to identify and classify the many teaching practices found helpful in fostering online collaboration and interactions. They range from proposing a progressive five-stage model on online teaching-learning (Salmon, 2000) to investigating the potential of specific online pedagogical strategies such as problem-based learning (Jonassen, 1998; Oliver & Herrington, 2000; Oliver & McLoughlin, 1999). Others have chosen to investigate types of teacher-student-content interactions (Anderson, 2003; Cummings, Bonk & Jacobs, 2002; Garrison, Anderson, & Archer, 2000; Gunawardena, Lowe, Anderson, 1997; Moore, 1989, 1990, 1993; Northrup, 2001) and so forth. Another framework to making sense of these teaching practices is to view them as being associated with a particular lecturer role (Berge, 1995, 1996, 2000; Bonk & Dennen, 2003, Coppola, Hiltz, & Rotter, 2002; Palloff & Pratt, 1999; Teles, Ashton, Roberts & Tzoneva, 2001). Identifying specific roles enables lecturers to more easily explore each role's required responsibility, tasks and practices and adapt them to their teaching context. Further, Collins and Green (1992) argued that it was important to understand the roles lecturers and students adopt as they influence the nature of their contributions during lesson activity. This is the approach undertaken in this thesis.

Mason (1991) first established the notion of online lecturer roles to systemise the overall responsibility and tasks required of an online lecturer. Three key lecturer roles are observed – organisational, social, and intellectual. An organisational role involves the lecturer setting the course objectives, schedule and rules for online contributions; a social role refers to using strategies such as posting welcoming messages, acknowledging student contribution, giving prompt feedback to student contributions and maintaining a positive and friendly tone in the forum; while an intellectual role involves asking questions, probing responses, refocusing discussions, weaving disparate comments, synthesising key ideas, identifying

unifying themes, directing the discussion and raising the intellectual climate of the course. These three roles seem to be quite essential as they are raised again although represented differently through the three roles proposed by Coppola et al. (2002) a decade later. They propose a cognitive, an affective and a managerial role. The cognitive role relates to the mental processes of learning, information storage and thinking. The affective role is where a lecturer attempts to relate to students by creating a friendly class atmosphere, and finally, the managerial role deals with the class and course managerial issues and monitoring of students' progress. Coppola et al. (2002) also found evidence of changes in roles as lecturers move from teaching face-to-face to online environments. Although conventional face-to-face teaching roles are still maintained in online classes, these roles are transformed. The cognitive role, for example, demands that the online lecturer shifts students into deeper cognitive complexities of learning. The affective role requires online lecturers to find new tools to express emotions. Finally, the managerial role requires more attention to class details, class structure and student monitoring. Garrison et al. (2000) reported similar categories of lecturer roles in their online Community of Inquiry model through their portraying a cognitive presence, social presence, and teaching presence in the class.

Berge (1995, 1996, & 2000) and Teles et al. (2001) expanded on these core roles to highlight four roles: pedagogical, managerial, social, and technical. An online lecturer's pedagogical role refers to the lecturer initiating educational facilitative strategies to promote quality learning interactions. This involves using questions and probes to encourage student response and focus discussions on critical concepts and ideas. A managerial role revolves around activities that are organisational, procedural and administrative in nature. They include tasks such as setting the course objectives, establishing rules and policies in the class, and managing the class interactions carefully. A social role looks to promoting a friendly social and welcoming environment to students. It is important for students to feel safe and to relate to one another for them to work successfully together in a cohesive team. Finally, a technological role involves the lecturer becoming comfortable and competent with using the online technology. He or she also needs to support the novice online learner's adoption of the technology in order that they can concentrate on the learning activities in the course. Berge (1996) acknowledged that not all of these roles need to be conducted by the same

person (though they can be) and that there can be overlaps in the tasks required in the characterisation of each of these roles.

Other investigations have attempted to expand on these four core roles to further refine the tasks and responsibilities required of the online lecturer. Goodyear et al. (2001), for example, identified eight roles – researcher, assessor, adviser/counsellor, process facilitator, content facilitator, technologist, designer, manager/administrator. Salmon (2000), on the other hand, emphasised five key online lecturer roles such as information giving and receiving, development, knowledge construction, access and motivation and socialisation. Other examples of typical online lecturer roles proposed by various researchers are portrayed in Table 3.1. The diversity and multidimensionality of the online lecturer role is implied. These roles are active and dynamic responding to changes during a course and the learner's needs and expectations (Anderson, 2004a; Cornelius & Higgison, 2000). A broad analysis of these proposed roles reveals how Berge's (1996) framework could easily accommodate them. For example, the managerial role can represent similar roles such as organisational, administrator, planner, group structurer, researcher, and designer. The pedagogical role could encompass the intellectual, tutor, mentor, assessor, facilitator, cognitive, role model, coach, and knowledge expert roles. The social role can be affiliated with roles such as advisor, helper, affective and communicator. Finally, the technical role can replace the firefighter and technologist roles. In spite of such multiplicity of roles proposed, Berge's (1996) original framework remains popular among researchers in the development of collaborative teaching and learning online environments (Bonk, Kirkley, Hara, & Dennen, 2001; Bonk & Dennen, 2003; Maor, 2003; Teles et al., 2001), and online learning communities (Bonk et al., 2004; Palloff & Pratt, 1999).

Although this was a useful framework to guide online lecturers' teaching and development in the online class, literature on how each of these roles can take advantage of the affordances and opportunities of the technological tools found in a typical online class has been limited.

Table 3.1

*Examples of Online Lecturer Roles*³

Mason (1991)	Berge (1995)	Harasim et al. (1995)	Collins and Berge (1996)	Salmon (2000)	Cornelius and Higgison (2000)	Garrison et al. (2000)	Coppola et al. (2002)	Goodyear et al. (2001)	Heur and King (2004)
	Technical		Firefighter		Technologist			Technologist	
Organisational	Managerial	Planner	Administrator		Manager		Managerial	Manager/ administrator	Planner
Intellectual	Pedagogical		Participant	Information giving and receiving	Co-learner	Cognitive Presence	Cognitive		
		Group structurer		Development	Designer			Designer	Role Model
				Knowledge construction	Knowledge expert			Content facilitator	Facilitator
					Researcher			Researcher	
		Facilitator	Facilitator	Access and motivation	Facilitator	Teaching Presence		Process facilitator	Coach
					Assessor			Assessor	
Social	Social	Guide	Promoter	Socialisation	Adviser/ counsellor	Social Presence	Affective	Adviser/ counsellor	Communicator
			Helper		Tutor				
					Mentor				

³Note. From *Online Tutoring E-book* by S. Cornelius and C. Higgison, 2000, Edinburgh, Scotland: Heriot-Watt University and the Robert Gordon University.

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Consequently, Bonk and Dennen (2003) extended the definition of each of the Berge's original four roles or 'hats' through the use of the Web's communicative and collaborative tools. Table 3.2 details the roles, their characteristics and supporting Web-based technological tools and activities.

Table 3.2

Summary of the Four Key Roles of the Online Lecturer⁴

Lecturer Roles	Characteristics and Tasks	Enabling Web-based Technology and Activities
Pedagogical Role	Assume facilitator or moderator role and ask questions, encourage student knowledge building, design a variety of instructional activities, elicit reflection, weave or summarise discussions, identify themes in discussions, offer constructive criticism, push to articulate ideas and explore resources and provide explanations and elaboration where necessary	Problem-based learning tasks, peer feedback tools, electronic cases, team activities, discussion forums, role play, constructive controversy, field reflections, links to suitable Web sites and resource evaluations, online debates
Managerial Role	Coordinate assignments, set due date, assign groups and partners, present clear expectations, set office hours, clarify grading and feedback policies and overall course structuring	Online chats, detailed syllabus, course FAQs, online gradebook and portfolios, track login data, online calendar of events
Social Role	Create a friendly and nurturing environment or community feel, exhibit a generally positive tone, foster some humour, personalise messages, display empathy and interpersonal outreach	Online cafes, digitised class photos, online guests and visitors, embed jokes and online stories or anecdotes
Technological role	Assist students with technology and system issues, clarify problems encountered, notify students when the server is down, explain system limitations	Orientation tasks, help systems, tutorials, vote on preferred technologies

⁴Note. From *Handbook of Distance Education* (p. 339), by M. G. Moore and B. Anderson, 2003, Mahwah, NJ: Lawrence Erlbaum. Copyright 2003 by Copyright Clearance Center. Reprinted with permission.

A pedagogical role to highlight the lecturer's educational facilitation role and encouraging student knowledge construction can be displayed through the use of team activities, electronic cases, online debates, discussion forums and peer feedback tools. Bonk, Hara, Dennen, Malikowski, and Supplee (2000) proposed twelve forms of online learning assistance such as questioning, directing instruction, modelling, giving feedback, providing task structuring and elaborations, pushing students to explore, fostering reflection, encouraging articulation and giving general advice/ scaffolding. Similarly, Anderson, Rourke, Garrison, and Archer (2001) conceptualised an online lecturer's teaching presence as comprising of design and coordination, facilitating discourse (e.g. identifying areas of agreement/disagreement, seeking to reach consensus, encouraging, acknowledging or reinforcing student contributions, setting climate for learning, drawing in participants/ prompting discussions, assessing the efficacy of the process), and direct instruction (e.g. present content/questions, focus the discussion on specific issues, summarise the discussion, confirm understanding through assessment and diagnose misconceptions). An important pedagogical role include the lecturer exertion of *control* where, unlike the traditional sense of lecturer exertion of power and authority, lecturers embracing a situated learning approach to teaching and learning need to exert and retain control in context in order to facilitate interactions with their students that will promote learning and knowledge creation (Jawah, 2006a). Current studies attest to the online lecturer's ability to facilitate discussions as imperative to creating a supportive, collaborative class where students are engaged in constructive knowledge building efforts as part of a community of learners (Balcaen & Hirtz, 2007; Clark, 2001; Collins & Berge, 1996; Commonwealth of Learning, 2003; Goodyear et al., 2001; Heuer & King, 2004; Leh, 2002; Maor, 2003; Morris, Xu, & Finnegan, 2005; Palloff & Pratt, 2001; Ryan et al., 2004; Thorpe, 2002). In the role of a pedagogical facilitator, emphasis is given to class discussions, contributing to the development of knowledge, weaving various discussions threads together and maintaining overall harmony in the class instead of mere information dispensing (Barab, Thomas, Merrill; 2001; Berge, 2000; Bonk & Reynolds, 1997; Hara & Kling, 2000; Harasim, 1990; Lai, 1997; Mueller, 2002; Rossman, 1999; Salmon, 2000; Schrum & Hong, 2002). Harasim (2000) urged online lecturers in their pedagogical roles to learn to create courses that are constructional or

conversational where discourse and teamwork create a sense of commitment. In essence, online lecturers “must learn to moderate, mediate and facilitate discussions” (Harasim, 2000, p. 53).

A managerial role to organise, administer and maintain the smooth running of a course can employ a course frequently asked questions (FAQs) reference area, online portfolios and online calendar of events. Collis and Nijhuis (2000) contend that this role is often hugely underestimated and encompasses all tasks “outside of content-specific aspects of a course” (p. 87). The literature on online teaching also highlights the time-consuming nature of managerial tasks in planning, organising, administering, keeping track of students’ development, clarifying expectations, responding to student inquiries and so forth. Recommendations are made for online lecturers to build in more student support structures and clearly define expectations and availability to cope with these demands (Anderson, 2004a; Collis and Nijhuis, 2000; Ko & Rossen, 2004; Lazarus, 2003; Nichols, 2007b). Hara and Kling’s (2000) study in an online Masters’ course further indicated that online students were concerned about receiving prompt, clear feedback, constructing text-based messages that are free of ambiguity and misunderstanding and coping with the general complexities of communicating online; managerial and technically related issues which ought to be addressed at the outset of a course.

A social role to make students feel welcome can be demonstrated through the use of online cafes and jokes where the students and lecturer can have light-hearted and casual conversations outside of the course to create a friendly and welcoming atmosphere, or the use of online photos to personalise the contributions posted in the class forum in the attempt to reduce the perceived cold and impersonal nature of distance learning. Others highlight that good communication skills as part of the online lecturer’s social role are important to convey clear expectations, instructions and directions, develop cordial and supportive relationships which will build towards discussions that have more depth and based on well thought-out responses rather than spontaneous comments (Al-Bataineh, Brooks, & Bassoppo-Moyo, 2005; Bonk et al., 2004; Campos, Laferrière, & Harasim, 2001; Collins & Berge, 1996; Coppola, Hiltz, & Rotter, 2004; Deaudelin, Dussault, & Brodeur, 2003; Hung & Nichani, 2001; Kanuka & Anderson, 1998; Richardson &

Swan, 2003; Zieger & Pulichino, 2004). Gunawardena (1995) argued that the online lecturer's social presence is crucial in creating a sense of community and collaboration among students. This is supported by other studies indicating how a social role was important in supporting online students' sense of isolation and providing acceptance and encouraging collaboration in the building of a supportive online learning community (Kiernan, Thomas & Woodroffe, 2003; Lai, 1997, 1998; Lake, 1999; Maor, 2003; McIssac et al., 1999; Richardson & Swan, 2003; Rovai 2000; Stepich & Ertmer, 2003; Stodel, Thompson & MacDonald, 2006; Tu, 2002; Zieger & Pulichino, 2004). Hiltz (1994) recommended that online lecturers be flexible in their teaching, provide frequent and directed questions and responses, acknowledge comments made by students, encourage lurkers to contribute to the group and provide updates and reviews of discussions in establishing a social role to encourage community building.

Finally, a technological role is realised by assisting students to become comfortable with using online technology through help systems and tutorials or orientation tasks to familiarise them with the technical interface used in the online class. Many studies show that one of the major frustrations in online learning is the lack of student technical support (Collier & Yoder, 2002; Daugherty & Funke, 1998; Hara & Kling, 2000; Tallent-Runnels et al., 2005). Harasim (2000)'s investigation into online student satisfaction at the Virtual U in Canada, based on data from 15,000 students from 439 courses, confirmed technical difficulties and slow network time were a major concern for students. Their students experienced communication anxiety as they were insecure about the appropriateness of the messages sent and whether they were sent to the right conference. Lecturer feedback and explicit user guidelines given to alleviate student concerns as they gained skills and confidence in navigating the online classroom were highly recommended in this study. Technical breakdowns in online learning environments result in communication difficulties marking the absence of support and guidance from the lecturer and students' peers. It is important for online lecturers to play a technical role in supporting and helping students through such technical and communication difficulties.

Overall, the literature on online lecturer roles advocates flexibility in adopting and switching in-between the multiple roles at any one time in an online course

(Cornelius & Higginson, 2000; Gwynne & Chester, 2000; Heuer & King, 2004). A final key idea in these frameworks on lecturer roles is for a lecturer to reassess his or her role as a lecturer and take advantage of the Web's communicative and collaborative potential to foster environments and reward structures that encourage students to value their interactions with their peers as an important learning resource. Such re-examination moves the lecturer away from conventional roles of teaching as instruction or telling to questioning, engaging in dialogue and meaning-making rather than transmission of content. Anderson (2004b) argues,

the task of the online course designer and teacher is to choose, adapt, and perfect (through feedback, assessment, and reflection) educational activities that maximise the affordances of the Web. In doing so, they create learning-, knowledge-, assessment-, and community-centred educational experiences that result in high levels of learning by all participants (p. 55).

For the purposes of this research, Bonk and Dennen's (2003) framework provides a useful starting point in defining the online lecturer's roles and responsibilities in the planning of the intervention in this research (Phase 2) and in guiding the analysis of the Phases 1 and 3 data. However, one limiting factor was their recommendation did not indicate how these roles can be understood by grounding them in to the possible ways of lecturer interactions. This seminal work was realised by Zhu (1996) and later Garrison et al. (2000) (See Section 3.3.1).

Although the four lecturer roles have been highlighted in the literature, it is still a challenge for novice lecturers to craft them into their teaching in the online learning environment. A discussion of the various approaches used to support lecturers' adoption of the technology and transition to online learning is warranted next.

3.2.2 Approaches to Support Lecturers to Teach in Online Environments

The previous section discussed the importance of the multiplicity and flexibility of online lecturer roles. Developing the skills required for each role to be enacted in the online environment importantly calls for some form of lecturer scaffolding or development.

A number of reasons, however, contribute to lecturer reluctance to adopt online learning. They include:

- A discomfort with the technical requirements involved. Lecturers are not technologically savvy and do not see the relevance of using technology in their practice (Fox & Herrmann, 2000; Koehler, Mishra, Hershey, & Peruski, 2004). This could also be related to their preconceived attitudes and beliefs regarding technology and its effectiveness in mediating quality student learning (Beas & Salanova, 2006; Compeau, Higgins, & Huff, 1999; Decker, 1998);
- A reluctance of lecturers to step out of their comfort zone of teaching traditional face-to-face classes to attempt teaching in an online environment. Most lecturers have never had the experience of being an online student. They teach according to how they had been taught and have developed their own teaching style that they have found to be successful in their own face-to-face classes (Collins, 2000; Jamieson, 2004);
- A misconception that lecturers must learn to teach all over again when transitioning to online learning (Collins, 2000);
- A concern over losing their role as the dispenser of knowledge in the class (Collins, 2000);
- A concern as to whether the quality of teaching can be maintained, and or the inability to control the quality of learning (Collins, 2000). This is supported by Jamieson's (2004) study indicating that lecturers grappled with a combination of technical and pedagogical issues in adopting online learning, such as how to transfer their current practice to the online environment, how to establish a satisfactory relationship and interact effectively online, how to interpret the actions (or inactions) of the online learner, how to use the online environment to enhance students' learning experience, and how to acquire the functional skill to teach in the online environment;
- The limited time available to learn how to use the technology successfully as lecturers view online learning as yet another burden on their many responsibilities (Koehler et al., 2004). Preparing to teach online is also

very time consuming, an investment of time and effort usually not recognised by their institutions (Collis & Nijhuis, 2000; Lazarus, 2003; Nichols, 2007b; Young & McSporrán, 2004); and,

- A lack of role models or experts who have successfully taught online and can act as consultants for less experienced lecturers (Koehler et al., 2004).

These valid concerns need to be addressed in any form of support and development structure provided by institutions of higher learning.

Menges (1994) underscored four traditional strategies that have been successful in lecturer development: workshops and seminars, individual consultation, grants for improving teaching practice, resource materials such as books and newsletters and colleagues helping colleagues. In relation to online learning, two of the common forms of lecturer development include one-off workshops and seminars, or ongoing technical training and support programmes (Koehler et al., 2004). Although such short-term, generic training sessions can be quite successful in increasing lecturers' content knowledge and technical skills to acceptable levels of proficiency (Collins, 2000), it is doubtful if they can achieve anything more than superficial pedagogical changes. Specific criticisms against them include the fact that these strategies are time consuming and may be irrelevant to lecturers' needs (Salter & Hansen, 1999); often fail to address the more important (and more difficult) goal of helping lecturers integrate their knowledge and skill into long term successful pedagogical practice (Claxton & Carr, 1991; Salter & Hansen, 1999); are too simplistic and decontextualise the use of the technology from the pedagogy of specific content areas (Koehler et al., 2004); result in *shovelware* (the inappropriate literal conversion of teaching materials into the online learning environment without considering their suitability for pedagogical purposes in the online medium) (Collins, 2000); or the inappropriate adoption of the technology in a lecturer's teaching practice (Simpson, 2004).

Online lecturer development programmes are especially complex and difficult to cater to every lecturer's needs as multiple forms and contexts exist for online learning (e.g. a totally online course or a blended course or an online course supplementary etc.). A variety of possible ways to apply the technology also exists due to the rapid evolution of the technology, and the varying educational

levels of students and levels of technical expertise inherent in lecturers further add to the difficulty (Salter & Hansen, 1999).

The current research on online lecturer development programmes indicates lecturers can benefit from information regarding effective online teaching practice such as online interaction, pedagogical knowledge and best practices (Sprague, 2006), collaborative efforts and collegial support which can occur in the form of mentoring to discuss needs, share ideas and experiences (Hallas, 2006; Villar & Rosa, 2007), and the practical experience of integrating theory into practice to enhance student learning (Hallas, 2006). Accordingly, four broad approaches are observed in addressing the challenges of supporting lecturers' transition from face-to-face to online learning; a staged-based approach, a pedagogical-based approach, a distributed forms approach, and a personal views approach.

In the first approach, several writers refer to different models demonstrating how lecturer adoption of new technologies occurs over time as a basis for developing a lecturer development programme. Commonly cited models are Roger's Diffusion of Innovation Model (1995) (Freeman, Bell, Comerton-Forde, Pickering, & Blayney, 2007; Wilson & Stacey, 2003), a five-level model proposed by Harmon and Jones (2001), a five stage model for developing e-moderators (Salmon, 2000), a concerns-based adoption model (CBAM) by Hall and Hord (1987) (Jennings & Dirksen, 1997) and a five-stage Technology Learning Cycle (TLC) to help lecturers become lifelong learners of educational technology (Marra, Howland, Wedman, & Diggs, 2003). This approach focuses on skills acquisition and is advantageous in terms of the gradual immersion, introduction and mentoring of staff in a non-threatening manner to the technology before progressing to more advanced levels. Lecturers can enter any phase of development depending on their level of skill and readiness. Although, systematic in approaching lecturer development, this strategy usually involves more time, effort, commitment and influence at the institutional or management level to effect systemic changes.

The second lecturer development approach, in line with the changing pedagogical underpinning towards socially situated and participative approaches, emphasises authentic situated learning environments where lecturers are guided in the process of integrating pedagogy, content and the technology (Collins, 2000; Koehler et al.,

2004). Situated approaches use authentic real world contexts to provide the learner with the opportunity to view the learning experience as it would occur in the real world and allows hands-on practice in addressing the issues raised. Specific techniques include using scenario-based learning and case studies (Atkinson, 2004), learning by design (Koehler et al., 2004), role plays and project-based learning (Naidu, 2004) and forms of cognitive apprenticeship (Pearson & Koppi, 2003). For example, Naidu (2004) used role plays and project-based learning to introduce lecturers to various online learning topics such as course design and evaluation while Sims and Jones (2002) utilised a situated three-phase course design model where lecturers are supported by a team (course designers, technical specialists) to develop their individualised online learning environment. Taylor (2003) on the other hand used a team-based approach to support lecturer development of resources for online learning. This was flexible for the novice and experienced online lecturer's use, self-paced and included mixed mode (face-to-face and online sessions) options and peer mentoring and discussions. Project-based learning have been demonstrated through the use of a Web-based publishing project (Christie et al., 2001), a team-based action learning to transform an entire programme into an online format at the Southern Cross University, Australia (Ellis & Phelps, 1999), a just-in-time project-based learning programme to help lecturers integrate technology into their teaching (Hofer, 2001), and an online technology integration project where staff develop their own projects supported by technical and staff development personnel at Macquarie University, Australia (Litchfield, 2000). Cognitive apprenticeship forms of lecturer development was observed in Pearson and Koppi's (2003) staff development programme where lecturers observed how an expert approaches a problem, participated in performing the task themselves and applied the learning in their own online environment. All these techniques described reported overall positive outcomes in providing realistic and authentic scenarios such as the ones that lecturers could possibly face in the online learning environment although Naidu's (2004) and Koehler et al.'s (2004) studies showed the amount of time involved could be problematic. Other benefits include the opportunity to observe expert modelling and receive support, increased motivation and personal skills (Hofer, 2001; Taylor, 2003). They also importantly bridge theory and practice to promote important changes in lecturers' pedagogical practices (Atkinson, 2004; Naidu, 2004; Pearson & Koppi, 2003; Taylor, 2003) as well as supported the

formation of communities of practice where valuable collaboration and networking to critically reflect and jointly problem solve can occur throughout the process of development and implementation of the online learning courses (Ellis & Phelps, 1999; Sims & Jones, 2002).

The next approach to online lecturer development involves distributed learning initiatives employing mixed mode strategies to address the needs of online lecturers. This involves a wide range of technologies to support teaching-learning activities that are independent of time and place constraints. A range of face-to-face and online learning strategies are used either on an individual (self-paced or just-in-time format) or a group basis. Some examples include a lecturer development programme using a range of activities such as consultation, specific classes (self-paced or just-in-time) and an eight-week programme to develop skills to teach in interactive learning environments at the University of Central Florida (Hartman & Truman-Davis, 2001), an Internet-based course using online resources and face-to-face sessions for distance education coordinators in Russia (Moisseeva & Krivoschokov, 2001), a four-day workshop addressing theory and practical examples with ongoing technical support for participating staff both on-site and at a distance (Kidney, 2004), and combination strategies at the institutional level featuring annual conferences, training sessions and workshops for new staff, project-based coaching, demonstrations and individual just-in-time support and technical support (Laga & Elen, 2001). The outcomes of these initiatives report general staff satisfaction, increased adoption of the new technology and application in teaching as well as important opportunities for networking. Laga and Elen (2001) further proposed that informative sessions, demonstrations and training to provide ideas and knowledge be combined with individual support and coaching opportunities to gain the maximum benefits from development programmes.

Another important idea recognised in distributed learning approaches was that of resource sharing to enable the sharing of experiences (Wills, 2000) as a key staff development strategy. This was observed through initiatives using Internet-based databases for resource sharing (Baty & Moir, 2000; Cavanaugh, 2000), a case study video and website resources through flexible mode (Lefoe, 2000), the use of online material to model good practice in a just-in-time fashion to meet lecturers'

specific need (Salter & Hansen, 1999), and examples of staff collaborative learning using online resources such as chats, case studies, archived discussions, online events, paired online presentations, collaborative projects (Bowskill, Foster, Lally, & McConnell, 2000).

Some authors argue that flexible modes of delivery in staff development programmes are more advantageous in providing the critical experiential learning for online staff. Such instances include a project at Monash University, Australia, to provide lecturers with the direct experience of learning in a formal online learning environments (Jamieson, 2004), a collaboratively-designed flexible staff development programme delivered into Uganda from the United Kingdom (Binns & Bradley, 2004), an interactive workshop employing online technology that structured around a science fiction theme at the University of Sydney, Australia (Britton & Morgan, 2006), and a junior lecturer online development programme in Spain (Villar & Rosa, 2007). On the whole, distributed learning approaches to lecturer development share similar benefits to situated learning approaches but have the added benefits of lecturers' easy updated access to important teaching resources, working at their pace, fulfilling specific topic needs to enhance teaching, share experiences, and to experience online learning for themselves in order to connect their experience and knowledge and understanding of teaching to better meet their online students' needs.

The final approach, considering the personal views of the lecturer transitioning to online learning has also been found to be another effective strategy in development programmes. Some writers argue that for a better integration of knowledge and pedagogical skill with the technological opportunities available, considerations such as the lecturer's personality, philosophy or view of how students learn, pedagogic style, and planning for the class needs to be regarded (Matuga, 2001). Although the strategies and skills developed to deal effectively with new teaching situations are clearly important, it is argued that these strategies and skills derive their character and purpose from the lecturer's underlying beliefs and views of learning and its associated aims and intentions (Forret, Khoo, Cowie, 2006; Olson & Bruner, 1996). Hence, the introduction of any form of innovation in the classroom necessitates considering the folk psychological and pedagogical or implicit theories of lecturers as imposing changes externally no matter how

well-intentioned or formulated without giving educators the time, opportunity and support to make the change on their own are likely to fail (Claxton & Carr, 1991; Olson & Bruner, 1996).

A response to acknowledging and supporting lecturers' views and subjective realities before the introduction of any classroom innovation has been proposed by Shulman (1987) who conceptualised the importance of lecturers' pedagogical content knowledge (PCK). PCK recognises the contribution of both a lecturer's subject knowledge and pedagogy to contribute to a better understanding of how particular aspects of a subject matter can be organised, adapted and represented for teaching-learning purposes. This framework has since been extended to include lecturers' technological pedagogical content knowledge (TPCK) (Mishra & Koehler, 2006). TPCK addresses the complex interactions, affordances and constraints between and among lecturers' knowledge of content, pedagogy and technology. Mishra and Koehler (2006) argue that quality teaching require an understanding of the complex relationship between technology, content and pedagogy and using this understanding to develop appropriate, context-specific strategies. Using a situated approach requiring novice online lecturers to work in project teams, Mishra and Koehler (2006) illustrated how the TPCK framework can be used to develop lecturers' online teaching capabilities by engaging the teams in authentic design activities for an online course. This strategy compelled the lecturers to apply their knowledge to a real-world context, consider the complex relationship between the content and students' learning needs and ways to configure the design to meet those needs.

Overall, no one approach to developing lecturer capability for online learning was found to be the most effective in supporting the needs of lecturers transitioning to online learning as the success of each approach depended on factors such as staff motivation, the extent an approach was reflective of the values lecturers hold, the variety of support available, the perceived need for change, incentives, rewards and time for reflection (Mishra & Koehler, 2006; Oliver, 2004). A range of approaches and strategies is, however, utilised in response to lecturers' varying needs, interests and institutional pressure (Hegarty et al., 2005; Oliver, 2004). The evidence from situated and experiential learning and personal views approaches seems promising in supporting lecturers to make

significant changes in their teaching practices in authentic online learning contexts to better meet their students' needs. This research follows this recommendation and will utilise a combination of these approaches as a framework for an intervention for improving the learning experiences in an online course (see Chapter 8). The next section is concerned with the important role online students can play in response to the Web's affordances and the online lecturer's changing role.

3.3 The Role of the Online Student

Online learning requires students to re-examine their role in order to take advantage of the learning opportunities provided. Some writers caution that students tend to retain their traditional roles and assumptions undermining the collaborative and communicative potential in online learning (Berge, 2000; Carswell, Thomas, Petre, Price, & Richards, 1999; Rasmussen, Northrup, & Lee, 1997). Breaking away from traditional notions requires students to acknowledge some key differences in how successful learning occurs in the online learning context. Students need to recognise that they can be active contributors to the knowledge building and learning process by changing their roles as passive receivers of knowledge to active participants in creating their own meaning and understanding (Barab et al., 2001; Palloff & Pratt, 1999, 2001; Salmon, 2000). They need to realise their potential as resources in the class to their peers and even the lecturer (Leh, 2002).

Most of the studies in online learning importantly demonstrated that students highly valued and benefited from interactions with the lecturer and their peers. In a study of 76 online courses at the State University of New York's online learning programme, Swan (2001) found three factors were significantly related to students' satisfaction and perceived learning: clarity of design, interaction with lecturers, and active discussion among course participants. Students' support for such interactions indicates a strong justification for socially-related pedagogies.

The literature examining student roles in online learning can be divided into three areas:

1. authors who propose particular roles that students could undertake to take advantage of the learning opportunities of the Web;

2. authors who recommend roles to be undertaken (assigned roles) as part of the teaching-learning activity to promote student-centred learning in the online class; and,
3. authors who describe student roles based on their analysis of the types of student interactions when participating in online discussions (this approach is data-based) (See Section 3.3.1).

This area of literature on the whole, emphasises flexibility in adopting the roles highlighted and the fact they are very much intertwined and interdependent at any one time.

In the first approach, authors such as Pallof and Pratt (1999) proposed three student roles unique to the online learning context facilitated by the online lecturer: knowledge generation, collaboration and process management. The role of knowledge generator entails practices and strategies undertaken to actively gather information and form or construct an understanding of a topic studied. Related activities include the questioning of one's own and others' assumption of ideas, locating additional resources, analysing problems and questions raised from multiple perspectives and resolving issues in the topic area studied. The role of a collaborator on the other hand emphasises active involvement in a group activity. Online students can benefit from the sharing of resources, supporting one another and facilitating discussions in the group, as well as providing meaningful feedback to one another. These scaffold deeper levels of understanding and more analytical evaluation of issues raised and discussed. Finally, a focus is given to managing the interactions in the online group discussion to collaborating in an efficient and effective manner; a role undertaken by the process manager. Based on the guidelines given for online discussions in the class, students are expected to participate and engage with one another and provide feedback on improving the class interactions. Student responsibility for the formation of the online learning community is also implied in this role. Other student roles in the online class such as teacher, independent self-directed learner, constructor of knowledge have been suggested by Rasmussen et al. (1997). The role of a teacher entails students identifying their own questions and searching for their solutions as well as learning to view topics from multiple perspectives when learning online. As independent self-directed learners, students learn to pace and manage their personal study time. Their ability to access an ever increasing amount of online

resources implies they can bypass the lecturer as the sole generator of knowledge or repository of skills and have hands-on practice at developing their own proficiency in their field of study with the lecturer as a guide. A knowledge constructor role is revealed when students learn to create and develop their own understandings, develop complex problem solving strategies and apply their knowledge appropriately instead of merely learning to pass the test (Berge, 1995, 2000; Collins & Berge, 1996). The proposal of these roles is intended to help students systematically identify important strategies for fostering valuable online collaboration and interaction to enhance learning.

The second approach to understanding student roles is derived from examining the range of online roles recommended that students be assigned to encourage their active participation in the class. Bonk, Wisner and Lee (2003), for instance, suggested that online students can be assigned roles such as coordinator, starter or resource investigator, summariser, secretary or scribe, advocate or encourager, specialist, implementer and reviewer or editor of results when working in their discussion groups. Both Harasim (1993) and Eastmond (1995) proposed that online lecturers appoint varying roles to students such as presenter, discussant or discussion moderator to better organise the online learning environment, communicate expectations and encourage interaction. Others such as Vonderwell and Zachariah (2005) required students to undertake the roles and responsibilities of a facilitator, critical reflector and summariser in the online discussion forum. Alternatively, student roles such as *starter* and *wrapper* (Hara, Bonk, & Angeli, 1998) have been actively assigned to scaffold student-led discussions and promote constructivist learning principles in online discussions. The starter is responsible for summarising the key ideas from the week's assigned readings and posing questions to initiate the group discussions. The role of the wrapper reflects on the issues highlighted and attempts to weave the key discussion threads together. This student-centred technique was useful in scaffolding students' learning, gave students the opportunity to be more responsible for their own and their group's learning, and motivated them to continue learning from one another online (Hara et al., 1998; Tiong & Khoo, 2006). Other students in the discussion group who were not assigned to either the starter nor wrapper role could assume other roles such as devil's advocate, pessimist, or optimist (Bonk & Dennen, 2003).

In addition to the above approaches, student and lecturer roles emerging from the types of online interactions they engage in have also been studied. This is detailed next.

3.3.1 Lecturer and Student Roles: Participation based on Interactions

Defining Online Participation and Interaction. Current authors in online learning are arguing for an understanding of online participation as the basis for enhancing online learning (Hrastinski, 2008a; Roberts, 2007; Vonderwell & Zachariah, 2005; Zafeiriou, Nunes, & Ford, 2001). The general literature in online learning, however, fails to distinguish between the terms participation and interaction using both terms either interchangeably. A subtle difference exists between them which is crucial both in defining and determining the appropriate analysis to further understandings of learning and identity formation from a sociocultural view of learning. This issue is further complicated as both online participation and online interaction have been conceptualised in different ways by different authors. For example, online participation has been conceived as the number of online contributions or postings (Davies & Graff, 2005; Peachey, Jones, & Jones, 2004; Poole, 2000) and the quality of interactions occurring in a discussion forum (Moore & Marra, 2005; Roberts, 2007; Vonderwell & Zachariah, 2005). Current authors however are calling for definitions of online participation that go beyond quantitative measures to recognise the complex dimensions of participation. Hrastinski (2008b) reviewed the literature on online participation and proposed a typology of six conceptions of online participation. Organising them from low to high-level conceptualisations of participation, Hrastinski (2008b) found that participation can be conceptualised as accessing online environments, as writing, as quality writing, as writing and reading, as actual and perceived writing, and finally as taking part and joining in a rewarding dialogue. He notes that taking part and joining in a dialogue is increasingly being adopted in studies associated with social constructivist and sociocultural views of learning. Additionally, Hrastinski (2008a), in adapting Wenger's (1998) sociocultural definition of participation to the online context, recognises participants' action and connection with others in the development of relationships, roles and identities as when a newcomer is enculturated in the practices and activities of a COP. He views online participation as "a process of learning by taking part and maintaining relations with others, a complex process comprising doing, communicating,

thinking, feeling and belonging that occur both online and offline” (p. 1761). Hrastinski (2008a) claims this notion of participation has three characteristics: participation is a complex process of taking part and maintaining relations, participation is supported by physical and psychological tools, and participation is not synonymous with talking or writing. Online participation viewed as a complex process of taking part and maintaining relations recognises the different ways that members of a COP can relate to one another including conflictual and competitive relations. Wenger (1998) explains this as, “It [Participation] can involve all kinds of relations, conflictual as well as harmonious, intimate as well as political, competitive as well as cooperative” (p. 56). Also the use of physical and psychological tools such as Web-based tools and language is recognised to facilitate participation by mediating participant communication and collaboration. Finally, the idea that participation is not necessarily synonymous with talking or writing online recognises that participation can occur even when one is not engaged in conversations with others. Wenger (1998) explains this to as, “our engagement with the world is social, even when it does not clearly involve interactions with others” (p. 55). In accord, Hrastinski (2008a) interprets this idea to mean that participation is not limited to the number of times a participant writes or talks (chats) online. The number of contributions posted in a discussion forum is one aspect of participation (a low-level one). However, those who are infrequent contributors to discussion forums ought not to be dismissed as passive recipients as they may be reading, engaging, thinking and reflecting on the discussions in a course (Romiszowski & Mason, 2004). Wenger (1998) adds that this idea of participation as beyond mere engagement in practice means it is not something one can turn on or off. Hence, even when they are not involved in interactions with others, learners can still be participating. This thesis adopts Hrastinski’s (2008a) definition of online participation as encompassing the complex dimensions of acting and relating to others in the online context. Such a conceptualisation of participation also acknowledges Brown and Duguid’s (2000) idea of learning *to be* and Lave and Wenger’s (1991), Rogoff’s (1995) and Wenger’s (1998) sociocultural notions of participation (See Section 2.5.4). This study, thus, examines the lecturer’s and learners’ participation through the ways they relate to one another as embodied through the kinds of roles they adopt when involved in collaborative activities to achieve shared goals, as part of their transformation of identities in the course. This thesis uses the term *participation*

rates in recognition of the lower-level conceptualisation of participation as the number of online contributions or postings in a discussion forum.

The term online interaction has also been defined and investigated in different ways by different authors. Moore (1989) and Juwah (2006b), for example, distinguishes between three types of interactions in an online course: learner-instructor, learner-content and learner-learner interaction while Anderson (2003) advanced a comprehensive typology of six types of online interactions: student-teacher, student-student, student-content, teacher-content, teacher-teacher and content-content interactions. Yet others have expanded the study of online interactions to emphasise technology-mediated interactions such as learner-interface interactions (Hillman, Willis, & Gunawardena, 1994) or learner-environment interactions emphasising student use of resources outside of the online class (Hirumi, 2002). For the purposes of this research online interactions between human actors are of interest. A number of definitions have been offered referring to online interaction as the number of interconnected or mutually responsive messages that make up a discussion forum (Fahy et al., 2000; Gunawardena et al., 1997; Henri, 1992; Zhu, 2006), or the information exchanged between online participants (Kanuka & Anderson, 1998), or the dialogue occurring between participants in a course (Juwah, 2006b; Kearsley, 2000), or participant reference to previous online messages (Pena-Shaff & Nicholls, 2004), or the density of a social network based on the number of read and linked messages (Veldhuis-Diermanse, 2002). Wagner (1994) added to these definitions to include “reciprocal events that require at least two objects and two actions. Interactions occur when these objects and events mutually influence one another” (p.8). Explicit in these definitions is the idea of mutual and reciprocal exchanges between multiple actors (human beings) in order for interactions to occur.

This research recognises the idea of mutual and reciprocal exchanges between multiple actors in defining online interaction. It adopts the definition proposed by Juwah (2006b) and Kearsley (2000) to refer to online interaction as the type of dialogue occurring between the lecturer and student and amongst the students that can occur synchronously and/or asynchronously and mediated by the affordances of Web-based technologies. This study thus examines participants’ interactions in the course through the kinds of dialogue (as depicted in their asynchronous online

contributions) occurring between them when they are involved in collaborative activities in order to achieve shared goals and purposes.

The way both online participation and interaction are related and might be analysed is addressed next.

Participation as Underpinned by Interactions. Zhu (1996) proposed a method of analysing differing lecturer and student roles by grounding them in the nature and content of their online interactions. This is important to evince how each role is enacted when the goal is to provide guidance on how the online discussions can be organised to better support learning. Utilising a social constructivist framework, Zhu (1996) investigated online collaborative knowledge building by relating students' type of interactions to their level of cognitive involvement in an online discussion. He firstly showed how student-peer contributions to online discussions can be categorised into eight different ways of interacting: *Type 1* and *Type 11 Questions, Answers, Information Sharing, Discussions, Comments, Reflections* and *Scaffolding*. These are categorised accordingly into Category 1 to 8 categories of interactions. Table 3.3 shows how each of these are characterised.

Table 3.3

*Categories and Types of Online Interactions*⁵

Category of Interaction	Characteristics and Examples
1 Type I Question	Asks for information or requests an answer. “What does hypermedia mean?”
2 Type II Question	Inquires, to start a dialogue. “How can we resolve the control issues such as governing the shared space when using a collaborative tool?”
3 Answer	Provides answers to information seeking questions “Hypermedia means.....”
4 Information Sharing	Shares information. “My colleagues and I have done a lot of thinking about the nature and effect of simulations...”
5 Discussion	Elaborates, exchanges and expresses ideas or thoughts. “What intrigues me from this week’s readings is not how we define a tool but rather how tools change themselves...”
6 Comment	Judgemental. “I agree with A that Schorr’s article was...”
7 Reflection	Evaluation, self appraisal of learning “I found the class last night to be completely frustrating yet intellectually stimulating...it makes me think”
8 Scaffolding	Provides guidance and suggestions to others “...let us not move our lives in this same ‘scripted’ direction. Use the tool as an idea generator, a place holder of ideas...”

According to Zhu (1996), *Type I Questions* are those that request information. The student is genuinely seeking information or answers an inquiry. *Type II Questions*, on the other hand, refer to discussion-based questions that are usually provocative in order to start a discussion. *Answers* are statements that provide information and answers to *Type I Questions*. Further, *Information Sharing* and *Discussion* are reflected when students share information with their peers to move a discussion forward. This can include elaboration on a discussion topic, exchanges of topic-related ideas, personal understanding or topic-related

⁵Note. From “Meaning Negotiation, Knowledge Construction and Mentoring in a Distance Learning Course,” by E. Zhu, 1996, Eric Document 397849, p. 826. Copyright 1996 by the Association for Educational Communications and Technology. Reprinted with permission of the author.

discussing questions. *Comments* are statements reflecting students' judgements or opinions. The next category, *Reflection*, is defined by statements portraying one's reflections on a subject, and finally, *Scaffolding*, are statements providing guidance or suggestions to others for discussions or readings. Additionally, Zhu (1996) notes that constructivist learning is active, cumulative, goal-oriented and constructive. This learning, however, may not necessarily proceed along these dimensions all the time. There may be active learning periods followed by passive ones and vice versa, especially during long periods of learning. Hence, a lecturer or a student can move dynamically in between any of these ways of interacting reflecting their state of knowledge and goals at any particular point in time during the online teaching-learning process. With this in mind, Zhu identified four lecturer and student roles to reflect the dynamic shift between the different ways of interacting online at any one time in an online class. Table 3.4 portrays this relationship.

Table 3.4

Participation Based on Interactions⁶

Participant role	Category of Interaction
Contributor	Categories 1-8
Wanderer	Mainly categories 1, 4 and 6
Seeker	Category 1
Mentor	Categories 1-8

As seen from Table 3.4, four key participant roles for the online lecturer and student based on the way they interact online are highlighted: *Contributor*, *Wanderer*, *Seeker* and *Mentor*. The role of the *Contributor* is attributed to all the participants in the class discussion regardless of the types of contribution made, hence encompassing Categories 1 to 8's ways of interacting. A *Wanderer*, however, refers to a participant who seems to be temporarily *lost* as he or she attempts to grasp an understanding of a particular discussion or topic. This role is

⁶*Note.* From "Meaning Negotiation, Knowledge Construction and Mentoring in a Distance Learning Course," by E. Zhu, 1996, Eric Document 397849, p. 826. Copyright 1996 by the Association for Educational Communications and Technology. Reprinted with permission of the author.

important in identifying gaps in the teaching and learning process in order that remedial strategies and assistance can be instantiated. It is reflective of Categories 1, 4 and 6's ways of interacting in an online discussion. A *Seeker's* role is undertaken when a participant requests information in order to gain a better understanding of an issue discussed. Category 1 interactions are typically voiced in this role. Finally, *Mentors* are participants who guide others in their reading and understanding and assist them in developing their own ideas and understanding of an issue discussed. Any one of Categories 1 to 8 can illustrate a *Mentor's* role in guiding a participant to develop his or her own understanding. Zhu added that lecturers and students can fall into any of these roles in the online class but the period of time they are in a particular role is transitional and temporary. The dynamic nature of these roles also implies a reciprocal response to a particular role's need at any one time in the course. Zhu's method of analysis in attributing particular ways of interacting in an online learning environment to lecturer and student participatory roles is adopted and modified to guide the analysis of the online contributions in Phase 3 of this research.

Limitations of Current Online Analytical Frameworks in Examining Participation and Interaction. It is also observed that the bulk of the literature on analysing online interactions is limited to examining:

1. Either the cognitive or the social nature of interactions. For example, cognitive dimensions (Henri, 1992; McKenzie & Murphy, 2000; Zhu, 1996); or elements of higher-order thinking such as critical thinking (Bullen, 1998; Fahy et al., 2000; Garrison et al., 2000; Kanuka & Anderson, 1998; Mason, 1991; Newman, Webb, & Cochrane, 1995); or problem solving (Jonassen & Kwon, 2001); or levels of student questioning or argumentation (eg. Craig, Gholson, Ventura & Graeser, 2000; Järvelä & Häkkinen, 2002; Marttunen, 1998) have been studied. These are opposed to studies on social or social-emotional factors such as sense of community (Chao, 1999; Haythornwaite et al., 2000; Lai, 1998; McMillan & Chavis, 1986); or group dynamics (Howell-Richardson & Mellar, 1996; McDonald & Gibson, 1998); or social presence (Rourke, Garrison, & Archer, 1999; Stacey, 2002a) in online interactions. More recent studies have attempted to bridge the cognitive and social dimensions (Hara, Bonk, & Angeli, 2000) and to incorporate social,

situative and participative frameworks such as situated learning (Herrington & Oliver, 1999) or cognitive apprenticeship and distributed intelligence (Saarenkunnas et al., 2000) in analysing online interactions but even these attempts are limited. Few attempts have been made to bridge the gap towards understanding the social, cognitive, and cultural elements impinging on online interaction and participation. It is argued that learning involves participating in important sociocultural practices. Hence, examining these factors has merit in painting a more comprehensive view of the nature of online learning in the specific context of this research;

2. The nature of student-student interactions. Very few researchers (with the exception of Poole (2000), Hara et al. (1998), Mowrer (1996), Zhu (1996), and Ahern, Peck and Laycock (1992)), examined both the nature of lecturer and student-student online interactions and participation. Examination of both lecturer and student-peer interactions is needed to provide a comprehensive understanding of the reciprocal nature of important online teaching-learning interactions and participation; and,
3. The quality and nature of online interactions. Online analytical frameworks have been developed to understand levels of student participation (Angeli, Bonk, & Hara, 1998; Bullen, 1998; Fahy et al., 1999; Henri, 1992; Howell-Richardson & Mellar, 1996; McDonald & Gibson, 1998) and interaction or communication (Ahern et al., 1992; Angeli et al., 1998; Fahy et al., 2000; Henri, 1992; Howell-Richardson & Mellar, 1996; Jonassen & Kwon, 2001; McDonald & Gibson, 1998; Mowrer, 1996; Zhu, 1996) in online learning but none (with the exception of Zhu (1996)) have attempted to understand the roles and the fluidity of these roles adopted by different participants as a course progresses. It can be argued that understanding the different roles adopted can enhance our understanding of how the lecturer and his students conceptualise their responsibilities as teachers and learners, and how this influences the nature of their contribution and participation as they appropriate the resources and tools available to facilitate their learning in the online Research Methods course in this study.

This research intends to address the above gaps in the literature. It extends and refines the study on lecturer and student roles by providing a more fine-grain analysis of the nature of lecturer and student-peer interactions as a basis for understanding important participation in the online class. It further addresses the call by different researchers (Herrington & Oliver, 1999; Zhu, 1996) to explore new methodologies for analysing participation and interaction in online learning environments.

The next section explores adult learners as specific category of online students relevant to the purposes of this research.

3.3.2 Adult Learning Theory

The current online student population represents an increasing proportion of working adults, mostly middle-career professionals or mature students returning for further educational or professional development qualifications (Dutton et al., 2002; Lyman, 1998; Tallent-Runnels et al., 2006; Turrof, 1990). Gaff (1997) asserts that the current student population has diversified to include differences in terms of age, gender, race, ethnic, ability, interests and so forth. They relish the convenience and flexibility of the Web-based technology to accommodate studies, work and family responsibilities and savings in time and finances without having to travel to a physical institution for their education.

Theoretical ideas regarding how adults learn were initially proposed by Knowles (1973, 1980) through his principles of andragogy which assume that adults tend to be self-directed, practical, bring varied experiences to their learning and define themselves in terms of their own personal achievement and experiences (Knowles, 1980). Despite widespread acknowledgement, Knowles' andragogical principles have been criticised for their lack of empirical basis (Blondy, 2007) and their over reliance on the individual learner's (humanist) perspective to the extent of neglecting the sociohistorical and cultural context in which learning occurs (Alfred, 2002; Conceição, 2002; Merriam & Caffarella, 1999).

Merriam and Caffarella (1991, 1999) highlight the characteristics of adult learners from three perspectives: *biological aging*, *psychological changes* and

sociocultural factors. *Biological aging* factors affecting learning include deterioration of sight and hearing, changes in reaction time and health challenges experienced by the adult learner. *Psychological changes* refer to patterns of development, life events and transitions, and relationships that shape adults' lives and influence their learning. Rich life experiences differentiate one adult from another. Adults often need to make sense of their learning experiences and are motivated by those that provide immediate application to their work or personal lives. However, adults may also need to unlearn bad habits and negative views of learning. Issues of identity and intimacy are fundamental in adults' lives and considered often as relationships and roles in their life change. *Sociocultural* factors highlight the importance of adults' socialisation experiences and social roles in defining their learning. For example, it is recognised that the context of adult learners' lives shape their learning and adults assume the responsibility for managing their own lives through roles of worker, spouse, parent and learner. Acknowledgement is also given to issues of race, gender and ethnicity in defining how adults learn. Furthermore, the basic learning process, although similar between children and adults, is affected by three non-cognitive factors in adulthood such as pacing, motivation and meaningfulness (McLachlan-Smith, 1998). Adults are slower to respond with age and their learning performance is negatively affected by time pressures. Adults' motivation to learn is influenced by their age and health factors, and interference from previous learning experiences. Finally, adults, perform better with learning materials which are personally relevant or meaningful to them, consistent with their interest and experience. Merriam and Caffarella (1991, 1999) describe how this tendency assists adults in approaching new learning situations differently from children: adults modify, transfer and reintegrate meanings, values, strategies and skills, rather than formulate and accumulate as they do in childhood.

Caffarella and Merriam (2000) maintain two perspectives in researching adult learning exist. The first is an individual perspective focusing on the learner and responding to their learning styles. The second is a contextual approach recognising the social and cultural aspects that influence learning. It has been suggested that the contextual approach based on sociocultural and situated ideas of learning are more relevant to supporting adult learners in online learning environments (Conceição, 2002; Lyman, 1998; McLachlan-Smith, 1998; Merriam

& Caffarella, 1999). This is supported by many practitioners who have noted this shift in learning from presentation of content to facilitation of learners and learning (Candy, 1991; Collis, deBoer, & VanderVeen, 2001; Eastmond, 1995; Rogoff, 1991).

In response, the lecturer needs to adopt a learner-centred approach and flexible role (Heuer & King, 2004) in facilitating dialogue to enable adult learners to learn from others as well as himself or herself (Alfred, 2002; Collison, Elbaum, Haavind, & Tinker, 2000; Palloff & Pratt, 2001). Online learning contexts supportive of adult learners need to consider sociocultural strategies such as experiential learning, learning in reflection (e.g. journalling), interactivity, sharing of experiences or expertise, and collaborative projects encouraging problem solving, critical thinking, and analysing and evaluating of information (Conceição, 2002; Eastmond, 1995; Mason & Kaye, 1990; McLachlan-Smith, 1998). A key implication of these ideas for the purposes of this research include encouraging adult learners to participate in problem-based activities situated in real life contexts where they can draw from their past experiences to share and work collaboratively with their peers.

3.4 The Fusion of Technology, Teaching and Learning

The above sections have discussed the important human and technological roles implicated in online learning. The technology affords new possibilities for lecturers and students to teach and learn online. However, its affordances must be appropriated and crafted to support pedagogical strategies that can bring about successful learning experiences for students. Many researchers warn against the adoption of a technocentric approach to learning advocating instead that the use of the technology be driven by sound views of learning (Collis, 1997; Forsyth, 1998; Hiltz et al., 2000; Laurillard, 1993). Advances in the applications of the Web in tertiary education and the shift of views of learning towards situated, participatory, social learning contexts have important implications for extending both lecturer and student roles in the online class. Berge (1995) discusses the following role shifts: as the student moves from passive receptacle to self-motivated managers of their own learning, teachers move from oracle and lecturer to consultant, guide, and resource provider; as students move from competitors for a limited amount of marks, teachers move towards grading for collaborative

projects and creating a *learning team* both inside and outside of the classroom; as students acquire learning strategies, teachers acquire strategies that address diverse learning styles. Such role shifts lead towards a more student-centred, collaborative, and egalitarian learning environment resulting in the breaking down of the teacher-student hierarchy and the significant expansion of student access to learning resources (Barab et al., 2001; Hung, 2001; Wiesenbergs & Hutton, 1997). It also represents an opportunity for lecturers to re-examine their current practice as they undertake the four key online roles (pedagogical, managerial, social and technical) to enhance students' learning.

Although research is continuing in this area to examine the interplay between the technology, teaching, and learning, more still needs to be done (Bonk & Cunningham, 1998; Bonk & Dennen, 1999; Ehrmann, 2001; Khan, 2000; Lai, 1997; Mergendoller, 1996). As Windschitt (1998) contends, "if our goal is to maximise the possibilities for student learning with technology, this will require critical examination of the intersection of the affordances of information technology, pedagogy and learning" (p. 28). This research intends to address this agenda by investigating how an online lecturer can successfully undertake his role by harnessing the affordances of the Web and encourage students to undertake equally important roles to participate in crucial teaching-learning interactions in the class to bring about a successful learning experience.

3.5 Summary

This chapter has given an overview of the three key elements in online teaching and learning: the role of the technology, the role of the lecturer, and the role of the student. It has highlighted the complexity of the interchange between these roles and supports the key themes of viewing learning as social, situated in culturally valued contexts and practices, distributed between people and tools and mediated by important cultural tools in facilitating online teaching-learning.

A central tenet of this study is that learning involves a transformation of participation in appropriate social and cultural context such as a COP. In accord with the current literature, investigating learning in this research context through sociocultural lenses has the potential to enrich our understanding of the learning processes that a learner undergoes in an online course. Chapter 4 is devoted to

expounding the notion of online learning communities as a useful consideration and demonstration of the sociocultural underpinnings in this research. Further attention is given to describing the nature of a specific COP concerned with the teaching-and-learning of Research methods as the unique context for this research.

Chapter 4

Online Learning Communities

4.0 Introduction

Chapter 3 has discussed the key elements involving the roles of the participants and technologies in online learning as an important consideration for this research context. This chapter argues for the notion of COPs or specifically, learning communities as an embodiment of the main sociocultural ideas to facilitate successful online learning in this research. It is a research-based review consisting of nine sections. The first section establishes the notion of communities in general (Section 4.1). The next section reviews the nature and diverse ways in which learning communities (Section 4.2) and online learning communities (OLCs) have been conceptualised (Section 4.3). As both learning communities and OLCs share many similar characteristics and ideas in terms of their development (Section 4.4), indicators of existence (Section 4.5), impact on learning (Section 4.6) and challenges faced (Section 4.7), the discussion of the former in these areas will be subsumed under that of the latter. Section 4.8 details important issues for consideration in a specific COP focused on the teaching and learning of Research Methods relevant to the purposes of this research's context. Finally, Section 4.9 provides a summary of the chapter.

4.1 Understanding Communities

The concept of *community* is increasingly recognised as central to the lives of all individuals (Palloff & Pratt, 1999; Puddifoot, 1996). Various definitions have been offered to explicate the meaning of *community*. Traditionally, the term community is place-dependent. Cole (2002) contends that the term community in the seventeenth century originally referred to a geographically localised group of people, while Mercer (1956) described community as,

A functionally related aggregate of people who live in a particular geographical locality at a particular time, share a common culture, are arranged in a social structure, and exhibit an awareness of their uniqueness and separate identity as a group (p. 27).

The community comprises the inhabitants of a particular place. These people share common interests and form groups to distinguish themselves from others. Membership in the community is maintained through adherence to the norms of the community (Palloff & Pratt, 1999).

Contemporary ideas regarding community have replaced the original place-based idea to include issues of identity and shared values (Palloff & Pratt, 1999) such as a group who share a common interest or sense of identity independent of their place of habitation. In accord with this value-based definition of communities, Schwier (1999) for example, describes communities as collections of individuals who are bound together for shared reasons, while Shaffer and Anundsen (1993) regard a community as a dynamic whole that emerges when a group of people share common practices, are interdependent, make decisions jointly, identify themselves with something larger than the sum of their individual relationships and make a long term commitment to their own as well as one another's and the group's well-being. Westheimer and Kahne (1993) find a community evolving out of interaction and deliberation between individuals who share interests and commitment to common goals. Similarly, Wilson and Ryder (1998) observe that, "Groups become communities when they interact with each other and stay together long enough to form a set of habits and conventions, and when they come to depend upon each other for the accomplishment of certain ends" (p. 2). It is the idea of meaningful interactions among members that is foundational to developing a collective sense of shared responsibility for both the process and its outcomes. To Sergiovanni (1994), communities are a collection of individuals bonded together by natural will and collectively bound to a set of shared ideas and ideals. The strong bond established can successfully transform the individuals from "a collection of 'I's' into a collective 'we' " (p. xvi). Sentiments and rituals are usually shared and sustained to connote ideas such as kinship, of same mind, of place and of memory. For Barab and Duffy (2000), a community has a significant history, a shared cosmology, a common cultural and historical heritage, social interdependence, and a reproduction cycle. The common premise offered by the definitions mentioned above is that of a collective body of individuals coming together for a shared purpose, interest or venture usually involving conscious commitment to the group.

Another aspect of this prevailing definition includes the notion of a *sense of community*, emphasising interpersonal relationships and the importance of caring and belonging rather than a tangible entity (Brook & Oliver, 2003; Cole & McBride, 2004; McMillan & Chavis, 1986; Rovai, 2000, 2002a; Rovai & Jordan, 2004; Sewell & George, 2008; Wiesenfeld, 1996). Community psychologists such as McMillan and Chavis (1986) argue that this sense of community is a “sense that members have a belonging, members matter to one another and to the group and a shared faith that member’s needs will be met through their commitment to be together” (p. 9). A sense of community involves four key elements: membership, influence, fulfilment of needs and shared events and emotional connections. Watkins (2005), however, cautions that “community” has to mean more than just a “warm glow” (p. 24) to encompass joint activity, social support, shared sense of belonging, and making allowances for and respecting the diversity and differences in the group.

An extension to the meaning of community has been applied to the ideas of a learning community and a COP. This is discussed next.

4.2 Understanding Learning Communities

A learning community has been used to describe a cohesive community as one, which embodies a “culture of learning in which everyone is involved in a collective effort of understanding” (Bielaczyc & Collins, 1999, p. 271). For Woolley and Ludwig-Hardman (2000), learning communities refer to environments where mutual exchanges between community members to facilitate the individual and collective learning are encouraged. Meanwhile, Schwier (1999) refers to a learning community as a group of individuals engaged intentionally and collectively in the transaction or transformation of knowledge. The community emerges when its members are drawn together to learn. He adds that the real capability of the community lies in its ability to take advantage of and, in some cases, invent a process for exchanging ideas and learning collectively.

In a learning community, the community and learning itself are seen as intertwined as Nuthall (1999) argues,

The purpose of designing learning communities is to integrate students’ interactions with the curriculum with their interactions

with each other and the teacher, so that their entire experience contributes to their development as intelligent learners. We need to understand that designing classrooms as learning communities is as much about the social and cultural dimensions of the classroom as it is about the intellectual climate (p. 248).

Sewell and George (2008) and Watkins (2005) note that teaching in classrooms designed as a learning community is about “developing a learning relationship with students” (Sewell & George, 2008, p. 208). Watkins (2005) portrays this interaction as lecturers and learners jointly acting to collaborate on projects, develop shared interests and connections, and have meaningful dialogue to exchange ideas and opinions. Similarly, Palloff and Pratt (1999) contend that a learning community consists of teamwork, collaborative learning, mutual commitment and the active construction of meaning and knowledge. Riel and Fulton (2001) add that learning communities “share a way of knowing, a set of practices and the shared value of the knowledge that these procedures generate. There are ways for novices and experts to work in the same system to accomplish similar goals” (p. 519). The common theme in these descriptions of a learning community is that of individual and collective knowledge growth collaborating with a focus on achieving or furthering educational outcomes. They generally share features with collaborative communities and COPs such as shared or common goals, positive social-emotional environment for learning, active participation, and, distributed expertise (Bielaczyc & Collins, 1999; Puddifoot, 1996).

Characterisations of learning communities have been evident in the educational literature over the past decades (Bielaczyc & Collins, 1999; Brook & Oliver, 2002; Brown & Campione, 1990, 1994; Brown & Palinscar, 1989; CGTV, 1994; Hiltz & Wellman, 1997; Jonassen, Peck, & Wilson, 1998; Palloff, & Pratt, 1999; Schrage, 1990; Wells & Chang-Wells, 1992; Westheimer, & Kahne, 1993). Riel and Polin (2004) proposed a typology characterising learning communities into three types: task-based, practice-based, and knowledge-based learning communities. They describe task-based learning communities as groups of people organised around a task to work intensely for a specific period of time to produce a product. This is typically found in formal school settings which are usually task-

based and emphasise group learning as a way to scaffold individual learning. Practice-based learning communities are larger groups or organisations with shared goals that support learning of a particular practice, similar to Lave and Wenger's original notion of COPs, while knowledge-based learning communities focus on the deliberate and formal production of external knowledge about their community's practice.

Learning communities should not to be mistaken with COP although they share many similar characteristics. Underlying the notion of a learning community is Wenger's (1998) ideas of a COP emphasising mutual engagement, joint enterprise and shared repertoire among members. Wenger (2002) defines a COP as a group of like-minded people, who voluntarily come together for a period of time to form relationships that are essentially focused on shared objectives, tasks, concerns, interests, ideas, or work together on a common set of problems or product related to a practice, domain, or topic. COP may not necessarily be an authorised group. Wenger asserts that COPs are *about* something and not defined merely by a set of relationships. Hence, a COP disagrees with the notion of *sense of community* (McMillan & Chavis, 1986; Rovai, 2002a; Wiesenfeld, 1996) to argue for a more tangible identity where the COP has an identity as a community, which would in turn shape the identities of its members (Kling & Courtright, 2004).

Two distinct differences exist between learning communities and COPs in terms of their goals for existence and stability of existence. Firstly, it is the goal to establish the community that differentiates COPs from learning communities. All COPs learn although the learning is defined broadly by Wenger (1998) but not all learning communities are necessarily COP as they undertake and participate in various activities to promote various types of learning (Henry & Pudelko, 2003). A learning community has a specific focus on learning and is more concerned with the teaching and learning process and educational outcomes in viewing learning as transformatory participation, while in COPs, learners participate less for teaching and learning and more for production purposes and provision of services. They focus on other goals apart from teaching and learning per se (Johnson, 2001; Lave & Wenger, 1991; Resnick, 1991; Riel & Polin, 2004; Wenger, 1998). Further, learning communities typically produce artifacts and histories that support the transfer of knowledge and the increase of understanding

(Johnson, 2001). Secondly, the original conception of COPs refers to the establishment of stable and long-term communities where membership is relatively open and the community established or emerged (Johnson, 2001) over a period of time as its practice matures unlike the contrived setting of short-term semester-long courses with pre-set goals and pre-identified membership from the onset typically found in formal educational settings (Barab, MaKinster, & Scheckler, 2004; Johnson, 2001). It is argued that membership in such short-term and temporary communities can, however, exert a powerful influence on the motivation to learn and lead to the development of beneficial social identities (Mayes, 2001).

In this thesis, the term learning community is adopted instead of a COP. The characterisation of Riel and Polin's (2004) task-based learning communities is further adapted for the purposes of this research. A learning community, in this research, is viewed as a type of COP that is intentionally designed to support learning in a semester-long online graduate Research Methods course.

4.3 Understanding Online Learning Communities (OLCs)

The literature on pedagogical strategies in online learning environments indicates a growing potential of the notion of online learning communities (OLCs) in facilitating teaching-learning in online environments. This corresponds with research in the educational literature which had initially focused on *learning environments* and now shifted to *learning communities* (Jonassen, Peck, & Wilson, 1998). To a great extent, the value-based definition of communities has paved the way for the emergence of OLCs. With the introduction of the Internet and Web-based technologies, crucial collaboration and communication can be facilitated. This also encourages the development of online relationships and can extend the range of communities and even allow individuals to tailor their own communities (e.g. through membership in interested list serves or discussion groups) (Wellman, 2001; Jonassen et al., 1998). Although not a novel idea in education, learning communities have been suggested as models for thinking about pedagogical strategies based on the increasing recognition that the social phenomenon of the community can facilitate and support the learning process in online learning (Bonk & Wisher, 2000; Brook & Oliver, 2003a; Hiltz, 1997; Palloff & Pratt, 1999; Rovai, 2002a).

Research conducted in this area is wide ranging from redefining the term community or learning community, to the components or characteristics of such communities (Schwier, 2001), or the indices or measures of a community (Conrad, 2005; de Souza & Preece, 2004; Rovai, 2002b; Schwier & Daniel, 2007) or to the nature of the users participating in one (Ma, 2006; Swan & Shea, 2005) or to how to build one (Brown, 2001; Garber, 2004; Lock, 2002; Schwier, 2007) or to developing technical infrastructures and systems to support the development of one (Hung & Der-Thanq, 2001; Seufert, Lechner, & Stanoevska, 2002). An added complexity in understanding research in this area lies in the lack of clarity of the terminologies used among researchers (Ingram, 2005). For example the terms COP, online COP, e-learning communities, communities of learners, learning communities, community of inquiry, knowledge-building community, virtual learning communities, technology-based virtual learning communities, OLCs, online learning networks, online collaborative community and so forth have been treated loosely to refer to overlapping concepts involving learning activities and interactions that occur electronically. Many definitions of these terms have also been offered. For example, Renninger and Shumar (2002) defined virtual learning communities as located in the particular interactions of participants in those communities, while Garrison et al. (2000) developed a community of inquiry model to define OLCs as developing from the interactions of three types of *presence*: cognitive presence related to knowledge building through inquiry, social presence related to relationship building between the community members and, teaching presence related to the design and facilitation of learning activities. Kowch and Schwier (1999), on the other hand, viewed virtual learning communities as entities where learners are separated physically and must rely entirely on communication technology to mediate relationships while Lock (2002) contended that OLCs are networks of social relationships where engagement and interaction are critical factors within a constructivist learning environment. Further, Palloff and Pratt (1999) described the OLC as “the vehicle through which learning occurs online. Members depend on each other to achieve the learning outcomes for the course...Without the support and participation of a learning community, there is no online course” (p. 29). Bond-Hu and Fiorello (2003), however, in resonating with Wenger’s (1998) conception of

COPs, cautioned that OLCs need to be about what people do together rather than where or through what means they do them.

For the purposes of this research, the term OLC is used to refer to the desired characteristics of a learning community established through the use of the Internet and Web-based networked technologies. The above definitions commonly characterise OLCs as involving social interaction, communication and collaboration revolving around particular activities or tasks to develop relationships. These synergistic relationships, mediated through electronic communication, traverse across time and space boundaries to bring life to the community and impact the online learning process and outcomes in a positive way. Learning is then enhanced when there is a commitment to the collective good where students are engaged in learning through and with others (Thompson & MacDonald, 2005). This research further adopts the assertion of community going beyond a *warm glow* (Watkins, 2005) or a mere set of relationships (Wenger, 1998) or a social community (Palloff & Pratt, 1999) or a *sense of community* (McMillan & Chavis, 1986) or a *feeling that is not analytical* (Kling & Courtright, 2004) to emphasise the notion of OLCs as a tangible entity, formed through the mutual shaping of the community and the identities of its members. This mutuality is evidenced by the different ways of interactions and the relationships that actually develop to bring about transformations in member's participation in the teaching-learning activities in an online graduate Research Methods course.

Many types of OLCs have also been observed. Similar to Riel and Polin's (2004) work in advancing a typology for learning communities (see Section 4.2), others have proposed systematic frameworks to identify the existence of different forms of OLCs. As an example, Carlen and Jobring (2005), utilising a sociocultural frame of reference, proposed a typology of six types of OLCs distinguishing between fully online and blended learning environments and based on whether the participants are keen to form either educational, or professional or interest types of OLCs. On the other hand, Schwier (2001) proposed five types or emphases of OLCs: communities of relationship, communities of place, communities of intent, communities of reflection, and communities of ceremony. For these authors, each type of community differs in their social context of emergence, the types of

activity and kinds of learning valued and focus for individual participation. Of particular interest to this thesis is the type of community proposed by Riel and Polin's (2004) task-based learning communities which share characteristics with the learner's community (Henri & Pudelko, 2003) and educational OLC (Carlen & Jobring, 2005) proposed above and other similar terminologies such as the bounded learning community (Wilson, Ludwig-Hardman, Thornam, & Dunlap, 2004) or community of course alumni (Trentin, 2001) or the online community (Johnson, 2001) or formal virtual learning community (Jones & Issroff, 2005; Schwier, Morrison, & Daniel, 2008). These terms recognise the existence of short-term formal learning communities typically found through membership and participation in online university courses or through programme requirements and revolving around formally organised learning activities under the guidance of a lecturer.

4.3.1 Why Develop OLCs?

OLCs are formed for various purposes and to generally meet particular member needs. For example, Moller (1998) describes such communities as useful for providing academic, intellectual and interpersonal support. Academic support is observed through lecture or expert facilitation of learner's learning and ideas; intellectual support is offered through learner-peer discussion and the availability of multiple perspectives; while interpersonal support is demonstrated through the encouragement and social support provided among community members who are studying at a distance in isolation from one another. The idea of OLCs is increasingly recognised as having the potential to:

- Allow and extend the nature of networking and social interaction and collaboration (Blunt, 2001; Bonk et al., 2004; Schrage, 1990; Woolley & Ludwig-Hardman, 2000);
- Share distributed expertise among learners, lecturers and experts through multiple means of communication and collaborative effort to accomplish tasks, meet learning outcomes that are valued by the community (Preece, 2000) or for professional development purposes (Barab et al., 2004; Daniel Schwier, & Ross, 2007) in order to achieve shared creations and shared understandings (Schrage, 1990);
- Allow members to learn *from* and *with* others and to *contribute* to others' learning [original emphasis] (Woolley & Ludwig-Hardman, 2000) and

support one another in their work (Blanton, Moorman, & Trathen, 1998; Daniel et al., 2007; Preece, 2000); and,

- Extend education to isolated learners through distance education (Daniel et al., 2007).

These advantages underscore social participation and interaction in enhancing and supporting learning in online learning environments. The notion of communities is considered to be of such value that some researchers believe the formation of OLCs is fundamental to the success of online learning (Hiltz, 1997; Palloff & Pratt, 1999). In support, Palloff and Pratt (1999) argue that,

Many faculty members believe that the online classroom is no different from the traditional one - that the approaches that work face-to-face will work when learners are separated from them and from each other by time and distance. However when the only connection we have with our students is through words on a screen, we must pay attention to many issues that we take for granted in the face-to-face classroom (p. xiv).

OLCs are deemed to importantly fulfil the academic and social needs of participants learning in online environments.

Although the formation of a learning community is a useful one particularly for the online context, there still exists a lack of understanding regarding the process of developing such a community (Blunt, 2001; Bonk & Wisner, 2000; Brook, & Oliver, 2003a; Brown, 2001; Carabajal, LaPointe, & Gunawardena, 2003; Daniel, Schwier, & McCalla, 2003; Hill, 2001; Johnson, 2001; Moore & Brooks, 2000; Palloff & Pratt, 1999; Renninger, & Shumar, 2002; Song, Singleton, Hill, & Koh, 2004; Woolley & Ludwig-Hardman, 2000). This challenge has been noted as learning communities and OLCs cannot be coerced or constructed but instead requires social engineering and nurturing where members are motivated and provided with opportunities to create such a community (Barab, Kling, & Gray, 2004; Brook & Oliver, 2003a; Riel, 1996; Schwier, 1999). It “requires a highly interactive, loosely structured organisation with tightly knit relations based on personal persuasion and interdependence” (Kowch & Schwier, 1997, p. 2). Hence, as Schwier (1999) aptly observes, online lecturers can only provide the necessary structure to nurture the conditions leading to the development of an OLC,

Ultimately communities are built or dismantled by those in the communities, not by the people organising or managing them. It is therefore a matter of providing an appropriate structure and sufficient support-the conditions for a community to develop...Communities do not just happen and neither are they created. What we are attempting to do as educators is promote the development of virtual learning communities by nurturing the conditions under which they can arise (p. 283-284).

This gap of understanding how to nurture the conditions for developing learning communities is addressed in this thesis as a strategy to enhance learning in an online graduate Research Methods course.

The complex nature of developing OLCs is described next.

4.4 Developing OLCs

Contemporary studies in OLCs are born out of research on social presence (research concerned with the capacity of online learning environments to support social activities and interactions and the development of learning communities) and Wenger's (1998) notions of COP (Swan & Shea, 2005). Social presence is defined as the "degree to which a person is perceived as 'real' in mediated communication...and is a factor of both the medium and the communicators' perceptions of presence" (Richardson & Swan, 2003, p. 70). Social presence influences participants' sense of emotion, intimacy and immediacy (Preece, 2000; Woods & Baker, 2004).

When Web-based technologies were first introduced, there were serious concerns regarding their capability to support successful online learning experiences. Sceptics levelled criticisms that the technology was unsuited for building and maintaining social relations as it was assumed to be devoid of conveying important interpersonal and non-verbal communication cues and to be difficult in establishing a common physical space and shared history among its members (Sproull & Kiesler, 1986; Weinreich, 1997). For example, Tu and Corry (2002a) and Hung and Der-Thanq (2001) were concerned that the differential characteristics between face-to-face and CMC environments would significantly impact on the guidelines and processes of community development for traditional

face-to-face learning community models and OLCs. Other authors, however, took it as a given, that virtual or online life is an established fact and even argue that virtual communities can exist and play a socialisation role to the same extent as *real* communities do (Harasim, 1993; Rheingold, 1993). Evidence from social presence research indicates support for the development of social and relational elements in computer-mediated groups (Haythornthwaite, Kazmer, Robins, & Shoemaker, 2000; Jarvenpaa & Leidner, 1998; McLellan, 1997; Stacey, 2002a) that can be more intimate compared to in face-to-face groups, even for groups that are geographically dispersed and culturally diverse who have never met face-to-face (Walther, 1994, 1995, 1997; Walther & Burgoon, 1992). This prompted research focused on developing OLCs based on the same principles for developing face-to-face learning communities by capitalising on the Web-based technology's affordance for expression and communication (Johnson, 2001; Kling & Courtright, 2004; Ng & Hung, 2003; Renninger & Shumar, 2002). Current studies have demonstrated the viability of using Web-based technologies to create online communities and heighten participants' perceptions of online learning as a social experience (Barab et al., 2001; Gunawardena, 1995; Johnson, 2001; Palloff & Pratt, 1999; Schwier, 1999; Stepich & Ertmer, 2003; Swan & Shea, 2005).

The literature on developing OLCs can be examined according to three areas: roles of the lecturer, student and technology; principles and models proposed and the life cycle of OLCs.

4.4.1 Roles of the Lecturer, Student and the Technology

The roles played by the lecturer, students and the Web-based technology can impact the development of a thriving OLC. Each of these is examined in turn next.

4.4.1.1 Lecturer Roles

Schwier (2007) contends that communities do not just happen nor are they created. The lecturer plays a crucial role in developing and engaging students into the OLC by nurturing the conditions under which they can rise (Brook & Oliver, 2003b; Collins & Berge, 1996; Hiltz, 1998; Palloff & Pratt, 1999). An examination of the lecturer's role in developing OLCs generally support the four

key roles proposed by Bonk and Dennen (2003) (see Section 3.2.1): social, pedagogical, managerial, and technological.

Social Role. An online lecturer's social role is prominent in the general literature on establishing and engineering the necessary social and social-emotional conditions to engage learners across time and space in the nurturing of OLCs (e.g. Garber, 2004). The crux of developing these communities is communication as it enables the development of interaction, engagement, participation, all of which are fundamental to the building of relationships and intimacy in order to nurture important social-emotional qualities within the community (Garber, 2004; Kearsley, 2000; Kowch & Schwier, 1997; Misanchuk & Anderson, 2001; Schwier, 2001). As OLCs are generally separated by time and space, multiple modes of communication including face-to-face and electronic means can be harnessed for this purpose (Daniel & Schwier, 2007; Haythornthwaite et al., 2000; Johnson, 2001; Kowch & Schwier, 1997; Lock, 2002). Several authors argue for the quality and predictability of communication as critical to effective online group and community functioning (Jarvenpaa & Leidner, 1998; Lock, 2002; Misanchuk & Anderson, 2001; Preece, 2000). There is also a need for guidelines and rules to specify norms of participation and interaction in the community as well as mechanisms for conflict resolution in order to guide the implementation of roles and language use to ensure the respectful inclusion of all community members (Lock, 2002; Palloff & Pratt, 1999; Preece, 2000; Schwier, in press). Additionally, a clearly defined purpose that is shared and valued by the community is imperative to promote an alignment of purposes and values for participation (Garber, 2004; Preece, 2000; Wilson et al., 2004). The community's purpose further determines its boundaries and is helpful to ascertain membership and identity formation as the individual's skills, knowledge, ideas and predisposition is shaped by and in turn shapes the identity of the community (Garber, 2004; Wilson et al., 2004). In support of this, the nature of a learning community generally demands that its members be committed to the learning process and participate in progressive discourse to enhance learning (Garber, 2004; Rovai, 2002a; Wilson et al., 2004).

Only with the establishment of these social structures in place can the nurturing of important qualities such as safety, trust, a feeling of belonging, connectedness, respect and knowledge of one another, collaboration, reciprocity, mutual

appropriation, a balance of member autonomy and interdependence, and a willingness to risk the sharing of one's ideas openly in the community to develop a shared history and understandings be facilitated (Jarvenpaa & Leidner, 1998; Jones & Issroff, 2005; Rovai, 2000; Schwier, 2001; Swan & Shea, 2005; Vonderwell & Zachariah, 2005; Wilson et al., 2004). The importance of these social and emotional issues are, however, not always acknowledged by online lecturers, especially those new to teaching online and the notion of communities (Bonk et al., 2004; Conrad, 2005).

Pedagogical Role. From a pedagogical role perspective, it is imperative for online lecturers to be clear about their reasons for establishing a learning community and how they expect it to enhance learning in their courses. Schwier (in press) recommends lecturers “to deliberate, to think about and do things purposefully to foster community growth”. This motive also guides lecturers’ course planning and enables them to emphasise the benefits associated with becoming a community member in the class (McMillan, 1996) as well as weave pedagogical strategies that are learner-centred for community building to strengthen the development of such a community in their online courses (Balcaen & Hirtz, 2007; Garrison, 2000; Lock, 2002; Thompson & MacDonald, 2005). Studies indicated that without well-defined community-driven goals and assessment strategies to evaluate community-oriented contributions, the community building effort will not be valued by some learners (Thompson & MacDonald, 2005).

Lecturers also need to acknowledge that they are members of the community, sharing the responsibility for knowledge construction with their students, instead of mere external agents involved in creating pre-packed learning materials (Garrison, 2000). Hence, lecturer modelling of multiple roles such as coach, mentor, and facilitator for students to appropriate can promote effective collaboration and knowledge construction capabilities within the community (Anderson et al., 2001; Rogers, 2000).

There is also a need to structure and facilitate important interactions, namely among students and between expert-to-apprentice (Dykes & Schwier, 2003; Hill, 2001; Johnson, 2001; Moore & Brooks, 2000; Wegmann & McCauley, 2007). Rogoff's (1990, 1991, 1995) studies in apprenticeship in a community of learners

revealed that not all social interaction facilitates the individual's learning and that particular conditions and forms of interactions are more beneficial than others. She argues for the importance of the *guided participation* provided, for example, by a skilled adult to assist a child in solving a problem in developing his or her ability to appropriate such guidance for future independent use. Similar findings have been observed in the online learning literature indicating that the volume or quantity of learner's online contribution or interactions had no bearing on the quality of work produced and the sense of community fostered in online courses. It is the nature of contribution and interaction that mattered (Liu, Magjuka, Bonk, & Lee, 2007; Roberts, 2007). Such interactions need to be monitored and supported in order that lecturers can identify and address emerging student learning needs instantaneously for the community to evolve and grow (Haythornthwaite et al., 2000; Vonderwell & Zachariah, 2005).

The selection of the teaching-learning tasks in an OLC is also crucial in the lecturer's pedagogical role. Many authors highlight the need for task-based learning activities to provide students a legitimate reason to collaborate within the community (Jones & Issroff, 2005; Thompson & MacDonald, 2005). Legitimate task-oriented reasons as a basis for developing the community is of such importance that some argue a community will not form without this premise (Johnson, 2001). Task-based learning is deemed to provide an authentic and relevant context to support learning and demonstrate learning in a more tangible and meaningful way (Hiltz, 1997; Palloff & Pratt, 1999; Roberts, 2007). As this research is based on Riel and Polin's (2004) characterisation of task-based learning communities, there is a need to consider the nature of the learning tasks utilised to support the development of learning communities. Nuthall (1999) suggested that such tasks ought to embody four key characteristics:

- Tasks need to have transparent goals that relate to the interests and motivations of students;
- Lecturers need to understand learner's sociocultural backgrounds to determine the suitability of using particular learning tasks in the class;
- The design of the tasks needs to emphasise the social and intellectual processes that will contribute to developing effective and sustaining relationships between students; and,

- Tasks should have the effect of increasing the levels of acceptance, trust, sharing, and mutual support between students including relationship building that tap into students' expertise to transcend across cultural boundaries and differences.

Some examples of learning tasks adopted in learning communities and OLCs include the jigsaw method, reciprocal teaching, innovative use of research cycles among students (Brown et al., 1993; Brown & Campione, 1990, 1994), problem-based learning and case-based learning or strategies such as providing a reason (e.g. a disorientating dilemma, an issue, a concern, a contentious discussion) (Moore & Brooks, 2000), provocative questions (Schwier & Dykes, 2004), and, online simulations, role play and games or the creation of tangible artifacts (Roberts, 2007). Further pedagogical recommendations include lecturers assigning learners to lead or moderate their own task-based learning groups (Jones & Issroff, 2005) and to restrict learner choices on the topics and tasks they can select to participate to promote coordination and coherency of discussions within the community (Dykes & Schwier, 2003). These strategies strategically cultivate the collaborative nature of a learning community to foster a sense of belonging when members work together in a student-centred learning environment to share expertise and multiple perspectives, contribute to knowledge and own their own learning outcomes (Barab et al., 2001; Lock, 2002; Wilson et al., 2004). They also provide opportunities for leadership and learners to take on various roles in support of the learning process (Palloff & Pratt, 1999). This research considers the nature of the teaching-learning tasks recommended to encourage the sharing of diverse expertise of the lecturer and students in the joint construction of knowledge for developing an OLC.

Managerial Role. Important judgments related to an online lecturer's managerial role are also required in developing OLCs. Many researchers have highlighted the importance of online course pre-planning and preparing to familiarise learners early in the course to help them better prepare for the online learning experiences (e.g. Bonk & Dennen, 2003; Conrad, 2002; Palloff & Pratt, 1999; Salmon, 2000). Several studies have shown that the community building experience can be challenging in spite of purposeful designs (Brown, 2001; Kanuka & Anderson, 1998; Song et al., 2004). A leading managerial role is for lecturers to guide the setting of the community's agenda, tone of communication, make themselves

known to all members as the key contact person in dealing with administrative and protocol inquiries and importantly intervene to troubleshoot and resolve conflicts to maintain harmony in the community (Lock, 2002; Schwier, in press; Wilson et al., 2004). Additionally, maintaining a smaller group size is more conducive to promoting communication and social interaction in OLCs compared to a larger group (Brook & Oliver, 2004; Palloff & Pratt, 1999; Riel, 1996). Time is also required to nurture social engagement and building of trust and to allow individual members who are learning in isolation at the periphery progress towards confident membership within the community (Graves, 1992; Haythornthwaite et al., 2000; Schwier & Dykes, 2004). Online lecturers need to consider these managerial and administrative issues when developing an OLC in their courses.

Technological Role. A technological role requires online lecturers to provide the necessary technology infrastructure that will be the gathering space for the learning community (Ingram, 2005; Palloff & Pratt, 1999). The technology must fulfil particular conditions such as transparency, be supportive of member needs, enable member focus of tasks, ideas and relationship building to provide a balance of content and community development (Schwier & Dykes, 2004) and able to capture the “thinking trails” or synthesis of individual and collective thinking in order to generate a shared community history (Liu et al., 2007; Lock, 2002; Tu & Corry, 2002b). Kowch and Schwier (1999) contend that the selection of any technology must allow for negotiations, intimacy, commitment and engagement in OLCs. Although the technology provides the opportunities for community development, it does not guarantee that a community will occur (Hiltz, 1997; Riel, 1996; Schwier, in press). The role of the technology, however, can be “enhanced through careful planning and designing a psychologically safe, open and inviting environment for information sharing and knowledge construction” (Liu et al., 2007, p. 12). Hence, consideration needs to be given to selecting the appropriate technology to meet such conditions as it can impact the development of an online course that fosters community development.

The discussion of these four online lecturer roles specifically for fostering OLCs augment the general roles on successful online teaching and learning described in

Chapter 3. Each of these roles is fluid and will evolve according to each progressive stage of the community development effort (Garber, 2004).

4.4.1.2 Student Roles

Students also play an important role in the effort to develop OLCs. It is fundamental for students to be open and willing to reframe their roles as learners to go beyond the motions of merely fulfilling course requirements (Thompson & MacDonald, 2005). In order to fully benefit as a member of a learning community, students need to understand and appreciate the benefits of learning collaboratively and teamwork as part of an interdependent member of the community (Palloff & Pratt, 1999; Riel & Fulton, 2001; Vonderwell & Zachariah, 2005). They need to be active and self-directed learners by undertaking leadership and multiple roles and responsibilities for their individual and the community's learning. Students also need to look to the community as the basis of authority instead of merely to the lecturer for ideas, information and feedback (Lock, 2002; Wiesenberg & Hutton, 1997). Certain fundamental individual member capacity is, however, necessary for successful participation in such forms of shared activity (Resnick, 1991). The integration of characteristics such as "ownership, social interaction, group identity, individual identity, participation and knowledge construction" (Misanchuk & Anderson, 2001, p. 5) is needed on the part of the student in developing strong OLCs. With the appropriate balance of academic and social input as well as member autonomy and interdependency, the whole community can then collaborate and support individual members towards their shared learning goals (Jonassen et al., 1998; Schwier, 2002).

4.4.1.3 Technology Role

Web-based technologies afford several advantages in the development of OLCs. For example, the introduction of asynchronous text-based communication reduces some potential discriminatory physical cues such as race, ethnicity, accents and has been described as a great equaliser (Johnson, 2001) in enabling members to participate on more equal footing. Other features such as accessibility, flexibility, storage, connectivity are beneficial in facilitating communication, interaction and documenting a shared history among the members of the community (Dykes & Schwier, 2003). Preece (2000) recapitulates that the technology used need to

importantly fulfill usability (focus on human-computer interaction) and sociability (enable social interactions) functions in the nurturing of OLCs. Minimal disruptions in the technology adopted will facilitate communication and important interactions leading to the development of the learning community (Kowch & Schwier, 1999; Liu et al., 2007).

Several disadvantages are also apparent in adopting Web-based technologies for purposes of community development. These include reports of the impersonal nature of communicating online, a lack of urgency in responding to other member's postings and an increase in lecturer and student workload in preparing for and managing the online interactions (Dykes & Schwier, 2003; Johnson, 2001). These factors need to be taken into account when employing Web-based technologies for the purposes of developing OLCs.

The literature on developing OLCs clearly depict how the roles of the online lecturer, student and technology are intertwined and need to merge in a complex way to create an environment for participants to engage in learning experiences that foster the development of a learning community. These considerations guide this research in developing an OLC in an online graduate Research Methods course.

4.4.2 Principles and Models for Developing and Sustaining OLCs

Various principles and models for designing learning communities in educational contexts have been proposed. Many existing models have been adapted to suit the online context. Models adapted from learning theory in the OLC development endeavour reveal support for sociocultural theorists such as Wenger, Vygotsky and Cole and Engestrom. For instance, Wenger's (1998) characterisation of COPs as involving *joint enterprise*, *mutual engagement* and a *shared repertoire* was used to frame the model proposed by Wilson et al. (2004) and Moule (2006). On the other hand, Schwier (2001) adopted Wenger's (1998) ideas of *engagement*, *interaction* and *alignment* as three catalysts for developing OLCs. Cole and Engestrom's (1993) Activity Theory framework was utilised by Ng and Hung (2003). Hung and Der-Thanq (2001), alternatively, adopted Vygotsky's ideas to highlight *situatedness*, *commonality*, *interdependence* and *infrastructure* in their model. Common themes from these are collaboration and interaction, teamwork

and team products, the use of authentic contexts and tasks, the mutual shaping of communal and individual member needs, and the establishment of norms for participation when developing OLCs. An examination of research-based models reveals a different emphasis. Some emphasise the pedagogical and social aspects of developing OLCs, while others focus more on the social and technological aspects (Seufert et al., 2002; de Souza & Preece, 2004). Yet others focus on the pedagogical, social and technological including managerial aspects of OLC development. Tu and Corry (2002a) and Swan and Shea (2005), for example, investigated a combination of *technical*, *social* and *pedagogical* interactions while Brooke and Oliver (2003b) added a *managerial* component to these three aspects. Others such as Moller (1998), Bond-Hu and Fiorello (2003) and Schwen and Hara (2004) undertook a different approach by adapting typical instructional design cycles, such as task analysis, assessment, design and development, and evaluation to design and develop an OLC. For the purposes of this research, models emphasising the pedagogical and social aspects of developing OLCs are of interest.

Palloff and Pratt (1999) proposed principles and models that highlighted the pedagogical and social aspects for the development of OLCs. They contend that an OLC ought to be developed through a clearly defined purpose for the community, the creation of a gathering place for the community, promotion of effective leadership from within the community, defining norms and codes of conduct, allowing for a range of member roles, allowing for and facilitating sub-groups, and, finally, allowing members to resolve their own conflict. For Barab et al. (2001), important design components central to developing an OLC include a flexible and inviting climate for learning to accommodate learner needs and interests, selection and order of learning activities that foster an open and warm atmosphere for learning, timely and gentle facilitation from the lecturer who focuses and refocuses the group and a conscientious effort on the lecturer's part to establish the OLC. Barab and Duffy (2000) further added that online communities can benefit from separate spaces or rooms for information sharing and for socialising and creating interesting spaces. Others, such as, Lock (2002) highlight communication, collaboration, interaction and participation. Lock presented five guidelines pertinent to creating an OLC, three of which are of interest in this research context: awareness of community and the sense and value of a learning

community, design issues for online courses that support community, and, mechanisms in place that will facilitate the collaboration of community. For Schwier (1999), developing an OLC involves having a leader to set the tone of the course, the use transparent technologies to foster task completion and the development of interpersonal relationships, creating a safe and comfortable environment for participation and an emphasis on member narratives and storytelling. Contributions from Brown (2001) and Rovai (2000) stress that essential community building blocks include developing a sense of membership, common goals and purpose, shared identities, shared knowledge and member participation or contributions and trust. Finally, Bonk et al. (2004) offered a framework of 10 principles for developing OLCs based on shared goals; trust and respect; shared spaces for the generation of ideas; team collaboration and products; sense of identity, membership and growth; influence and member participation; sense of autonomy; shared history, sense of belonging and emotional connections; fulfilling personal needs, rewards, acknowledgement, and embedded in practice and integration with real world. They further demonstrated how each of these principles can be supported by using different collaborative Web-based technologies and tools. Common themes observed from the literature on developing OLCs based on the above researchers' work are: 1) the role of technology in creating a space and place for community gathering and learning, 2) the use of authentic tasks/ practice that are situated in real world contexts and meaningful to learners needs and interests, 3) the perpetuation of common goals and purposes, 4) interaction and collaboration on team products within and environment that is flexible, safe, inviting and promotes member trust and respect, and, 5) the norms related to participation in an authentic learning community such as membership, awareness of community values, conflict resolution mechanisms, shared histories, and the mutual shaping of member interdependency and independency to accomplish communal and individual learning needs. These themes reflect the notion one has to purposefully foster community growth in the development of an OLC. The research considers and builds on these pedagogical and social aspects of an OLC in the context of a fully online Research Methods graduate course.

4.4.3 The Life Cycle of an OLC

It is observed that OLCs undergo life cycles of development. They generally go through three stages: a formative stage, a maturity stage and a stage of decline (Schwier, 2002). Others have proposed similar stages (e.g. Brown, 2001; Garber, 2004; Haythornthwaite et al., 2000; Lock, 2002; Wilson et al., 2004). In particular, Palloff and Pratt (1999) suggested that the life cycle of an OLC involves five stages: *forming*, *norming*, *storming*, *performing* and *adjourning*. They highlight how each OLC needs to be initiated by its members bonding with one another before proceeding to the next stage of learning to resolve conflicts. This storming or conflict resolution phase strengthens the community bonds to allow further important learning tasks to be undertaken collaboratively in order to achieve the community's goals and purposes. Once the goals have been achieved, the community either dissolves naturally or metamorphoses into other forms of communities.

Each progressive stage of community development is marked by increasing levels of member interaction and participation with increasing member responsibility for the sustenance of the OLC with the exception of the last stage (Brown, 2001). Furthermore, time is needed to foster each stage of development and to establish a shared language, practice, custom and resources in the community (Johnson, 2001). This time trajectory allows members to develop their technical skills and become comfortable in the community environment before they can consider making social, emotional and intellectual contributions to the community (Brown, 2001; Conrad, 2005; Schwier & Dykes, 2004). These stages are fundamental to an OLC development and can impair the community developmental process in significant ways if unrecognised by lecturers or community designers. This research considers these developmental stages or life cycles of an OLC in order to make provisions for fostering each stage in the online graduate Research Methods course.

Overall, the human and technology roles, principles and models, and life cycle of OLCs examined in this section portray the complexities of developing OLCs centred on people, processes and technology to influence the pattern and stages of community development and evolution (Weller, 2007). It has been suggested

that educators and community designers adopt a flexible approach in responding to the learners' ongoing learning needs to accommodate such complexities. Several authors have proposed the use of emergent design strategies where a course can be rapidly re-designed as it progresses to balance the need for structure and flexibility in online course designs (Cavallo, 2000; Kanuka, 2002; Thompson & MacDonald, 2005) or the use of an iterative process design to refine the design and development of an OLC which can address discrepancies between the intended design and its emergent usage (Johnson, 2001; Schwen & Hara, 2004). Such an approach acknowledges the sociocultural complexities of the teaching and learning relationships in OLCs in order to facilitate quality learning experiences (Schwen & Hara, 2004; Warschauer, 1998). This research considers these ideas to adopt an emergent and iterative design strategy to designing an OLC. Such a strategy is espoused through the negotiated intervention strategy described in Chapter 8. No known attempt has been made to implement such an emergent and iterative strategy in the literature on developing OLCs.

4.5 Indicators and Measures of Learning Communities and OLCs

Several methods have been proposed to examine the existence of learning communities and OLCs. They include identifying and comparing specific community characteristics or components of community to determine the extent to which such characteristics are present (e.g. Ma, 2006; Misanchuk, & Anderson, 2001, Schwier, 2001; Wang, Sierra, & Folger, 2003; Yuen, 2003). The investigation of specific interaction or participation patterns among participants in a course to ascertain the existence of community traits is another possible approach (e.g. Suh, Kang, Moon, & Jang, 2005; Swan & Shea, 2005, Thurston, 2005; Vonderwell & Zachariah, 2005; Zhu & Baylen, 2005). A method espoused by social network theory is to explore the strength and types of relationships between members of a group (e.g. Daniel & Schwier, 2007; Haythornthwaite, 1996; Wellman, 2001). A final method is to use indices or survey instruments to assess the development of members' relationships with each other and sense of community as a measure of community existence (e.g. Bonk & Wisner, 2000; Conrad, 2005; de Souza & Preece, 2004; Rovai, 2002b). For the purposes of this research, the methods and criteria adopted to establish whether a learning community had in fact develop in the study are twofold: 1) identify and compare specific community characterisation, and, 2) examine the nature of interaction and

participation patterns. The former is described next while the latter is elucidated in Section 4.5.2. These criteria were applied in the analyses of the entire online class in Phase 3.

4.5.1 Characterisations of Learning Communities

A number of characterisations of an OLC are evident in the literature. For Schwier (2007), the characteristics of OLCs are evident through 13 elements – historicity, identity, mutuality, plurality, autonomy, participation, trajectory, technology, learning, reflection, intensity, trust, social protocols. Schwier notes that these characteristics may not appear in every community and that the degree of presence of each characteristic varies within and throughout the evolution of a community. Palloff and Pratt (1999) propose the presence of an OLC can be judged through the existence of active interactions involving both course content and personal communication; collaborative learning evidenced by comments directed primarily student-to-student rather than student-to lecturer; socially constructed meanings evidenced by agreeing or questioning, with the intent to achieve agreement on issues of meaning; the sharing of resources, and, expressions of support and encouragement exchanged between students, as well as willingness to critically evaluate the work of others. Rogoff (1994) further offered another characterisation of a face-to-face learning community. The essential features of a learning community according to her include:

- All members are active. All the members in the community from novice to expert play active roles and have joint responsibilities in the teaching-learning process. Instead of being a sage-on-the-stage, the lecturer's role is supportive and acts more as a facilitator and coordinator to structure and guide the overall direction for student learning. Students increasingly learn to participate and manage their own learning and involvement and provide some leadership at times;
- Increased responsibility for learning. In a community of learners, the nature of the interaction changes from a didactic relationship to a partnership between the lecturer and students. Through opportunities to meaningfully collaborate and interact, learners undertake increasing responsibility for their own learning as well as the community's overall learning goals. Each member contributes in various ways to resource others according to their understanding of an activity;

- Asymmetry of roles. According to Rogoff (1994), it is not necessary for all members in the community to adopt the same roles or degree of responsibility. Their particular roles can vary from one situation or another, or even from one community of learners to another. She contends that, “in a specific act, participants' roles are seldom "equal", they may be complementary or with some leading and others supporting, or actively observing and may involve disagreements about who is responsible for what aspects of the endeavour” (p. 213);
- Conversational. The role of dialogue is important in a community of learners as learners participate to socially negotiate meaning to achieve their learning goals; and,
- The goal of participating in the learning community is that of increasing student responsibility and autonomy in learning.

These characterisations of a learning community emerge from her view of learning as “a matter of how people transform through participation in terms of the roles and understanding in the activities of their community” (Rogoff, 1994, p. 226). Rogoff’s (1994) characterisation of a learning community such as learning as participation in shared endeavours with others and all members playing active but differentiated roles and responsibilities in a sociocultural activity is used as the first indicator of whether a learning community had developed in the study. There are several advantages for using this model. Firstly, although Rogoff’s ideas provide a straightforward framework for working with learning communities, they allude to the complexity and necessity for joint activity, interaction, negotiation of meaning, diversity of member roles and the formation of member identity as a responsible and autonomous learner for the learning community to be successful. Furthermore, the goal of developing learner responsibility and autonomy is congruent with the goals of the graduate Research Methods course in this research, that of developing learner understanding and expertise in their own research practices (see Figure 8.2). Adopting Rogoff’s (1994) characterisation of a learning community provides coherence in actuating the development of the learning community in this research to aspire towards those similar goals.

The other method adopted to identify the existence and development of a learning community in this study is through examining the nature of member interaction and participation. Such interactions are one of the key foci in Rogoff’s multiple

planes of development analytical framework (see Sections 2.5.5.1 and 5.5). Adopting Rogoff's characterisation of learning community and her notion of multiple planes of development as an analytical tool for investigating learning communities in this research is, thus, valuable to understanding the complexity of influences impinging on the development of an OLC in the graduate Research Methods course. Such an analysis extends beyond present methods for identifying the existence and development of OLCs.

The next section describes the existence of different kinds of interaction as further indicators and support for development in learning communities.

4.5.2 The Nature of Interactions in Learning Communities and OLCs

The emphasis on relationship building in learning communities necessitates an examination of the kinds of interactions required to nurture the development of the learning community. Sewell (2006) and Sewell and George (2008) identified a range of interactions beneficial to supporting a learning community. The key idea involves building relationships that are responsive, reciprocal and authentic. Three kinds of reciprocal interactions at the intellectual, social and emotional level are proposed to support the existence of a learning community in the classroom (see Table 4.1).

Table 4.1

*The Nature of Interactions in a Learning Community*⁷

Reciprocal Interactions	Characteristics
Intellectual	<p>We are all learners and teachers.</p> <p>We share our thinking in dialogue to build on previous ideas and experiences to create new knowledge.</p> <p>We engage in intellectually demanding inquiry and reflection about content that interests us and is relevant to our lives.</p> <p>We share our expertise with members of our community.</p> <p>We share what we have learned with members of our community.</p>

⁷ Note. From *The Professional Practice of Teaching* (p. 208), by C. McGee and D. Fraser, 2008, Melbourne, Australia: Cengage. Copyright 2008 by Cengage Learning. Reprinted with permission.

Social	<p>We share decisions about what we learn, sometimes without a known endpoint.</p> <p>We share decisions about how we learn.</p> <p>We share responsibility for learning- sometimes the teacher takes the lead; other times, students take it.</p> <p>We share responsibility for managing our own and others' behaviour.</p> <p>We share our out-of-school lives in the classroom.</p>
Emotional	<p>We have honest dialogue to share our feelings and emotions.</p> <p>We listen to each other with respect.</p> <p>We care about each other.</p> <p>We are trusted to make good decisions and take responsibility.</p> <p>We respect and value our diverse expertise/experiences in the classroom.</p>

Table 4.1 portrays how a learning community incorporates a complex interplay of social, emotional and intellectual interactions between members to show their diverse nature as members gain increasing responsibility for their own and others' learning. Sewell and George's (2008) typology of the three kinds of reciprocal interactions between members in a learning community represents the second indicator of whether a learning community had established in the study.

Similar typologies of interactions have been observed in the investigation of OLCs. Some stress the social and academic aspects of communicating within such communities while others even consider the complexities associated with technology-mediated communication. Emphasising the social and academic discourse within a learning community is described, for example, in Daniel et al.'s (2007) proposal of intentional and incidental clusters of interactions. Intentional interactions include soliciting information, evaluation, elaboration, inquiry, argumentation and so forth while incidental interactions involve building shared understanding and experiences, expressing observations, reflection, peer support, sociability and disagreement. These interactions are equivalent to the ones investigated through Chapman, Ramondt and Smiley's (2005) Community Scale and Evidence of Learning Scale; Rovai's (2002a) task-driven interactions to facilitate learning and socio-emotionally driven interactions to facilitate member social well-being and develop friendships; Misanchuk and Anderson's (2001) use of non-instructional and instructional interactional strategies; as well as, Palloff

and Pratt's (1999) student-peer interactions to express social support, and provide intellectual contributions, as evidence for community. A study by Rourke et al. (1999), however, differed from those already mentioned to consider three kinds of interactions: affective, interactive, and cohesive responses. Affective responses refer to personal expression of emotion, feelings, beliefs, and values between members, while interactive responses refer to evidence that others are attending to one's online postings and finally, cohesive responses are interactions that build and sustain a sense of group commitment.

Other researchers have attempted to be more explicit by considering the role of lecturer contributions in the social and academic interactions to develop OLCs. For example, Swan (2002, 2004) discusses three kinds of learner interactions relevant to learning in OLCs: interaction with content, interaction with lecturers and interaction among peers. This is similar to Moller's (1998) observation of interpersonal, intellectual and academic support and to Liu et al.'s (2007) observation of collaborative, lecturer presence and social interaction strategies existing within OLCs.

Finally, interactions that consider the role of technology-mediated communication is also observed through the work of Wegmann and McCauley (2007). They proposed that important communication within OLCs can be investigated through learner-content, learner-teacher, learner-learner and learner-interface types of interactions.

The common theme inherent in these typologies of interactions in OLCs is the existence of participant collaboration as evidence for community. This is shown generally through the nature of interactions aimed at promoting learning (or academic or formal interactions) as well as social (or informal) interactions to meet the needs of members learning in the communities. Both the community and collaboration are products of and constituted in the interactions. These interactions are not mutually exclusive but can build on one another in a fluid way to reflect the complexity and interdependency of variables involved in the process of learning in an OLC. It is argued that further understandings of the nature of interactions occurring in communities are warranted as they are critical to understanding and supporting the learning process in OLCs (Daniel et al., 2007;

Thompson & MacDonald, 2005). This research intends to address this gap and extend the investigation of the kinds of interactions evident in an online graduate Research Methods course that can impact on and are impacted in turn by the learning experiences within an OLC.

4.6 A Learning Community's and OLC's Impact on Learning

Both face-to-face learning communities and OLCs share similar characteristics in their impact on learning. Generally, the outcomes of participating in a learning community are evidenced through transformations in members' intellectual, social and emotional identities (Brown & Duguid, 2000; Hung & Nichani, 2002, Sewell & George, 2008).

Intellectual Transformation. Learning communities traditionally have been proven successful in developing students' understanding in cross-disciplinary subject areas and heightening cognitive capabilities such as metacognition compared to learners in traditional classrooms (Bereiter & Scardamalia, 1996; Brown et al., 1993; Brown & Campione, 1990; CGTV, 1993). Benefits observed from strategy include enhanced student achievement through increased motivation, improved attitude towards others and provision of peer support, enhanced social skills and a commitment to participate and complete a learning task and a developing appreciation for the learning process itself (Hiltz, 1997; Sherry, 2000).

The literature on OLC impact on learning generally indicate that participants who experienced *community* and could define what it meant in their online courses reported a higher sense of satisfaction with their learning and perceived learning experiences (Brook & Oliver, 2002; Brown, 2001; Graff, 2006; Richardson & Swan, 2003; Rovai, 2002a). This observation is, however, disputed in another study that failed to find a correlation between helpful community development and academic achievement (Lee, Carter-Wells, Glaeser, Ivers, & Street, 2006).

Social Transformation. New identities are formed through the community enculturation process when members begin to develop certain dispositions, attitudes, beliefs and skills in support of the community's goals and values (Lave & Wenger, 1991; Wenger, 1998). This is a result of learners seeing themselves shift from being passive consumers of knowledge towards seeing themselves as

co-learners and contributors to a knowledge-creating inquiry with their teacher and peers in the classroom (Sergiovanni, 1994; Wenger, 1998). Important social transformations in OLC are demonstrated through member interaction and connectedness involving both course content and personal communication, collaborative learning evidenced by comments directed primarily student to student rather than student to instructor, socially constructed meaning evidenced by agreement or questioning with the intent to achieve agreement on issues of meaning, sharing of resources among students, the expressions of support and encouragement exchanged between students, a willingness to critically evaluate the work of others and a commitment to group goals (Bond-Hu & Fiorello, 2003; Chapman et al., 2005; Palloff & Pratt, 1999; Rovai, 2002a; Tinto, 1993). Such social interaction skills are argued as valuable in the context of lifelong learning and expected of adults in society (Merriam, Courtenay, & Baumgartner, 2003; Wilson et al., 2004).

Emotional Transformation. Emotional benefits are observed in the sense of learners gaining a new appreciation of one another's needs, motivated to help and to care, even if to do so is a difficult option (Watkins, 2005). As members begin to trust one another, they are more likely to: share more openly and honestly, ask questions, contribute ideas, express a minority opinion, play devil's advocate or publicly wrestle with ideas even if this means disagreeing with one another (Sewell & George, 2008). Members also gain confidence by being engaged in dialogue, and become more receptive to multiple perspectives (Bond-Hu & Fiorello, 2003; Liu et al., 2007; Merriam et al., 2003). There is also a marked increase in positive attitude towards learning and the development of one's self esteem (Salomon & Globerson, 1989).

Added together these general benefits have been observed to outweigh the sum of each individual benefit when learning communities are successful in achieving their collective goals.

4.7 Challenges and Constraints in Developing a Learning Community and OLC

Challenges and constraints also exist in developing learning communities and OLCs for facilitating learning. These can be broadly grouped according to four

areas: failure in recognising community, promoting the social phenomenon over developing a learning community, conferment of membership and the challenges posed by the technology.

Failure in recognising community. Brown's (2001) study revealed that an ability to define community is often the predictor of the extent students felt they have gelled into a learning community. This is, however, not always guaranteed as a major challenge is that of student fading or withdrawing from online courses even when community building is an explicit goal and have been purposefully designed to do so (Haythornthwaite et al., 2000; Johnson, 2001). From a teaching perspective, lecturers may have difficulty in forming sensitive, supporting relationships with all students. They may also have difficulty letting go of traditional paradigms of teaching and learning or may not have the pedagogical knowledge to respond to the unpredictability directions for discourse in a learning community (Rogoff et al., 1996; Sewell & George, 2008).

From the learning perspective, students will need guidance to changing the way they are accustomed to relating to lecturers and their peers in the class (Nuthall, 1999). Others have observed that differing levels of perceptions of community can exist among students in the same online course even though they have been through several online courses together (Conrad, 2005) implying that commitment to collective learning is not necessarily guaranteed (Ingram, 2005; Rovai, 2002a; Thompson & MacDonald, 2005; Vonderwell & Zachariah, 2005). This can arise from students being more concerned with knowledge-building goals as opposed to community building goals (Brown, 2001) and failing to perceive the creation and sustenance of a community as critical in facilitating their learning. As discussed earlier, the notion of community cannot be forced and is dependent on learners purposefully valuing and choosing to participate in community goals (Garber, 2004; Schwier, 2002). Previous research has also indicated that learners weigh a diverse array of factors when deciding on their levels of participation and the value they derive from a joint learning experience (Thompson & MacDonald, 2005). Lecturers and community designers need to be clear about their reasons for promoting a community and how they expect it will enhance the learning experience in order to convey this to students early in the learning process and create a perceived need that students will value and will choose to fulfil (Brown, 2001).

Promoting the social phenomenon without necessarily developing a learning community. Although the available Web-based technology affords the types of social interaction and communication possible, it does not guarantee the formation of a learning community (Palloff & Pratt, 1999; Schwier, 1999). Schwier (1999) cautions that participants can remain interactive and yet fail to become a learning community, “when technology is introduced to learning communities, there is a risk of promoting interaction without the concomitant elements required to turn a virtual learning environment into a virtual learning community” (p. 282). Hawkes and Dennis (2003) analysed postings from students in an online Masters course and found that “cajoling learners to jump into discourse often produced sterile and artificial addition to the discussion” (p. 55). This usually occurs in cases where lecturers impose a minimum requirement of online postings from students, who may view them as a chore, and create contrived situations of high-levels of interactions without necessarily promoting learning within the notion of a learning community (Haythornwaite et al., 2000; Schwier, 1999). Hence, it is recommended that lecturers value the quality and nature of online contributions over their quantity and utilise pedagogical strategies that focus on genuine participation such as tasks-based learning or artefact development to help learners understand how they can benefit by engaging in the learning collective of the community (Hawkes & Dennis, 2003; Palloff & Praff, 1999; Roberts, 2007).

It is also acknowledged that employing the social phenomenon of community to enhance online learning experiences can have potential negative impact on learning (Brook & Oliver, 2003a; Salomon & Globerson, 1989). These include members conforming mindlessly in the pressure or desire to be part of the community to the extent of losing their individuality (Sewell & George, 2008; Wiesenfeld, 1996), the accumulation of knowledge to the extent of restricting innovation (Wenger, McDermott, & Snyder, 2002), a reduced expenditure of mental effort and an increase in loafing behaviour (Salomon & Globerson, 1989) as well as the dangers of existing differing sub-cultures hindering the overall cultural development of the community (Johnson, 2001). Online lecturers and community designers need to be aware of these potential pitfalls in OLC development to preserve the community from disintegration.

Conferment of membership. The process of conferment of membership can be a barrier to those who arrive late in the process or those who come in and out of it. The introduction of new members and loss of old friends weakens the social bonds established members feel to the community. This is especially as they progress through the course ahead of or behind others in their group (Garber 2004; Haythornwaite et al., 2000).

Time also impacts on the development of community membership and identity (Brown, 2001; Hawthornthwaite & Kazmer, 2004; Palloff & Pratt, 2001). Learners need to establish lengthy, frequent and durable interactions, in order to build a common identity and establish deeper relationships and engagement (Graves, 1992; Wilson et al., 2004). It is unfortunate that such community building time and activity is usually relegated to the least of priorities in the design of the online course in the need to trade off the coverage of the course syllabus and lack of time on the lecturer's part.

Challenges of using technology. Technological challenges are also observed in developing OLCs. Any technology or aspects of technology that fail to facilitate communication between community members will hamper the efforts of community building as this process depends heavily on communication and interaction. Reduced social cues in online communication may allow students to feel free to ask questions, avoiding potential negative facial responses, while others may *fade back* and fail to contribute to the community (Johnson, 2001). Also, as students progress through the course and master the technologies and processes their need for social contact may diminish (Garber, 2004). These factors need to be addressed for lecturers to fully utilise the affordances of the technology to nurture OLCs.

Having examined learning communities in general and OLCs, in particular, many parallels are observed in the development and sustenance of both face-to-face and OLCs. Both reveal many complexities of people and process as well as technology (in the case of an OLC) in order to nurture such communities for facilitating learning. This research recognises these factors and attempts to make provisions to accommodate them in the development of an OLC in a graduate Research Methods course.

From a broad understanding of learning communities and OLCs, the next section discusses the teaching and learning practices in a specific community concerned with enhancing learning in Research Methods courses relevant to the context of this research.

4.8 Learning in a Research Methods Course

This section reviews some of the key approaches and practices of a community concerned with the teaching and learning of Research Methods courses in general and qualitative Research Methods courses specifically. Although the conceptualisation, purpose, curriculum and structure, and the approaches to teaching and learning may differ over the years, and between countries, the key function of research methods courses to develop students' appreciation and ability to be immersed into the academic research enterprise remains. Many textbooks and practical books detail the guidelines to conduct various research techniques and analyses commonly used in the field. However, a gap exists in that there are more books on the subject itself than on the nature of teaching and learning of Research Methods itself (Birbili, 2002; Pallas, 2001). Mullen (2000) notes that "pedagogical issues in the teaching of research methodology have yet to become a major focus of scholarship" (p. 5). In stressing this lack of sharing of pedagogical knowledge in the field, it is firstly necessary to understand some of the challenges and constraints faced by lecturers and students of Research Methods courses.

4.8.1 Challenges in Teaching Research Methods courses

The three key notable challenges posed to Research Methods lecturers, learners and even university administrators are: student perception and reaction, time, and realistic goals in determining the content and structure of these courses.

Student perception and reaction. Despite its importance in graduate training programmes, Research Methods courses in general generate a mixed student response ranging from nonchalance to anxiety. This is based in part on student reasons for enrolling in such courses which may range from convenience because a course fitted into their schedule or to fulfil degree requirements or a genuine commitment to new learning experiences (Mullen, 2000). These varying reasons give rise to a variety of perceptions towards Research Methods courses:

prejudices towards the entire subject or either quantitative or qualitative methodologies, or an anxiety that research is Maths, or the negative assumption that it is too technical or too difficult, is uninspiring or is irrelevant. All these result in a lack of motivation for learning in a Research Methods course (Altinay & Paraskevas, 2007; Eisenhart, 1989; Garrett, 1998; Hutchinson & Webb, 1991; Murtonen, 1999; Wakeford, 1981).

Glesne and Webb's (1993) survey of 73 professors teaching qualitative courses in the United States stressed that commonly reported frustrations include dealing with students' perspectives, backgrounds, and skills (reported by 30% of the lecturers). They elaborated that, firstly, students in these classes tended to have a technical mindset of wanting a formula or an algorithmic way for conducting qualitative research; secondly, have poor philosophical and theoretical foundations of alternative paradigms; and finally, have poor analytical and writing skills. It is reasonable to argue that these attitudes could partly be due to having reluctant lecturers teaching the subject, unimaginative teaching practices, and inappropriate assessment procedures (Wakeford, 1981). However, Winn (1995) correctly encapsulates the challenge for lecturers of Research Methods courses as,

How can Research Methods be made meaningful and relevant to social science students who typically study this subject not out of interest but because it is a compulsory component of a degree course, and many of whom have a long-standing aversion to the quantitative and technical aspects of the subject? (p. 204).

Time. The short length of time allocated to the teaching of Research Methods has also been detrimental to students' grasp of and development in the subject. Two disadvantages associated with the short time factor include hindering cordial relationship-building between lecturers and students; an important aspect in the early part of the course, and, students' development and ability to grasp the emergent understanding needed of the qualitative research process (Mullen, 2000). Hoepfl (1997) elaborates, "the emergent design of qualitative enquiry requires researchers to purposefully seek their own meaning in context and to compare what they have found. The brevity of qualitative courses in higher education impacts on student development" (p. 10). It is unfortunate, however, that this is experienced universally as universities succumb to pressures to

streamline and reduce costs in the running of their academic and training programmes. Although standard Research Methods courses can provide a starting point to familiarise students with common research techniques, it is doubtful as to whether students would be able to achieve genuine competence in the field at the end of it (Rose, 1981).

Realistic goals in determining the content and structure of Research Methods courses. Setting realistic goals to determine the content, structure and even assessment practices of Research Methods courses is another challenge. It has been observed that different tertiary institutions conceptualise the nature and goals for their research courses to suit their research and teaching goals (Birbili, 2002). Some of these goals range from developing student appreciation for the tentative nature of knowledge to promoting student understanding of the complex nature of educational research which goes beyond simple causation factors to helping students to think critically about social phenomena (Denham, 1997) or to providing students with a basic orientation and sense of what is involved in research and so forth.

In an attempt to elevate the level of research competence as well as create a uniform standard among academic tertiary institutions in the area of research teaching and training in the United Kingdom, the Economic and Social Research Council (ESRC) has produced standard guidelines known as the ESRC Postgraduate Training Guidelines which can be adopted for use by other tertiary institutions worldwide. They highlight a number of skills and core competencies that research students need to acquire during formal research training courses. Research students are expected to understand and acquire knowledge of basic principles of research design and strategy, be able to apply a range of methods and tools, be capable of managing research data and the research in general, conduct and disseminate research and understand the “significance of alternative epistemological positions” (ESRC, 2005, p. 25). Although these goals are worthy in pursuing, some lecturers of Research Methods courses are sceptical as to their realistic achievement. For example, Collinson (1998) questions how graduate students can achieve the necessary competence to be professionally trained researchers as espoused by the ESRC as the difficulty partly lies in the

widespread and many differing traditions, purposes, and views in the field (Cowie, 2004; Metz, 2001).

The question that arises then for lecturers and administrators of Research Methods programme is whether the goals of research courses are designed to assist students in developing research appreciation – providing students with the abilities to be a critical consumer of research versus research competence – and enabling students to become research practitioners (Burgess, 1981; Rose, 1981). This is not an easy task involving a considerable and delicate balance in organising academic versus experiential experiences, allowing novice student researcher development versus expert researcher input, as well as enabling professional researchers' knowledge versus students' personal knowledge to be voiced in the course. As Collinson (1998) states, “at the very least, greater clarity and precision in defining level of competence realistically achievable are required of those charged with the tasks of designing and implementing social science research training programmes” (p. 64). Each goal requires different pedagogical approaches ranging from helping students develop the ability of *knowing that* (abstract knowledge of research methods) to *knowing how* (practical competence in applying research methods) (Halfpenny, 1981). This emphasis on clarifying and aligning the learning goals to appropriate pedagogical approaches is increasingly recognised in the literature and is undertaken in this research in the redesigning of an online graduate Research Methods course.

Having raised the three challenges faced in the teaching and learning of Research Methods courses, it is worthwhile to next highlight some of the key pedagogical approaches and strategies that have been adopted by lecturers of the subject despite constraints.

4.8.2 Pedagogical Approaches Adopted in Research Methods Courses

Pedagogical approaches to teaching Research methods courses can be broadly categorised into the *Cookbook* method, the *Examples* method, and the *Practical* method (Halfpenny, 1981). They can be loosely aligned with the progressive changes in views of learning (from behaviourist to situated perspectives) and advancing ideas on the nature and ways of knowing and understanding (Luttrell, 2005; Maykut & Morehouse, 1994; Pallas, 2001). These ideas have important

implications for how Research Methods can be taught effectively in current contexts.

Cookbook approach. The *Cookbook* approach also known as the *textbook* or *smorgasboard* approach was commonly practised in the 1960s. It involves students learning a standard *recipe* for conducting research. It espouses the use of standard textbooks and introduces the typical steps in the research process such as research design, data collection, data analysis and presentation of results. The standard textbooks used are commonly abstract in nature, dull and boring for students reading them. This approach has been criticised for implying that research can be conducted by following a series of linear steps and failing to communicate the challenge and excitement of research. Additionally, such an approach perpetuates the false impression that the teaching conducted is in preparation for students doing research sometime in the future; a task unrelated to the complexities and *messiness* often faced in real life research practice (Halfpenny, 1981).

Some pedagogical strategies related to this approach include lectures and seminars where teacher-centred transmissive modes of teaching and learning commonly occur. Variants of the cookbook approach include adopting mixed strategies such as seminars and small group discussions as well as the use of staged assignments (assignments conducted in small stages to lead to an overall report) (Keating, 1991) to promote more students' input and background experiences in their classes. Lecturers using this approach are adamant that their students gain the necessary background knowledge in philosophy or history or epistemologies of research methods that can serve as foundational models before engaging in future practical research experiences to investigate specific issues or populations (Page, 1997; Pallas, 2001).

Lately, there has been a progressive call to shift from using this approach to one that can make Research Methods teaching more meaningful and relevant to students (Burgess, 1981). The *Examples* approach represents a closer response towards incorporating meaningful and relevant experiences for students of Research Methods courses.

Examples approach. The *Examples* method involves structuring the Research Methods course around examining actual research examples or studies. Substantive educational issues guide the further examination of related research methodologies and methods (Yates, 1997). No prior commitment is made to any specific research framework or method; hence the emphasis is on using more authentic experiences that students can better relate to, as well as encouraging students to actively explore the link between theory and method. This method exposes students to the complex realities involved in the research process compared to the cookbook approach (Halfpenny, 1981). It is further useful to illustrate the various methodologies used and “acquaints students with the problems and processes involved in doing research” (Burgess & Bulmer, 1981, p. 483). Variants of this approach include structuring the course around related themes within a discipline (thematic approach) or across disciplines (integrative approach) to help relate research to areas that are familiar to students (Metz, 2001; Page, 1997; Wainstock, 1994).

Small group collaboration or cooperation strategies are more commonly used in this approach as well (Garrett, 1998). The literature on graduate education also indicates the importance of such groups to both the quality of the graduate experience and students’ likelihood of remaining in graduate programmes (Boyle & Boice, 1998; Conrad, Duren, & Haworth, 1998; Schoenfeld, 1999). Other strategies used include inviting guest researchers to give autobiographical accounts of aspects of their experiences while doing real-world research, or using the lecturer’s experience to serve as a role model of a way of how to conduct research (Glesne & Webb, 1993), letter writing (Dunn, 2000), case studies or classroom exercises or vignettes based on real-world research (Goldman, 1999; Schmid, 1992; Talley & Timmer, 1992; Zablotsky, 2001), simulation of issues encountered in field work (Lee, 1987; Wieting, 1975), role playing through the use of games (Straus, 1986) as well as reading and analysing texts (resource-based learning).

While this approach has been advantageous in portraying real-life examples to learners, its limitations have been observed by researchers who argue that effective learning needs to be situated in socioculturally appropriate practices (Greeno, 1989; Lave, 1991; Rogoff, 1990). The third approach extends the

characteristics in the examples approach to incorporate a more practical approach in the teaching and learning of Research Methods courses.

Practical approach. The *Practical* approach is commonly characterised by active student participation and the use of authentic experiences. It is a shift from the teacher-centred didactic pedagogical approach to a more learner-centred one where the lecturer mostly guides and facilitates students' development in the intricacies of the research process. This involves using either simulated research projects where students work on exercises to illustrate various types of issue and problem (Halfpenny, 1981) or using real-life projects where students either work individually or in groups to conduct research under the guidance of the lecturer. It views the experiential process of *learning by doing* research as a necessary approach to grounding discussions related to research methods and facilitates purposeful teaching. The more academic aspects of the course is attended to only when time permits (Metz, 2001; Winn, 1995; Wolcott, 1990).

The advantage of this approach is it allows students to analyse specific problems and general issues encountered in the research process as they arise as espoused in ESRC's (2005) vision that research students be given opportunities that allow them to develop and practice competencies such as communication skills, research management and team-working skills. Another importance lies in developing students' holistic view of research by closely relating the theories, methods and the steps involved in the research process (Luttrell, 2005; Rose, 1981; Winn, 1995). As Burgess (1981) argues, "research is no longer a clear cut sequence of stages as suggested by the 'cookbooks', nor a mere adventure as suggested by the autobiographical accounts but a social process where problems, theories, methods investigations, investigators and informants are closely inter-linked" (p. 492).

Some of the pedagogical strategies commonly adopted in this practical approach to learning research methods include problem-based learning (Denham, 1997; McBurney, 1995), project-based teaching (Burgess, 1981; Hutchinson & Webb, 1991; Keen, 1996; Rose, 1981; Wakeford, 1981; Winn, 1995), activity-based approach (Benson & Blackman, 2003), small group collaboration (Longmore, Dunn, & Jarboe, 1996), role-play, conducting a poster session or workshops,

journal or log recording, and the focusing on a particular method of data collection and analysis such as interviewing (Charmaz, 1991), observation (Ostrower, 1998), field studies (Snyder, 1995), and qualitative coding (Stalp & Grant, 2001) for students to grasp the complexities and creativity of qualitative field work. Variants of the practical approach include combining either the cookbook or examples approaches with the practical approach (Poindexter, 1998) or extending the practical experience of learning the craft of research through active participation in a research community (Collinson, 1998; LaPidus, 1997; Luttrell, 2005; Page, 2001; Pallas, 2001; Schoenfeld, 1999).

Additionally, a contemporary trend for preparing students for diversity in qualitative Research Methods courses supports the notion of COPs. Researchers such as Pallas (2001) and Walker (1999) encourage the formation of research teams to seek membership into the wider research community. Pallas (2001) views the key concepts of Wenger's (1998) ideas such as participation, reification, constellation and LPP as fundamental to preparing students for the epistemological diversities in research. On the other hand, Walker (1991) argues that such apprenticeship and enculturation experiences for researchers through internships in authentic cultural communities would provide the opportunities "to explore the complexities of the problems they seek to research from a real-life view, not just the view of the other researchers in an established literature" (p. 240). Overall, early opportunities to participate in research, to present work and doing so to a variety of audiences have been noted to be beneficial to students' learning (Conrad et al., 1998; Lave & Wenger, 1991) as Schoenfeld (1999) contends, "a supportive environment that lives and breathes research issues, is open and reflective, allow people to pursue ideas that they really care about, and provides them with many opportunities to learn, early on, from their mistakes they will inevitably make" (p. 200). These ideas of learning Research Methods through enculturation into a COP is supported in this research as it breaks away from the traditional teacher-centred *Cookbook* approach to favour a more active learner-centred approach where lecturers are facilitative of students' learning. They recognise the need for student engagement in the learning processes instead of mere focus on the content as increasingly demonstrated through the use of collaborative group work and emphasis on authentic activities.

In conclusion, Metz (2001) reflects that it is difficult to offer *prescriptive solutions* for lecturers to nurture the desired skills in beginning researchers, since what is effective teaching and learning in the subject area depends largely on the context. But despite this uncertainty, Schoenfeld (1999) claims that a consideration for the wider institutional, historical, social and cultural contexts impinging on the teaching and learning can be beneficial to students' learning in Research Methods courses,

a set of constraints that, when honoured, will increase the likelihood that students will emerge from graduate programmes better prepared to engage in meaningful and important education research. There will be many and very different ways to honour those constraints - ways shaped by institutional history, contexts and the characteristics of the faculty (p. 168).

Such sociocultural contextual implications are considered as the basis in this research for improving the learning in the online graduate Research Methods course by grounding the learning within the notion of a learning community.

In addition to highlighting the general pedagogical approaches, a description of course assessment issues is also warranted before considering the extent these ideas on best practices in Research Methods courses can be translated into the online context. This is covered in the next section.

4.8.3 Assessment Issues in Research Methods

Assessment procedures in Research Methods courses are also a concern for those teaching in the field. Common assessment strategies vary from writing research proposals, to individual projects, to essays, to take-home examination, reflective journals, data analysis reports, class presentations and so forth (Hurworth, 2002).

More writers are calling for assessment activities that are better integrated and aligned with the course goals and learning aims (Benson & Blackman, 2003; Burgess, 1981; Marsh, 1981). As in other disciplines, this concept of *constructive alignment* (Biggs, 1999) where the teaching methods and ways of assessment as well as learning activities are in accord with the objectives or goals to support students' learning is underscored in the teaching and learning of Research Methods as well.

Wakeford (1981) observes that part of the problem of student dropout rates and poor attitudes towards Research Methods courses and lecturers' lack of enthusiasm in teaching them are due to a misalignment of theory and practice and emphasis on skills inappropriate to the course's goals, "where method is considered in isolation from the theory and substance discussed elsewhere in the department and assessed by tests of the ability to recall textbook prescriptions and to perform certain standardised technical operations" (p. 511). The problem is perpetuated when emphasis is solely on course assessment fostering the attitude of learning just to get through the assessments as indicated in Marsh's (1981) warning,

If there is a mismatch between the knowledge and skills demanded in the assessment task and the aims and objectives of the course, we may expect the students will concentrate on acquiring whatever they see necessary for passing the examination or assignment. When this happens, the assessment begins to 'drive' the course, and the teachers, contrary to their own judgment about what is important in the subject, find their teaching being pulled in certain directions (p. 520).

For Hurworth (2002), however, these difficulties arise from constraints faced by Research Methods lecturers such as university regulations, student characteristics, course length, and class size to drive certain assessment decisions that are less desirable for both the lecturer and students. She notes that assessment choices are narrowed down to "the least of all the evils by finding the best match between the course goals and factors such as time, energy level and class size" (p. 117).

It has been suggested that several small pieces of assessment be organised that can allow for students' knowledge and skills to be developed progressively rather than adopting the common multiple-choice and written examinations approach (Hurworth, 2002). This consideration as well as Biggs' (1999) idea of *constructive alignment* is adopted in this research concerned with facilitating learning in a graduate Research Methods course.

4.8.4 Online Research Methods Courses

Several observations have been raised regarding the unique aspects of teaching and learning of online Research Methods course. Some authors such as Cowie (2004) contends that the challenges of translating Research Methods courses into the online environment are further magnified due to the impersonal nature of technology-mediated communication causing the loss of the *human face* of research which can further reinforce the abstract nature of the subject. This needs to be addressed in the design of any online Research Methods course.

An examination of the literature on teaching online Research Methods courses portray three trends: firstly, a general support for the four key lecturer roles proposed by Bonk and Dennen (2003) (see Section 3.2.1), secondly, emphasis be given to the lecturer engagement with students on the first day of the class, and, thirdly, support for the key ideas espoused in learning communities.

In line with the four lecturer roles proposed by Bonk and Dennen (2003), general positive and helpful online lecturer strategies have been found to benefit Research Methods students: patience; open-minded attitude to understand the wide and tentative nature of knowledge in research; willingness to devote time for students' queries; continual feedback to students about their work; establishing more effective and meaningful interaction among students and between students and the lecturer; balancing practical experiences for student researchers; and organising, supporting and assessing student's experiences in the course (Altinay & Paraskevas, 2007; Winn, 1995). This also includes carefully considering the ways of arranging groupings and the nature of the tasks used to promote effective student interaction and collaboration (Lidstone & Lucas, 1998). Online lecturers need to make further substitutes to account for the social and emotional cues commonly lost in online contexts. These include using photos, sharing personal biographies, conducting online and face-to-face discussions, having online chats and group discussions to assist in personalising the teaching and learning experiences, and reducing distance students' sense of isolation. Adequate technical and administrative support relevant to online lecturers' and students' further needs to be addressed and established before the online course commences (Kushner, Watson, & White, 1997).

An emphasis on the first day of the Research Methods class in setting the tone and pace for the remainder of the course is also highlighted in the literature. Zablotzky (2001) and Denham (1997) stress that the first task for Research Methods lecturers is to create a welcoming environment or atmosphere where students' fears and need can be voiced and addressed. This can deal with and dispel students' misperceptions, and myths towards the subject. By demonstrating the relevance of Research Methods in everyday life through the use of interesting and relevant activities such as popular polls or dubious survey instruments or fictitious data, students can be encouraged to reflect on and openly discuss their queries in a meaningful way. Utilising their experiences in conducting research or having participated in research is another strategy used to increase student motivation and tailor the class towards their needs.

Current researchers in online Research Methods courses suggest that a more supportive learning environment can be achieved through the development of learning communities (Cowie, 2004; Hudson, Owen, & Veen, 2006). In such an environment, strategies to promote interactivity and discussion, collaboration and the use of authentic learning experiences such as problem-based learning are highly valued. Furthermore, it is noted that the online lecturer's ability to facilitate exercises and discussions online synchronously or asynchronously, as well as his or her ability to facilitate the development of group identity, solidarity and a sense of community are important strategies that are highly valued by Research Methods students (Altinay & Paraskevas, 2007; Birbili, 2002; Clegg & Alexander, 2001). This recommendation is adopted in this research concerned with facilitating learning in an online graduate Research Methods course.

4.9 Summary

This chapter recognises the importance of sociocultural views of learning as embodied in the notion of learning communities as a useful way to theorise, design and analyse the teaching and learning in online learning environments as well as in Research Methods courses. A general consensus of the key ideas resonating through the literature in these areas include a support for the four key online lecturer roles to depict changes towards more liberated lecturer, student and technological roles; an emphasis on the process of learning as demonstrated

through the complexity of teaching-learning interactions to provide learner intellectual, social and emotional support; and the impact of learning afforded through learning communities as marked by transformations in members' intellectual, social, and emotional identities. The development of learning communities in general and OLCs specifically, is a complex and multifaceted process involving a dynamic balance of people, processes and technology to influence the pattern and stages of community development and evolution. The general benefits of nurturing a learning community have, however, been observed to outweigh the sum of each individual benefit when learning communities are successful in achieving their collective goals. Utilising a learning communities approach to facilitate learning in the online graduate Research Methods course for the purposes of this research is thus argued to be the most appropriate pedagogical strategy to addressing the teaching and learning goals in the course. It also considers the wider sociocultural complexities important for understanding how successful learning occurs in this research's unique context.

The following chapter describes the research methodology and data collection methods used in the study in support of the sociocultural orientation adopted in this research.

Chapter 5

Research Methodology and Design

5.0 Introduction

This chapter describes the research methodology, and methods used to investigate ways of improving the learning experiences in an online graduate course in Research Methods. It consists of seven sections and begins by positioning the research within the interpretivist methodology (Section 5.1) which propounds the sociocultural view of learning and supports the aims of this research and its qualitative design. The research design and phases are discussed next (Section 5.2) and followed by a full description of the methods used to generate data (Section 5.3), selection of participants (Section 5.4) and ways of analysing the data (Section 5.5). Ensuring quality in the research is considered in Section 5.6. Finally, ethical issues about participating in the research are also discussed (Section 5.7).

5.1 Methodologies in Education Research

In any qualitative research inquiry, it is necessary to locate the research within the appropriate methodology or tradition as each qualitative methodology connotes a different approach and interpretation to the research inquiry. That is, determining a qualitative researcher's methodological stance forms the basis for understanding the underlying assumptions in the research approach, data collection, data analysis, and data interpretation (Lincoln & Guba, 1985). As Merriam (1988) argues, "how the investigator views the world affects the entire research process - from conceptualising a problem, to collecting and analysing data, to interpreting the findings" (p. 53). Methodology can thus be defined as the worldview or the epistemological underpinning guiding the research (Cohen, Manion, & Morrison, 2000). It represents a way of thinking about and making sense of the complexities of the real world and informs a researcher regarding what is "important, legitimate and reasonable" (Patton, 2002, p. 69). Methodology, then, is the particular philosophical stance that situates the research within a discipline of inquiry.

Commonly cited methodologies used in educational research include positivism, interpretivism, post modernism or critical inquiry, phenomenology, constructivism and so forth (Creswell, 1998; Lather, 1992; Maykut & Morehouse, 1994; Miles & Huberman, 1994). This present research is situated within the interpretivist methodology and contrasts with the dominant positivist research tradition in educational research. Their differences are described below.

During the past 50 years, the positivist methodology has dominated educational research and heavily influenced by the Behaviourism movement whose epistemology is based on the existence of an external objective truth and reality. The positivist approach is typically related to quantitative research and aims to produce a generalised set of theoretical statements that are universally applicable. Positivists are interested in the facts or causes of social phenomena instead of the subjective states of individuals (Patton, 2002). Described as being relatively objective as well as value and context-free, the positivist researcher relates to his or her research participants or research interest in a detached manner in order to document the laws structuring reality (Hathaway, 1995). In a positivist research design, it is common to use existing theoretical frameworks to pre-select categories guiding the research, hypotheses and data collection techniques. Attention is given to data collection methods that can be applied to similar situations, hence the importance of techniques such as random sampling, instrumentation, specification, precision, and the following of pre-set methodological assumptions (Hathaway, 1995). In order to maintain the deductive analytical nature of positivist research, strict adherence is given to quality issues such as validity and reliability.

In the last decade, however, a rising trend towards interdisciplinary disciplines such as sociology, anthropology, psychology, language, education, as well as movement towards empowering the views of previously perceived minority groups is challenging the positivist tradition of viewing knowledge as an objective external truth (Hall, 1999; Serpell, 2002). These pave the way for acknowledging views of knowledge that are more subjective in nature or based on an individual or a group's interpretations of reality within a specific dynamic social, cultural, political, historical and institutional context (Rogoff, 2003) leading to the noted rise and popularity of qualitative research methodologies.

In direct contrast, the interpretivist methodology views knowledge as inclusive and indwelling, rather than exclusive and distancing (Maykut & Morehouse, 1994). Truth is based on a person's subjective reality and constructed by each person's understanding of the world (Cohen et al., 2000; Lincoln & Guba, 1985; Patton, 2002). As the interpretive researcher places importance in understanding participants' worldviews and their interpretations of the phenomena of interest in the study, the interpretive research's aim is usually to describe in detail a specific phenomenon under study. The researcher becomes immersed in and engaged with the participants and is also the tool or instrument in seeking to understand, interpret and construct truth as seen from his/her and the participants' perspectives (Merriam, 1988). This approach is both value and context dependent. Importance is placed on identifying emergent themes and experiential exploration from the data collected instead of observing data from intentionally pre-selected or pre-determined categories. The data collected evolves from the researcher's experiential contact with the phenomena studied (Hathaway, 1995). This method is thought to yield a richer and more encompassing picture of the theory and practice relationship. By adopting the interpretive research methodology, this study attempts to explain the world not by universal laws of knowledge but through understanding the complex interactions of key participants in the online learning process to bring about the desired teaching-learning transformations. It further acknowledges the subjective reality of the research participants and is interested in finding out how the participants in the research, the lecturer and his students understand their lived experience of online teaching and learning. The interpretive epistemology also supports the sociocultural view that knowledge is co-constructed in dialogue and in other forms of joint activity, implying that new understandings will be co-constructed between the researcher and the lecturer and between the research participants through collaborative participation. Interpretive methodology is, thus, a participative and collaborative endeavour concerned with constructing new understandings "that get inside the ways others see the world" (Neuman & Kreuger, 2003, p. 75).

5.1.1 Qualitative Research

In line with the underlying assumptions of interpretive methodology, a qualitative research approach is adopted in this research. By doing so, this research supports

the arguments forwarded by others researching issues in contemporary education and online learning contexts. Qualitative research is appropriately aimed at exploring the social dynamics of education as demonstrated through projects investigating the process of negotiating new meanings among learners or between learners and their teachers and the role of new technologies in changing learners' social and intellectual life (Greeno et al., 1996; Pea, 1993); the use of ethnographic techniques for describing educational practice (Spindler & Spindler, 1987); and the application of educational theories that are context-specific rather than general in nature (Lave & Wenger, 1991; Newman, Griffin, & Cole, 1991). Qualitative research approaches such as case studies or ethnographies are further argued to be well suited to capture and evaluate the complexities in online courses (Fetterman, 1989; Mason, 2001; Windschitt, 1998).

Seven characteristics of the qualitative research identified in the literature have implications for this study (Bogdan & Biklen, 1982; Hoepfl, 1997; Lincoln & Guba, 1985; Miles & Huberman, 1994). Firstly, qualitative research is typically adopted in order to better understand any relatively new phenomenon (Strauss & Corbin, 1990), or gain new perspectives on already established phenomenon, or gain more in-depth information that may be difficult to convey quantitatively (Hoepfl, 1997). This idea is appropriate to this research's aim to understand ways of facilitating the online learning experiences of participants in this study. This kind of research is novel in the context of this online course and its related subject area and in the particular New Zealand tertiary institution in which it is situated. Secondly, qualitative research is usually interpretive in nature, aimed at uncovering the significance of events as experienced by the research participants and as interpreted by the researcher. I intend to maintain vigorous interpretations (Stake, 1995) of the data throughout the data gathering process in order to draw robust and credible conclusions as a researcher. Thirdly, it is acknowledged that the natural context of the research provides a rich source of data for the researcher to observe, describe and interpret the settings as they are (Maykut & Morehouse, 2001). I acknowledge this need to attend to any idiosyncratic or subtlety in meaning from my observations and conversations with the lecturers and students in a respectful manner while attempting to understand and preserve the uniqueness of the context (Lofland, 1995). Fourthly, in qualitative research, the researcher is the instrument of data collection and considered the "human-as-

instrument” (Maykut & Morehouse, 2001, p. 43). As the human instrument for gathering data, importance is, hence, given to the role of the researcher’s tacit knowledge in collecting, analysing and interpreting the research data (Lincoln & Guba, 1985; Patton, 2002). I understand it is the confidence readers have in my ability to be sensitive to the data and to make the appropriate decisions that will determine the research’s credibility or quality and usefulness (Eisner & Peshkin, 1990; Patton, 2002). Fifthly, it is acknowledged that the research design adopted will be emergent in nature (as opposed to pre-determined), depending on the research’s purpose, the usefulness of the data collected, and the credibility of the data collected. As a researcher, I will be open to changes and modifications in the research design as issues arise based on my observations and interpretation of the research context (Patton, 2002). Next, qualitative research typically employ inductive forms of data analysis based on *thick rich descriptions* (Merriam, 2001) and employing “people’s words and actions in narratives or in a descriptive manner to closely depict situations as experienced by the participants” (Maykut & Morehouse, 2001, p. 2). I acknowledge this process in my attempts to understand the participants’ experiences of the world and to provide a meaningful account of the lecturer’s and students’ voices in this research to help readers in similar settings to experience the transformation vicariously (Lincoln & Guba, 1985; Stake, 1995). Finally, the quality of a qualitative research is based on criteria such as trustworthiness, credibility and triangulation to ensure that the data collection is “interconnected” (Patton, 1990, p. 40) and “mutually reinforcing” (Lincoln & Guba, 1985, p. 39).

5.2 The Research Design

A qualitative case study is adopted in this research in agreement with the Interpretivist methodological stance adopted. The case study approach is one of the common methods of evaluation in online learning (Hara et al., 2000). This is also observed in Johnson’s (2001) review of 15 online courses at the tertiary level, all of which were case studies of online courses applying the principles of COPs. Similar trends were observed in research on online learning in the New Zealand tertiary context (Baker et al., 2003). The case study approach also clearly aligns with the sociocultural assumptions of examining a specific case in online learning located in a particular social, cultural, historical and institutional context.

Case studies have been increasingly recognised as the preferred strategy when *how* and *why* questions are posed, or when a researcher has little control over events, or when the focus is on contemporary phenomena within some real-life context (Yin, 1994). Case studies allow for naturalistic inquiries to probe real-life contexts within unique cases (Patton, 1990) as explained by Cohen and Manion (1989),

the case study researcher typically observes the characteristics of an individual unit – a child, a clique, a class, a school or a community. The purpose of such observation is to probe deeply and to analyse intensively the multifarious phenomena that constitute the life cycle of the unit (p. 124-5).

The case study focuses on understanding specific or particular cases that have clear boundaries and contained within a coherent system (Stake, 1995). Its results are not intended to be generalisable to an intended population (Patton, 2002) as Stake (1995) argues, “the case study seems a poor basis for generalization...the real business of case study is particularisation” (p. 7-8). Stake and others, however, added that the case study can be valuable in clarifying theory (Yin, 1994) and has important implications for applying or generalising the findings to situations which have sufficiently similar though not identical conditions to the case being researched (Kennedy, 1979; Lincoln & Guba, 1985; Simons, 1996) (see section 5.6.2 for further details).

This study fulfills the four characteristics of case study research as observed by Gall, Borg and Gall (1996, p. 545):

- (1) The study of phenomena by focussing on specific instances. The case study in this research has clear boundaries. It is bounded by time (occurring during the term B semester over a period of 15 weeks), place (graduate online class offered by CSTER, at the University of Waikato, New Zealand), subject area (Research Methods course) and pedagogical approach (the sociocultural basis for using learning communities to facilitate successful online learning experiences). It investigates characteristics of successful online learning experiences to understand the *why* and *how* of facilitating such desired learning transformations in an online graduate Research Methods course;

- (2) An in-depth study of the case. This research examines a particular case of an online course in-depth by providing a thick rich account of the teaching-learning interactions to bring about transformations in participation;
- (3) The study of a phenomena in its natural context; and,
- (4) The study of the perspective of case study participants. This research will obtain multiple sources of information from the lecturer's and his students' perspectives in data collection and generation to provide an in-depth understanding of their lived experiences and transformations in the online course.

5.3 Methods of Data Collection

While methodology is the epistemological overview guiding research, methods refer to the actual techniques and or tools available to the researcher to collect data or to gain access into understanding the world of the research participants (Cohen & Manion, 1989). Data collection methods used in qualitative inquiry provide very detailed information about a much smaller number of people and cases allowing in-depth exploration of research participants' feelings, attitudes, beliefs and experiences (Burns, 1994).

Data collection methods commonly used in case studies include a combination of quantitative and qualitative methods (e.g. observations, interviews and document analysis) and the use of multiple sources of evidence or triangulation strategies to compare and confirm the evidence (Denzin & Lincoln, 1994; Merriam, 2001). The increasing use of both quantitative and qualitative research methods is essential to addressing the complexity of educational issues faced in real-life contexts (Brown, 1992; Rogoff, 2003) and "to build an effective bridge between research and practice" (Bransford, Pellegrino, & Donovan, 1999, p. 31). It is also observed that both quantitative and qualitative methods involve differing strengths and weaknesses and are important in serving the research purpose in different ways and with different effects (Hathaway, 1995; Patton, 2002). A combination of quantitative and qualitative data collection methods is thus used to inform this research. Figure 5.1 portrays the overall research design, and methods for data collection and analyses used in this research. Qualitative data is collected through the use of a focus group, interviews, observations and online transcripts, while quantitative data was gathered from the use of an online questionnaire. Inductive

and content analyses were conducted to analyse the qualitative data while descriptive statistics was used to analyse the quantitative data. The double arrow in Figure 5.1 indicates the reciprocal use of qualitative and quantitative data to triangulate the findings in this research.

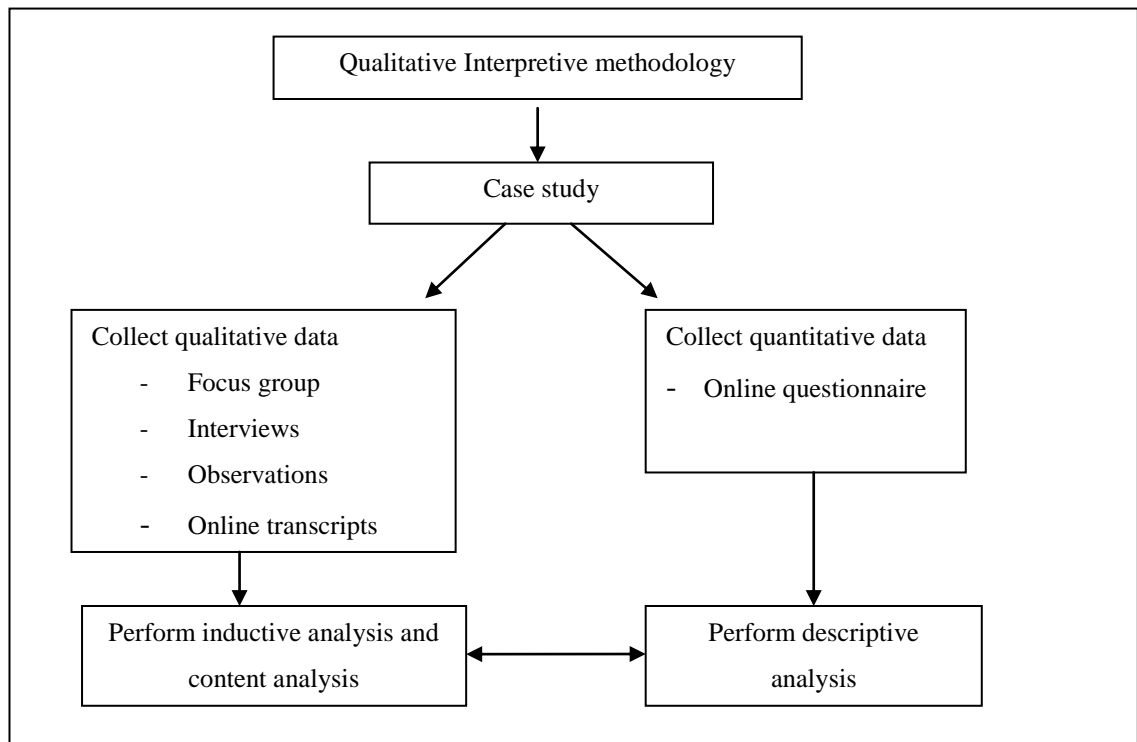


Figure 5.1. Research Design and Data Collection Methods

This research is conducted in three phases. Table 5.1 elaborates on the research phases and data collection methods used in each of the phases. In Phase 1, the Review Phase, the aim is to explore the nature of online learning at the University of Waikato to establish a baseline understanding of the characteristics of quality online learning experiences and the associated pedagogical strategies useful in facilitating them as perceived by online lecturers and students. Results from this phase will inform the design and implementation of an intervention for an online graduate course in Phase 2. Data was collected through a survey consisting of a focus group, questionnaire and interviews with students and lecturers who have had some online teaching and learning experience.

Table 5.1

Research Phases and Methods Used

Phase 1- Review	Research Methods
<p><u>Research Question 1:</u></p> <p>1. What is the nature of online learning?</p> <p style="padding-left: 40px;">c. How can students’ learning be facilitated in online learning environments? →</p> <p style="padding-left: 40px;">d. What view(s) of learning can better inform us about the design of successful online teaching and learning practices?</p>	<p><u>Method used to answer Research Question 1:</u></p> <p>Data collection through a survey consisting of:</p> <p style="padding-left: 20px;">a. Focus group;</p> <p style="padding-left: 20px;">b. Semi-structured questionnaire; and,</p> <p style="padding-left: 20px;">c. Exploratory and semi-structured interviews.</p>
Phase 2- Designing the Intervention and Implementation	
<p><i>Negotiated intervention strategy used to collaborate with the lecturer to design his online course</i></p>	
Phase 3- Evaluation	
<p><u>Research Question 2:</u></p> <p>2. How were pedagogical strategies designed to complement a particular view of learning helpful in facilitating the teaching and learning in an online graduate Research Methods course? →</p> <p style="padding-left: 40px;">b. To what extent do the findings support the efficacy of the view of learning proposed?</p>	<p><u>Method used to answer Research Question 2:</u></p> <p style="padding-left: 20px;">a. Observations, field notes;</p> <p style="padding-left: 20px;">b. Informal and semi-structured interviews;</p> <p style="padding-left: 20px;">c. Semi-structured questionnaire, and,</p> <p style="padding-left: 20px;">d. Online transcripts.</p>

This survey was confined to two sites of interest on the University of Waikato campus, namely the School of Education and CSTER. The School of Education was specifically selected over the other schools as the nature of the discipline and courses, and training received by lecturers and students closely matched the main research’s setting at CSTER. CSTER is further affiliated to the School of Education to promote interdisciplinary graduate and research activities in Science, Mathematics and Technology Education. An added benefit was the School of Education had the most established online learning programme in the university. Hence, lecturers and students there would be better informed to share insights into the general challenges and the lessons learned from their online teaching-learning experiences. Students and lecturers at these two sites were chosen for participation

in this research as they shared more similar backgrounds, qualifications, characteristics, and values compared to students and lecturers from other Schools or Faculty on campus.

Phase 2, which is the Designing the Intervention and Implementation Phase, is informed by the findings from Phase 1, the assumptions of the sociocultural view of learning and the general literature on successful online pedagogical strategies, adult learning and the teaching-and-learning of Research Methods courses. It involves the planning, design, development and implementation of an intervention to facilitate the learning experiences in an online graduate course in Research Methods offered at CSTER. In this phase, the researcher collaborates with an online lecturer to negotiate changes in the design of his online course through the use of a lecturer-researcher collaboration model known as the negotiated intervention strategy (see Chapter 8 for details).

In Phase 3, the Evaluation Phase, the usefulness of the intervention in facilitating participants' online teaching-learning experiences was evaluated. It obtained views from the course lecturer and students who participated in the case study. The main forms of data collection in this phase included observations, interviews, online discussion transcripts and questionnaires. Both Phases 2 and 3 were part of a case study conducted at CSTER.

Each type of data collection method used in this research is described next.

5.3.1 Focus Group

Focus groups are increasingly recognised as a valuable tool in qualitative research inquiries to obtain ideas, perceptions and opinions generated by different sub-groups in a population (Flores & Alonso, 1995; Templeton, 1994). Cohen et al. (2000) assert that focus groups “bring together specifically chosen sectors of the population...where the interaction of the group produce the outcomes” (p. 288). This supports the sociocultural view of knowledge construction through joint activity and dialogue between the group members to generate further useful ideas for the research inquiry (Berdie, Anderson, & Niebuhr, 1986; Fern, 1982; Fowler, 1998). The researcher can then avoid pre-empting or pre-selecting research variables and themes that may not necessarily be accurate or appropriate to the

sample or population studied. Findings from focus groups also assist in developing themes, topics and schedules for subsequent interviews and or questionnaires (Krueger, 1988; Morgan, 1997). The chief advantage of this method is the economical use of time where large amounts of data can be generated in a short amount of time. Morgan (1997) further suggests that the optimal size of a focus group be limited to between four to twelve participants.

In this study, a focus group was conducted among students with online learning experiences at the University of Waikato to identify key issues relevant to online learning experiences in the context of this tertiary institution. The findings informed the design of an online questionnaire distributed to participants in Phase 1 of the research. The researcher approached seven students who were unrelated to the research to obtain their view of the key issues impacting their online learning experience. All participants were sent copies of an invitation letter, research information sheet and consent form for participating in the research both by post and email (refer to Appendix 5.1). All participants returned their signed consent form prior to participating in the focus group meeting. Participants in the group consisted of three males and four females from mixed backgrounds: five were studying at the graduate levels while another two were studying at the undergraduate level; four were international students while three were local New Zealand students; and six of them were from the School of Education while another one was in the School of Management at the university. Their online learning experiences ranged from taking at least one online course to a full online degree programme. The focus group was conducted on 2nd September, 2002, from 7.00pm-9.30pm. While the researcher moderated the focus group meeting, an assistant recorded detailed notes of the meeting. With the consent of the group members, the proceedings and content of the meeting were tape-recorded. The group discussion identified broad issues such as the relevance and nature of online learning, student background, current online learning course structures, useful pedagogical approaches experienced or recommended, course assessment, and, online support and resources received.

5.3.2 Interview

Interviews were used in Phases 1 and 3 in this research to obtain data from online lecturers and students. Interviews are conversations with a purpose (Maykut &

Morehouse, 2001). They are useful to obtain a person's "knowledge or information, values and preferences, attitudes and beliefs" (Cohen et al., 2000, p. 268). They allow for greater depth compared to other data collection methods and are more capable of handling more difficult and open-ended questions (Cohen et al., 2000). The use of interviews also agrees with social constructivist and sociocultural theories of viewing knowledge as socially and jointly constructed by regarding the social situations of the research data (Cohen et al., 2000; Kvale, 1996). Interviews can further be used as the primary strategy for data collection, or in conjunction with observations, document analysis, and other data collection techniques (Bogdan & Biklen, 1982).

Although qualitative interviewing typically employ open-ended questions or a combination of open and closed-ended questions to allow for a richer variation in response from research participants, three types of interviews are generally recognised and used: informal or conversational interviews; semi-structured interviews; and standardised, open-ended interviews (Patton, 2002). In this research, semi-structured interviews were mainly used in conjunction with informal and exploratory interviews where relevant. Some advantages of using semi-structured interviews include their ability to provide access to people's ideas, thoughts and memories in their own words (Bishop, 1997); to promote free interaction and opportunities for clarification and discussion between research participants through the use of open-ended rather than closed questions (Bishop, 1997; Jaeger, 1997); to obtain a more in-depth understanding of attitudes and perceptions from participants (Patton, 1990) as they probe deeper to provide a "holistic understanding of the interviewee's point of view" (Bishop, 1997, p. 33); to allow the researcher and participant the opportunity to advance reciprocal, dialogic relationships based on mutual trust, openness and engagement in which self-disclosure, personal investment and equality is promoted (Bishop, 1997); to provide very accurate and comprehensive data making the approach valid and reliable (Jolley & Mitchell, 1988); and, to be flexible in accommodating modifications (e.g. sequencing of questions, wording, further exploration of an issue) during the course of the research (Cohen et al., 2000).

Semi-structured interviews and interviews in general are usually guided by interview schedules consisting of topics, open-ended questions, possible probes,

prompts, or reminders for further elaboration of topics by interviewees (Hoepfl, 1997). In adhering to the flexibility of interpretive research design, the schedule can be modified to explore new areas of research importance, or can exclude questions no longer found to be useful to the research interest. They are further useful for maintaining a good use of limited interview time, providing a more systematic and comprehensive way to interview multiple participants; and keeping interactions focused (Lofland, 1995). In both Phases 1 and 3, pilot interviews were conducted to refine the wordings and the way questions were asked. With the participants' consent, all interviews were tape recorded, transcribed and returned to them for further verification (part of member checking) before analysis of the data occurred (Bishop, 1997; Cohen et al., 2000; Delamont, 1992). The interviews were transcribed verbatim (including grammatical errors) in order to preserve the authenticity and richness of the interactions in the study.

Phase 1: Interviews with Lecturers. Two types of interviews were used in Phase 1 of the research with participating online lecturers: exploratory interviews and semi-structured interviews. Since Phase 1 was important to establish baseline understanding of the online learning process, exploratory or free-style interviews were initially held with a small number of online lecturers to generate ideas and key topics for the design of the interview schedule to be used in the research. Such exploratory interviews can be conducted prior to conducting a proper interview session for the purposes of developing ideas and research hypotheses, understanding how interviewees may feel about the research topic, suggesting new areas of research to explore, identifying possible sensitive topics and optimum ways of introducing the topic and ways of asking specific questions about it (Bynner, Oppenheim, & Hammersley, 1979). For this purpose, the researcher approached four online lecturers who have had at least four years of online teaching experience at the School of Education. These discussions during 7th to 30th August, 2002, were held to gain broad perspectives about their online teaching-learning experiences. Key issues raised from these exploratory interviews were developed into a series of questions forming the interview schedule for interviewing lecturers in the research. The interview questions were piloted and further refined with three other lecturers unrelated to the study before the interviews commenced.

The semi-structured interviews developed from the outcomes of the exploratory interviews sought to obtain a better understanding of lecturers' perspectives and experiences of online teaching and learning; their pedagogical practices; the role and impact of the Web-based technology on their teaching; their views on learning pedagogy, role, course management, class management, and assessment practices; challenges they had faced; lessons they had learnt; the skills their students' would need to successfully undertake online learning; and their recommendation for enhancing online learning in the institutional context.

Lecturers teaching online courses offered in Semester B, 2002 (August to November 2002) at the School of Education were invited to participate in the study. Participants were given further details of the research in an information sheet and their informed consent obtained before the interview was conducted (refer to Appendix 5.2). Six lecturers who have taught at least an online course at either undergraduate or graduate level took part. Another four lecturers at the School of Education were specifically approached based on their being online teaching pioneers at the university for developing the undergraduate MMP programme in Bachelor of Teaching (Primary) in 1997 and for leading online learning initiatives at the national level. They were "handpicked" (Cohen et al., 2000, p. 46) as they fulfilled the specific criteria of being experienced online lecturers who could offer insights into significant issues in online pedagogies. Such a strategy in this research constitutes part of purposive sampling strategies valued where samples are selected to fulfil the purposes of the research inquiries rather than for making generalisations to the wider population as in the case of "small scale research where no attempt to generalize is desired" and "is frequently the case for some ethnographic research, action research or case study research" (Cohen et al., 2000, p. 102); for preliminary stages of a research where the researcher is more interested in a tentative, hypothesis-generating, exploratory look-at-patterns to obtain a range of ideas from participants (de Vaus, 1991); and, in cases where there are no strict criteria for sample size (Patton, 1990). Altogether 10 lecturers participated in the interviews.

The interviews were conducted from 2nd August to 27th September, 2002, and each lasted between one to one and a half hours. The interview schedule used is

attached in Appendix 5.3. Four of the 10 lecturers returned their transcripts for corrections consisting of minor editing details while the other seven allowed their transcripts to be used without amendments. These lecturers further assisted in approaching and providing the researcher access to their online class students.

Phase 1: Interviews with Students. Students' responses from the online questionnaire formed the basis for more intensive data gathering via semi-structured interviews. Students who agreed to be interviewed in their questionnaires were contacted and provided further explanations about the interviews. The willing participants were sent invitation letters, information sheets and consent forms (see Appendix 5.4). The interviews from 10th to 20th December, 2002, comprised face-to-face meetings or were conducted through the telephone for distance students living in other parts of the country (refer to Appendix 5.5 for the interview schedule). Each interview lasted between 30 to 45 minutes. Seven participants returned their transcripts for minor editing changes while the other five permitted their transcripts to be used in their original form.

Phase 3: Interviews with the Lecturer. In Phase 3, a series of regular informal interviews were conducted with the course lecturer throughout the duration of the online graduate Research Methods course. These interviews are part of the *reflection* and *evaluation* cycles in the negotiated intervention strategy (see Section 8.1) to evaluate the usefulness of the pedagogical intervention implemented. Such informal interviews (or reflective chats) are casual conversations but differ specifically by the use of a question-and-answer format (Jorgensen, 1989). They allow the researcher to pursue arising issues of interest in a casual, free flowing but systematic manner. Jorgensen (1989) adds that informal interviewing provides the researcher with "a general idea about a matter of interest" and a "desire to be more certain of the insiders' perspective" (p. 88). A total of six interviews were conducted with the course lecturer, Adrian, as each week progressed or at the completion of each course module depending on his availability. Each lasted between 30 minutes to an hour and was targeted at understanding his key actions and motivations in terms of his pedagogy and reaction to students as well as feedback on the use of a particular intervention activity in the course. They further clarified aspects of the observational data unclear to the researcher (refer to Appendix 8.3 for the schedule of informal

interviews with Adrian). Outcomes of the interviews resulted in further refinement of the course as it progressed. Burge (1994) adds that this type of approach is conducive for describing actual events in online learning environments, “For the current stage of distance education...we ought to research what happens ‘on the ground’...we need to study the conditions, events, and consequences as experienced by learners and ourselves as practitioners” in order that “we may increase our understanding of people’s experience with one important area of distance education, that is, the use of communications technologies” (p. 20).

Phase 3: Interviews with Students. Students who expressed willingness to be interviewed in the online questionnaires administered in Phase 3 were contacted and given further explanations about the interview (see Appendix 5.6 for the interview guide). The interview was conducted face-to-face or through the telephone and each lasted about approximately an hour to an hour and a half.

5.3.3 Questionnaire

Questionnaires were used in Phases 1 and 3 in this research. Some of the advantages of using questionnaires include their use for collecting structured, numerical data (Cohen et al., 2000); their ease of administration without the presence of the researcher to allow for anonymity, encouraging frankness and honesty (Jolley & Mitchell, 1988); their being cheaper as the questions are mostly precoded decreasing the need and expense of data entry and processing (Bynner et al., 1979; Jolley & Mitchell, 1988); and, they are often more straightforward to analyse (Bynner et al., 1979). Some possible disadvantages of using questionnaires, however, are a low participant response rate as well as sampling bias (Bynner et al., 1979).

Different types of questionnaires also exist: open-ended or closed-ended or semi-structured questionnaires. In this research, semi-structured questionnaires were used in Phases 1 and 3. These questionnaires comprise a combination of closed and open-ended questions because some control over responses was required to ensure that the information sought is gained, while at the same time, allowing a degree of freedom or flexibility for the participants to respond to (Bell, 1999; Cohen et al., 2000). Jolley and Mitchell (1988) acknowledged that semi-structured

questionnaires provide enough standard information but also allows additional new information and variety of unanticipated responses that may be useful for future studies to be collected.

The development of the questionnaire was informed by the focus group discussion and literature review of the field. The questionnaire was designed for the purposes of obtaining students' perception regarding their online learning experiences at the School of Education and CSTER. This purpose supports the notion of questionnaires being designed for purposive or on a non-probability basis instead of the usual probability based questionnaire used in large survey scales such as government surveys, market research or public opinion polls (Bynner et al., 1979; Cohen et al., 2000). In a non-probability based questionnaire, specific target samples are sampled deliberately to obtain their responses to a particular research interest. It deliberately avoids representing a wider population, and only represents a particular group, a particular named section of the wider population and it can prove adequate when researchers do not intend to generalise their findings beyond the sample in question (Cohen et al., 2000).

Additionally, the questionnaires used were distributed online and had the added complexities of online design. Conway (2004), however, added that online questionnaires can produce participant response rates that are comparable with, if not better than, traditional paper surveys and telephone interviews. Other issues in online questionnaire design considered in this research included the need to be sensitive to any cultural issues such as the use of graphics, colours, or wordings, visual navigation issues, and possible delays in loading the questionnaire online (Conway, 2004).

Furthermore, pilot testing of the questionnaire was conducted to ensure it collected the necessary information and was interpreted appropriately by participants (Berdie et al., 1986; Conway, 2004; de Vaus, 1991; Fowler, 1998; Sudman & Bradburn, 1982). Hence, the questionnaires for both research phases (1 and 3) were pilot tested by small samples of students uninvolved in the main data collection phase. Details of the questionnaire design and use in Phases 1 and 3 are described next.

Phase 1. In Phase 1, a pilot study of the questionnaire was first conducted with ten students: five males and five females consisting of two undergraduates and eight graduates who were not part of the actual study. They were informed about the pilot survey and invited to participate (refer Appendix 5.7). The pilot survey was conducted on 25th September 2002 and lasted a week. A follow-up meeting was conducted individually upon the return of each response for further clarification of responses (e.g. interpretation of terms, wordings, and sequencing of questions) towards the questionnaire. The refined final version of the questionnaire contained six sections (refer Appendix 5.8):

1. *The Online Paper*: obtains feedback on the nature and structure of the online course experienced by students. It has 27 closed-ended and open-ended items. Students' responses to their online course are indicated on a 5-point rating scale ranging from *Not Useful at All*, *Not Very Useful*, *Uncertain*, *Somewhat Useful* to *Very Useful*;
2. *The Teaching of the Online Paper*: obtains feedback on the teaching experienced in the online course. It contains 15 closed-ended and open-ended items. Responses are indicated on a 5-point rating scale ranging from *Not Useful at All* to *Very Useful*;
3. *Perceptions of Learning*: obtains feedback regarding students' learning in the online course. It has 20 closed-ended and open-ended items. Students' responses are indicated on a 5-point rating scale ranging from *Strongly Disagree*, *Disagree*, *Neither Agree or Disagree*, *Agree* to *Strongly Agree*;
4. *Technology and Support issues*: obtains feedback on students' experiences with using the technology and technical support when studying in the online course. It contains 10 closed-ended and open-ended questions. Responses are indicated on a 5-point rating scale ranging from *Not Useful at All* to *Very Useful*;
5. *Overall Comments and Suggestions*: obtains general comments and feedback for improving students' learning experiences in the online course. It contains five open-ended and closed-ended items; and,
6. *Demographic Background*: obtains background information about the students in the online course from 11 closed-ended and open-ended items.

As suggested by Berdie et al. (1986), in order to increase the return rates of questionnaires, a pre-cursory invitation letter was sent to students with the

assistance of their lecturers to inform them about the questionnaire. The invitation was emailed to their lecturers who then posted it in their online classes' general announcement area. The questionnaire was distributed online from 14th October to 25th November, 2002, with the assistance of the online course lecturers. Since the questionnaire was distributed within the university of Waikato online platform, students had to authenticate their identity before logging online to complete the questionnaire. Students' responses were collated into a general database, and their identities removed before returning to the researcher.

Phase 3. A modified version of the questionnaire from Phase 1 was used in Phase 3. Apart from minor modifications to wording and length of the questionnaire, the main modifications were specifically tailored to evaluate the usefulness of the different intervention strategies used in facilitating students' learning in the online course. A pilot survey of the questionnaire was conducted from 5th October to 10th October, 2003, with the help of six graduate students unrelated to the research. Two questionnaire experts based in the researcher's department provided additional feedback on the questionnaire. Based on feedback from the pilot survey, the questionnaire was refined and piloted again with five other adult graduate students from 15th October to 17th October, 2003. The final version was re-checked by one of the questionnaire experts in the department before being distributed online to the entire class in the final two weeks before the course ended (refer Appendix 5.9). It contained four sections:

1. *The Online Course*: obtains feedback on the nature and structure of the online course through 14 open-ended and closed-ended items. Students' responses are indicated on a 5-point rating scale ranging from *Not Useful at All* to *Very Useful*;
2. *The Teaching and Learning Experience*: obtains feedback on the teaching and learning experiences in the course. It has three closed-ended and open-ended items in which students' responses can be indicated on a 5-point rating scale corresponding to *Strongly Disagree* to *Strongly Agree*;
3. *Students' Learning*: obtains feedback students' learning in the course through five open-ended and closed-ended items. Responses are indicated on a 5-point rating scale corresponding to *Strongly Disagree* to *Strongly Agree*; and,

4. *Demographic Background*: obtains students' background information from 10 closed-ended and open-ended items.

Students consenting to participate in the research were reminded about the questionnaire a week before it was distributed. A follow-up email was also sent to students on the last day of the course to encourage those who had not participated to do so. Students' responses in the questionnaire were automatically emailed to the researcher with the participants' identity removed to protect their privacy.

5.3.4 Observations

Observations were used in Phase 3 of this research. They are a common data collection method in naturalistic inquiries or in inquiries that require field research in context specific settings. According to Merriam (2001), observation is a useful research tool when it serves a formulated research purpose; is planned deliberately; is recorded systematically; and, is subjected to checks and controls on validity and reliability. Observational data are typically used for the purpose of description as they provide adequate descriptive depth and detail to immerse the reader into the research settings, activities, and people who had participated in the activities; and the meanings of what is observed from the perspective of the participants (Hoepfl, 1997; Patton, 2002). The quality of the observational data is determined by the extent they permit the reader to enter into and understand the situation described. Observations are also conducted to triangulate emerging findings; or used in combination with other data collection methods such as interviewing and document analysis to substantiate the findings (Jorgensen, 1989; Merriam, 2001; Patton, 2002;). Additionally, observations allow the researcher to probe deeper and better understand a research context compared to using interviews alone. They provide knowledge of the context in which specific events occur that can be verified in subsequent interviews. They further enable the researcher to see things that participants are unaware of or unwilling to discuss (Merriam, 2001; Patton, 1990).

A researcher can assume either one or move in between four types of observational strategies during the research (Gold, in Merriam, 2001; Hoepfl, 1997): (1) Complete participation where the researcher can choose to fully participate in the research situation with either a hidden or known identity (Hoepfl, 1997); (2) Participant as observer or participant observation where the

research participants have knowledge of the researcher's observer role in the group. However, the researcher primarily participates as a participant in the activities relegating his or her observational data collection to secondary role. The researcher is able to access the research setting as an insider to gain direct access to situations that may otherwise be hidden or missed (Jorgensen, 1989). This role is a trade-off between the depth of the information revealed to the researcher and the level of confidentiality provided to the group in order to obtain the information (Merriam, 2001); (3) Observer as participant where the research participants are informed by the researcher's observer activities. The researcher's role, however, is primarily as a researcher to collect data relegating his or her participation in the participants' activities to a secondary role. Limited interaction between the researcher and the participants occur only when the researcher intervenes to obtain further clarification where necessary; and finally, (4) Complete observer where the researcher passively observes the participants' activities unobtrusively from a distance without being observed. Each observational strategy has its own strengths and concerns and ought to be considered carefully before being undertaken by researchers (Hoepfl, 1997).

For the purposes of this research, the participant as observer or participant observation strategy is adopted in Phase 3. Participant observation is appropriate for exploratory studies, descriptive studies and studies aimed at generating theoretical interpretations (Jorgensen, 1989). This strategy is valued in situations where the research problem is concerned with human meanings and interactions as viewed from the insiders' perspective; the phenomenon researched is observable within an everyday life situation or setting; the researcher is able to gain access to the research setting; the phenomenon researched is sufficiently limited in size and location to be studied as a case; the research questions are appropriate for case study; and, the research problem can be addressed by qualitative data gathered by direct observation and other means relevant in the naturalistic setting (Jorgensen, 1989). In this research, the online course students were informed and consented to the researcher's observer presence. The researcher accompanied the course lecturer, Adrian, in his office on a daily basis during weekday mornings as he started his online teaching to actively observe the class and his interactions with the students.

Additionally, due to the flexibility of the interpretive research design, a researcher can adopt different observational roles varying between marginal or peripheral role to that of native, insider or membership role to suit the progress of the nature of the research inquiry as new research interests emerge or are defined (Jorgensen, 1989; Merriam, 2001). Hence, in Phase 3 of this research, the researcher will undertake multiple roles in the capacity of a participant observer to take part in research activities ranging from consultant, or co-reviewer or pedagogical activities developer and so forth (see Chapter 8 for more details).

Three main phases in the process of collecting data as a participant observer are noted: entry, data collection, and exit. Once a researcher has been granted entry to access the research setting, maintaining good working relationships with the participants in the data collection phase is the key to collecting “accurate, truthful information” (Jorgensen, 1989, p. 21). Additional data is usually obtained through casual conversations, in-depth informal or unstructured interviews or through formal structured interviews and questionnaires. Hence, although the initial observational inquiry can be quite broad, it becomes continually refined as additional information emerges from the research setting in a process known as *progressive focusing* or *sensitising concepts* (Patton, 2002). These phases are recognised in this research. For example, as part of the entry process, the researcher was able to observe and experience an earlier version of the online Research Methods class by enrolling as a student to understand the course curriculum, experience the online class activities and assessment strategies. Interviews with students from that course were also conducted to obtain their additional feedback on the course (this was in conjunction with Phase 1 of the research). These enabled an understanding of the research context.

Field notes are further used to record a description of observations; the research setting; participants who were present; the social interactions and activities that occurred; direct quotes or researcher recall of direct quotes; drawings or maps, photographs, videotapes, even audio tapes; and, the researcher’s own feelings, reactions, insights and interpretations about the experience and reflections about the significance of what was observed (Lofland & Lofland, 1984; Patton, 2002). In this research, extensive field notes were taken during the observations or as soon as possible after the observations to recall important participant quotes,

actions, online interactions and the researcher's own thoughts on the research setting. These formed a "database for constructing case studies and carrying out thematic cross-case analysis in qualitative research" (Patton, 2002, p. 305).

Two key difficulties in conducting participant observation are further recognised and addressed in this research. Firstly, it is the difficult balance between being researcher and full participant as Merriam (2001) claims it can be "a schizophrenic activity in that the researcher usually participates but not to the extent of becoming totally absorbed in the activity. While participating the researcher tries to stay sufficiently detached to observe and analyse. It is a marginal position and personally difficult to sustain" (p. 103). Another concern is that of *reactivity* (Lee, 2000) or the extent to which the presence of the researcher observer affects the phenomenon that is being observed. As Merriam (2001) clarifies, "in qualitative research where the researcher is the primary instrument of data collection, subjectivity and interaction are assumed. This interdependency between the observer and the observed may bring about changes in both parties' behaviour" (p. 103). Some strategies adopted in this research to address these concerns include the identification of such reactivity effects and accounting for them when interpreting the data (Merriam, 2001); maintaining an ongoing good working researcher-participant relationship (Lee, 2000; Merriam, 2001); and, establishing rules and procedures as guides to the roles, and expectations between the researcher and the research participants (McCall, 1984).

5.3.5 Online Transcripts

A primary source of documentation in Phase 3 of this research is the online transcripts generated from the online discussions and interactions between the online lecturer and students and between the students and their peers. This is possible as the Web-based technology affords the automatic recording of online discussion transcripts as well as computer logging devices (Hara et al., 2000; Harasim, Hiltz, Teles, & Turoff, 1995; Rourke & Anderson, 2004). The interactions recorded in online transcripts are considered a "gold mine of information concerning the psycho-social dynamics among participants" (Henri, 1992, p. 118) and are artifacts of learning that demonstrate student behaviours during the learning process (Zhu, 2006). Gunawardena et al. (1997) claim that these interactions further represent "the entire gestalt formed by the online

communication among the participants” where “individual and ‘distributed cognitions’ interact over time, affecting each other and developing from each other” (p. 407). In agreement with social constructivist and sociocultural views of learning, online transcripts provide evidence of learning through joint activity and dialogue between participants in the online class, in other words, “they elevate thinking to an observable status” (von Wright, 1992, p. 66). These transcripts are also beneficial for tracking and evaluating lecturer and student development in the online teaching-learning process and outcome for extended periods of time or within single teaching sessions (Kanuka & Anderson, 1998). Transcripts of the online discussions between the lecturer and students as well as among the students in the course who have consented to participating in the research were observed and collected. They importantly triangulated the observations and interview data collected as well as provided insights into the nature of online interactions and participation conducive to facilitating successful learning experiences in the online graduate Research Methods course.

5.5 Data Handling and Analysis

Before analysing the data, all participant names and identifying features were removed, coded, and assigned pseudonyms to distinguish between them. Data collected in Phase 1 of the research sought to identify the nature of online learning at the University of Waikato. Particular attention was given to the characteristics of successful online learning experiences and the pedagogical strategies associated with those experiences in order to identify a view of learning suited to guiding the design of an intervention for facilitating students’ learning in the case study. These findings are reported in Chapter 6.

Data collected in Phase 3 of the research was intended to evaluate the usefulness of the intervention in facilitating participants’ learning experiences in the case study. Of interest is the nature of transformation of participation as a result of participants’ participating in the community’s activities as a demonstration of successful online learning experience. Rogoff’s (1995) three planes of analysis (see Section 2.5.5.1) are used as an analytical framework to examine the nature of participants’ transformation of participation in the activities of a learning community. She contends that evaluation of learning and development from this perspective emphasises the *process* of individuals’ participation in and

contributions to the activity rather than an outcome or product (Rogoff, 1997). Table 5.2 overviews the three planes of analysis. For each plane of analysis, the underlying process is highlighted, the focus of analysis clarified and the evidence to be examined in the data described.

Table 5.2

Overview of the Analytical Framework Used in Phase 3

Planes of Analysis	Underlying Process	Focus of Analysis	Evidence of Interest
Personal Plane	Participatory appropriation	How individuals change through participation in sociocultural activity. Changes are seen in their knowledge, responsibility and attitude.	<p>Lecturer: Statements regarding the lecturer's:</p> <ul style="list-style-type: none"> - developing online pedagogical skills and <u>understandings</u> (intellectual transformation), - developing responsiveness and <u>responsibility</u> for nurturing and strengthening the learning community's bonds (social transformation), and, - developing positive <u>attitudes</u> towards teaching the online version of the course (emotional transformation). <p>Students: Statements regarding students':</p> <ul style="list-style-type: none"> - developing <u>understandings</u> of research methods ideas and research skills (intellectual transformation), - developing joint <u>responsibility</u> and accountability for their own and group's learning (social transformation), and, - developing positive <u>attitudes</u> towards the learning of research methods (emotional transformation).
Interpersonal Plane	Guided participation	How people interact and participate in joint activities. Changes are seen through people's dialogue and roles undertaken.	Lecturer: Evidence on the different kinds of <u>interaction</u> (dialogue) and <u>participation</u> (roles/ the way one relates to others) between the lecturer and his students in support of students' intellectual, social and emotional development in the context of

the tools and activities utilised.

Students: Evidence on the different kinds of interaction (dialogue) and participation (roles/ the way one relates to others) between students in support of one another's intellectual, social and emotional development in the context of the tools and activities utilised.

Community Plane	Apprenticeship	How the institution's regulations, structure and practices and the tools and activities of the course resource and constrain people's participation. Change is seen through the evolution of shared goals.	Evidence on the broader cultural context of the course such as institution, regulations, structure and practices and the <u>tools</u> and <u>activities</u> reported to be of value in resourcing the lecturer and his students' increasing responsible participation in the course. Also of interest is evidence of participant involvement of <u>shared learning goals</u> on research methods.
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The personal plane of analysis is marked by a transformation in the lecturer and students' developing personal understandings and skills (intellectual transformation), developing responsiveness and joint responsibility for their own and others' learning (social transformation) and developing positive attitudes towards teaching and learning of research methods (emotional transformation) due to their participating in the course's activities. Evidence of interest on this plane espouses reports from the lecturer and his students regarding each of these three areas of transformation.

The interpersonal plane is shown by the ways the lecturer and his students interact and participate in joint activities to accomplish joint purposes or goals. Evidence of interest is the nature of the interaction (dialogue) and the participation (roles/ the way one relates to others) between them and among the students in support of their intellectual, social and emotional development in the context of the tools and activities utilised.

Finally, the community plane of analysis focuses on the broader cultural context of the course. It considers how the university as an institution's regulations, structure and practices, and the tools and activities of the course resource and constrain lecturer and student participation. Evidence of interest on this plane includes lecturer and student reports of tools and activities influential in resourcing their participation in the course. The extent participants were able to evolve shared learning goals as part of their apprenticing to learn more about research methods is also of interest.

Since the three planes are interdependent and mutually constitute as well as influence one another, the discussion of one plane is at times juxtaposed with those of the other two rather than confining each plane to separate sections in entirety. Hence, each plane emphasises a different focus and provides complementary aspects of the broader sociocultural activity. The findings are reported in Chapter 9.

Further description of the specific types of data analyses conducted is given next.

5.5.1 Questionnaire Analysis

The quantitative data obtained from the questionnaires in Phases 1 and 3 of the research was coded and analysed using the Statistical Package for the Social Sciences (SPSS) software to generate numerical indicators such as frequencies, percentages, means (M), and standard deviation (s.d.). Questionnaire items based on the 5-point rating scale corresponding to *Not Useful at All* to *Very Useful* scales were coded as -2 for *Not Useful at All*, -1 for *Not Very Useful*, 0 for *Uncertain*, 1 for *Somewhat Useful* and 2 for *Very Useful*. 0 was considered the middle value in the scale where responses less than 0 leaned towards the *negative* end of the scale while responses more than 0 leaned towards the *positive* end of the scale. Hence, responses to items in the *Not Useful at All* and *Not Very Useful* scales were grouped as negative responses while responses to items in the *Somewhat Useful* and *Very Useful* scales were grouped as positive responses. Questionnaire items based on the 5-point rating scale corresponding to *Strongly Disagree* to *Strongly Agree* scales were coded as -2 for *Strongly Disagree*, -1 for *Disagree*, 0 for *Neither Agree or Disagree*, 1 for *Agree* and 2 for *Strongly Agree* to obtain means and standard deviation scores. As in the above case, 0 was

considered the middle value in the scale where responses less than 0 leaned towards the *negative* end of the scale while responses more than 0 leaned towards the *positive* end of the scale. Hence, a mean score of 1 and above indicated general agreement with an item. Responses to items which were incomplete were coded as *Missing*. Additionally the open-ended answers from the questionnaire were categorised, coded and collated and frequencies calculated to identify the key patterns and themes emerging from the data.

5.5.2 Qualitative Analysis

Qualitative analysis was conducted on the data collected from the interviews (Phases 1 & 3 of the research) and observations (Phase 3 of the research). According to Goetz and LeCompte (1984), the initial step in data analysis ought to be a review of the research questions. This helps the researcher to focus on the purpose of the research, and the research's intended audience. The following step is the analysis and handling of the data gathered.

In qualitative interpretive research, informal analysis usually occurs with data collection, and can guide subsequent data collection cycles (Hoepfl, 1997). This type of analysis is usually exploratory or discovery focused and involves inductive logic to analyse the data. The challenge is to thread through the large amounts of data gathered, organise them in some logical fashion and then examine them holistically to observe the themes emerging from the data before finding a way to communicate a logical interpretation to the reader (Patton, 1990). Bogdan and Biklen (1982) elaborates on this as “working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others” (p. 145). The issue of data overload is commonly faced by the qualitative researcher (Cohen et al., 2000) as it can involve sifting through and organising piles of raw data gathered, for example, interview transcripts, field notes, and documents.

After encountering the data overload phase, data reduction follows. The process of using inductive logic is of value to locate specific interesting observations and develop those specificities into general patterns or themes inherent in the phenomenon studied. The researcher needs to allow the important “dimensions to

emerge from patterns found in the cases under study without presupposing in advance what the important dimensions will be” (Patton, 2002, p. 56).

Due to the nature of interpretive research in emphasising participants’ social reality, the use of participant quotes to illustrate the themes observed is important. Patton (2002) claims that the use of participants’ direct quotations can reveal the way they feel, organise their world, and their thoughts about the phenomenon studied, their perceptions and experiences. The final task in the analysis is to provide a framework that can accurately describe participants’ views about the world or the phenomenon or interest (Patton, 2002). The final research report ought to be a “rich, tightly woven account that closely approximates the reality it represents” (Strauss & Corbin, 1990, p. 57). These steps are adhered to in this research.

Interview Data. Respondent verified transcripts of the interviews were analysed at two levels: within-case analysis and cross-case analysis (Merriam, 2001; Miles & Huberman, 1994; Patton, 2002). In the within-case analysis, individual cases were studied, understood and constructed as a comprehensive case in itself. This was followed by a cross-case analysis to explore and synthesise the emerging relationships, patterns and themes that occurred across the individual cases. These processes ensured “that emergent categories and discovered patterns are grounded in specific cases and their contexts” (Patton, 2002, p. 57) and assisted to generate a general explanation and abstractions across the cases (Merriam, 1998).

In both levels of within-case and cross-case analyses, the constant comparative method of data analysis (Lincoln & Guba, 1985; Maykut & Morehouse, 1994; Merriam, 2001) was used. In this method, each transcript was very carefully read several times and emerging patterns and themes that appeared to be significant noted. The researcher's initial observations and thoughts about each case were recorded for further verification as the analyses progressed. Categories with accompanying descriptions were constructed to accommodate the emergent patterns and themes. The categories were continually refined to accommodate any overlaps and ambiguity. The transcripts were carefully read again and units of meaningful phrases reflecting a category were compared, removed and grouped accordingly. Some units were placed into overlapping categories if they could be

interpreted in various ways. The overall relationship and patterns and themes from the categories generated were explored, counted and noted before an appropriate framework such as the one proposed by Bonk and Dennen (2003) (see Chapter 3) was adopted to explain the emerging themes observed from the data (see Appendices 5.10 to 5.15).

Observation Data. Extensive field notes were taken (where possible) during the observations in Phase 3 of the research, or as soon as possible after the observations to recall important participant quotes, actions, online interactions and the researcher's own thoughts on the research setting. They were then coded and categorised to triangulate the data collected from the interviews and online transcripts. A sample field note in this research is attached in Appendix 5.16.

5.5.3 Online Transcript Analysis

This research as with other research interested in analysing online transcripts used content analysis to analyse the nature of the online interaction and participation in the course. Content analysis is a technique described historically as quantitative and objective in nature to emphasise the frequency and variety of messages observed (Merriam, 2001). This research used content analysis for analysing qualitative research which tends to focus on the nature of communication occurring between the research participants (Merriam, 2001). Henri and Parer (1993) maintained that content analysis “when conducted with an aim to understanding the [qualitative] learning process provides information on the participants as learners and on their way of dealing with a given topic” (p. 45). Qualitative analyses of online transcripts typically involve identification and categorisation of major themes that emerge from the transcript data and frequency counts of their incidences (Rourke, Anderson, Garrison, & Archer, 2001). The purpose of the numerical tallying of the frequencies is essentially descriptive for the researcher's interpretation (Campos, 2004; Gerbic & Stacey, 2005).

A consideration in the content analysis of online transcripts is the selection of the unit of analysis. Units of analysis commonly used in online learning research include syntactical units (words or sentences or paragraphs), physical units (messages), referential units (messages sent by a particular participant), propositional units (identified by a predefined structure), illocutionary units and

thematic or meaning units (identified by definitions of different ideas) (Aviv, 2001; Rourke et al., 2001; Strijbos, Martens, Prins, & Jochems, 2006). The selection of different units can be complex and challenging as each has its advantage and weakness (Hara et al., 2000; Murphy & Ciszewska-Carr, 2005; Rourke et al., 2001). This research adopted the thematic unit as the unit for analysis. A thematic or meaning unit is defined as a unit of measurement representing a single thought, idea, argument or information regardless of its length (Aviv, 2001; Henri, 1992; Rourke et al., 1999; Stacey, 2002a). It is usually favoured as it relates “to the context in which the analysis will be performed” (Aviv, 2001, p. 59) and embodies the precise meaning that a researcher is interested in studying (Henri, 1992) contrary to basing the analysis on fixed units such as a word or sentence or paragraph which are usually tangential to the concepts of interest in a study (Henri, 1992; Rourke et al., 1999). Despite criticisms of being ill defined, unreliable, subjective and interpretative in nature (De Wever, Schellens, Valcke, & Keer, 2006; Garrison et al., 2000; Howell-Richardson & Mellar, 1996; McKenzie & Murphy, 2000; Rourke et al., 2001), others have found the thematic unit to be useful for investigating online learning issues such as in Henri’s (1992) study, and for identifying constructs such as critical thinking (Newman et al., 1995), social construction of knowledge (Campos, 2004; Gunawardena et al., 1997; Kanuka & Anderson, 1998; Pena-Shaff & Nicholls, 2004; Veldhuis-Diermanse, 2002; Zhu, 1996), participation and critical thinking (Bullen, 1998), interpersonal group dynamics (McDonald & Gibson, 1998), higher-order thinking skills (Herrington & Oliver, 1999; Penman & Lai, 2003), social presence (Rourke et al., 1999; Stacey, 2002a, 2002b) and co-construction of knowledge and teacher presence (Lally & De Laat, 2002).

Potter and Levine-Donnerstein (1999) argue that in the coding of online data, subjectivity is “unavoidable” (p. 265) and hence checks on coding to the analytical framework adopted need to be emphasised (Gerbic & Stacey, 2005) or as Henri (1992) contends, “define rigorously the aims of the analysis, the theoretical framework and the analytical criteria” (p. 134) in order to safeguard credibility in the content analytical process. Other forms of establishing credibility is through using multiple analysts, comparing two or more interpretive perspectives of independent coders or triangulation with other data sources or

quantitative data (Hara et al., 1998; Murphy & Ciszewska-Carr, 2005; Rourke et al., 2001; Strijbos et al., 2006).

Furthermore, the literature indicates four different approaches to developing online analytical frameworks in order to define the “dimensions of analysis” (Henri, 1992, p. 123) when coding the online data collected: the use of existing frameworks, modify an existing framework, or develop a new framework using a grounded theory approach or convert an existing theory into a content analysis framework (Gerbic & Stacey, 2005). A seminal study by Henri (1992) developed a theoretical framework for analysing the content of online transcripts. She recorded five dimensions of online students’ learning: participation, interaction, social, cognitive and metacognitive. Others have since used Henri’s framework in its entirety or adapted and refined it to propose more sophisticated techniques to analyse broader aspects of online teaching and learning (See Section 3.3.1 for further details). However, most of the category or coding systems in these studies were developed prior to the analysis of the data. For the purposes of this research, as no previous online analytical framework or coding schemes could be readily applied to suit the analyses of data in this research, a new coding scheme, modified from previous research, had to be established. This agrees with Henri’s (1992), Zhu’s (1996) and Potter and Levine-Donnerstein’s (1999) ideas that the conduct of online transcript analyses requires the researcher to develop an intimate understanding of the research context (i.e. how the participants are contributing to the discussions) and also a familiarity with the content area in order to determine the nature and quality of their online learning experiences.

The content analysis consisted of the following steps:

1. The coding of each online participant’s postings to distinguish among students’ and between the students’ and the lecturer’s postings;
2. Unitising or identifying the units of analysis in the online data through the close reading of each posting. The techniques of writing such as grammar, rhetoric, and transitional words used in the online discussions were less relevant to this research and not accounted for;
3. Coding each unit of analysis. Occasionally, a unit containing overlapping meanings was assigned to more than one category;

4. The counting of the number of postings for each category and the number of contributors; and,
5. Credibility of the analyses were established through three means:
 - a. by bearing in mind Henri's (1992) notion of rigorously defining the analysis aims, theory and analytical criteria throughout the analysis process;
 - b. by having the assistance of two experienced online lecturers from the School of Education who acted as peer debriefers in the research. They regularly reviewed the ongoing and final analyses of the online transcripts to verify the researcher had conducted and arrived at a reasonable conclusion in the analyses; and,
 - c. by triangulating the analyses of the online transcript with other forms of data collection in the study.

Analysis was conducted to understand the nature of the lecturer's interactions with his students, the nature of the lecturer's participation, the nature of students' interactions with their peers and the nature of students' participation in the course. These analyses were initially guided by a set of online analytical categories based on Zhu's (1996) study (see Section 3.3.1). However, new categories and themes that emerged during the analysis modified and shaped the original category system. These analyses basically followed three general steps.

Firstly, the analysis of the lecturer interactions was conducted based on Zhu's (1996) original analytical categories. Secondly, the categories and ways of interacting emerging from the analysis of the lecturer interactions were further clustered according to the purposes for having those interactions. The lecturer's purposes for interacting with students (identified as themes of interaction in this study) were in recognition of students' intellectual, managerial, social and/or technical needs that arise in the course. The categories and ways of lecturer interactions in the course, therefore, grounds the four key purposes (themes) for the lecturer's interactions with his students in this study: intellectual, social, technical and managerial.

Finally, the analysis of the lecturer participation was conducted. This analysis adopted a top-down approach in that Bonk and Dennen's (2003) framework on

lecturer roles (see Section 3.2.1) was adopted in recognition of the four key online lecturer roles: pedagogical, managerial, social and technological. These four roles represent the four ways the lecturer was participating in this course as a means for achieving the purposes (themes) of supporting students' intellectual, managerial, social and technical needs in the course. Particular lecturer interactions are then associated with a particular lecturer role that best reflects the way the lecturer was interacting at any one time. The adoption of a particular lecturer role(s) is, hence, a reflection of the way the lecturer is interacting with his or her students at any one time for the purposes of meeting an intellectual, social, technical and/or managerial need. An example of the overall analytical process is illustrated in Figure 5.2. This process differed from Zhu's (1996) original analysis as in this study, lecturer roles were already pre-identified from the literature instead of emerging from the analysis of the lecturer interactions. However, there was considerable consistency and relationship between the ways of interactions, the purposes for those interactions and the roles undertaken by the lecturer in responding to the purposes for interacting with his students based on the overall triangulation of data.

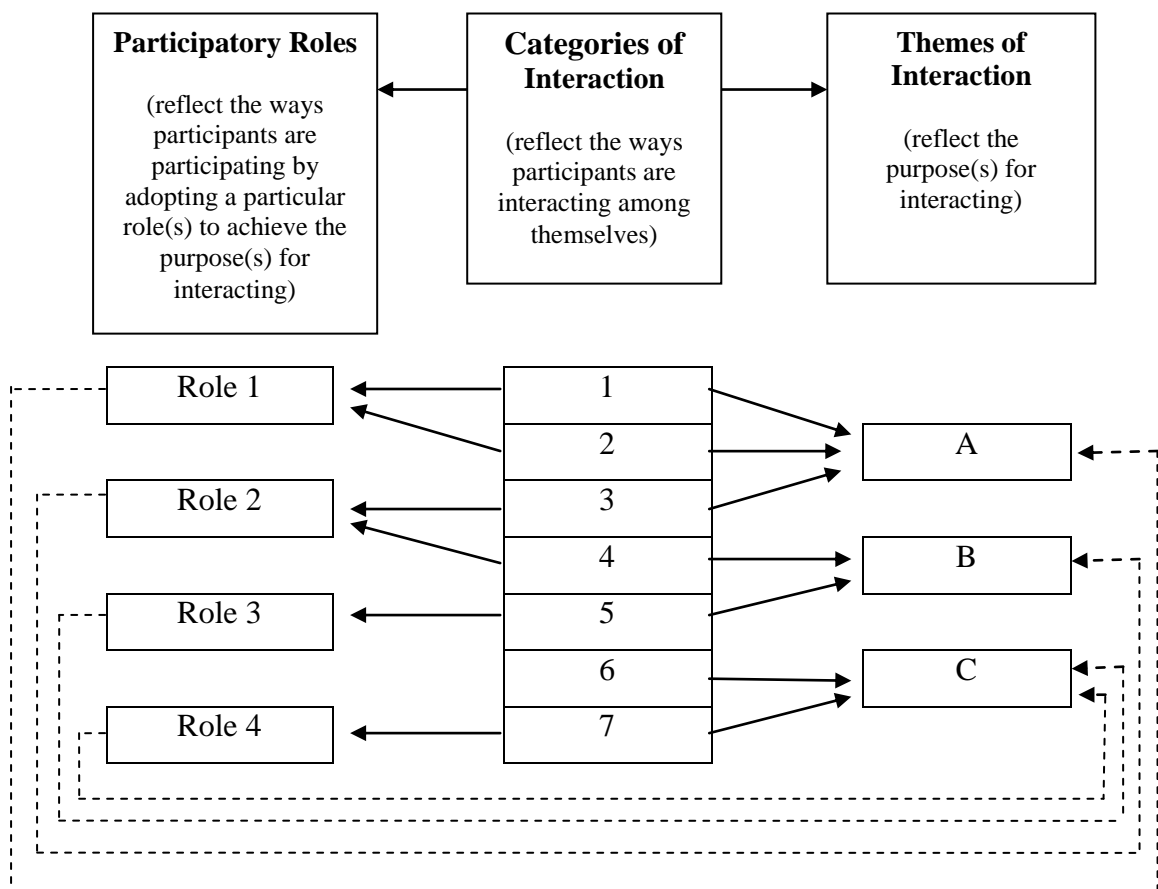


Figure 5.2. The Process for Analysing the Online Interactions and Participation

The analysis of student interactions was also analysed using Zhu's (1996) original categories. The categories and ways of interacting emerging from the student interactions were further clustered according to the purposes for having those interactions. Three general purposes (themes of interaction) for student interactions emerged in response to meeting students' intellectual, social and/or emotional needs. These purposes (themes) also support Sewell and George's (2008) characterisation of the nature of reciprocal interactions existing among members of a learning community: intellectual, social and emotional (see Section 4.5.2). The categories and ways of student interactions, therefore, grounds the three key purposes (themes) for interacting in this study: intellectual, social and emotional.

The analysis of student participation adopted a bottom-up approach compared to the analysis of the lecturer participation. As in Zhu's (1996) study, the categories and ways of student interactions also formed the bases for analysing the ways students were participating in the course. Student participation was demonstrated through a range of possible roles, some of which were similar to the roles Zhu (1996) had identified while others were new ones that emerged from the analysis of the data. These roles are adopted as a means for students to achieve the purposes for interacting in response to their intellectual, social and emotional needs in the course. Particular student interactions are then associated with a particular student role that best reflects the way students were interacting at any one time. The adoption of a particular student role(s) is, hence, a reflection of the way a student is interacting with his or her peers at any one time for the purposes of meeting an intellectual, social, technical and/or managerial need (see example in Figure 5.2).

Analyses were performed on participants' online contributions in the main public discussion area in the *Modules/coursework/discussion* folder where the crux of the teaching-learning interactions occurred. Although there were five other public discussion forums in the course, such as *Can Anyone Help?* or *Frequently Asked Questions*, they play a supportive and subordinate role to the main discussion forum. Additionally, only online postings from sections of the course taught by Adrian were considered for analysis. In the 15-week long course, Adrian taught

from Weeks 1-10 while another lecturer, Lecturer B, took over the teaching of the course during weeks 11-14. Online postings of students who did not consent to participate in the research and who did not complete the course were eliminated from the analyses.

A general quantitative analysis was performed on all the online data collected through the analysis of the frequency of participant postings in order to ascertain the participation rates in the course. Due to the vast amount of data collected, detailed qualitative content analysis was confined to the online transcripts from two selected weeks. Other studies have either randomly selected particular weeks of online transcripts for analysis (Zhu, 1996) or purposefully chosen transcripts during weeks in which different types of online communication could be anticipated in line with specific phases of group development (McDonald & Gibson, 1998) and social presence (Stacey, 2002a, 2002b). In this research, students' evaluation of the top two key valuable and useful intervention activities in facilitating and mediating their learning experiences in the course and the weeks in which these activities were implemented formed the basis of their selection for further analyses. Since a majority of the online coursework required group collaborative effort which can develop and strengthen the learning community's bonds, it is anticipated that students' selection of the two most useful intervention activities will involve some form(s) of social interaction and will possibly manifest the characteristics of an OLC in either its formative or maturity stage of development. The detailed analysis examined the nature of interactions and participation between the lecturer and students and among the students. The online analytical frameworks adopted for the purposes of these analyses are detailed next.

Analysis of the Nature of Online Lecturer Interactions. Altogether 16 categories of lecturer interactions were identified in the analysis of the interactions between the lecturer and his students. These were further organised into four themes reflecting the purpose (s) for lecturer interactions in this study: *Pedagogical or Intellectual, Social, Technological* and *Managerial* ways of interacting. These categories and themes of interaction are illustrated in Table 5.3 together with their definitions and representative examples from the online postings.

The *Pedagogical or Intellectual* theme encompasses Categories 1-9 ways of interacting. Interactions in this theme generally reflect the lecturer's pedagogical attempts to develop and further students' understanding regarding the academic content in the course. Category 1, *Acknowledgement of Ideas*, refers to interactions where the lecturer acknowledges students' important ideas. Category 2, *Feedback*, concerns interactions where the lecturer responds to a student's specific question. Category 3, *Sharing Opinion*, is reflective of lecturer postings where the lecturer shares his personal views and interpretations on a topic. Category 4 is *Suggestions* where the lecturer shares ideas based on the literature to help students address a specific problematic issue in their discussion. Category 5, *Asking Questions*, is illustrated when the lecturer asks questions to clarify or prompt students so as to further their understanding of a topic. Category 6 involves interactions where the lecturer *Asks for Opinions* in order to generate more discussion among students. In Category 7, the lecturer *Summarises* the discussions to highlight the main points at the end of a discussion. For Category 8, *Refocuses*, the lecturer guides and refocuses students' discussions when they become sidetracked from the learning goals. Category 9, *Sharing of Experiences*, is portrayed when the lecturer shares his personal professional experiences with students to concretise or clarify an idea.

The next theme, *Social*, is demonstrated through Categories 10 to 14 ways of interacting. It portrays interactions that attempt to build relationships and provide social support to students' learning in the course. Category 10, *Greetings*, refers to greetings and salutations from the lecturer to students. Category 11, *Name Addressing*, concerns postings where the lecturer addresses students by their name to personalise his interactions with them. The next category, *Thanking and Encouraging*, is reflected in interactions where the lecturer encourages and commends students' on their contributions to the discussions. In Category 13, *Joke or Humour or Social Chat*, refers to statements that contain humour or social chats. Finally, Category 14, *Advice on E-Communication* issues, involves statements where the lecturer guides students on how to communicate online with others in the class.

The third theme, *Technological*, refers to interactions where the lecturer specifically provides technical guidance and advice to students to facilitate their

contributions and interactions in the course. This is seen in Category 15, *Advice on Technical* issues, way of interacting.

Finally, the *Managerial* theme encompasses interactions that are course managerial or administrative in nature. This is seen in Category 16, *Announcements on Managerial* issues, which include the lecturer's statements and advice on course administrative and managerial issues to students.

Table 5.3

Nature of Online Lecturer Interactions

Theme 1 - Pedagogical or Intellectual Ways of Interacting			
Category of Interaction	Ways of Interacting	Definitions	Examples/Illustrative Quotes
1.	Acknowledge ideas / highlight important ideas from students' discussion (pick up important points)	Statements supporting an idea or opinion	<p>"That's a good point V, respondent validation is an important part of ethnography and case studies"</p> <p>"It was good to see the notion of ownership and power coming through in your posting..."</p>
2.	Feedback to student's questions	Statements replying to a specific request for factual information/ opinion or advice	<p>"Hi M, yes they must - but are sometimes forgotten in action research..."</p> <p>"...these are just some ideas regarding your response Adrian."</p>
3.	Sharing opinion with students	Statements reflecting personal views, an interpretation or inference from the discussion	<p>"For a literature review it is important the peer reviews form the initial basis of your searching..."</p> <p>"I think this is something that all researchers should constantly be aware of..."</p>
4.	Suggestions of a new idea (based on concrete examples from research experience/refer to literature/ other students' contributions)	Statements made to solve a specific problem (offer suggestion)	<p>"...E, looking at experiences outside the classroom means you will have to think carefully about the role you will take as well."</p> <p>"...have a look at what M posted in Group 3 #8 and see what you think ..."</p>
5.	Ask questions to facilitate students' inquiry, obtain	Questions asked to request for factual information	<p>"What approach would you need to use to turn collaborative research into action research?"</p>

	clarification or prompters for student to think/facilitate thinking		
6.	Ask for students' opinion	Statements encouraging students to contribute to the discussion	"What do others in the group think?"
7.	Summarise discussion	Statements that recapture or reiterate main points of discussion	"Methodology/paradigm is the theory of knowledge....In this course we have covered the paradigms such as positivists, interpretivists, critical and post-modern/post-structural."
8.	Refocus students responses to guide them back to the task (prevent from sidetracking)	Statements to guide / refocus students towards learning task or goals	"Remember to also answer the questions related to the different views that people have of action research. So use the questions that you are all answering to give us some idea of whether those views are appropriate or not." "I am very interested in what you make of the discussion picture"
9.	Sharing experience with student	Statements made to concretise or to clarify related issues	"I do agree with you about being culturally aware when conducting research. I have had to go through a rather slow and laborious approach...."

Theme 2 - Social Ways of Interacting

10.	Greetings/salutations	Statements of greeting to one another	"Kia ora group I..."
11.	Name addressing	Statements referring to particular student's name or students addressing teacher	"Hi E,..." "Hi Adrian..."
12.	Thanking and encourage students' contributions	Statements encouraging /commending students on their contributions	"V, Good start to the discussion..." "Adrian, thank you for the comments..."
13.	Joke, humour, social chat	Statements reflecting social chat, joke or	"...trust you are settling back into Japanese culture"

		humour	“Hey where the hell is the Lion Red over here? I am going to go and have a look as soon as you reply Adrian!”
14.	Advice on e-communication related issues	Statements of advice to students on how to improve e-communication	“Good comments, M, you may want to reduce the size of your comments...”
Theme 3 - Technological Ways of Interacting			
15.	Advice on technical-related issues	Statements of advice to students on technical related issues	“M, I have moved your message into this discussion...”
Theme 4 - Managerial Ways of Interacting			
16.	Announcements on course management issues	Statements informing students on course management issues	“Kia ora everyone, just to let you know that Susan has withdrawn from the course, so don’t wait for her contributions..” “Just remember that this discussion is for assignment one, not to discuss the scenario for week four. You might like to move what you have to the on-going discussion in your group one folder”

Analysis of the Nature of Online Lecturer Participation. Each type of lecturer interaction was further studied according to the four key lecturer roles in the class: *Pedagogical, Social, Managerial* and *Technological* (see Section 3.2.1 for details on each role). These roles are summarised in Table 5.4 based on the categories and general themes of interaction displayed in Table 5.3.

Table 5.4

Nature of Online Lecturer Participation as Demonstrated by the Roles Undertaken

Participatory Roles	Categories of Interaction	Themes of Interaction
Pedagogical	1-9	Pedagogical or Intellectual
Social	10-14	Social
Technological	15	Technological
Managerial	16	Managerial

The 16 categories of interaction underpin the four key roles played by the lecturer. They are the *Pedagogical, Social, Technological* and *Managerial* roles. A *Pedagogical* role is exemplified through Categories 1 to 9 Ways of Interacting in response to meeting a pedagogical or intellectual need as portrayed by the pedagogical or intellectual theme of interaction. A *Social* role is marked by interactions in Categories 10 to 14 and is related to meeting students' social need as indicated by the Social theme of interaction. A *Technological* role is reflected in Category 15 way of interacting and relates to the Technological theme of interaction as a response to students' technical needs in the course. Finally, a *Managerial* role is portrayed by interactions in Category 16 and associated with the Managerial theme of interaction. The adoption of a particular lecturer role(s) is, hence, a reflection of the way the lecturer is interacting with his or her students at any one time for the purposes of meeting an intellectual, social, technical and/or managerial need.

Analysis of the Nature of Online Student Interactions. Altogether 20 specific categories of interactions were identified from the analysis of the interactions between and among the students. These were further organised into three general themes reflecting the purpose(s) for the interactions that were *Content or*

Intellectually related; *Teamwork or Socially* related; and *Supportive or Emotionally* related. These categories and themes are illustrated in Table 5.5 together with their definitions and representative examples from the online postings.

The *Content or Intellectual* theme consisted of interactions that occurred when students expressed a variety of ideas related to the academic contents of the course in support of one another's learning. Eleven categories of interactions were observed. The *Agreement or Disagreement* category (Category 1) refers to online postings that assert a student's view on a topic discussed. Category 2, *Asking for Other's Opinions*, refers to general questions that students ask of their peers to encourage them to contribute to the discussion. Meanwhile, the *Asking Questions to clear a doubt* category (Category 3) refers to specific questions that students ask to request for feedback to a specific question that is factual in nature. The next category, *Elaboration or Restating a position* (Category 4), refers to interactions that reflect a strong assertion of a student's particular idea or opinion by providing reasons or evidence from the literature or formal data. Another category, *Feedback* (Category 5), involves interactions that reply to a request for fact or opinion or advice. A further category, *Giving Opinion* (Category 6), denotes postings of a student's personal view, interpretation or inference on a topic discussed. The next category, *Refocus* (Category 7), refers to postings made to help group members refocus on the task at hand when discussions get sidetracked in order to achieve a learning goal. The *Sharing of Information or Resources* (Category 8) is another category referring to the exchange of information on ideas from the literature or readings. Meanwhile, the *Sharing of Personal Experiences* (Category 9) is reflective of postings where students share personal experiences with their peers to concretise or to clarify a particular point discussed. It involves a certain degree of risk-taking for such self-disclosure to occur in a public discussion forum. The next category, the *Summary or Negotiation of ideas* category (Category 10) refers to postings that attempt to summarise and synthesis the main points of a discussion in order to achieve a consensual group agreement. Finally, the *Self Reflection* category (Category 11) is demonstrative of student's reflective thoughts or appraisal of his or her own learning or increasing understanding on a topic as a result of the class discussions.

The next theme, *Teamwork or Social*, reflects interactions undertaken by students that contribute towards building a sense of group solidarity and contributed to the development of student accountability and responsibility for their group's accomplishments. It contains an element of managerial responsibility as students adopt teamwork strategies and roles to coordinate their efforts towards accomplishing a common purpose in their group. This description differs from the *Social* theme in the analysis of the lecturer interactions which emphasises general relationship-building and social support in the class. Three categories of interaction were evident in this theme: *Apologies* for late online contributions or for not participating, *Promises to Contribute* later during the week, and, *Delegation* or management or organisation of the group. In the *Apologies* category (Category 12), student postings are apologetic in nature due to a lack of online contribution on their part or to an impending unavailability to contribute to a future discussion. The next category (Category 13), *Promises to Contribute*, involve postings assuring the group of one's contributions that will be made at a later date. The third category (Category 14), *Delegation*, refers to postings involving communicative and teamwork strategies to increase the overall group efficiency in achieving a shared learning goal.

The final theme, *Supportive or Emotional*, includes interactions that pertain to social and emotional development and relationship building in the class. This description fits closely with the description of the *Social* theme in the analysis of the lecturer interactions. Six categories of interaction fall into this theme. The *Name Addressing* category (Category 15) denotes student postings that refer to a particular group member's name. The use of one another's names is important to help students feel appreciated and personalises the interactions in the online learning environment that is relatively lacking in non-verbal cues. The *Greetings or Salutations* category (Category 16) reflects student greetings and welcoming of one another. The next category, *Asking about One Another* (Category 17), refers to student postings that reflect concern for one another in the group. Category 18, *Sharing of Feelings*, is the sharing or disclosure of feelings of fear or inadequacy to one another in the group. It involves risk-taking as well as a sense of trust and safety in one another's company before it can occur. The *Thanking and Encouraging* one another category (Category 19) is demonstrative of students' appreciation, gratefulness and encouragement to one another for a job well done

or support given. In the final category, *Joke or Humour or Social Chat* (Category 20) denotes postings that involve social chat or humour.

Table 5.5

Nature of Online Student Interactions

Theme 1 - Content or Intellectual Ways of Interacting			
Category of Interaction	Ways of Interacting	Definitions	Examples/ Illustrative notes
1.	Agreement / Disagreement with fellow members' idea	Statements asserting participant's view on a topic	<p>"I agree with your comments made on 9 September..."</p> <p>"I support P's statements that ..."</p> <p>"I believe that you have mixed up the notions of methodology and method ..."</p>
2.	Ask for other's opinions	Questions asked encouraging other members to contribute to the discussion	<p>"What do you all think?"</p> <p>"Any ideas or examples would be appreciated"</p> <p>"Tell me what you think, especially if you disagree and your reasons why."</p>
3.	Ask questions to clear a doubt	Questions asked requesting for factual information	<p>"What kinds of observation should we use?"</p> <p>"I know we have discussed observation but participant or non-participant?"</p>
4.	Elaboration / restating position and possibly advancing arguments by referring to the literature, formal data or proposal of relevant metaphor or analogy to illustrate view	Statements supporting an idea or opinion with reasons or evidence	<p>"...I am being pedantic here because it is very important to be clear as to what we mean in this particular section"</p> <p>"I still believe all schools should be interviewed..."</p>
5.	Feedback on question posed by group member	Statements replying to a specific request for factual information or	<p>"R, I tend to do non-participant observation. In this case, we can do our observation maximally..."</p>

		opinion	“As a suggestion, I would modify the final question whereby respondents answer the rating scale but also give them the opportunity to offer their views and opinions.”
			“One possible way around this is to have an independent observer”
6.	Give opinion	Statements reflecting members’ personal views, an interpretation or inference from the discussion	“I reckon that as regards this particular scenario, we adopt a participant observation approach for the case study...”
7.	Refocus fellow group members’ ideas when the topic gets sidetracked	Statements to guide / refocus group towards group’s task or goals	“I believe that we don’t need to add much more to what we have already enunciated: 2 at least out of the 3, display characteristics of A.R....”
8.	Sharing of information / resources	Statements related to theories or ideas in course text, literature or readings (exchanging information and resources)	“Ball (1984) talked about how many of his interviews were so informal that they could be considered ‘chats’ (p. 169)...”
9.	Sharing of personal experiences and concrete examples related to discussions	Statements made to concretise or to clarify related issues	“I am doing school-based research now in Japan and have come across this issue. I had a student...” “I am not a proponent of <i>in loco parentis</i> , for it has been my experience that some parents are....”
10.	Summary or negotiation of ideas	Statements that recapture or reiterate main points of discussion (attempts at synthesising ideas to reach a consensus)	“Re: our Group consensus as to what constitutes action research, I think we all agree that 2 of the 3 caricatures are action research...” “I think we are all on the same wavelength that interviews are more interviewee friendly but not totally reliable and valid...”
11.	Self-reflection	Statements that are self appraisal of	“I have had a look at the input from the other groups and agree that my ideas

learning / illustrating participant's need to be changed..."
 understanding/ knowledge/ways of "Checking back on my comments...yeah methodology was a bit mixed...sorry
 thinking have changed as a result of the and thanks for your comments."
 group's interaction/ discussion

Theme 2 - Teamwork or Social Ways of Interacting

- | | | | |
|-----|---|--|--|
| 12. | Apologies for late online contributions, not participating, inability to contribute anymore during the week | Statements of apology to group for lack of contribution or informing group of unavailability | <p>"My apologies for my absence this week..."</p> <p>"Last to contribute, sorry"</p> <p>"I will not be online again until at least Monday, so I trust someone can act as spokesperson for our esteemed group"</p> |
| 13. | Promises to contribute later during the week | Statements reassuring group of contributing additional resources or information on a later date | <p>"I will leave it here but will come back when I have finished my readings. This is just my first instalment"</p> <p>"I'll be back with some other ideas in relation to sampling and funding."</p> <p>"V, I want to help you as much as possible. I will look at the questionnaire and write up a set of questions..."</p> |
| 14. | Delegates /manages / organises group | Statements referring to the process of communication itself, especially teamwork strategies including students initiative to be spokesperson for their group | <p>"How are we going to pull our draft together before Sunday?"</p> <p>"Would it be possible for everyone to post their messages by Friday 8pm, that way I should be able to post the response that night..."</p> <p>"If no one volunteers to summarise...I can do it."</p> |

Theme 3 - Supportive or Emotional Ways of Interacting

- | | | | |
|-----|-----------------|--|---|
| 15. | Name addressing | Statements referring to particular group member's name | <p>"Hi Rebecca..</p> <p>"M, you..."</p> |
|-----|-----------------|--|---|

16.	Greetings or salutations	Statements of greeting to one another	<p>“Hi Keith, nice to have you back”</p> <p>“Hi everyone”</p> <p>“Dear friends at Group 2...”</p> <p>“Good afternoon friends”</p>
17.	Ask about one another	Statements reflecting concern for one another in the group	“Does anyone know where Sapphire is?”
18.	Sharing of feelings	Statements that disclose group member’s feelings	<p>“I am so confused at the moment about my research..”</p> <p>“I have found this question to be bloody hard...”</p> <p>“this has been hell of a week for the last in the term”</p>
19.	Thanking and encouraging one another	Statements thanking and encouraging group member’s contribution	<p>“You’ve done a great job”</p> <p>“I hope this feedback is constructive enough for you”</p> <p>“I like what you have written for Part Two...”</p>
20.	Joke or humour, social chat	Statements reflecting social chat	<p>“Sapphire, you’re still alive!”</p> <p>“Yes...I am back. I have recovered from jet lag and am in Japan settling back into work and Internet studies”</p> <p>“...don’t forget that time showing is Aotearoa time and that we are four hours behind you here in Hong Kong.”</p>

Analysis of the Nature of Online Student Participation. As in Zhu's (1996) original analysis, each category of student interaction was further studied according to roles students had participated in. Altogether 9 student roles were identified which can be associated with the 20 ways of interacting and the three general themes of interactions: *Seeker, Mentor, Resource Contributor, Reviewer/ Negotiator, Appraiser, Coordinator, Team Supporter, Encourager, and Socialite*. These roles are summarised in Table 5.6 based on the categories and general themes of interactions displayed in Table 5.5.

Table 5.6

Nature of Online Student Participation as Demonstrated by the Roles Undertaken

Participatory Roles	Categories of Interaction	Themes of Interaction
Seeker	2, 3	Content or Intellectual
Mentor	1, 4, 5, 7	
Resource Contributor	6, 8, 9	
Reviewer/ negotiator	10	
Appraiser	11	
Coordinator	14	Teamwork or Social
Team supporter	12, 13	
Encourager	17, 18, 19	Supportive or Emotional
Socialite	15,16, 20	

Five student roles such as *Seeker, Mentor, Resource Contributor, Reviewer/ Negotiator, and Appraiser* are associated with the *Content or Intellectual* theme of interacting. The role of a *Seeker*, similar to Zhu's (1996) definition, is a role undertaken when a participant requests information in order to gain a better understanding of a topic. Categories of interaction reflective of this role are Categories 2 and 3. A *Mentor's* role is seen when participants provide assistance to scaffold and guide others to develop their own ideas and understanding. Categories 1, 4, 5 and 7 ways of interacting are reflective of this role. A *Resource Contributor's* role is attributed to participants who contribute resources to furthering the class discussions. This is demonstrated through Categories 8 and 9. The role of a *Reviewer/ Negotiator* is illustrated through Category 10 when a participant acts to synthesise the essence of a discussion to move the discussion forward. An *Appraiser's* role is demonstrated

through Category 11 when a participant becomes cognisant of his or her developing understanding of a topic.

Two other student roles: *Coordinator* and *Team Supporter* are, on the other hand, related to the *Teamwork or Social* theme of interaction. A *Coordinator* role, demonstrated through Category 14, is accorded to a participant who takes the responsibility to organise and delegate tasks among the group members in order to help the group's accomplishment of shared learning goals. On the other hand, a *Team Supporter* role is demonstrated through Categories 12 and 13 by participants who show accountability and support in contributing to the group's learning goals.

Finally, the last two student roles, *Encourager* and *Socialite* are associated with the *Supportive or Emotional* theme of interacting. An *Encourager* is a participant who shows concern and encouragement for others in the group and willing to disclose his or her feelings on an issue. This is reflected in Categories 17, 18 and 19 ways of interacting. Lastly, a *Socialite* role is accorded to participants when they address and greet one another in the group and share jokes or chats to help one another feel comfortable participating in the group. Categories 15, 16 and 20 ways of interacting portray this role. The adoption of a particular student role(s) is hence a reflection of the way a student is interacting with his or her peers at any one time for the purposes of meeting an intellectual, social, and/or emotional need.

5.6 Quality Issues in the Research

Morse, Barret, Mayan, Olson and Spiers (2002) as well as Guba and Lincoln (1982) agree that any research ought to incorporate standards or strategies for ensuring quality. In positivist research, the discovery of new laws or hypothesis testing is usually the primary aim while in interpretivist methodology, understanding and meaning is the primary purpose of the research. The researcher is the primary instrument of data collection and analyses and exploits information gathered from multiple constructions of reality to gain insights into the phenomenon of inquiry (Merriam, 2002; Patton, 2002). Hence, the differences in the nature of knowledge between the positivist and interpretivist methodologies have given rise to different sets of criteria for ensuring research quality as argued by Strauss and Corbin (1990), the "usual canons of 'good science'...require redefinition in order to fit the realities of qualitative research" (p. 250). In the positivist methodology, research quality or *rigour* is achieved by strict adherence to internal validity, external validity, reliability, and objectivity.

In contrast, the parallel term proposed for *rigour* in the interpretivist methodology is the notion of *trustworthiness* to reflect the unique nature and assumptions underlying the interpretivist research inquiry. Trustworthiness according to Lincoln and Guba (1985), asks the question, “How can an inquirer persuade his or her audiences that the research findings of an inquiry are worth paying attention to?” (p. 290). The four traditional notions of positivist criteria for rigour have been redefined accordingly by Lincoln and Guba (1985) to highlight four corresponding aspects for trustworthiness: *credibility*, *transferability*, *dependability*, and *confirmability* (see in Table 5.7). Each of them are detailed next.

Table 5.7

Differences Between Positivist and Interpretivist Research Quality Criteria

Positivist Terms	Interpretivist Terms
Internal Validity	Credibility
External Validity	Transferability
Reliability	Dependability
Objectivity	Confirmability

5.6.1 Internal Validity versus Credibility

Internal validity refers to the extent the research findings accurately describe reality (de Vaus, 1998; Hoepfl, 1997; Lincoln & Guba, 1985; Merriam, 1988). Lincoln and Guba (1985) refer to the sheer impossibility of determining realistic internal validity because “it is precisely the nature of that reality that is at issue; if one already “knew” it there would be no need to mount an inquiry to determine it” (p. 295). A key challenge of the notion of internal validity for interpretivist research is that interpretive inquiries make use of the presence of multiple realities and attempts to represent these multiple realities adequately (Hoepfl, 1997; Lincoln & Guba, 1985; Merriam, 1988). As a result, credibility then becomes the corresponding test for interpretivist research. Credibility is less dependent on sample size but emphasises the richness of the information gathered and on the analytical abilities of the researcher (Patton, 1990). Lincoln and Guba (1985) add that credibility is enhanced through conducting the “inquiry in such a way that the probability that the findings will be found credible is enhanced”, and, by having the findings “approved by the constructors of the multiple realities being studied” (p. 296).

Several strategies proposed to enhance credibility in the interpretive research inquiry include: prolonged engagement, persistent observation, triangulation from different sources, methods and investigators, member checks with participants, peer debriefing, negative case analysis, structural corroboration and referential material adequacy (Guba & Lincoln, 1982; Lincoln & Guba, 1985; Merriam, 2001).

As part of enhancing credibility in this research, strategies such as prolonged engagement, persistent observation, triangulation, peer debriefing, and member checking were used. Prolonged engagement involved the researcher spending sufficient time on the research site to learn about the context, minimise distortions and to build trust (Lincoln & Guba, 1985). In this respect, it is acknowledged that as the researcher, I am familiar with the teaching of face-to-face Research Methods courses at the tertiary level after having taught as a lecturer in a Malaysian university. I am also sufficiently familiar with the research context in the sense of having enrolled in an online Research Methods course while a student at CSTER a year before conducting the research. Adrian, the key lecturer participant in the main part of this research, was one of the three lecturers teaching the online graduate Research Methods course at that time. Hence, I had the privilege to informally observe and gained some understanding of the course content, the course lecturers' teaching style and approach and the facilities utilised, the types of students enrolled in the course and the types of challenges they might encounter in the course. From participating in this course, I was able to get to know Adrian and build the trust needed to collaborate in order to better understand ways of facilitating the online learning experiences in this research. Finally, this experience helped me understand the way online courses are set up and managed in this tertiary institution as well as the kinds of support systems available to staff and students when teaching and learning online.

The conduct of the research itself involved further prolonged engagement in the planning and development of the intervention for the course in the three months before the course commenced and the ongoing development, refinement and responsiveness of the intervention activities to the lecturer and student needs as the course progressed throughout the semester until its conclusion at the end of 15 weeks.

Persistent observation is also recommended to identify and assess the salient factors and unique events that characterise the research phenomena (Lincoln & Guba, 1985). Persistent

observation required detailed documentation of the identification and exploration of the research's salient and unique factors. This was undertaken in an ongoing basis until these factors were properly understood.

Peer debriefing, on the other hand, alludes to the process of exposing one's self to a disinterested peer(s) to explore aspects of the research that might otherwise remain implicit in the researcher's mind (Lincoln & Guba, 1985). Merriam (2001) also defines it as asking peers to comment on the findings as they emerge. In this research, during the ongoing data analysis process in Phase 1 of the research, a small portion (about 10%) of the data interview transcripts were shared with a group of fellow research students during a weekly Student Supervision Support Meeting held at CSTER. The meeting was a good forum for the researcher to seek the group's opinion regarding the significant descriptors, themes, and patterns that emerged from the data. This process was used as a check and balance to confirm the accuracy of the researcher's data analysis and interpretation of the interview data sets and to develop tentative ideas for the emerging research design. Furthermore, two online lecturers from the School of Education also acted as peer debriefers in Phases 2 and 3 of the research. They regularly reviewed the ongoing and final analyses of the online transcripts to verify that the researcher had conducted and arrived at a reasonable conclusion in the analyses.

A further technique, triangulation of the research from multiple sources, methods and investigators, was achieved through the different methods of data collection (qualitative and quantitative), types of data collected (observations, interviews, questionnaires, online transcripts), and multiple analyses and analysts (Patton, 2002) in this research. In particular, the notion of triangulation through multiple investigators was adopted in Phase 2 of the research through Lincoln and Guba's (1985) recommendation for *on-site team interactions*. Such a team was intended to provide input into the emergent research design, preserve the accuracy of important observations in the research, and reduce researcher bias in order to lend credibility to the findings. As Lincoln and Guba (1985) pointed out, "the fact that any one team member is kept more or less "honest" by other team members adds to the probability that findings will be found to be credible" (p. 307). In this research, a team, known as the *Web-based team*, was developed comprising of the researcher, the course lecturer involved in the research, Adrian, and two senior lecturers at CSTER (an experienced online lecturer, and an experienced face-to-face lecturer in the Research Methods subject). This team met regularly before and as the course commenced to discuss

developments, provide input and further suggestions on the development of intervention activities. Altogether the team met for a total of 16 times during the planning and implementing of the intervention. Appendix 8.2 indicates the number of times and the dates the team met as well as the purpose for each meeting. An example of the record of the team meetings is also attached.

Finally, member checking was also conducted as part of achieving credible findings. The interview transcripts were returned to all participants to give them the opportunity to amend, comment and add to verify that their ideas and conceptions of reality were adequately represented by the researcher (Lincoln & Guba, 1985).

5.6.2 External Validity or Generalisability versus Transferability

In positivist research, external validity refers to the research findings' generalisability to different study settings (Cohen et al., 2000; Hoepfl, 1997). Emphasis is given to techniques such as selectively pre-determined variables and random probabilistic sampling to ensure the findings obtained from the representative sample are generalisable to the wider population (Lincoln & Guba, 1985). This idea is problematic for interpretive research where the sample selection is often more purposeful than random and may not necessary be representative of a population studied. Simons (1996) maintain that the production of generalisable knowledge is inappropriate to the goal of interpretive research as concrete universals can be discovered by attending to or extracting from the unique particularities of a setting or case. Merriam (2001) adds that a "single case or small non-random sample is selected precisely because the researcher wishes to understand the particular in depth, not to find out what is generally true of the many" (p. 208).

In the interpretive methodology, the notion of *transferability* is proposed to allow the reader to judge the generalisability of the research instead of the researcher. The idea of *naturalistic generalisations* (Stake & Turnbull, 1982), or *working hypotheses* (Lincoln & Guba, 1985), or *qualitative generalisation* (Kennedy, 1979; Tripp, 1985) is proposed which recognises the natural ability of the reader of the research to apply the facts of that case to his or her knowledge, experience and interpretations of similar cases in order to develop his or her personal understanding. Transferability depends on the degree of *similarity* (Hoepfl, 1997; Merriam, 2001) or *fittingness* (Lincoln & Guba, 1985) between the original situation and the situation to which it is transferred. This implies that the researcher cannot specify the

transferability of findings but can only provide sufficient information and description for the reader to judge whether the findings are applicable to their situation (Lincoln & Guba, 1985; Merriam, 1988). Patton (1990) adds that, “pragmatic validation [of qualitative research] means that the perspective presented is judged by its relevance to and use by those to whom it is presented: *their* perspective and actions joined to the [researcher’s] perspective and actions [original emphasis]” (p. 485).

A strategy to enhance transferability is to provide a *rich thick description* (Lincoln & Guba, 1985; Merriam, 2001) of the research context highlighting especially the salient features: *comparable* (common research features such as age, gender, teacher teaching style, etc.) and *comprehensive* (unique research features relevant to the case) features (Tripp, 1985). Such a description provides a vicarious experience for the reader to assist him or her to draw naturalistic generalisations (Stake, 1995) and compare the *fit* with their situation and whether the findings can be transferred (Kennedy, 1979; Lincoln & Guba, 1985; Merriam, 2001; Tripp, 1985). In this research, transferability is enhanced through the provision of a rich description of the research context and of the data gathered and analysed (e.g. for interview data, in the form of direct quotes revealing the participants’ thoughts, emotions, experiences, basic perceptions).

5.6.3 Reliability versus Dependability

Reliability in the positivist methodology is defined as consistency and replicability of the study, the extent to which the findings could be replicated across time, across methods, and across samples (Cohen et al., 2000; de Vaus, 1991; Lincoln & Guba, 1985; Merriam, 1988). This idea of reliability is problematic for interpretive research as the human behaviour studied “is assumed to be in flux, multifaceted, and highly contextual, because information gathered is a function of who gives it and how skilled the researcher is at getting it, and because the emergent designs of a qualitative case study precludes a priori controls” (Merriam, 2001, p 206). Because interpretive research is not intended to establish causality or discover laws to explain phenomena but to describe, understand and interpret human behaviour, its strength lies in the un-replicability of a unique research situation (Cohen et al., 2000).

The notion of *dependability* or consistency is used to redefine reliability in the interpretive methodology. Dependability is less about whether the findings will be found again but more

about the extent the results obtained are dependable on the unique setting from which they are collected or the extent the results are consistent with the data collected (Merriam 1988). Hence, the same results may not be obtained in the same setting the second or subsequent time they are collected. Some techniques to ensure dependable findings include clarifying the researcher's position, triangulation and documenting an audit trail (Lincoln & Guba, 1985; Merriam 1988). These three techniques were adopted in this research. Clarification of researcher position was achieved through the explanation of the assumptions and theory adopted in this research (see sections 1.3, 2.5, Chapter 4), clarification of the researcher's position to the research participants and context (see sections 5.3.4, 5.6.1, 8.2) as well as the basis for selecting participants and their description (see sections 5.3, 6.1, 8.2, 9.1). Triangulation methods adopted included those mentioned in Section 5.6.1. Finally, an audit trail involved the detailed documentation of how the data was collected, how analytic themes and categories were derived and how decisions were made throughout the research inquiry in order for an independent auditor to authenticate the research findings by following the researcher's trail (see examples in Appendices 5.10 to 5.16, 8.2, 8.4).

5.6.4 Objectivity versus Confirmability

The positivist methodology refers to objectivity as the extent a number of individuals' experience is in agreement or objective as opposed to a single individual's experience regarded typically to be subjective (Lincoln & Guba, 1985). Positivist research is relatively objective, value and context-free and interested in causality instead of subjective states of individuals (Patton, 2002). This assumption is problematic for interpretive research which relies heavily on the researcher and participants' interpretations and is considered value-laden or subjective.

The notion of *confirmability* of the research is proposed instead for interpretive research to refer to the degree to which the researcher can demonstrate the neutrality of their research interpretations (Lincoln & Guba, 1985). The emphasis lies less on the need for the researcher to establish objectivity in the research inquiry but on the characteristics of the data collected, i.e. the extent the data is confirmable. As with dependability, confirmability can be achieved through an audit trail. This consists of detailed recording of raw data, analysis notes, reconstruction and synthesis products, process notes, personal notes and preliminary developmental information (Lincoln & Guba, 1985). The audit trail technique adopted in this research includes that mentioned in Section 5.6.3.

These four criteria for ensuring trustworthiness were undertaken in this research.

5.7 Ethical Considerations

Approval from the University of Waikato's Human Research Ethics Committee to conduct this research project was obtained on 28 August 2002. The conduct of this research adheres to the University of Waikato's Human Research Ethics Regulations, 2000 and the ethical guidelines of New Zealand Association for Research in Education (NZARE). These guidelines include obtaining informed consent from research participants without coercion, preventing any exploitation (or perception of exploitation) of the researcher-participant relationship, and respecting participants' privacy and confidentiality. All participants were also made aware that they can choose to withdraw at any stage and their privacy and rights would be protected. Ownership of the raw data collected would belong to the research participants, and their requests regarding the material will be honoured, however, the analysis and interpretation of the data belonged to the researcher. Additionally, participants were informed that their participation in the research would not impact them academically and that the information obtained will only be used for the PhD thesis and other publications arising from the research.

Furthermore, as this research relied partly on data collected from online sources, Merriam (1988) cautioned on the effects of electronic communication on ethical qualitative research practice. Potential challenges include the fact that participants could still be identified from the contents of their online communication despite name changes, researcher carelessness in protecting the privacy of the participants in light of the highly public nature of online discussion environment and considerations for electronic intellectual property and copyright related issues. She recommends that a new responsibility for researchers is to account and describe the potential impact of these factors in their research. This was considered in this research.

5.8 Summary

In order to investigate the research questions posed in this study, an interpretive methodology was adopted. This methodology agrees with the assumptions of the sociocultural views of learning and facilitated the research by emphasising the participants' meaning and interpretation of their lived experiences in the research. The case study approach framed the

use of a combination of quantitative and qualitative methods to corroborate and triangulate the results obtained from the research. Methods of data collection and analyses were also detailed in support of the sociocultural orientation adopted. Specific measures were established to ensure the trustworthiness of the research was not compromised. Adherence to the ethical guidelines was also observed at all times.

The next chapter presents the findings from Phase 1 of this research.

Chapter 6

Phase 1: Reviewing the Existing Situation –

Findings on Lecturers' and Students' Views

6.0 Introduction

In establishing the research methodology, the previous chapter provided an understanding of the methods and procedures used to conduct each stage of this research. This chapter presents the research findings from Phase 1, the online lecturers' and students' responses to the survey (semi-structured interviews and questionnaires). It has four sections and begins by describing the participants' demographic background in Section 6.1. Section 6.2 details participants' findings in relation to the first research question, 'What is the nature of online learning?' Finally, Section 6.3 presents findings to the next research question, 'How can students' learning be facilitated in online learning environments?'

6.1 Participant Demographic Background

This section describes the background of the participants who consented to participating in the research.

6.1.1 Lecturers' Background

Ten lecturers teaching online courses from the School of Education participated in the face-to-face interviews. Table 6.1 shows the number of years they have been teaching online, the level of courses taught and the number of students enrolled in their course during Semester B, 2002. Six of them were males (Basil, Ralph, Gerard, Peter, Jake, Tim), while the remaining four were females (Marge, Nola, Laura, Lesley).

Table 6.1

Participating Lecturers in the Study (n=10)

Lecturer ^a	Online Teaching Experience (years)	Course Level	Number of students enrolled
Basil	6	Undergraduate	21
Marge	6	Undergraduate	80
Nola	10	Undergraduate	-
Ralph	6	Undergraduate	46
Laura ^c	2	Undergraduate / Graduate	20
Gerard ^c	15	Undergraduate / Graduate	
Peter	6	Undergraduate	25
		Graduate	5
		Graduate	8
Lesley	2	Graduate	2
Jake	4	Graduate	15 ^b
		Graduate	24 ^b
		Graduate	25 ^b
		Graduate	18
Tim	1	Graduate	3
Total			292

Note. ^a names used are pseudonyms with the exception of Nola who wished to be identified. ^b There were overlaps in the number of students enrolled in these courses as the same student can enrol in more than one of these courses. This inflates the number of total student participation in the study as the total count does not match the sum of the number of students enrolled in each course. ^cThese lecturers co-taught the same course and had the same number of students in their class.

Four participants taught only undergraduate online courses and had online teaching experiences between six to 10 years. Three of the participants (Laura, Gerard, Peter) had taught both undergraduate and graduate courses and had online teaching experiences ranging from two to 15 years. Finally, three other participants (Lesley, Jake, Tim) had taught only graduate level courses and had online teaching experiences ranging between one to four years. In general, these lecturers' online teaching experience was quite varied, ranging from one to 15 years.

6.1.2 Students' Background

The online questionnaire was posted online to be accessed by approximately 292 students (see note b at the end of Table 6.1). A total of 37 questionnaires were returned. Table 6.2 details the background of the participating students in the survey.

Table 6.2

Participating Students in the Study (n=30)^a

Characteristics		N	%
Gender	Male	5	17
	Female	25	83
Age Group	16-25 years	2	7
	26-35 years	8	27
	36-45 years	8	27
	46-55 years	9	30
	56-65 years	1	3
	66 years and above	2	7
Education Level	Undergraduate - Year 1	4	13
	Undergraduate - Year 2	3	10
	Undergraduate - Year 3	7	23
	Post Graduate	2	7
	Graduate (Master's degree)	9	30
	PhD	1	3
	Others	4	13
Online Learning Experience	None. This is my first online paper	6	20
	One	4	13
	Two	4	13
	Three to Five	4	13
	Six or more	12	40
Number of Online Contributions Per Week	0 times	2	7
	1-2 times	14	47
	3-4 times	4	13
	5 times and more	10	33
Recommendation of Online Learning to Others	Yes	26	87
	Not Sure	4	13
	No	0	0

Note. ^a denotes 7 missing cases

Five males (17%) and 25 females (83%) participated in this survey. Nine students (30%) were between 46-55 years of age while only two students were in the categories of 16-25 years and 66 years above respectively. A huge majority of participants, 28 altogether (94%), were representative of mature students who do not fit into the stereotype young adult tertiary age group between 16 to 25 years of age.

At least 10 participants (33%) were in graduate studies at the Masters and PhD level while the other 14 (46%) were undergraduate students. Only six (20%) participants had never experienced online learning while 24 (79%) had taken at least one online paper and above.

The highest number of online contributions a week was 1-2 times as reported by 14 participants (47%). A majority of 26 (87%) participants would recommend online learning to other persons.

These findings indicate that a majority of participants were experienced online learners who were quite adept in using the Web-based technology for their learning purposes. Hence, they should be able to provide valuable insights into the nature of successful online teaching and learning in this particular tertiary institution's context.

From this number of participants, a further 12 volunteered to participate in a follow-up semi-structured interview. The interviewees consisted of two males – Rob and Daniel (both graduates), and ten females – Sara, Aida, Jezebel, Leslie, Geraldine, Yanni, Sonia, Kara, Mary and Beatrice (four undergraduates, six graduates). Their ages ranged between 26-65 years of age. Six participants were interviewed face-to-face, while six more, living in different parts of the country, were interviewed by phone.

The next section answers the first research question from these participants' perspectives.

6.2 The Nature of Online Learning

This section answers the first research question: What is the nature of online learning?

Data from the questionnaires and interviews were synthesised to arrive at key themes to answer this question. There was overall concordance between the interviews and

questionnaire responses. The process of arriving at the key themes and a summary of the theme details is shown in Appendix 5.10. Two key themes observed from the data are:

- Online learning is a social and interactive process best characterised by the notion of a learning community (Section 6.2.1); and,
- The affordances and constraints of the Web-based technology can impact on the online learning process (Section 6.2.2).

Each of these is detailed next. Lecturers' perspectives are reported first followed by those of students (refer to Appendices 5.11 and 5.12 for a detailed description of these themes from the lecturers' and students' perspectives). Relevant data from the questionnaires are also described first followed by the interview data.

6.2.1 Online Learning is Social and Interactive

Lecturers' Perspectives:

A key theme revealing the nature of online learning in the research context is that online learning is both a social and interactive process. All lecturers confirmed this idea by viewing interactions and discussions between themselves and their students and among their students as integral to the learning process. For example, Gerard, Basil and Jake indicated that the social aspects of learning were important while learning online:

I knew very very clearly that the social aspects of online learning are very very important...in particular feeling part of a group and being able to discuss, not regard the medium as just a way of obtaining information, that I believe is very important (Gerard, p. 3).

Learning is about considering ideas, reading, debating discussing, trying something out, coming back, going back and looking at past experiences and things like that (Basil, p. 3).

There were a handful of readings that I've given them to read but when we talked about people's personal experiences, they shared a whole series of stories...so something was created in that kind of discussion, a discussion which knowledge was being created (Jake, p. 13).

These online interactions were also crucial as they indicated whether students were participating in the learning in their class or otherwise. Marge and Basil stressed this point:

I do worry about people not participating because that precludes them from learning...
(Marge, p. 12).

...because online when you come into a discussion group you will be discussing what the topic is. If you are not discussing the topic, you are not there. That is probably one area that online is truer to the learning process than on-campus in that I can see online whether people are participating in discussions (Basil, p. 6).

Half of the lecturers cautioned, however, that these class interactions need to be constructive instead of reproductive in nature. They reported on how particular ways of interacting online can be more beneficial than others. Peter emphasised this to ensure students were not merely repeating the lecturer's dialogue or class readings. For example,

Some of the discussions really have just been repeating what they've been saying in the modules...there's very little point in that...they have to go beyond what's in the modules and take people further and get them engaging with dialogue and debating about issues, then the discussions work quite well and you get a high standard of work in them (Peter, p. 18).

Ralph used the analogy of constructing a house to emphasise the need for constructive interactions in the online class:

So I think we've decided really you have framed the tasks in that way, so its an open ended and then people can build on it, it's like building a house but it's not vital. But what you don't want is a series of storeys on top of a house, so the house looks exactly the same all the way up, I think that was one of the things I think we were very clear about it (Ralph, p. 3).

This view is also very closely related to these lecturers' philosophy of teaching and learning and is demonstrated through their pedagogical strategies and role in their class (refer to section 6.3.1 for more details of their Pedagogical role).

In accordance to this idea, five lecturers suggested that forming a learning community in the class focuses the interactions. Both Marge and Gerard accentuated this point:

I do think that being involved in a community where ideas can be shared and turned over and thought about helps other people make links for themselves and that's where this online community comes through (Marge, p. 21).

They[online students] form a community where they have such a rich range of experiences that they can share and they do share via the computer-mediated learning environment. They have very successful learning outcomes (Gerard, p. 13).

Students' Perspectives

Students indicated that they participated in the online interactions and discussions in their class chiefly because they wanted to feel a sense of belonging in the class (23 responses, 24%) (refer to Table 6.3). Other reasons were that the lecturer posed interesting tasks for them to complete online (19 responses, 20%), they needed help from classmates (13 responses, 14%) and, finally, they needed help from the lecturer (9 responses, 10%).

Table 6.3

Students' Reasons for Participating in the Online Discussions (n=29)^a

	Frequency	%
I wanted to be part of the online learning class	23	24
The lecturer posed an interesting issue/question/ task for us to complete	19	20
I needed help from my classmates to clarify my thoughts/questions	13	14
I needed help from the lecturer to clarify my thoughts/questions	9	10
I disagreed with a particular view raised in the class	5	5
Total responses	95	100

Note. ^a denotes 8 missing cases

Other reasons propelling students' interactions in the online class can be observed from the sources they approached for help during their studies (see Table 6.4). Students reported that they obtained help mostly from their classmates (22 responses, 39%), followed by their lecturer (21 responses, 37%) and, finally, their family or *whanau* (9 responses, 16%). These gestures confirmed the social and interactive nature of online learning.

Table 6.4

Students' Sources of Help While Studying for their Online Paper (n=27)^a

	Frequency	%
Classmates	22	39
Lecturer	21	37
Family/ <i>whanau</i> ^b	9	16
Dept Administrator	3	5
Lecturer appointed contact person	2	4
Total responses	57	100

Note. ^a denotes 10 missing cases. ^b Maori word which traditionally refers to an extended family. Also used in modern times to refer to the nuclear family.

In support of the survey data, the interview data further elucidated the social and interactive process as integral in online learning. At least eight survey responses and 12 interviewees elaborated that this process provided them with *intellectual* – sharing of multiple ideas and expertise, *social* – learning from peers, and *emotional* – alleviate uncertainty and anxiety, support when learning online. Three students, Geraldine, Aida and Beatrice stressed each of these ideas:

Interaction for students is definitely crucial. You get more insight, highlight some really different ideas, everybody brings with them different philosophies and we exchanged thoughts and areas of expertise (Geraldine, p. 6).

But the way of online learning really is to read what somebody else has said and comment on it, and then it's their turn, your turn and so on ... your peers help you a lot. I thought what they have said was helpful to me. Sometimes I might not have asked the right questions but somebody else did and when the tutor or somebody else answered the question, it was good (Aida, p. 5).

Contact with tutors and classmates can alleviate your emotional barriers being uncertain about the medium or being uncertain about your ideas, being uncertain about whether they're acceptable. You've got to have emotional and social support. Our tutors provided it in the portfolio and ClassForum (Beatrice, p. 6).

Two other students confirmed that some types of online interactions were more helpful than others to their learning. They attested to being engaged in professional dialogue as part of learning in the learning community. Kara emphasised such focused dialogical importance:

I think that in a community of learners, it's not how much you put but the quality of what it is that you contribute...Professional dialogue has professional parameters, so students are debating, discussing, reflecting on the ideas and challenges presented in questioning or wanting clarification of co-learner's idea, looking at the ideas and not at the person...I would consider it non-negotiable...If it was just wiffly waffly, chitter chatter, you're not getting the depth of discussion that is required when you're doing a Masters paper. If you're in the classroom you wouldn't just be chitty chatting about this and that. It is very focused conversations and dialogue that you have either between yourselves or with your lecturers (Kara, p. 5).

However, when the interactive process failed to occur online or when students were not participating online, participants reported being disappointed and dissatisfied with their learning experiences. Rob and Daniel testified to this:

The disappointing thing was that the discussions didn't really happen. They [the lecturers] didn't make it a place for experimentation, for learning. That was a bit disappointing (Rob, p. 3).

...those who didn't participate as much in class were detrimental to the group because they could have shared their knowledge and experiences from their background and training. They could read the others' comments and gain something for nothing (Daniel, p. 5).

While Beatrice accentuated that students' non-participation in the class dialogue equated to a lack of learning:

I truly believe that the people who didn't contribute in the discussions wouldn't have learnt anything worthwhile because the learning is through the dialogue whether it is in the portfolio or in the forum. It's the work that a student has to do to prepare the contribution to post online that actually is the learning process for online (Beatrice, p. 8).

The next section reports how the social interactive environment is created and how learning is indicated.

6.2.1.1 The Creation of the Social and Interactive Environment

Lecturers' Perspectives

For a learning community to occur, it is important that lecturers create an environment where all of the community's members are considerate, respectful and supportive of the exchange of one another's ideas. At least six lecturers mentioned the need for class members to consider one another's ideas, and be respectful of one another in their discussions. Peter demonstrated this point:

I try to encourage them [students] to think about the fact that in any of our online courses we are a learning community and that means we need to be sharing our ideas with one another and agreeing and disagreeing with one another but doing so in a respectful sort of a way... The thing that helped them a lot on that is the concept that the discussions involve an 'all ideas in' approach. In other words, no idea is rejected as silly, stupid, out of hand, ridiculous... Every idea is accepted as a valid contribution to the community and if people disagreed with it, they will disagree with it respectfully and on grounds of good reason and so forth (Peter, p. 14).

Another five lecturers reported that being supportive of one another in the learning community requires students to share their ideas from multiple resources to building up the discussions, help their peers to make links and learn from their peers in a cooperative manner such that they 'feed off' each other. Marge stressed having a less hierarchical relationship with students can foster such characteristics in the online class:

I do think that being involved in a community where ideas can be shared and turned over and thought about helps other people make links for themselves and that's where this online community comes through...I have the expectation that we will work together as a community. Not me here, them[students] there as individuals, but they will work together solving problems, looking up things and that I'm just part of that unit. I'm not the head of that that they've all got to contribute as a learner (Marge, p. 4).

Students' Perspectives

In order to develop an online learning community, three key issues were raised by the students: support from lecturer or peers, consideration for others' ideas, feelings and

development, and providing equal opportunities for online participation. Nine students cited the need to connect and form supportive online friendships to work for the greater good of the community. Rob and Leslie exemplified this to mean a community for sharing and supporting one another:

...Community of sharing, not competition. Once you get rid of the competition in the community, everyone flourishes...Everyone works together as a community in the group to bring about the best understanding that we can from each other individually (Rob, p. 6).

The tutor may not come in but somebody would come in and be genuinely concerned that you knew what they wanted because in our group, nobody wanted anyone not to succeed. To me there was a lot of if we did it, then we all stuck together, and we all helped each other, and we were all going to make it. We all as a group would have been absolutely devastated if somebody had not completed the requirements (Leslie, p. 4).

Seven other students reported a need for considering other's ideas, feelings and development when learning in a community. Julie highlighted this issue:

If you are a group, not one person has all the ideas...You have to be quite mindful of other people. You might have all these ideas and basically know the answer but you can't just go in at the beginning of the discussion and go...dededede... because it's ended. You'll kill it. So you have to leave it open...You just have to like dropper it, like a dropper bit by bit so that it actually builds and everybody has a chance to speak. It's definitely different from sitting around the table. I think you do have to be mindful of people, give them space, give them time (Julie, p. 5).

Finally, one survey response and four student interviewees mentioned the need for an equitable opportunity for participating and sharing instead of competing with lecturers and peers alike when learning in a community. Daniel and Sonia highlighted the importance of equitable participation in learning:

... [there is] equal opportunity to participate in online discussions unlike classroom situation (Daniel, p. 2).

No one was disadvantaged in terms of accessing resources (Sonia, p. 2).

Kara reported the importance of lecturers' less hierarchical relationships with students:

... [the] lecturers never led the community or were people with all the expertise, [they] were rather members just as students are members...[they] put themselves on equal footing with students (Kara, p. 3).

The next section reports on the benefits of developing a supportive community for learning.

6.2.1.2 A Learning Community Facilitates Gaining Expertise and Responsibilities

Lecturers' Perspectives

Learning in the online environment is demonstrated by students becoming more constructive thinkers, better writers and independent researchers as they gain increasing expertise in their fields of study and became responsible for their own and others' learning. At least 9 lecturers remarked that they are able to see the learning occurring in their class when their students become more critical and reflective thinkers, constructive questioners, and able to link their own ideas with expert ideas from theory. Jake reported on the development of students' reflective and critical thinking skills:

I want is students to be careful and critical and reflective in their thinking and so online discussion invites that kind of thinking...And that I find is part of the learning value of it ... That's what online learning gives, the opportunity for people to have dialogues with each other which are generative rather than to sit in their own isolated study space and think things through in relation just to a book...people actually get into quite rich dialogue and that is the sense of which I meant that I can see people's learning taking place (Jake, p. 13).

Meanwhile Marge attested to her students developing critical questioning skills:

You can also see evidence of it [learning] happening when those students who you [thought] 'Oh yes they're getting ahead', they will start questioning, they will question other students and question material and readings and when one or two of those get started in that process, you will find that others will take it on as well. So you can see it happening slowly, it's like a network thing (Marge, p. 18).

Finally, Peter reported on his students' ability to apply theory to practice:

I can see quality of the discussions and the quality of their thinking that's in the discussion. I can see them using their own knowledge and experience alongside the expert knowledge (Peter, p. 12).

Six lecturers reported that their students become better writers at the end of their online course. For example, Basil quoted that:

These[online] people, their mode of communication is definitely written. So at the end of the day, they'll probably be much better writers than the on campus people (Basil, p. 14).

Finally, three lecturers view learning as occurring when their students become increasingly independent in their researching skills, especially when searching for resources from the Internet. For example, Ralph found his students developed their technical skills and became independent in their research skills:

Well it enables them to communicate immediately with each other in class, it allows them to develop their own skills in using ICT, allows them to keep in touch with the world...through the Web (Ralph, p. 18).

While Lesley found she was able to use her students as resource for other students:

So if I'm going to go down this case where someone's going to really focus on say, for example, 'Kaupapa Maori' research and they[students] wanted to explore what does a 'Kaupapa Maori' philosophy mean and I've got someone who's...done research in this area, who understands it. So can I use them to help someone for whom it's a totally new concept (Lesley, p. 6).

Students' Perspective

According to students, learning was demonstrated by their gaining expertise an increasing responsibility for their own and others' learning. The first point was demonstrated through their intellectual ability to critically reflect on the multiple perspectives shared and their successful fulfilment of the course assessments. For instance, five students reported that they became more reflective, able to follow their peers' arguments and able to justify their own ideas by providing evidence while learning online. Daniel quoted:

... reflect and seriously consider on what you're going to write online, requires some concentrated effort—justify and backing up with evidence (Daniel, p. 2).

Two other students reported that their learning was marked by the successful fulfilment of the course assessment requirements. For example, Beatrice noted:

...[the discussions in the] portfolio because they were marked, people concentrated more
(Beatrice, p. 7).

Additionally, seven students highlighted the importance of a learning community for helping them to develop socially – making connections and friendships, obtaining support and help, and striving towards shared goals in the class, and emotionally – developing a sense of belonging. Leslie and Rob attested to the social dimensions of a learning community:

Community to me, that's how it felt...those people who were online with me, going through exactly the same thing as what I was... was where I got my strength...If I didn't have the chance to interact with other people on this course, I would have been unable to finish it...To me it was like the centre where everything else happened from, it was that area (Leslie, p. 2).

Communities have like goals...a collective of people who are striving for the same thing. In this case, it's striving to do the best in the paper and get reasonable pass at the end
(Rob, p. 6).

Kara highlighted the emotional connections and development experienced in a learning community:

Learning community is that we are all learners together. All of us involved in the... paper regardless of what experiences we bring to it, be it somebody who is fully involved in the university experience or somebody who is a newcomer, we are all of equal value and all our contributions are to be valued by each other and that we together develop a rapport. Even though we aren't face-to-face, that rapport is still very, very strong. At the end of it, you really feel you get to know some people. Not everyone at the same level, but certainly there are connections that are made with different people, depending on the contributions that they make and how you respond in the contributions that you make
(Kara, p. 2).

These findings underscore the nature of online learning as a social and interactive process; a process enhanced by the development and participation in an online learning community. For

such a community to develop, its members need to be considerate, respectful and supportive of one another, share ideas to build their discussions, be willing to learn from one another, strive towards shared goals and feel equitable in participating in the class. Learning in the learning community is marked by students demonstrating intellectual, social and emotional development in the course. These findings on the teaching-and-learning in online contexts, however, are made possible through the Web-based technologies adopted in the class. This is related to the second theme describing the nature of online learning detailed next.

6.2.2 Affordances and Constraints of the Web-based Technology

The next theme describes the influence of the opportunities afforded by and the constraints arising from using Web-based technologies. The technological affordances are detailed first followed by the constraints.

6.2.2.1 The Affordances of the Technology

Lecturers' Perspective

Findings from the lecturer interviews revealed three opportunities provided by the Web-based technology: accessibility, flexibility, and the convenience of asynchronous communication.

Accessibility refers to the students having access to other student's online discussions, access to education, and access to international experts and resources. All lecturers felt the Web-based technology gave students the ability to refer to their peers' ideas in the group discussions, view samples of their peer's work, link their ideas with one another's and answer one another's questions. For example, Nola reported on the ability of students to refer to another group discussion to link their ideas:

Say we are talking about the price of fish at the fish mart, I can say to one group in the classroom "Well I'd like you to talk about how this impact on the fisherman and what are the union issues and so on around this whole topic." but I mean the union people don't know what that group over there's saying and so forth, whereas online they can. They can go and look at the other issues raised to synchronise their thinking (Nola, p. 10).

Gerard added that students could add-on to the existing online contributions:

But certainly what you do, is log on, you would get to see what the latest contributions were and you could add your bit to the end of what was being discussed at that point in time (Gerard, p. 3).

Basil indicated that students can answer their peers' questions:

Students themselves are getting more resourceful about finding the answers and in many instances they answer each other's questions...So they realise that many of the questions, somebody else would have understood and answered anyway. There's not that same need for me to go in there and do all the talking (Basil, p. 10).

Eight lecturers thought the technology gave students the opportunity to access further education, especially for those unable to come to campus. This also helped to enhance their department's student enrolment. Jake noted this:

We were looking to expand the opportunities for teaching new groups of people at the graduate level and that meant working beyond our immediate catchment area... when we shifted to online learning, got enrolments from people further... And we don't have to advertise too much to get that. People are looking for it anyway (Jake, p. 11).

Finally, five lecturers reported that the technology widened their teaching resources by enabling students' access to international experts and references. Lesley gave examples of using related Web links in her class:

a colleague of mine that works in Sydney who is working in the same paper area and has developed a whole schema that's all electronic. I've been able to just put that Web link into the online teaching and they [students] can go on their Internet and they can spend time and they can go back to it and they can dive in and out of it. They can download it if they want to, they can print it off. So it's a resource I haven't had to duplicate and it's there, so it was very easy for me just to put in an attachment and give them a Web link (Lesley, p. 7).

Nola gave the example of inviting international experts into her class:

Online, you can bring in experts from all over the world, for example, bring Professor Schrum from UGA into your classroom at Waikato. Face-to-face you can't but online you can (Nola, p. 11).

Meanwhile, Jake reported using access to online journals:

Distance learning is the main bit and access to the library facilities, to online journal articles rather than having to work with the materials that they get from a set book of readings, so I think it has expanded the access for students (Jake, p. 11).

Web-based technologies also gave lecturers flexibility in terms of their teaching and allows for many pedagogical possibilities in their online class. Nine lecturers alluded to this as they benefitted from accessing their classes at a time and place of their convenience. Ralph attested to the flexibility of online teaching but cautioned the need to maintain a professional responsibility to students:

The ability to teach online gives you flexibility. You don't have to front up to a class at ten o'clock on a Monday morning every Monday for five weeks but you still have a professional responsibility for ensuring what's actually happening then (Ralph, p. 7).

Laura enjoyed teaching beyond the classroom and regular office hours:

...sitting in my spare room at home online teaching for 20 mins of the day or whatever it takes and doing it at 8 o'clock at night or 8 o'clock in the morning. I actually find it quite exciting. I don't mind because I'm fairly flexible in my lifestyle anyway, and know that like today, not coming in until 12 o'clock because I've got to teach this afternoon until 7 o'clock. So all that changing around of what it means to be at work (Laura, p. 21).

Another seven lecturers found they had flexibility in terms of integrating different pedagogical possibilities in their online teaching. For example, they could structure their classes on an individual student-lecturer basis or into groups, conduct student presentations or tests online, allow student digression from the group discussion topics to explore new ideas, allow the submitting of assignments online, mark online, and reuse the course for the next term. Gerard pointed towards the pedagogical potential of the online classroom:

You can teach by drawing imaginary circles in the air and teach by telling people to shut their eyes and imagine the situation. So within the kind of virtual room or real room there are so many pedagogical possibilities (Gerard, p. 6).

The flexibility of changing a teaching approach in online teaching was an advantage for Ralph:

What you really need to be doing is saying this material is sorted in such and such a way. I know my students reasonably well and they would respond to me using this particular approach and of course if that fails you just change your tack...that's one of the beauties of us having access the way we do because you can actually put in new material, you're not locked into any one thing at any one time (Ralph, p. 15).

Marge delighted in the convenience of conducting and structuring her online class within her sight:

I think actually being able to run a class within one's sight is fantastic because you don't have to go out of that just like the walls of a classroom you can run everything from there [computer screen]... the wonderful facility that we have now of setting up individual one-to-one situations, small group situations, whole group situations, so that you can sort out what format you want to take (Marge, p. 23).

Five lecturers raised the fact that the asynchronous nature of online communication implied a different set of dynamics in their classes – they can observe students' participation in learning (eg. follow multiple student group discussion simultaneously), there is permanent record of students' thoughts, and that the delayed communication allows students more reflection time. Jake attested to the permanent record of students' contributions as an indication of participating in the learning process:

This is one of the strengths of using the online medium. Would you say that the process of thinking is more transparent... I can interact with students thinking more, it's more reflective, people can reflect on their thoughts (Jake, p. 7).

Nola highlighted the ability to monitor multiple discussion groups:

Often you have the luxury of being able to follow six groups at once. You can't do that face-to-face. You can't be in a classroom with six groups talking and know what's going on in every one. That's not possible (Nola, p. 9).

Ralph confirmed the important effects of delayed time in considering ideas:

Well, I suppose in online you can't clarify a point as quickly as you might... that's compensated for by the fact that you've got time to think about something. You can actually make a more considered view (Ralph, p. 12).

Finally, five lecturers found they are able to use the tools made available by the Web-based technology (i.e. the *Photo* feature, *Live Message*, *Portfolio*) to personalise their interactions with their students. This helped compensate for the constraints in online learning and resulted in lecturers getting to know their online students better than their face-to-face students. For example, Gerard found the *Photos* useful:

The photos, they did make a qualitative change here...just having a photograph in a sense of who a person is really, really contributes (Gerard, p. 18).

Ralph found the *Live Messages* helpful:

It's a bit like pastoral care in some respects, you actually watch what's going on... what I'll do is see a student online who hasn't made a contribution for a while. So there is the ability to make an instant message [Live Message] (Ralph, p. 6).

Basil further found the *Portfolio* useful for private communication:

I went into the student's Portfolio and said I am a little concerned about your progress at the moment because you are not contributing to the discussion.... She came back to me and said 'No you haven't seen me but I am here reading but at this point in time, I don't have time to post'. So she had been there and I don't doubt that she had (Basil, p. 6).

By effectively using these tools, Basil attested that he knows his online students better than his on-campus students:

Most of the online students probably know more about me as a person than my on campus students and I guess that's a way of making a connection that's not a visible or personal one (Basil, p. 10).

Students' Perspective

Students' response in the survey importantly revealed that they thought Web-based technologies gave them convenience (29 responses, 27%), flexibility (23 responses, 21%), allowed them to learn at their own pace (21 responses, 19%), and reflection time in their learning (15 responses, 14%); see Table 6.5.

Table 6.5

Students' Expectations about Online Learning (n=29)^a

	Frequency	%
Convenient	29	27
Flexible	23	21
I can learn at my own pace	21	19
Time to reflect on my thoughts before sharing them with others	15	14
Opportunity to build friendships with other students/experts from other parts of the country/ world	11	10
Time-saving, less time-consuming than a face-to-face paper	7	7
Overwhelmed by the technology	2	2
Total responses	108	100

Note. ^a denotes 8 missing cases

Specifically, when asked to indicate how the technology was useful in facilitating their learning, students highlighted the use of specific tools such as the electronic *Folders* in organising their online work (M=4.39, s.d.=0.99), the appearance of *Red Flags* to alert them to new postings (M=4.34, s.d.=1.14), the fact that they could save or print documents from the class for their own use (M=4.32, s.d.=0.90), the use of a private *Portfolio* to ask questions (M=4.26, s.d.=1.02), and finally, access to resources within the university such as the library (M=4.11, s.d.=1.13) (see Table 6.6).

Table 6.6

Students' Perception of the Useful Aspects of the Web-based Technology Tools in Their Learning⁸

Statements	Responses					M	s.d.
	NUA	NU	Unc.	U	VU		
Using "Folders" in ClassForum to organise the paper material and discussions (n=28) ^a	1 (4%)	1 (4%)	1 (4%)	8 (29%)	17 (61%)	4.39	0.99
Using the "New Contribution" (red flags) feature in ClassForum to alert me to new online postings in the paper	2 (7%)	1 (3%)		8 (28%)	18 (62%)	4.34	1.14

⁸ Refer to Appendix 6 for some of the key features of the tools available in ClassForum and their description

(n=29) ^b							
Saving or printing documents from the online paper (n= 28) ^a	1 (4%)		2 (7%)	11 (39%)	14 (50%)	4.32	0.90
Using the “Portfolio” in ClassForum for private discussions with the lecture	1 (4%)	1 (4%)	2 (7%)	9 (33%)	14 (52%)	4.26	1.02
(n=27) ^c							
Using the online access to the Library in ClassForum (n=28) ^a	2 (7%)	1 (4%)	1 (4%)	12 (43%)	12 (43%)	4.11	1.13

Note. NUA=Not Useful at All (1), NU=Not Useful (2), Unc.=Uncertain (3), U=Useful (4), VU=Very Useful (5), M=mean, s.d.= Standard Deviation. Responses from the NUA and NU scales are grouped as negative responses while responses from the U and VU scales are grouped as positive responses. ^a denotes 9 missing cases. ^b denotes 8 missing cases. ^c denotes 10 missing cases.

Findings from the interviews verified the opportunities provided by the Web-based technology, specifically the flexibility, accessibility, convenience and nature of asynchronous communication.

Regarding flexibility, for instance, 23 survey responses and 9 interviewees reported that the technology allowed them the convenience of balancing their study, work and family commitments. For example, Beatrice reported she could pursue her studies with like-minded peers:

Online study has given me an interest and a connection with people in my profession (teaching) beyond my own school (Beatrice, p. 9).

Julie appreciated the convenience of studying from home and being available for her family:

I don't have to drive 2 hours, saves me 2 hours, I can walk straight into the office at home and turn [the] computer on and start class or if I have a thought during the day, [I] can walk to computer and pen it down. I can study at home when children are away at school and be there when children come home from school... [its that] flexibility to schedule studies around home life, learning at own pace (Julie, p. 4).

A further four survey responses and five interviewees appreciated the access to resources, their lecturers, peers and technical help when they needed them. Two survey responses appreciated the access to the lecturer and their peers:

...the building of helpful and friendly relationships with other students and lecturers through discussions, and on campus tutorials. Even though you may complete the paper mostly online, [its] feeling like you know others and can approach them for clarification, advice, and help is important.

Another survey response attested to the technical support received:

...Improved my tech skills. More confident about how I can utilise those skills. Liked the instant access to info, kept more up-to-date with what's happening in course. [I] liked the portfolio access.

Finally, four interviewees and two survey responses also raised the fact that the asynchronous nature of online communication provided a permanent record of their thinking and discussions, allowed them delay time to think when participating online and fostered equal online participation from the class members. Daniel considered this:

[the] ability to have discussions out of time...online you can actually, when you think of something, you can just go in and add things in or you can go back to something they said 2 weeks ago and talk about that and just re-raise it as a comment. You actually got the record of your previous conversations (Daniel, p. 2).

This section examined the affordances of the Web-based technology and illustrated advantages such as accessibility, flexibility, convenience and the asynchronous nature of communication in supporting important online interactions. The next section contrasts the affordances with the constraints of the technology.

6.2.2.2 The Constraints of the Technology

Lecturers' Perspective

Although the participants were appreciative of the opportunities afforded by the Web-based technology, there were serious concerns regarding its constraints. These were related to situations when the technology failed, impersonal nature of online communication, and the constraints arising from the asynchronous nature of communication (e.g. permanency of offending messages, delayed communication and the sense of isolation for students). These issues do affect online teaching-learning to an extent. Two implications of the affordances and constraints of online teaching-learning raised by the lecturers were they found it

challenging to cope with the demands of online teaching and they found their students sometimes reticent in participating in the online class.

The first constraint raised by six lecturers was their communication with their students was disrupted when the technology failed to work resulting in the loss of student assignments or the disappearance of various online tools, or when there was a power cut. Nola explained the result of the technology failure:

The big ClassForum crash in the middle of last year when all the data was lost and the boy's hadn't backed it up...it was a devastating experience for staff... it was like a school burning down in a fire, and all, everything's gone. I was supervising a master's student and all her data was gone (Nola, p. 4).

Another five lecturers were frustrated by the impersonal nature of online communication. This textual basis of communicating removes important non-verbal cues taken for granted in effective communication. Online learning also hinders the inclusion of real time practical work in their courses. Laura affirmed the limiting nature of textual communication in their online teaching:

Writing stuff up isn't always the best way to communicate. It's not always the easiest way because you have to write so much sometimes, sometimes its easier to talk to people in a classroom... I guess it's a problem to some extent this notion of writing all the time is not always the best way of go and it can take a long time (Laura, p. 15).

Lesley felt hindered by the lack of non-verbal cues in her teaching:

In my class...I can tell by their body language and their hesitancy about who's done a real last minute rush job to meet the deadline, or... I can tell who's read the article, who knows what the critical points are whereas I cannot do that with the online stuff (Lesley, p. 3).

On the other hand, Basil was concerned with the inability to incorporate real time practical teaching activities in his online class:

I don't think that I have captured that particular part of our programme, that going in and the models that they see and us being able to observe them and seeing how they're working with children and how they are structuring their lessons and putting things together (Basil, p. 13).

Four lecturers were concerned about the permanency of their students' offensive online messages unless deleted by the lecturers. Ralph explained the impact of this problem in his class and how he had handled it:

When students put up inappropriate comments...despite my earlier comment on their being more considerate, they will put things in there that may actually hurt other people. I've dealt with that in two ways, not say a thing, but simply delete the message and that's worked. Or you can say now, so and so's expressed such and such a view, I'm not sure that I agree with this and I think this might have been better handled in such and such a way, so that you twist the discussion round in that way. I guess the other way is to talk to them privately (Ralph, p. 16).

Three other lecturers were frustrated by the fact that the delayed nature of communicating online meant they were unable to clarify a point as quickly with their students. Laura echoed this frustration:

In face-to-face, I go to a class for an hour or 2 hours or whatever, I'm available to them[students] there then in a different way than I am available here[online]...there, they can just ask me questions. Here[online] there's always a delay in the response...everything is deferred because you have to wait in that space and time (Laura, p. 16).

Another three lecturers raised the need to be aware of students feeling isolated when studying online. For example, Ralph felt lecturers should respond to students' isolation:

but students often...are isolated...we have to recognise that and compensate for that as best as you can (Ralph, p. 8).

Two main implications were raised from the affordances and constraints of the Web-based technology on lecturers' teaching. Firstly, students' easier access to education, their lecturers, and the class discussions meant it was easier for them to contact their lecturers with queries and to participate in their class. Resultantly, lecturers' teaching workload is expanded to cope with the demands of students' queries and the online class. Accordingly, nine lecturers mentioned that students' immediate access to their class raised the expectation of a lecturer's immediate response. When this failed to occur, lecturers reported that students felt their

expectations or learning goals were unmet. Gerard commented on the amount of work involved in online teaching:

The amount of work involved in teaching online... is considerably more than the amount of work involved in teaching face to face (Gerard, p. 2).

Jake found it hard to cope with his online students' demands:

The major difficulty is keeping touch with what is going on online and the more people you've got the harder it is to keep in touch as a teacher online. I find I now get numerous messages from students by email and messages in ClassForum that previously, I wouldn't got. And that means that I can actually respond to issues quickly, and sort them out quickly rather than having them wait until they come to class in a week or two's time but it also means because of the ease of giving me those messages I get a lot more student inquiries than I ever had in the past. I can spend ages every week responding to those kinds of issues and that does get time consuming... That has created its own pressure because people then expect to get quicker feedback which when I'm struggling with managing all of this and teaching in other course for a block week. I can't do it. And so that's been the drawback. I've kind of created expectations of a quicker feedback than I've been able to fulfill (Jake, p. 6).

Peter recognised the time demands in his online teaching but felt it important to address his students' needs:

The other thing that can sometimes be frustrating is because there is very direct access for individual students to you as the lecturer, you can sometimes get one or two students that are more demanding and coming to you for questions a lot and its that time aspect...It does take a lot of time, it's quite demanding but to me it's relatively important that people aren't left too long wondering about some particular thing that's worrying them (Peter, p. 19).

The second implication involved student reticence in participating in the online class. Five lecturers commented on how the asynchronous communication in their online classes (i.e. permanence of online messages, textual based) resulted in their students feeling shy or overwhelmed about participating in class, resulting in their *hiding* or *lurking* or are difficult to engage with to the extent of withdrawing from the course at times. Ralph explained his frustration with losing students in his online class:

My most frustrating bit from just teaching my classes, when I lose a student off-line, I can't actually do anything about it. They're not putting any work in, they're not responding to my messages, they're not coming into class discussions (Ralph, p. 22).

Laura was disappointed with the students who did not participate:

I notice with my Masters class last year and this year that there are a number of students who like to "hide". I think the postgrad students who haven't come through that, they treat the online work almost as correspondence course. They can move at their own pace or not at all if they don't want to do it. I find it particularly disappointing the number of students who are getting out there (Laura, p. 2).

Students' Perspective

Students' concerns regarding the Web-based technology's constraints include their experiencing a sense of isolation, lack of support when technical failures occur, and the impersonal nature of communicating online. Eight survey responses and six interviewees reported feeling an acute sense of isolation and loneliness as they missed having personal contact with peers and their lecturer when studying online. Sarah raised this notion of sense of isolation:

I knew it was going to be difficult in some ways and easier in other ways. Difficult in terms of sometimes the feeling of isolation. I like to talk stuff out with people (Sarah, p. 8).

Additionally, seven survey responses and six interviewees highlighted the difficulties they experienced when they were not supported when technical failures occurred. Beatrice and two survey responses indicated they felt lost during such times:

It is an absolute DISASTER if something goes wrong with my own computer or with my telephone line or with the server (Beatrice, p. 9).

...When tutors were sick or something else had happened (server down) there was no communication from anyone to let us know why they weren't online. So it felt like I was out on a limb at times or the tutors didn't care about us.

Another five survey responses and six interviewees reported on how impersonal communicating online can be due to the lack of non-verbal cues which students take for

granted in face-to-face interactions. One survey response commented on the difficulty in building relationships when learning online:

There are times when you wish you were on campus, face-to-face, for more in depth and spontaneous answers to questions...More difficult to build rapport or working interrelationship with others (students/lecturers).

On the other hand, Daniel felt the online contributions were more factual than personal in nature:

The online contributions are personal but can be quite impersonal – more like facts, rather than somebody offering information about themselves. In face-to-face situations [you] can sense emotions, feelings, body language, personalise it (Daniel, p. 5).

Lastly, five interviewees continued on how the lack of important non-verbal cues in communicating can easily result in online misunderstandings and miscommunication. Sarah felt online students had to take care about wording their online contributions to avoid misunderstandings:

I think people who work online have to be very, very careful about the way they word things because everything is very subjective online. You can't see their face, you don't know what they were thinking, they can't explain themselves any further than what they've put online (Sarah, p. 4).

Julie reported how she had to be careful not to take offence:

You have to analyse what they've written and say, 'Oh, no, I shouldn't take offence, it was not meant to be like that. Have to think a lot more about the words'. That's all you can go on (Julie, p. 4).

Beatrice highlighted how this could be a problem for students from different cultural backgrounds:

...be careful in balancing tone and message when presenting to other people, written words are easily misconstrued, difficult [to understand] for people from other cultures (Beatrice, p. 8).

This section highlighted how the constraints of the Web-based technology can impact the teaching-learning in an online class. Factors such as technical failures, impersonal

communication style, asynchronous manner of communicating and the lack of technical support hinder the development of a learning community by causing a communication breakdown. The resultant costs of this are lecturer and student frustration, and either lecturer or student disappearance from the class and student withdrawal from the course. Although benefits to online learning clearly exist, it was important to be aware of the constraints and to find ways to circumvent their effects.

This section answers the first research question by detailing the themes related to the nature of online learning in this research's context. The following section addresses the next research question regarding facilitating students' learning in the online environment.

6.3 Facilitating Students' Learning in the Online Learning Environment

This section answers the research question: How can students' learning be facilitated in the online learning environment? Appendices 5.13 and 5.14 show the themes and categories derived from the data from lecturers' and students' perspectives. Four key themes emerged from the data. They refer to the various roles and their related strategies adopted by online lecturers: pedagogical, managerial, social and technological roles. Both the lecturers' and students' data consistently confirmed the importance of these themes as:

- An online lecturer's pedagogical role (Section 6.3.1);
- An online lecturer's managerial role (Section 6.3.2);
- An online lecturer's social role (Section 6.3.3); and,
- An online lecturer's technological role (Section 6.3.4).

Each of these themes is detailed next.

6.3.1 Lecturers' Pedagogical Role

Lecturers' Perspective

In order to facilitate students' learning, lecturers were concerned chiefly with playing a pedagogical role in their online classes. This role is demonstrated through the following six related strategies ranked according to the frequency of responses:

- Lecturer holding clear philosophy of teaching-learning (raised by 10 lecturers);
- Lecturer approachability (raised by 9 lecturers);
- Lecturer developing good facilitating skill (raised by eight lecturers);

- Regular lecturer presence (raised by eight lecturers);
- Lecturer considering the medium in teaching (raised by six lecturers); and,
- Lecturer being a co-participant/learner and listener (raised by six lecturers).

Table 6.7 describes these strategies and provides a description of specific examples raised as well as the quotes illustrating each example.

Table 6.7

Lecturers' Perception of Useful Pedagogical Strategies

Strategies	Descriptions	Illustrative Quotes
Clear philosophy of teaching and learning	Online lecturers need very clear views of teaching and learning before translating them into their practice. This is more crucial than in face-to-face classes.	<i>I think that we have to pay attention to our immediate understandings of what learning is and the ideas of people like, like the Social Constructivists and Sociocultural theorists and the ideas of Communities of inquiry and this [the online medium] is just a facilitator of developing a community of inquiry and if you have that developed then learning will occur (Gerard, p. 21).</i>
	- It is important to hold non-technocratic views in teaching.	<i>It is important to think of technology as just the pathway in asynchronous distance learning... These are all high jumps to pedagogy but key is still pedagogy...I think there's a real danger in that because if you focus on technology, software hardware, those things will be out of date next semester or next year. Good quality teaching pedagogy and practice is much more ongoing and enduring for us (Nola, p. 14).</i>
	- Online lecturers also caution against a 'one size fits all' assumption in designing their class, i.e. there is no recipe for teaching online.	<i>...there is no recipe for online teaching. There is no right way, just like there is no right way for doing it on campus face-to-face and one of the things we have to do is to be able to examine our own practice, to be familiar with the literature about online and understand the pedagogy and the practices that you have and the strengths you bring to it and how you might build on these to teach effectively online (Nola, p. 14).</i>
Lecturer approachability	This is exemplified by lecturer willingness to consider students' perspectives, giving students choices in learning, valuing their online contributions,	<i>I think one of the key practices is that you are not teaching to a computer, you are actually teaching people and they're all individual and they're all going to have their own needs, likes and dislikes and you have to get to know them...get to know what are the things that are important to them, so that I can again direct the course (Lesley, p. 10).</i>

giving them time to be comfortable in the class, respecting students and responding to them in a reasonable timeframe.

I have been contacting people to say positive things like good to see that you have been contributing and thank you for your contribution, and I have enjoyed the ideas that you bring along to this discussion, and the background experiences and things like that (Basil, p. 6).

I try to step into the student shoes and see what would it be like for them looking in to find what's on their desktop and how can I make my thought processes transparent to them so they don't have problems with the site. They can get in and understand what is required of them, when it's required and how they might be expected to work within that sort of framework that I've determined (Marge, p. 3).

Lecturer's facilitative skill
Lecturer facilitation to guide the interactions and discussions is crucial to engaging students in the learning process. There is a need to be aware of and understand the dynamics in an online discussion. Appropriate teaching practices are called for at each stage of the discussion, i.e. the start of an online

At the start of the online discussion

discussion, the middle of the discussion and the closure of a discussion

The lecturer plays a more active role in introducing ideas, questions, personalising course readings, using course resources that are personal and relevant to students' learning (eg. scenarios and open ended cases), using appropriate triggers for discussions, promoting socialisation among students

If we look at the whole course to start off with and eight topics, number one has to be a starter, so that you engage the audience. So you have to have a topic that is relevant and timely, that you know that they will all be able to respond to. So if it is a course about distance learning you say "what is the response when you say to people I'm an online student?" and you know that everyone will have an answer to that because they will have told at least one person that they are doing a course online. So that way you are engaging them (Nola, p. 7),

and encouraging students to make their first online contribution;

Middle of the online discussion

Lecturer playing a monitoring role in following and sustaining the threads of discussions, stimulating further student online participation in discussions, modelling appropriate “wait time” to allow students to have their say before jumping into discussion, providing just-in-time resources where needed

It's a bit like marking the roll, but you just watch for a pattern and, of course, a pattern which says absent, absent, absent, why is this happening and so on. But you can say I haven't heard from so and so you know, Elaine you haven't been into the forum for a while, what do you think about this? I suppose it's a way of shaming (shame) people. But you know there are a number of strategies (Ralph, p. 6).

I evaluated an online programme for another institution and they have two staff in it and what I noticed was every time a student said something in discussion, one of the staff would come in, then another student would say something and another staff member would come in, so it was going student/staff/student/staff/student/staff and completely shut the discussion down 'cause the student's were too damn scared to say anything because they knew they would get leapt on by a staff member. That's where understanding the dynamics of the discussion online means you have to be following it very carefully (Nola, p. 9).

That's where the teaching and learning comes in, knowing what to pick up, knowing what out of their conversation is significant that I should be responding back to or trying to make a link of what somebody else has said. It's that knowledge about the things that they are saying in terms of content and linking those together and drawing them together and referring them to other readings...that's the important part of teaching (Basil, p. 11).

End of the online discussion

Lecturer playing a less dominant role in summarising the key ideas from the module/readings and helping students to bring closure to the discussion

It is the end of the semester. So I have to find a way of getting closure and moving them on past the end of the course, so you come up with an initial question starter that's "as a result of some of the things you have discovered in this course, what might you do differently in the next three months?" So then they will say "well I discovered such and such so I am going to da de da" and they actually move themselves on (Nola, p. 8).

I tend to summarise their contributions and pull out their points and make it their document, their living document that they've sort of conveyed. I don't believe writing the last word and saying that the most important theoretical points that some of you guys came up with were

this, this and this, like I'm the expert, no I try to draw it out of what they said (Gerard, p. 16).

Regular presence to provide feedback and help	Regular lecturer presence in monitoring, facilitating, and modelling course expectations is crucial in the online class.	<i>So to me that's absolutely critical, treating them and their questions seriously and actually giving them worthwhile responses. So that does mean regularly being online...I know some people do it, they say well I'll be here on Tuesday, and I'll be there on Thursday but that's a long time to wait if you put a question on a Thursday evening until the Tuesday and if it impedes what you're trying to do then it's a lot time to wait for a response and so its critical to actually treat them seriously as having meet the requirements like everybody else (Marge, p. 7).</i>
Consider the medium in teaching practice	Lecturers need to consider which course activities are better conducted for face-to-face versus online components of their course.	<i>What we've tried to do is to figure out what are the things that are best for face-to-face and the things that can be taught online. As that has worked out, the practice of building conversations need to be taught face-to-face, doing the readings and the processing of the readings can be done online, and certain other kinds of tasks people can do online as well. It is a combination (Jake, p. 2).</i>
	There is also a caution against repeating face-to-face practice in online teaching (eg. 'shovelware', dominating discussions, putting up powerpoint slides, using abstract discussion questions, lack of facilitation of discussions)	<i>We're all new at the game and we all evolve in how we go about teaching because when we did start we were very much shovelware sort of people. We almost transcribed our on-campus lectures and put them up there on the computer for people to sit and read our lectures but as time has gone by, we've found that, that isn't very effective (Basil, p. 5).</i>
Being a participant and a listener in the class	Lecturers need to be willing to be a participant/co-learner/listener in the class in favour of a less hierarchical relationship with students	<i>A lot of the people that are very good classroom face to face teachers can't make that transition. By classroom teachers I mean facilitating good class discussion but there is a number who actually find that quite difficult face to face who are very, very good at it online and they are often people who are a little bit more quieter, reticent, more of a thinker. Whereas people who are used to asynchronous face-to-face model tend to speak up every time they want to say something in the class. Online they would control themselves and giving up issues of power and control and being the fount and source of all knowledge...I am a participant in the interaction in the class but I am also the teacher who is adding my knowledge, my</i>

experience my wisdom or whatever and also got very clear aims and objectives (Nola, p. 10).

Students' Perspective

Students' findings also highlight the importance of a lecturer's role in online learning environments. Table 6.8 shows students' perception of the usefulness of different pedagogical strategies in encouraging online participation. The top five strategies were using a more informal tone in the class interactions (M=4.66, s.d.=0.55), posing questions or issues for discussions that reflect key aspects of the paper readings (M=4.37, s.d.=0.79), summarising key issues at the end of each online discussion (M=4.22, s.d.=1.09), lecturer continuing to post online even when students do not do so (M=4.09, s.d.=0.90), and, giving students a scenario or a case to complete online (M=4.04, s.d.=0.95). In contrast, students found discussion topics unrelated to assessments useless to them (M=3.90, s.d.=0.77). Hence, the idea of relevancy and appropriateness of teaching strategies to assessment requirements is highlighted here.

Table 6.8

Students' Perception of the Usefulness of Strategies by a Lecturer's Pedagogical Role to Their Learning

Statements	Responses						
	NUA	NU	Unc.	U	VU	M	s.d.
Online paper interactions that are less formal (n=29) ^a			1 (3%)	8 (28%)	20 (69%)	4.66	0.55
Lecturer poses some questions or issues for discussion that reflect key aspects of the topic/readings (n=27) ^b		1 (4%)	2 (7%)	10 (37%)	14 (52%)	4.37	0.79
Lecturer summarises the key issues at the end of each online discussion module (n=23) ^c		3 (13%)	2 (9%)	5 (22%)	13 (57%)	4.22	1.09
Lecturer continues to put up online postings even when students do not participate (n=23) ^c		1 (4%)	5 (22%)	8 (35%)	9 (39%)	4.09	0.90
Lecturer provides a scenario/ case which students had to complete through online		2 (8%)	4 (17%)	9 (38%)	9 (38%)	4.04	0.95

discussion (n=24)^d

Online discussions topics that are not related to the paper assessment but give a general overview of the subject area (n=29) ^a	3 (10%)	1 (3%)	21 (72%)	4 (14%)	3.90	0.77
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Note. NUA=Not Useful at All (1), NU=Not Useful (2), Unc.=Uncertain (3), U=Useful (4), VU=Very Useful (5), M=mean, s.d.= Standard Deviation. Responses from the NUA and NU scales are grouped as negative responses while responses from the U and VU scales are grouped as positive responses.

^a denotes 8 missing cases. ^b denotes 11 missing cases. ^c denotes 14 missing cases. ^d denotes 13 missing cases.

Data from the interviews support the online lecturer's pedagogical role including the relevant strategies associated with that role. Two survey responses and four interviewees report on the crucial importance of lecturers' ability to facilitate and guide online class interactions and discussions in order to engage students in community building and the learning process. Kara and Sarah affirmed the lecturer's facilitative skills:

And the lecturers, because they are always feeding in, guiding us, and I felt they were very good in facilitating. They didn't always give the answer but would give a statement, or a hint or a comment that allowed you to veer back on the path that they were wanting you to head in. So they are very much a part of the learning community (Kara, p. 2).

She modelled what she was expecting from us and she was the only tutor who's actually done that (Sarah, p. 2).

When lecturers failed to engage students in interactions and the community building process, students felt disappointed. Rob confirmed this:

The disappointing thing was that the discussions didn't really happen. They [the lecturers] didn't make it a place for experimentation, for learning. That was a bit disappointing (Rob, p. 3).

This pedagogical role is characterised by strategies such as (ranked in the order of frequency of responses received from the open-ended section of the questionnaire and interviews):

- A lecturer's facilitative role evidenced through his or her awareness of the life cycle of a discussion and the appropriate practices that can encourage the formation (raised by 18 survey responses and 10 interviewees), sustenance (raised by eight

interviewees), and finally the closure of the discussion at the end of the course (raised by two interviewees);

- Lecturer giving prompt and constructive feedback to student queries (raised by 10 interviewees);
- Regular lecturer presence to provide feedback and help (raised by eight interviewees); and,
- Lecturer approachability and professional attitude in relating to students (raised by eight interviewees).

Table 6.9 describes these strategies and provides a description of specific examples raised as well as the quotes illustrating each example.

Table 6.9

Students' Perception of Useful Pedagogical Strategies

Strategies	Descriptions	Illustrative Quotes
Using strategies that encourage the formation, sustenance and finally the closure of the discussion: <u>At the start of the online discussion</u>	At the start of a life cycle of an online discussion, the lecturer needs to play a more active role in introducing ideas, questions, personalising course readings, using course resources that are personal and relevant to students' learning (eg. scenarios and open ended cases- mentioned by 10 survey responses), promoting socialisation among students and encouraging students to make their first online contribution.	<i>Be a little more active at the start, particularly if its in the early stages of the programme that people are in, not exactly reassuring but more to saying that, 'This will be alright, most of you will find this fine (Mary, p. 6).</i>
<u>Middle of the online discussion</u>	Towards the middle of the life cycle of an online discussion, the lecturer	<i>Lecturer wait time in online discussions is important. Lecturer's role is pointing student back to readings, summarizing what people have said(more facilitative and encouraging). Not to give a full statement of the answer, it kills the</i>

plays a monitoring role in following and sustaining the threads of discussions, stimulating further student online participation in discussions (including prodding inactive students to come online), creating a safe environment for students to participate in class, modelling appropriate “wait time” to allow students to have their say before jumping into discussion, and providing just-in-time resources where needed.

discussion, students feel what’s the point of discussing, when it looks like the discussion is finished. At this level of paper, because of the level of students, the lecturers need to take a bit more of a backseat, and be encouraging and directing a bit instead of going in there and giving answers because that’s not what the discussion is about (Rob, p. 5).

thought lecturers were very good in making connections from one contribution to another, tying together like a ‘spider web’, spinning a web of learning (Kara, p. 8).

End of the online discussion

Toward the end of a discussion, the lecturer needs to play a less dominant role in summarising the key ideas from the module/readings and helping students to bring closure to the discussion

At the end of each module,[the] lecturer will sign off at the end by going over key points raised and other ideas that students could have looked into...good to wrap up module (Daniel, p. 6).

Giving prompt and constructive feedback to student queries

Students appreciated lecturers who gave them prompt feedback/answers to their questions. This included prompt and constructive feedback on their assignments.

Getting assignments back with hardly any comments on and getting them late etc...wasn’t helpful...When you are online, you don’t come into class, you don’t see the lecturers, you feel like I need the post to come and it doesn’t come and you’re feeling isolated. For online students, they need to feel that things are timely and they come back quickly to help you get on with things (Rob, p. 3).

Providing regular lecturer presence to provide

Students note that regular teacher presence in

I think it’s really important that the tutor is available for the online discussions more regularly...because quite often the conversations

feedback and help	monitoring, facilitating, and modelling course expectations is crucial in the online class.	<p><i>can get quite lost. Sort of like the blind leading the blind. And I know that there is learning that can be involved in that but it would be helpful to have some direction more often” (Yanni, p. 3).</i></p> <p><i>She always gave us ample time to question her, ample time for clarification and probably of all our tutors, she was probably the most accessible. The one whom we felt like we could approach more....just by frequently going into ClassForum, like almost daily to pop in and she would always answer queries and she was very prompt with e-mails and stuff like that (Sarah, p. 2).</i></p>
Lecturer approachability and professionalism with students	<p>This is exemplified through the lecturer being friendly, welcoming, interested in students’ success, accessible, collegial, supportive, reasonable, flexible at times, inclusive of students’ different learning styles and cultural backgrounds. Importantly, lecturers need to avoid hierarchical relationships in relating to students.</p>	<p><i>the tutors were welcoming, friendly, not stand offish (not teacher-directed). When you met them, it was always first name basis, not Mr ... or ... For me it was really important that these tutors had some interest in my learning and my being successful. Because if I’d felt like they didn’t care, then what’s the point of doing the course (Leslie, p. 8).</i></p> <p><i>A lot of us were having problems interpreting what was required for a particular assignment and there were several queries put online. The tutor came back with a response that said, ‘I am only available on such and such a day, and any inquiries out of this time will not be responded to for the rest of the week’. The way it came across made us seem like we were being very bothersome and naughty little children for hassling her, when really all we wanted was clarification... If you’re really struggling with an assignment and you feel like giving up and then you go online because you’ve asked a question and you get a response like that, you feel like throwing it in (Sarah, p. 5).</i></p>

This section has described the importance of the online lecturer’s pedagogical role in facilitating students’ learning and its related strategies such as lecturers holding very clear views of teaching and learning in order to translate these views into practice, their considering the affordances of the online medium which they can take advantage of support learning, their developing facilitation skills appropriate for each stage of the dynamics in an online discussion and their general strategies such as regular teaching presence, giving prompt and clear feedback to students, practicing good *wait time* and so forth. The next theme is discussed below.

6.3.2 Lecturers' Managerial Role

Lecturers' Perspective

The second theme highlighted was an online lecturer's managerial role showing the ability to plan, structure and organise and manage the course. This ability is deemed more crucial to the success of an online class compared to a face-to-face class. Such managerial capability is exemplified through nine specific strategies whose defining characteristics and examples of illustrative quotes are ranked in the following order of frequency of responses:

- Lecturer establishing a clear course layout and structure. For example by setting up appropriate online folders to organise information (raised by seven lecturers), having a minimal level of information flow for students ease of access (raised by six lecturers) and providing a clear picture for students to follow (raised by five lecturers);
- Lecturer having clear course planning strategies. For example, lecturers' organising and planning carefully for their course (raised by six lecturers), and stating their expectations and instructions clearly for students (raised by four lecturers);
- Lecturer allowing student feedback (mentioned by 9 lecturers);
- Lecturer assessing online student participation (reported by eight lecturers);
- Lecturer having smaller formative course assessments (raised by seven lecturers);
- Lecturer encouraging collaboration in student grouping (reported by seven lecturers);
- Lecturer ensuring coherent links between course components (commented by six lecturers);
- Lecturer structuring a modular course organisation according to themes (reported by six lecturers); and,
- Lecturer regularly updating the course (highlighted by four lecturers).

Table 6.10 details each strategy by describing specific practices and provides examples of illustrative quotes.

Table 6.10

Lecturers' Perception of Useful Course Management Strategies

Strategies	Descriptions	Illustrative Quotes
Establishing a clear course layout and structure	<p>Lecturers need to structure their online classes very clearly in a user-friendly online screen layout for students to follow.</p> <p>Strategies used include:</p> <ul style="list-style-type: none"> - set up appropriate folders to organise information - have minimal levels of information for ease of access, - provide a clear picture for students to follow 	<p><i>Whereas in the online environment, I find you've got to be a lot more structured and thoughtful about that then, you have to do more pre-planning, more thinking ahead on that than you do in the face-to-face environment...it's definitely a more structured approach here, but... to keep as open ended as possible too but highly structured (Peter, p. 19)</i></p> <p><i>I ensure that there is an Introduction or tell-me-about or whatever sort of folder so that they can ask questions of each other if they want to, to get to know each other a bit more (Marge, p. 5).</i></p> <p><i>I have criteria for the number of levels at which information should be buried (Nola, p. 6)</i></p> <p><i>I believe that when people come in to my online classroom, they should have a very clear picture of, just like you would walk in to a regular classroom and say "oh there's the notice board, oh my gosh there's a filing cabinet with a lot of resources, there's the teacher's area, there's the this, that or the other"... we are familiar with those environments (Nola, p. 6).</i></p>
Clear course planning	<p>Online course planning and preparation requires that:</p> <ul style="list-style-type: none"> - Lecturers need to be very organised and plan very carefully for their course - Lecturers have to be very clear in their expectations and instructions for students. 	<p><i>Yeah you can't wing it... sometimes in terms of my teaching I usually try to be prepared and you know I can go with the general concept of what I'm wanting to discuss or talk about, but I can go with the flow and I can see what the group's doing... You can't do that on this online medium. You just can't do that (Lesley, p. 5).</i></p> <p><i>Accept that you do have to be much more structured and very, very clear in what you say in an online situation because you only get one go at saying it...well you can, but it's going to take an awful lot of time every time you have to re-explain it, 2 or 3 different times. So I think you have to be very, very crisp and clear in what you say in an online environment (Peter, p. 18).</i></p>
Allowing for student feedback	<p>Online lecturers need to listen carefully to student feedback to improve on their course,</p>	<p><i>I think students should have choices and I always put in if you want discussion topics it has to be considered, please let me and we will incorporate that (Marge, p.13).</i></p> <p><i>If there's a point which is proving difficult, I encourage students to talk about it. Both in the Can Anyone</i></p>

	example by incorporating students' input and feedback in their teaching	<i>Help... I also create a space which I call Peter's Online Office so if they don't want to discuss it in the Can Anyone Help, FAQ place, they can come and talk to me one to one (Peter, p. 16).</i>
Assessing online student participation	Lecturers need to give incentives for students to participate in the online discussion (eg. by assessing their online participation, etc.).	<i>Online learning will only work, or people will only take advantage of online learning media, if there is a kind of a pay off or purpose to what is going on. And again this requires a strong participation, and preferably a participation within a community of other learners.... whatever they are doing on the Net has a kind of a purpose...unfortunately the purpose ultimately for students boils down to assessment, very much so (Gerard, p. 4).</i> <i>I've also had certain kinds of elements of assessment of the discussions, of people's participation in the discussion and my reason for doing that has been, I don't want people to feel like these discussions... they are not getting some kind of reward in terms of the course. So I've had like a 15% grade for participation in the discussion (Jake, p. 8).</i>
Having formative assessments	smaller course structure online class assessment to have more formative or smaller assignments throughout the term to ensure students are following the course.	<i>I've tried to make the assessment task smaller usually with one large assignment and with smaller ones. The larger assignment is like a conventional university essay but what online learning has also made possible are smaller pieces of assessment that can be completed more quickly, sent more quickly, returned more quickly and, therefore, students get a quicker sense of their progress in the course in smaller chunks (Jake, p. 6).</i> <i>I think that it's important that assessment tasks are manageable that they are... frequent enough to allow the material to be relevant in that way (Ralph, p. 17).</i>
Encouraging collaboration in student grouping	Online lecturers need to group students for online discussion in appropriate numbers and composition based on their gender or interest or geographic location to encourage their sharing of experiences in the discussions. Such group dynamics, however, requires a minimum number of students enrolled in a course to	<i>The size of the group is very important and I know from my own research about 10 to 12 is max...How are you going to select them – gender, age, geographical location, teaching experience. You need to think about all those sorts of things (Nola, p. 8).</i> <i>You need reasonably small groups so that people can have interaction, where they can't really hide (Ralph, p. 3).</i> <i>...when I had a larger number, because they were feeding off each other, they weren't relying on me as the course co-ordinator to feed in (Lesley, p. 5).</i>

	generate the necessary constructive level of discussion.	
Ensuring coherent links between course components	Online lecturers need to link and balance the course components, i.e. the course readings, discussions, and assessments, coherently and purposively to enable students to see the “big picture” and relevance of participating in the course.	<p><i>The discussion topics have to relate to what the student is likely to be working on at that particular time. They don't want to go and talk about the cost of fish at the fish market if that's got nothing to do with the course. It has to be exactly what they'll be working on...., so that that broadens their perspective and their answer is far better in the course work because of that discussion (Nola, p. 7).</i></p> <p><i>You have to be prepared to, I think, think about things in a different sort of a way so that the components are coherent. So that your technology, your reading and your practical work actually do fit together coherently (Marge, p. 11).</i></p>
Structuring a course modularly organised according to themes	Lecturer needs to organise their online course into modules with specific content themes.	<p><i>If, for example, you are planning your course and you have four modules of work in the course, because that is how you have decided to structure it in a modular structure which students do seem to like (Nola, p. 7).</i></p> <p><i>You get a manageable number of modules in that they are reasonably well-shaped and structured so that they've got their own internal logic... people can see what they're doing in this module for and where it's leading, where it's going. I think that's an important consideration (Peter, p. 2).</i></p>
Regularly updating the course	It is important for lecturer's to update their course regularly throughout the term or at the end of the term to be prepared for the next term .	<p><i>If I have taught the course before, while I am teaching it, I am always updating it for the next time. So that when I finish semester A's course if I am teaching it in semester B, it is ready to go at the end of semester A because I have updated it the whole time as I go (Nola, p. 5).</i></p> <p><i>One of the things I always do is try to try something new each time I teach. I mean that is my bottom line. If I just sort of throw in the same thing for another year I kind of feel like well it's a wasted year of possible adventure in a sense. It has only got to be a little modification. Same with my on-campus papers as well (Gerard, p. 10).</i></p>

Students' Perspective

The top five aspects related to a lecturers' managerial role as perceived by students included allowing students to submit their assignments online (M=4.67, s.d.=0.48), specifying clear assignment deadlines (M=4.47, s.d.=0.79), displaying clear grading criteria for class work

(M=4.47, s.d.=0.67), providing a facility for individualised student feedback (M=4.42, s.d.=0.85), and specifying clearly readings and resources that can be accessed by students (M=4.41, s.d.=0.89) (see Table 6.11).

Table 6.11

Students' Perception of the Usefulness of Strategies by of a Lecturer's Managerial Role to Their Learning

Statements	Responses						s.d.
	NUA	NU	Unc.	U	VU	M	
Submitting my assignment online to the lecturer (n=27) ^a				9 (33%)	18 (67%)	4.67	0.48
Clear assignment deadlines (n=34) ^b		2 (6%)		12 (35%)	20 (59%)	4.47	0.79
Clear grading criteria (n=32) ^c	1 (3%)			14 (44%)	17 (53%)	4.47	0.67
Individualised feedback from the lecturer (n=31) ^d		2 (7%)	1 (3%)	10 (32%)	18 (58%)	4.42	0.85
Clear paper readings / resources specified (n=34) ^b	1 (3%)	1 (3%)		13 (38%)	19 (56%)	4.41	0.89

Note. NUA=Not Useful at All (1), NU=Not Useful (2), Unc.=Uncertain (3), U=Useful (4), VU=Very Useful (5), M=mean, s.d.= Standard Deviation. Responses from the NUA and NU scales are grouped as negative responses while responses from the U and VU scales are grouped as positive responses.

^a denotes 10 missing cases. ^b denotes 3 missing cases. ^c denotes 5 missing cases. ^d denotes 6 missing cases. ^e denotes 17 missing cases.

The interview data highly corroborates the important managerial role of the online lecturer. At least six survey responses and four interviewees referred to lecturers' capabilities such as planning, structuring and organising the online course. This capability is considered crucial in an online learning environment more so than in a face-to-face classroom as mentioned by a survey response highlighting frustration over an online lecturer's poor managerial skills:

...Infrequent input from lecturers and poorly organised folders. Sometimes work not being posted until the semester [was] part way through.

This crucial managerial capability required of an online lecturer is exemplified through eight specific strategies. Based on the interview data, these strategies, their defining characteristics

and examples of illustrative quotes are ranked according to the frequency of responses reported:

- Lecturer establishing a clear course layout and structure (raised by 12 interviewees);
- Lecturer including a supplementary face-to-face session in their online courses (mentioned by 11 interviewees);
- Lecturer ensuring coherent links between course components (reported by eight interviewees);
- Lecturer balancing course activities to obtain a realistic workload (reported by seven interviewees);
- Lecturer encouraging collaboration in student grouping (reported by seven interviewees);
- Lecturer considering student interests and input (raised by six interviewees);
- Lecturer assessment of students' online participation (raised by five interviewees); and,
- Lecturer structuring a course modularly according to themes (raised by three interviewees).

Table 6.12 gives a further description of each of these strategies and their illustrative quote.

Table 6.12

Students' Perception of Useful Managerial Strategies

Strategies	Descriptions	Illustrative Quotes
Establishing a clear course layout and structure	This included strategies such as specifying paper expectations, paper readings, the criteria for assessment and the number of assignments involved, deadlines for coursework (ensure paper instructions are not changed halfway through the course), online discussion areas and folders that are all arranged in a user-friendly online screen layout.	<i>The most useful thing I found that was the way the lecturer laid out on screen what we were suppose to view... before students started the paper, everything was there clearly outlined. What they need to see, what they should be seeing whether the same as the lecturer's screen – simple but effective course management skill (Jezebel, p. 2).</i> <i>It drives you crazy when you've got to click about 7 different places just to get to something...apparently everything is supposed to be 3 clicks away....like in this paper, the folders were all out of sequence. So it didn't go 1, 2, 3,4,5,6, it went 1, 4, 3, 5; it was all higgledy piggedly (Sarah, p. 6).</i>

Including supplementary face-to-face session	<p>a This refers to lecturers' planning for having a face-to-face session early in the semester as a supplementary meeting to the online class to enable students to meet with the lecturer and their peers.</p> <p>Such sessions helped to:</p> <ul style="list-style-type: none"> • clarify course requirements • personalise the online class interactions, and, • gave students opportunities to gain practical skills (eg. Lab work) from their paper. 	<p><i>...on-campus sessions are very important to us because we are very isolated (Aida, p. 5).</i></p> <p><i>I personally found the on-campus sessions helped as well, so we spent 3 times an hour and a half over the course of the week with the lecturer ...helps you get to know the lecturer, get to know how they speak. Even though you are talking online, it still helps with the tone of things (Jezebel, p. 3).</i></p>
Ensuring coherent links between course components	<p>This refers to the lecturer's ability in linking the course components, i.e. readings, online discussions, and assessments, to enable students to see the "big picture" and relevance of participating in the paper</p>	<p><i>Spend more time looking at the integration of assessments, the readings, and the discussions, so initial reading, the initial discussion, initial assignment are all one group, so it's all coming to one purpose in the assignment, and the second one the same. Otherwise you are doing the reading about something, you're thinking, 'Oh this is not helping me do my assignment so why am I doing the readings?' You can't see why it fits into the big picture... Let's face it everything is linked to the assignment, the assessment. In the end what matters is, people getting good grades for later on (Rob, p. 5).</i></p>
Balancing course activities to obtain a realistic workload	<p>Lecturer's ability in structuring a balance in course activities (for example, between face-to-face activities and online activities as well as allowing students space to conduct informal chats as well purely academic discussion in the online course). These activities</p>	<p><i>I felt the workload was unrealistic for me and for most people that I've spoken to. I was spending so much time reading that I couldn't get on to the Web and when I got on to the Web, other people had made a large number of contributions, so then that took a great amount of time to read those and to think about them. On top of that you have written assignments and then you have major assignments as well. As well as attending your intensives [face-to-face sessions]. So there's a lot of work to be done over a semester, very, very intensive (Yanni, p. 2).</i></p> <p><i>Anything that we can do at home should be left for us to do at home. The stuff that we can't do or see at home should be done on-campus...it's a terrible waste of time (Sarah, p. 7).</i></p>

	are conducted within a realistic division of course workload.	
Encouraging collaboration in student grouping	This refers to grouping students for online discussion according to their ability to encourage their sharing of experiences and discussion. Such active group dynamics however requires a minimum number of students enrolled in a course to generate helpful discussions.	<p><i>Almost all the tutors encouraged you to be part of the group, socialise as part of the group and they need to....they did encourage you to participate more in group online discussions (Aida, p. 3/4).</i></p> <p><i>If you had a ClassForum that was more horizontally [inclined] they [peers] could do that for you and the tutor would not have to be burdened by the class dynamics more and can spend less but more quality time looking at the portfolios (Beatrice, p. 7).</i></p>
Considering student interests and input when conducting the course	This refers to giving student choices to choose / participate in course components such as choice of online discussion topics, assignments or formation of online group discussions	<i>Investigate what each student's expectations are early in the course because they are so different... The ClassForum which we could select a topic that we wish to discuss with our course members like, "Should grammar be taught?" we had to get our topic approve by [the lecturer] then he would post it and we could then contribute. I like that part of the course best (Beatrice, p. 3)</i>
Assessment of online student participation	Online lecturer's need to consider giving incentives to students' to participate online (with clear assessment criteria specified) to encourage student-peer contributions	<i>I tell you the thing that would change that [lurkers] is if the contributions were given a grading. Because in all the other online learning in the other Masters papers that I've done, the online contributions contributed to the 15-20% of the paper's marks. That will make people do it. The nature of the beast as humans is to get the marks that you can (Kara, p. 6).</i>
Structuring a course modularly organised according to themes	Online lecturers need to organise their online paper according to modules with specific content themes	<i>[They] were set up in modules. Each module was 2 weeks long. Within each module, [we]had online discussions, eg., case study, online lecture with questions to discuss. Students discussed 2 to3 key points raised (Daniel, p. 3).</i>

Both the lecturers and students underscored the online lecturer's managerial role in facilitating students' learning online. This is in terms of the online lecturer planning meticulously for the course, keeping the course modularly structured and thematically organised, structuring a very clear course layout, ensuring coherent links between all course components, balancing the course activities so that students are not overburdened, allowing for student feedback, having assessments that are formative and that will entice student participation in the discussions, and structuring the discussion grouping to maximise students' sharing of ideas. The third theme is discussed below.

6.3.3 Lecturers' Social Role

Lecturers' Perspective

The online lecturers' social role is perceived through two strategies: provision of clear guidelines/ expectation for students' online contributions, and, explicitly teaching and modelling good online communication practices. Both were important to establish a friendly tone and a welcoming class environment.

Providing a clear criteria and expectations for students' online participation and contribution was important to encourage student participation. Nine lecturers gave examples such as expectations regarding the frequency of student participation, how students are to participate (e.g. the need to communicate well, limiting the size of a contribution, checking for spelling errors etc.), how to contact the lecturer, and stipulations for when students are not participating online. Peter discussed the importance of having clear criteria for student participation and gave examples of how student can use other resources to support their thoughts:

I give them criteria for what their discussions need to be like. And then they know that they're going to be assessed for that. So that places much higher value on that than if I'd said all the marks in this course just come from the formal assessments. I'm actually saying, no, they don't just come from the formal assessment, they also come from the way that you engage with and do your work on the module as you go through...You'll notice that in my criteria that when you are supporting your arguments, you can support them from the literature, you can support them from research, you can support them from what you've read in the textbook, you can support them from what you've heard from the lecturers but I also like you to reflect on your own experience in life and living and experience and teaching and to bring that in (Peter, p. 11).

Other strategies such as modelling a welcoming and friendly tone in the class discussions were important in Marge's class:

some of the language that we use is very important and that may sound stupid but sometimes just getting something so that its as you're talking not as you, not lecturing so sometimes when it can be very informal and there are other times when formality is better required (Marge, p. 12).

For Ralph, the inclusion of emotions and language style was important:

I guess one of the strategies is humour or compassion, language (Ralph, p. 7).

Five lecturers went further to explicitly teach, model and provide resources and examples of good online communication practices to the students. By modelling and giving examples, students are hoped to engage one another in a more constructive manner. For example, Peter taught his students ways to convey their ideas:

So I teach them some of those things, what they actually say, like, "I like the way that you...but could it be that we should...", or "I disagree with this because...". So we have a number of questions, certain questions and statements we can use to discuss different views on the ideas raised, in a respectful way. Then we sort of have a couple of inquiries in which I try to get in every now and then to make sure that I'm using some of those things. They actually get to see how it works (Peter, p. 6).

While Marge gave her students readings on good communication:

...making sure that in the readings that there is a couple of articles about communication ...And so that's one thing that I do and then I can put a discussion in that what do you think about this idea, so I do that (Marge, p. 13).

Finally, Basil reminded his students to use proper language conventions in order to communicate well online:

I've always been reasonably hot on things like grammar and spelling and punctuation and those sorts of things. Especially at the beginning you'll get students who often post messages where they haven't taken care to spell correctly and things like that. I've gone into their portfolio and posted a message and said you know it's not acceptable. Another one I used was, I copied their posting and marked it, went through it and

marked it, highlighted the grammar and the spelling and then put it back in their own portfolio with a little message that said, “you posted this, look at all the errors in it, you must have been in a hurry. I think you need to go back in and make sure that you’re careful with that, because you know that’s the level we are operating at, we’re not operating at the scribble and post. We’re taking care to communicate well (Basil, p. 14).

Students’ Perspective

For the students, an online lecturer’s social role is observed through his or her knowledge of *netiquette* or appropriate online communication protocol, and the provision of guidelines for students’ online contributions. These were important elements to set the tone and atmosphere in the class.

Importantly, the survey responses alluded to lecturers’ ability to use and model appropriate *netiquette* conventions for students to follow in order to establish the tone and class environment (mentioned by four interviewees). Rob gave negative examples of lecturers giving long intimidating answers and stern warnings in responding to students:

Somebody would put in comment, then one of the lecturers would come back with massive answer and student thought they’d lost from the start what the discussion was about...Even comments by lecturers to get people back in didn’t work, it was almost like a threat. “You should be here discussing”. It was a bit negative (Rob, p. 2).

Another negative example was cited by Yanni when her online tutor had not practised good *netiquette* and used capital letters in responding to students:

...[my] learning style was restricted by tutor attitude...the tutor would use capital letters to emphasise things and kept repeating reminders. Capital letters gave the impression that the tutor was upset with student...[felt] like a ‘computer violence’ type of thing and interfered with student-tutor relationship (Yanni, p. 4).

Students’ knowledge of such conventions was also crucial as it could hinder further their peers from participating if such conventions were not followed. Daniel felt students should restrict the length of their contributions while Jezebel thought students should use some indicators of emotions in their messages:

Discussions can be stilted as people would have put a lot of thinking into what they've said and postings would be like miniature essays. [It would be good to] try to limit length in guidelines eg. 600 words/ A4 sheet length contributions, 2-3 paragraphs and more regular postings (Daniel, p. 7).

some students might use smiley or acronyms such as 'LOL (lots of laugh)' or 'No Harm Intended' to indicate humour (Jezebel, p. 4).

This ability to model netiquette conventions and appropriate ways of conversing online needs to be translated into guidelines for students' online postings to ensure a more efficient, safe, and effective environment for participating in online contributions. Students' input can also be invited to enhance the use of these guidelines (raised by ten interviewees). Some examples of guidelines include limiting the size of online contributions, respecting others in communicating online, limiting usage of capital letters, and so forth. Kara felt the clear guidelines were necessary to maintain a safe environment for her learning:

...make sure guidelines very clear on what contributions look like, eg, no. of words, linking to literature, how to do a contribution, what does it look like, how do I know it is a safe environment, who is going to be looking, etc (Kara, p. 8).

The online lecturer's social role is depicted by strategies such as the provision of guidelines for students' online contributions, practising good *netiquette* conventions and, providing resources and explicitly teaching and modelling good online communication practices. The final theme is discussed below.

6.3.4 Lecturers' Technological Role

Lecturers' Perspective

The online lecturer's technological role is depicted through three strategies: their ability to support their students' adoption of the Web-based technology, their need to have some interest and basic technological skills, and, their knowledge of the online software's capabilities and constraints in order to use them effectively in their teaching.

Eight lecturers felt it was important to support their students' adoption of the Web-based technology. Nola found supporting students technically important for their learning:

Students will say to me “Oh I am going to have to pull out of the course, you know. I hardly can use the computer, I don’t know what I am doing...I’ll say “OK Elsie let’s look at what you can do. You can turn on your computer, you can get online, you can load this...you can leave me a message...that’s 14 steps to that point. What is it that you can’t do” And, of course, there is nothing that she can’t do but being able to value those steps (Nola, p. 5).

While Laura felt being available for students and giving them suggestions to troubleshoot their technical problems important:

Being there for them, try and be as clear as you can in terms of your answers...Making sure that you can be available on the phone if that’s what’s needed in the end actually. Giving them help to enable them to go searching for themselves without holding their hands. Make suggestions, before saying, “I’ll do it for you, or come into my office and we’ll do it together on my screen”(Laura, p. 15).

Secondly, six lecturers also commented on the need for online lecturers to have some interest and basic technological skills in order to teach online and support students’ learning. Basil commented on how his basic interest in computers led to his introduction to online teaching-learning:

I’ve always had an interest in computers and technology. I am not a techno but I have always had that interest in trying things out, being out there, seeing what they can do for us not what I can do for them and things like that... I put my hand up and said yeah, I am interested in giving it a go (Basil, p. 1).

Finally, six other lecturers raised the need to be aware of the Web-based technology’s capabilities in order to use them effectively in their teaching. There is also a need to be aware of technological limitations, especially for students living in rural areas, and make provisions to support these students. For example, Peter used the available technology tools to support his students’ queries:

I set up the FAQ and the Can Anyone Help to cut down the number of times the students come to me directly...I’ve even set up buddy systems in some courses, so that they check it with a buddy first before it comes to me, but if it comes to me, I respond straight away, usually within 10-12 hours anyway (Peter, p. 19).

Marge felt it was important to consider students' technical limitations to ensure students were participating equitably:

I think if you think about things from a learners' perspective you recognise that some of the small communities, their access to technology is pretty unstable, they're not well served by Telecom lines and that sort of thing (Marge, p. 10).

Students' Perspective

Students perceived two specific categories related to this theme: the lecturer's knowledge of the Web-based technology's capabilities and utilising them effectively in his or her teaching, and, his or her ability to guide and support students' adoption of the technology.

The first category (mentioned by ten interviewees) referred to a lecturer's knowledge of how and when to use a particular feature of the Web-based technology to support the teaching-learning in the class. Students reported an appreciation for the use of particular features of the *ClassForum* platform to support their learning, i.e. the use of the online *Portfolios* for private communication with lectures, the use of *Live Chats* to interact with peers and to ask questions, the use of the *Red Flag* indicators to indicate when they have new online messages and so forth. However, lecturers also need to make provisions for technology limitation in cases where students living in rural areas experience limited power supply, or when students face technical difficulties when studying online. For example, Yanni found the use of Chat rooms useful in her learning as it was more informal and student friendly:

Chat room was important for get together[s] and log on at the same time...It was a less formal situation than using the Web for discussion... It was more student-oriented than the discussion on the Web which was question-oriented (Yanni, p. 6).

Jezebel found the *Portfolio* for private communication with the lecturer and the *Red Flags* to flag new contributions important:

... [the] personal portfolio [is a] better mode of communicating rather than e-mail, can see red flags to indicate new contributions (Jezebel, p. 7)

While Aida attested to the technical difficulties faced by students in rural areas:

...in the country, we're affected by weather conditions, electric fencing, those sorts of things so during the day, it was just not on...so when I went on [online] it was just to fulfil a task or to answer a question (Aida, p. 4).

The second category highlights the importance of an online lecturer's ability to use the technology with confidence and to facilitate students' adoption of the technology as well. This was mentioned by five interviewees. Rob cited a negative example of how his lecturer had not used the advantages of the Web-based technology to develop a supportive learning community:

In this paper, feeling quite alone at times. A community of learners was just not there and sometimes only a few students were talking online. I went to a chat session and no other students turned up (Rob, p. 8).

A technological role adopted by an online lecturer involved important strategies such as lecturers' supporting students in their adoption of the Web-based technology in their learning, and utilising the technology's capabilities effectively to support their teaching.

This overall section answers the second research question. In order to facilitate students' learning in online contexts, both lecturers and students confirmed the need for online lecturers to adopt four particular roles – pedagogical, managerial, social, and technological roles, and their related strategies.

6.4 Summary

This chapter reported on the findings from Phase 1 of the online lecturers' and their students' perspectives to answer the first research question. The next chapter attempts to synthesise these findings for the distillation of some general guiding principles for designing a graduate online course for Phase 2 of the research.

Chapter 7

Emergent Guiding Principles for the Intervention

7.0 Introduction

Chapter 6 has described the findings from Phase 1 of the research. In this chapter, Section 7.1 synthesises the Phase 1 findings with the recommendations from the literature on successful online pedagogical strategies, adult learning and the teaching-and-learning of Research Methods courses to establish a general set of guiding principles for Phase 2 of the research. Section 7.2 theorises these guiding principles to identify an appropriate view of learning to guide the development work in Phase 2. It answers the research question, ‘What view(s) of learning can better inform us about the design of successful online teaching and learning practices?’

7.1 Developing the Guiding Principles for the Intervention

In order to develop guiding principles for the intervention in Phase 2, key findings from Phase 1 as well as key recommendations from the literature on useful pedagogical strategies for online teaching-learning and the teaching-and-learning of adults and Research Methods are considered. The key findings from Phase 1 are highlighted first followed by key recommendations from the literature. These are then distilled and integrated to establish guiding principles for developing the intervention in Phase 2.

The key findings from Phase 1 can be summarised in the following seven points:

- Successful online teaching-and-learning experiences involve discussion and sharing of ideas construing learning as a social and interactive process. This is best characterised through the notion of a learning community where emphasis is given to the process of learning instead of just the end-product of learning;
- Foundations for forming the learning community include creating an environment within which its members feel valued, supported and safe to engage with one another’s ideas. This is demonstrated through attributes such as members being considerate, respectful and supportive, sharing ideas to build up the discussions,

learning from one another, striving towards shared goals and feeling equitable in class participation;

- Within an effective learning community, a culture of interacting exists within which participants tap into the expertise of community members and strive towards shared learning goals. Emphasis is given to quality online interactions such as focused professional dialogue, debates and making links between important ideas to benefit learning as framed by the course goals rather than to the number of interactions;
- Active participation in a learning community facilitates learning by supporting and developing students intellectually, socially and emotionally;
- Web-based technology affords time and place independent access to learning opportunities, convenience, flexibility, resources in multiple formats, different forms of communication, and the advantages associated with asynchronous forms of communication. Constraints reported in using the technology include a sense of isolation, frustration with lack of technical support, propensity for miscommunication, and impersonal and delayed forms of communication;
- The transparency of the technology adopted is fundamental to the development of a cohesive learning community and is even of greater importance in online learning environments compared to face-to-face learning situations. Effective strategies, however, need to be considered to compensate for the constraints inherent in the technology that can potentially hinder the community's learning goals and need for interaction; and,
- To take advantage of the affordances of the online technology and the benefits of interactivity within the context of a learning community, four pivotal online lecturer roles and their related strategies must be considered: pedagogical, managerial, social and technological. An online lecturer needs to be able to move between those roles as and when required to support students' learning.

The key recommendations from the literature are highlighted in the following six points:

- Web-based technologies afford access, flexibility, convenience and different forms and formats for communication and learning. The constraints include the impersonal form of communication, isolation, technical failures, lack of student participation and increased workload. The literature on online learning and the teaching of online Research Methods courses highlights the benefits of using tools that encourage social

and emotional cues (e.g. using Photos), and personalise the teaching-learning in the class;

- Web-based technologies' key affordances lie in their communicative and interactive potential. The technology adopted in tertiary education settings has paved the way for views of learning that consider situated, participatory, and social learning practices over traditional learning approaches. These ideas are especially supportive of learning within the context of an OLC;
- An OLC involves interaction and collaboration revolving around particular activities or tasks to develop relationships in support of shared goals. There is mutual shaping of individual member's identities and that of the community through different ways of interacting and the relationships that develop to bring about transformation in participation. The OLCs can support and develop its members intellectually, socially and emotionally. The literature on online learning and the teaching of online Research Methods courses highlights the value and use of a learning communities approach to facilitating learning;
- Lecturers and students should re-examine their roles to take advantage of the technology's affordances. Using a roles framework to examine the role adopted by the student or lecturer is useful in understanding the responsibilities, tasks and strategies to be undertaken and allows the lecturer to better plan for the nature of contributions during a lesson or activity. The literature on online learning and the teaching of research methods courses highlights four important lecturer roles and related responsibilities: pedagogical, social, managerial and technological roles;
- The literature on teaching-and-learning of research methods, adult learners and online learning environments increasingly shows the value of using situated, meaningful and relevant real-world tasks and activities to support student learning through collaboration and allows the sharing of multiple perspectives and learning in a more tangible and meaningful manner. Some activities, however, afford better opportunities for learning than others. A lecturer's adoption of a facilitative role to allow students to learn from one another, draw from their past experience and work collaboratively with their peers is particularly supportive of this idea; and,
- The literature on teaching Research Methods courses emphasise clarifying and aligning learning goals to suitable pedagogical strategies and assessment activities besides using formative assessment strategies, and lecturer modelling of their

understanding of research methods to help students see the relevance and allay their misconceptions on the first day of the course.

These key observations from the Phase 1 findings and the general literature can be distilled and integrated into the following five guiding principles:

Guiding Principle 1. Web-based technologies afford and constrain opportunities for teaching-and-learning. Their key affordances lie in their communicative and interactive potential paving the way for more egalitarian approaches to teaching and learning including more student-centred learning strategies. The transparency of the technology adopted is fundamental to successful online learning. Effective strategies need to be adopted to compensate for the constraints inherent in the technology;

Guiding Principle 2. Interaction and collaboration on team products within a safe, inviting environment promotes member trust and respect allowing students and lecturers to take full advantage of the Web-based technology's affordances. Lecturer and student re-examination of their traditional roles in support of a more egalitarian approach to teaching and learning supports this idea;

Guiding Principle 3. Authentic tasks or activities situated in real-world contexts and meaningful to learner needs and interests are important for learning. The careful selection of such tasks or activities can afford social and intellectual interactions in support of collective or shared learning goals;

Guiding Principle 4. Particular types of goals inherent in a learning activity can foster specific kinds of learning interactions and pedagogical strategies within the context of a collaborative learning enterprise; and,

Guiding Principle 5. The development of a learning community is highly valued in the literature as it fosters the development of important interactions and relationships that support and develop its members intellectually, socially and emotionally. Emphasis is given to the process of learning and quality of interactions instead of just the end-product of learning. Developing such a community is fundamentally based on cultivating the social and emotional ties between its members necessary for the mutual shaping of individual member's identities and that of the community in support of communal and individual learning goals and interests. Four key online lecturer roles and their related responsibilities and strategies are instrumental to shape teaching-and-learning in the learning community: pedagogical, social, managerial and technological.






These principles are theorised in the next section in order to adopt a view of learning useful to guiding the rest of the research.

7.2 Characteristics of a Sociocultural View of Learning

The five principles emerging from the distillation of the Phase 1 findings and observations from the literature correspond well with the sociocultural view of learning discussed in Chapter 2. The value of viewing learning from a sociocultural perspective is demonstrated through five ideas: mediated action, distributed cognition, situated activity, goal-directed and participation in the activities of a learning community. The five principles recognise and support each of the five ideas associated with a sociocultural view of learning. Table 7.1 shows how each of the five guiding principles map onto and substantiate each of the five sociocultural ideas. Guiding Principle 1 maps onto the idea of mediated action; Guiding Principle 2 connects with the idea of distributed cognition; Guiding Principle 3 recognises the idea of situated activity; Guiding Principle 4 relates to the idea of goal-directed; and Guiding Principle 5 advocates the idea of participation in a learning community.

Table 7.1

Theorising the Phase 1 Findings and Recommendations from the Literature

Guiding Principle		Sociocultural Ideas
Guiding Principle 1		Mediated Action
Guiding Principle 2		Distributed Cognition
Guiding Principle 3		Situated Activity
Guiding Principle 4		Goal-directed
Guiding Principle 5		Participation in a learning community

The first guiding principle supports a view of learning as mediated action and draws attention to the use of cultural tools and activities. They provide a means for lecturers and students to act upon the world and as a cognitive scaffold to facilitate such action. The affordances of Web-based tools and choice of activities, if appropriately used, provide very rich teaching-

learning opportunities to shape student understandings and the processes involved in developing those understandings.

The second guiding principle underscores a view of learning involving a social and interactive process as embodied in the notion of distributed cognition. As online lecturers and students communicate, interact and collaborate with one another, they access the knowledge, understandings and skills distributed across the group within the affordances and constraints offered by the available Web-based technology and resources. Within this collaborative learning process, intellectual, social and emotional forms of interactions are useful in guiding students towards becoming responsible participants and contributors. Lecturer adoption of a facilitative role and student adoption of a more active role in the learning process take advantage of this idea of distributed cognition in the class.

The third guiding principle draws attention to a view of learning centred on situated activity and places value on authentic, relevant learning activities. Such activities provide a meaningful learning experience and context for students to draw from their experience and work collaboratively with their peers. Specific activities or tasks afford particular social and intellectual interactions supportive of collective or shared learning goals.

The fourth guiding principle recognises goal-directed as an important characteristic of effective collaborative learning endeavours. This underscores the careful selection of teaching-learning activities that establish different kinds of goals to shape different kinds of interactions and participation.

The fifth guiding principle coheres with the view of learning as participation in a learning community. In such a community, the focus is on the teaching and learning process and transformatory participation instead of the production or provision of services. From the time of the online students' initial entry as newcomers to the class they become increasingly enculturated into the responsibilities, beliefs, practices and rituals inherent in the course. As students bond with one another and the lecturer and became aware of the culture and ways of interacting and participating online, they became increasingly entrenched in the social practices of interacting and collaborating online. Such appropriation of the knowledge and skills required in the course is needed for students to move from being newcomers on the perimeter to the centre of the community and become active community members. A key

ingredient in developing a learning community lies in the development of social and emotional ties where participants feel valued and supported in interacting with one another's ideas. Norms of conduct and guidelines for participating in the community are hence important to ensure all members are supported in an equitable manner. An effective learning community fosters the development of interactions and relationships that support and develop its members intellectually, socially and emotionally. The mutual shaping of an individual member and the community's identities are implied as the community as a whole moves towards shared learning goals. In a learning community, the lecturer adopts a range of pedagogical, managerial, social and technological roles. Each role entails particular strategies and ways of interacting that are required at various levels and times within the community establishment and sustenance. An online lecturer's awareness and adaptability in adopting these four roles increase the benefits of students' participation in an online course.

The above five key ideas related to a sociocultural view of learning are useful in theorising the research findings from Phase 1 and the observations from the general literature to guide the remaining two phases of this research.

7.3 Summary

This chapter has identified a set of guiding principles for the intervention in Phase 2 of this research. Although the literature reported in Chapters 2 and 3 highlight the rich potential of investigating and understanding learning through sociocultural lenses, this recommendation is further substantiated by the findings from Phase 1 of this research. They justify the suitability and applicability of adopting a sociocultural view of learning as an appropriate theoretical framework to guide the remaining phases of this project. The issues related to the planning, design and implementation of the intervention are addressed in the next chapter.

Chapter 8

Phase 2: Designing the Intervention and Implementing the Pedagogical Experiences

8.0 Introduction

Chapter 7 has espoused the guiding principles and theoretical orientation for this research's intervention. This chapter describes Phase 2 of the research to illustrate the process of planning and designing an intervention for improving teaching and learning experiences in a fully online asynchronous Masters course in Research Methods. This chapter has five sections. Section 8.1 describes the negotiated intervention strategy to frame the collaborative design and implementation process of the research intervention. Section 8.2 details the preliminary procedures undertaken to gain entry and better understand the research teaching and learning context in order to plan for the intervention. Section 8.3 describes the cycles of negotiation occurring in the development of the intervention. Section 8.4 examines the outcomes of the development work and presents the final online course environment as seen by students in the course. The chapter ends with a summary in Section 8.5.

8.1 The Nature of the Intervention: Understanding the Negotiated Intervention Strategy

This section discusses the framework adopted to design, develop and implement the intervention for improving learning in the online Research Methods course. The collaborative approach to encourage teacher change is known as the *negotiated intervention strategy* (Jones & Simon, 1991). It is used to frame and translate the guiding principles into practical strategies to enhance the learning experiences in the online course.

The negotiated intervention strategy has been successful in facilitating teacher development in Science and Technology Education (Jones, Mather, & Carr, 1995; Jones & Moreland, 2003; Jones, & Simon, 1991; Jones, Simon, Black, Fairbrother, & Watson, 1992; Moreland, 2003). Originally espoused by Jones et al. (1992) who were interested in developing an approach to establish changes in teacher practices in science classrooms in the United Kingdom, their interest was in promoting the use of open work (open-ended activities) in

school Science to enhance student learning opportunities. It draws from a wide body of literature on curriculum innovation and teacher change by considering teachers' subjective reality, opportunities and constraints offered in the classroom or school, and the lecturer's expectations and experience to bring about effective pedagogical practices. McGee (1997) stresses no change was possible without teacher support and commitment, and it would not occur unless the teacher wanted it to happen. Teachers need to see the potential rewards of the change and to interact with it, experiment and try out new approaches. It further emphasises a collaborative approach through the form of a COP where teachers are supported to implement incremental changes to bring about overall significant changes to their practices.

In this research, adopting this strategy involved working collaboratively with the online lecturer to mutually negotiate the design of the intervention for his online Masters course. An underlying important assumption is that of building on the lecturer's existing views and practices in order to promote change, rather than imposing specific views and practices in the hope that change may occur. The main objective is to use the teacher's knowledge of subject matter content and pedagogy in the context of planning:

An expert in the domain of teaching must know subject matter content and pedagogy. An expert in the field of teaching must know how to apply teaching knowledge in a particular social and organisational context (Sternberg & Horvath, 1995, p. 11).

This implies that an acknowledgment of the lecturer's role in this research is critical in promoting his ongoing online teaching development, maintaining ownership, and growing empowerment in applying a repertoire of online teaching and learning skills. A unique feature in this process is the series of iterative interactions between the online lecturer and researcher in addressing issues arising from the class as the semester progresses to bring about gradual progression in enhancing students' learning. The process of negotiated intervention is illustrated in Figure 8.1.

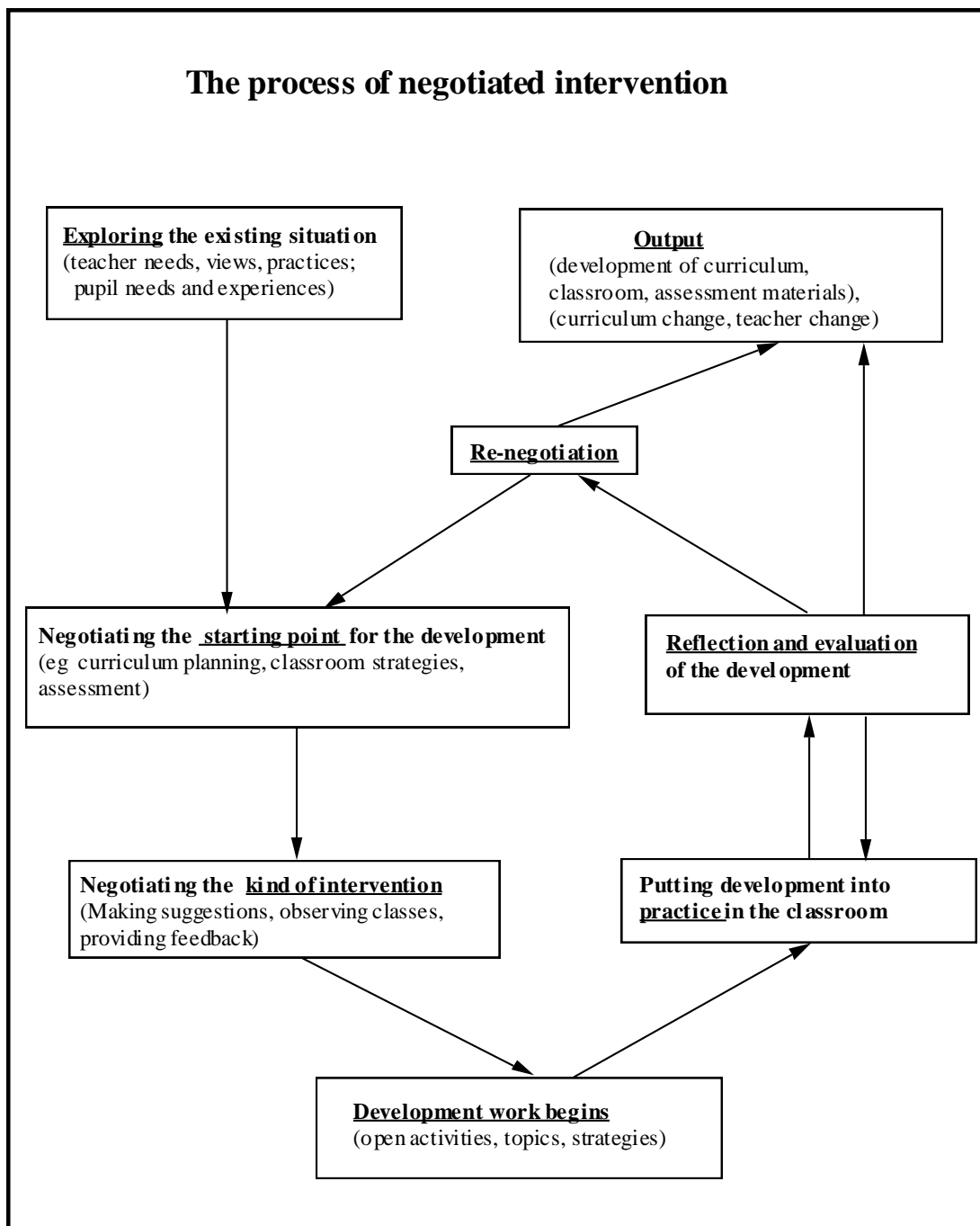


Figure 8.1. The Process of Negotiated Intervention⁹

At the start of the negotiated intervention process, the researcher or intervener *explores* the existing situation in which the intervention is to take place. In this phase, the researcher

⁹ From *Development of Open Work in Schools*, by A. T. Jones, S. A. Simon, P. J. Black, R. W. Fairbrother and J. R. Watson, 1992, Hatfield, England: Association for Science Education. Copyright 1992 by the Association for Science Education. Reprinted with permission.

becomes familiar with the background context of the research setting, the staff employed, organisational aspects of the centre, and so forth to obtain insights on how to appropriately contribute new ideas to facilitate online teaching and learning at the centre. Eventually, a decision needs to be made regarding who or which lecturer the researcher will be working with as well as the initial focus of the intervention. In approaching the lecturer involved, the researcher will need to be sensitive to his teaching needs and values, understand the existing curriculum or course goals, consider his current views and teaching approaches as well as any classroom practices and assessment strategies. It is imperative that any proposal for changes needs to be negotiated based on the lecturer's existing situation. Therefore, it is also recommended that the researcher observe examples of classroom practices to be familiar with the class environment and lecturer as well as learner needs. Based on the negotiation between the lecturer and researcher, decisions can be made about the nature and extent of the intervention.

Having established an understanding of the existing situation, the researcher next *negotiates the starting point* for the development of the intervention with the lecturer. The starting point could be in terms of:

- Curriculum planning;
- Classroom strategies; and
- Assessment

Any one of the above three could be the focus of the starting point or any two or even all three suggested areas. The flexibility in this process is that during the intervention cycle, depending on the teaching and learning needs, the focus may shift from the initially focused area to accommodate any additional area(s). Having completed a cycle of intervention, further re-negotiations occur to determine new starting points.

Once the starting point for the intervention is decided on, a further *negotiation of the kind of intervention* to undertake needs to be made. Jones et al. (1992) gave the example that if curriculum planning is the initial focus of the intervention then the researcher and lecturer mutually agree on the extent the researcher's suggestions are needed. If developing classroom strategies is the focus instead, an agreement needs to be reached on what the researcher ought to observe in the classroom and what type of information needs to be fed back to the lecturer.

Development work on the intervention begins and changes are implemented after the kind of intervention has been decided on. This is where the researcher's role can be facilitative of the changes that are put into *practice* by giving feedback and assistance to the lecturer. If the starting focus of the intervention is on classroom strategies, the researcher can observe a lesson and give feedback about classroom practice to the lecturer. Observing and talking to students about their class involvement can be another way to provide constructive feedback to the lecturer. Or the researcher could also observe how the lecturer had interpreted the development of the intervention and presented or implemented them in class.

Following the development of the intervention in the class, provision needs to be made for *reflection and evaluation*. This can be conducted independently by the lecturer or in discussion with the researcher. The discussion can be centred on how the lecturer or both the lecturer and researcher has interpreted the development of the intervention and whether any further changes or suggestions for improvement can be offered. Based on his reflection and evaluation, the lecturer could either choose to continue with the same strategy adopted in the intervention without any further support from the researcher, or re-negotiate further development work with the researcher. The intervention cycle is then iterative and conducted as many times based on the lecturer's needs.

Finally, the process ends with some form of *output*, which could range from revised curriculum plans, constructive pedagogical strategies, or improved ways of conducting assessment procedures. There may also be some form of lecturer and /or curriculum change as a result of this process.

The negotiated intervention process thus requires a consideration for the social, cultural, historical and institutional realities experienced by the lecturer and his students in the attempt to adopt classroom intervention strategies that are less intrusive and less threatening while building on the lecturer's existing strengths. This assists in scaffolding the lecturer's development as far as he is able to or ready or willing to do so at any one time in order to bring about continual improvement in the class in an emergent manner. A description of how the negotiated intervention process was implemented in this research is discussed in Section 8.3.5.

In summary, the entire Phase 2 involves the design and implementation of the intervention. This Phase consists of cycles of negotiated intervention which constitute the negotiated intervention strategy used to frame the collaboration with the case study lecturer, Adrian. In each cycle of negotiated intervention, intervention activities addressing either or all - curriculum planning, pedagogical and assessment strategies - are implemented. The intervention activities that are of particular interest for the purposes of the next Phase (Phase 3- Evaluation) are the pedagogical strategies espoused by the five guiding principles emerging from Phase 1 (see Chapter 7). The focus of the intervention is thus on those pedagogical strategies to ascertain the extent they were useful in facilitating teaching and learning in the case study course.

8.2 Understanding the Research Setting

Before the intervention could be implemented, it was necessary to understand the research setting, and how the researcher gained entree into the setting. These are described in this section.

Affiliated to both the School of Education and the School of Science and Engineering, CSTER was established in 1989 to promote interdisciplinary graduate and research activities in Science, Mathematics and Technology Education. It had grown from the Science Education Research Unit, which was started in 1981 by Dr Roger Osborne and Professor Peter Freyberg. CSTER's main aim is to enhance the learning and teaching of Science and Technology Education at all levels of education through quality research and development. The Centre is known throughout New Zealand and internationally for its research and scholarship, and for the use of its research in the development of policy, practice, curriculum, resources, assessment and professional development. Most of the students at the Centre are graduates seeking mid-career professional development through advanced study for higher qualifications. They include practicing lecturers, lecturer educators and curriculum developers from throughout New Zealand, the Pacific Islands and Asia.

CSTER is headed by a Director and staffed by a core group of academics and an administrator who are responsible for the academic and management activities at the Centre. The academic staff's fields of teaching and research expertise revolve around key pedagogical issues related to various science, environmental education and technology

education curriculum areas. A number of staff from the School of Education and the School of Science and Engineering further collaborate and are loosely affiliated with the centre to provide additional strengths in areas of research supervision and teaching and research and development projects. Some of the graduate programmes offered currently at CSTER include PhDs, Masters, postgraduate diplomas and diploma level courses.

Online teaching and learning activities as well as online graduate supervision at CSTER started in 2001 in response to part of the university's strategic plan to be a leader in electronic education at the national and global level. Online teaching-learning was particularly useful for supporting the teaching-learning and supervision of CSTER's graduate students living in various parts of the country and overseas. At present three graduate courses are offered online, namely Research Methods in Science, Mathematics and Technology Education or Educational Research Methods, and Science Education and Technology Education for students enrolled in the graduate programme at CSTER. After having experienced teaching online for two years (at the time this research was carried out in 2003), the Centre felt a need to review the effectiveness of its current online teaching and learning efforts to ensure a pedagogically sound framework was in place to guide future development/ expansion of online courses.

8.2.1 Gaining Entrée into the Setting

The researcher approached the Director and staff of the CSTER in March 2002 to discuss the possibility and proposal of researching online learning at the Centre. They were keen to be involved in researching effective pedagogical ideas and strategies that would improve the quality of online teaching and learning for both staff and students. This decision was also facilitated by the fact that the researcher is a graduate student based at the Centre and had formed good working relationships with the staff and other graduate students. It was decided that the best approach would be to collaborate with one online lecturer teaching an already established online course compared to online courses which had just been introduced at CSTER. In reviewing the suitability of the three online courses offered at CSTER that would be appropriate for the purposes of this research, the Research Methods in Science, Mathematics and Technology Education or the Educational Research Methods (or Research Methods) graduate course was selected as the most suitable. Additionally, the following factors also contributed to its selection:

- The Research Methods course was available and the course lecturer, Adrian, was happy to be involved in the research and keen to experiment with pedagogical strategies that could help refine his online teaching and enhance students learning;
- Adrian is an expert in the subject area having extensive face-to-face lecturing experiences since 1990 both overseas and at CSTER and has taught it online since 2001. He was aware of the nature and diversity of the students who typically enrol in the course, and familiar with the functionalities of the online platform used in the course, especially since this will be the third time he would be teaching the course online;
- The Research Methods course was the most established online course at the Centre (available since 2001) in relation to other two newer online graduate courses. This length of time and experience had provided Adrian with insights into the particular challenges and potential available in the online teaching-learning environment, and made him open to ideas that would improve the quality of the course;
- Adrian was also familiar with the negotiated intervention process as he used it in his own research while working with lecturers to improve pedagogical strategies in Technology Education;
- The Research Methods course was a fundamental generic graduate course generally perceived by students to be quite a challenging, and its subject matter *heavy* or *dry* in nature in relation to other courses. Therefore, if advances could be made in terms of implementing this course successfully online, then it could provide an example of a model to facilitate the transition for the teaching of other courses from the face-to-face context to the online context and provide a framework for how the online teaching and learning experienced can be enhanced; and finally,
- The researcher has had previous experience with teaching Research Methods to graduate students in Malaysia and had enrolled in the Research Methods course at CSTER during Semester B 2002 from 15 July 2002 to 19 November 2002 before conducting the research to observe and be familiar with the online content, teaching approach, and types of students enrolled in the course.

Although informal verbal permission had been given to conduct the research at CSTER, the researcher formally approached Adrian on 26 June 2003 to invite him to participate in the research (refer to Appendix 8.1 for the information sheet and consent forms for participating in the research).

8.3 Initiating the Process of Negotiated Intervention and the Development of the Intervention

The *existing situation was explored* by interviewing Adrian on the goals of the Research Methods course and his rationale for developing the course content for the face-to-face and online versions of the course. Additionally, it was necessary to understand Adrian's view of how students learn, his teaching approach and the pedagogical content knowledge strategies used, his expectations and concerns in teaching the course and how he hoped these concerns could be addressed and improved upon by participating in the intervention process. These are discussed next.

8.3.1 The Course Description

The Research Methods course has been offered at CSTER since 1994 and is a compulsory course in the graduate Education programme. It is usually conducted three times a year during the summer school semester, semester A and semester B. Both the summer school semester (5 weeks long starting from January to February) and semester A (12 weeks long from February to June) versions of the course are face-to-face courses while the semester B (12 weeks from July to November) version is conducted online. The course was first offered online in 1999 in line with SoE's regulation to offer distance learning graduate courses to students in New Zealand and overseas.

The online version of the course is traditionally co-taught by lecturers from CSTER and SoE as part of an interdepartmental workload sharing practice. When informed that they were to offer the course online, the initial online course development approach adopted by the course lecturers was to convert the materials used in the face-to-face version of the course to the electronic format. This direct translation of the course to an online format proved awkward to the teaching-learning in the online version of the course.

The course focused on the discussions of mostly qualitative research methodologies, research methods of obtaining data and includes research quality and ethical issues (forming 12 topics altogether). Students were sent a packet of the course information materials and two books of reading as well as the reference for the main textbook which needed to be purchased before the course commenced (the course materials though comprehensive were quite time consuming for students to read and understand). A full day face-to-face meeting (from 9 am

to 5pm) was usually held at the start of the course to provide students with the opportunity to meet with the course lecturers, clarify the course syllabus and assessment requirements, be familiarised with the online platform and library search databases and to meet with one another. The main teaching approach used is online group discussion format. Students are grouped into typically three discussion groups and the course lecturers would pose a series of weekly questions to help students focus on and discuss key issues from the course readings provided. However, the online class was structured in such a way that the activities encouraged mostly individual work where students posted their reflections on the readings and literature and were neither required to engage with the lecturers nor with their peers nor 'put their ideas on the table'. These online reflections and discussions were also not accounted for in the course assessment, which consisted of three individual assignments; a literature review, an essay on research quality issues, and writing a research proposal based on students' own interest. Students' online queries were usually answered on a daily basis or every two days. The average number of students enrolled in the course is 20 and they consist mostly of mid-career professional educators seeking additional qualifications by enrolling in the Masters or PhD programmes.

8.3.2 Adrian's Views on Teaching and Learning

Adrian viewed learning as an *activity where people come to know* of certain knowledge and skills. This is facilitated when students learn through authentic contexts. Hence he tended to use *case-based learning* containing *bounded problems in contexts* for students to work collaboratively on in groups. The cases were used to provide a framework and highlight the setting in order that students can refer to the appropriate literature, express their ideas and allow other students to interact and engage with those ideas. The shared understanding developed as a result of this process is envisaged to enrich and expand students' thinking of the complex issues involved in the course.

The other approach commonly used was to play the *devil's advocate* by posing *what if* questions to challenge students' misconceptions about research related issues and process. By playing the role of the knowledgeable pertinent questioner in this way, Adrian acknowledged students' ideas, engaged with their thinking and challenged them to think deeper in order to increase their understanding. He was less concerned about students enjoying the course and more with increasing student engagement with ideas in a knowledgeable and informed manner.

Other pedagogical strategies that Adrian adopts in his face-to-face classes include making use of student's questions to configure a lesson, handing out additional just-in-time readings, grouping students according to their ability to scaffold each other's learning, and providing just in time assistance. Although Adrian's approach seems to be more lecturer-led, he viewed his relationship with students quite differently. Aware that he was always in the position of power and responsibility for the class, Adrian knew the relationship is realistically less of an equal or collegial one. He quotes:

You're in a position of power, you're in a position of responsibility and therefore you go in to make sure that the course is going to be worthwhile for them...I don't see it[relationship with students] as collegial, it can never be collegial.

However, he does not consider his students any less than he is in the class as they are mostly adult students holding senior positions and usually older than him. He hoped to help them 'fill some gaps' in the course but admitted that he may not necessarily know more than they do. Adrian strived to develop a fair and fairly equitable relationship by promoting responsibility and care in order to maximise students' learning opportunities. He adds:

The notion is that they[students] are adults. They are often in senior positions themselves, traditionally they've been older than me....Therefore that has changed the way I've interacted with people in terms of the class in that I haven't seen them as me knowing all. They know more about their own area often and I'm just helping them fill in some gaps if you like. So I don't know more about the world than they do... But ultimately I am responsible for that class. So its that notion of responsibility and care. And I haven't seen them[students] as being less than me...I would hate someone to leave the course and feel that they haven't got the best they could out of the course.

He achieved this successfully in the face-to-face version of the class by addressing student concerns and their realities to better relate to them.

8.3.3 Adrian's Experiences with the Online Version of the Course

Some insights Adrian developed from previously teaching the online version of the course twice before includes:

- Posting briefer and more concise online postings to students and being more frequent and regular in going online to address student's queries. He used to indulge in more

lurking before and posted long comments online in the past years. Becoming more familiar with teaching online helped him to become more comfortable and relaxed;

- Setting some boundaries in terms of online teaching times so that students do not expect him to be online 24 hours, seven days a week. For example, he addressed student's queries within 24 or at the most 48 hours during weekdays but not on weekends. Sometimes exceptions were made to fulfill a professional and moral obligation to students when 'crises' occur; and,
- Providing students with an overview of the basic principles involved in the course before progressively addressing the finer details. Adrian encourages his students' to relate their prior experience to the general aspects of the course before they grapple with the more complex aspects of research issues and process. He usually concludes the course by highlighting and summarising the key aspects to provide students with an overall wholistic view of the course.

However, some concerns and challenges Adrian faced when teaching the online course in the past included:

- Contending with students' biasness and misconceptions towards the Research Methods course. Adrian observed that students mostly enrolled in his course reluctantly because it was a compulsory component of their graduate qualification for a promotion in their current work circumstances. Few students enrolled out of a genuine interest in the subject matter. They also had quite strong preconceptions about how research is conducted, and were concerned mainly about passing the course assessments. Moreover, there were other graduate courses in which students may have enrolled which required them to write a research proposal and discuss research related issues, further contributing to their negative attitude towards the course. Adrian found it challenging to deal with these initial negative student perceptions and attitudes;
- Contending with students' traditional notions of distance education course. Students tended to assume it was sufficient for them to work independently of their peers and to concentrate solely on the assessments to pass the course. Adrian observed they were uninterested in the online activities in the class conducted to interest and engage them and to encourage them to interact with one another's ideas;

- Student reticence in communicating online. The online course usually consisted of a combination of novice and experienced online students. For most of them, Adrian observed a sense of reluctance and hesitancy to express their opinions online. Those who do so were usually naturally good in communicating and consistently expressed their opinions throughout the course, but those less confident tended to post their opinions irregularly or sometimes did not participate online at all. In the current online course assessment structure and requirements, students can opt not to participate in the online discussions and still pass the course;
- Adrian was concerned not only with the dismal number of students' online contributions but also with students not even attempting to log on and participate online throughout the semester at all. Adrian noticed that most students usually log on to class during weekends. They were usually busy on weekdays and completed most of their online studies during weekends. The first year the online version of the course was taught, students were only given a week to participate in the discussions. Most failed to log on to participate during the week and only managed to do so on weekends. Hence, the second time the course was taught online, the period of online discussions was extended to two weeks to accommodate students' schedules. This was usually at the expense of the course content coverage. However, Adrian felt the need to give students the space and time to get started with the course, more so for novice online students who required more time to be comfortable with the online environment;
- Difficulty translating effective face-to-face pedagogy to the online context. The key challenge for Adrian in teaching online was the task of translating the pedagogy he found successful in his face-to-face class into his online class. He was frustrated especially by the asynchronous nature of communication online in hindering quick immediate responses between lecturer interactions. He found it more difficult for students to clarify questions, and for him to jump in and provide just-in-time assistance and challenge students' misconceptions as the online discussions would have moved onto another topic (he was unaware of ways of taking advantage of the asynchronous aspect of online learning). This further impeded the different dynamic teaching approaches he was accustomed to using in his face-to-face class. He found it more difficult to challenge students' thinking, as it was easier for them to *escape* or *opt out* from participating online since they did not have the same obligation to

engage with him unlike in a face-to-face setting. This was also problematic in terms of handling disruptive students' comments, which could affect the online class dynamics as other students may have seen them before he was able to attend to them or remove them. He found a need to constantly balance his notion of caring for students with that of dealing with difficult students. As a result, Adrian found that students tended to focus on fewer course issues at the end of the online version of the course compared to his face-to-face class; and,

- Coping with time constraints. Adrian also found the 12-week period of the online course posed a constraint on his teaching as he was constantly having to trade-off between attending to online student interactions and marking the course assessments. He was very aware that teaching online can result in longer teaching hours compared to teaching in a face-to-face class. For example, he finds replying to similar individual student questions multiple times both repetitive and an inefficient use of time. He had difficulty managing his online teaching hours and wanted suggestions on how to manage this as well as students' online workload such that they adhered to the university's workload model and can be realistically sustained.

8.3.4 Adrian's Expectations from the Intervention

Some of Adrian's expectations for improvements in the online course by participating in the research intervention included:

- Refining his pedagogy while retaining the course content. Adrian is keen to find ways to translate the pedagogy he found effective in face-to-face settings to the online environment. This involved a consideration for strategies to encourage more student online interactions and participation. He viewed the intervention as making incremental changes to improving his online teaching by maintaining the same role he usually does;
- Developing pedagogical strategies to interest and engage students to allow them to see the 'breadth of the area and to obtain a broader notion of research literacy'. For him the course is ultimately an introductory course to graduate level research aimed at providing students with a broad overview of research related issues. Its focus is on helping students develop an informed stance on their own research work instead of learning the actual practical techniques involved in conducting research; and,

- Implementing a course structure to support new online students who lacked confidence or were reticent about participating online. These students dared not post in the open online discussion areas but would limit their questions to the closed individual student-lecturer interaction area in their personal online portfolios. Adrian would like to see more student interactions in the open online discussion areas rather than in the closed portfolios. This is so students can develop a wider consideration for others' ideas, explore a wider range of ideas and participate more actively to increase their understanding. Part of this strategy also involved educating students on good online communication and *netiquette* practices.

Based on this background description of the nature of the course and Adrian's involvement in the research, the next section describes the cycles of intervention that occurred to improve the course.

8.3.5 Implementing Successive Cycles of Negotiation and Development

Adrian agreed on using a team-based approach as part of negotiating and developing successive cycles of intervention. A team (Web-based team) consisting of himself, the researcher, and two senior lecturers at CSTER met regularly prior to course commencement and as the course progressed to provide input and further suggestions for each intervention development (see section 5.6.2 for further details).

In addition to the Web-based team meetings, Adrian also agreed to the researcher accompanying him in his office during weekday mornings as he started his online teaching to actively observe (as a participant observer with consent from the students) the class and his interactions with the students. This was followed by a series of informal interviews as each week progressed or at the completion of each course module depending on his availability (see section 5.3.2 for further details).

8.3.6 Developing the Interventions

An exploration of the existing situation revealed that all three areas of curriculum planning, pedagogical strategies and assessment procedures in the Research Methods course would need to be re-examined to tailor them for the online version of the course. The starting point for the intervention was an examination of each of those three areas progressively through new re-negotiations as each intervention cycle occurred. For each cycle, Adrian required different kinds of intervention. An example of the intervention developed in each of these

three areas is described next (refer to Appendix 8.4 for the full details of the intervention activities).

Curriculum Planning. When examining the course curriculum, it was sufficient for the researcher to share the literature on the current curriculum and best practices for Research Methods course, which then progressed towards developing the intervention: a more streamlined, concise and realistic curriculum goal for the course. The previous curriculum goals had been overly ambitious and time demanding for the purposes of the online class context. The newly revised course goals are shown in Figure 8.2.

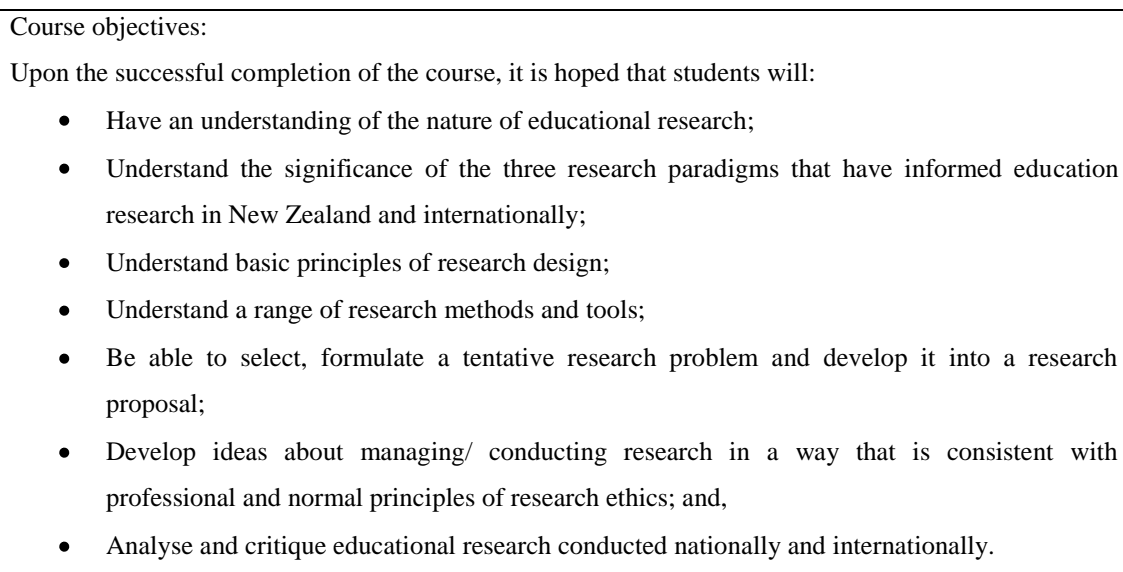


Figure 8.2. Refined Course Goals

After this was achieved, and upon reflection on the new course goals, Adrian renegotiated another new starting point for further intervention. The next intervention cycle focused on translating the course goals into suitable course modules, which progressively build on the previous module's activities. Consequently, a series of four modules arranged thematically was negotiated and developed. As observed in Table 8.1, these four modules build upon one another and are coherently linked to provide a more holistic view of the course compared to the more disparate topics used previously.

Table 8.1

The Modules Developed Based on the Refined Course Goals

Modules	Title
Module 1	Conceptual Issues in Research
Module 2	Data Collection Methods
Module 3	Multiple Approaches to Research
Module 4	Research Design, and Summary of Overview

The overall detailed course structure arising from this thematic modular organisation is depicted in Table 8.2 below.

Table 8.2

The Online Course Structure

Week	Topic	Activities	Assignment
MODULE 1 – Conceptual Issues in Research			
1	Nature of education research / Overview of research process	• Class Introductions	
2	Research Ethics		
3	Literature Review		
MODULE 2 – Data Collection Methods			
4	Research Methods (Qualitative Approaches): Interviews		
5	Surveys/ questionnaire		
6	Observations		
MODULE 3- Multiple Approaches to Research			
7	Case study		ASSIGNMENT 1 due
8	Action research		
9	Small N design considerations ^a		
10	Mixed-methods approach (Quantitative Approach)*		
MODULE 4 – Research Design, Summary of Overview			
11	Equity issues ^a		ASSIGNMENT 2 due
12	Summary: Overview and review of the research process, linking paradigms in research with formulating research questions, methods selection and quality issues		

Note. ^aTopics in weeks 9-11 were taught by a co-lecturer, Lecturer B, who was not involved in the research

Pedagogical Strategies. The next example of the intervention involved pedagogical refinement. This included developing a teaching activity that would encourage students' online participation and engagement with one another's ideas. The researcher shared the guiding principles espoused in Chapter 7 with Adrian who supported the idea of developing an online learning community in his class to promote constructive interactions and participation. He was also keen to adopt the four key lecturer roles in his online teaching.

The topic chosen for this purpose was the Data Collection Methods discussing uses of interviews, questionnaires and observations (Module 2 in the course). Consistent with Adrian's preference for a case-based collaborative approach, students were required to collaborate in their groups to discuss and determine their group's position to the dilemma or authentic scenario posed in the case within the deadline stipulated. This scenario was used throughout the entire three weeks (Weeks 4 to 6) spanning the teaching of the Module 2. It was designed to foster student negotiations and decision making as a group as they learn about the different data collection methods. Hence in Week 4 when the discussion started, students were given a scenario requiring them to assume the bidding for a research contract investigating the 'Use of Computers in Education'. For the next 3 weeks, students were to discuss how they would apply principles and techniques of the various data collection tools to meeting the requirements posed in the scenario. In Week 4, the discussions focused on the use of data collection tools such as Interviews. In Week 5, the discussion expanded to include the use of Questionnaires/ Surveys, and finally in Week 6, the discussion covered the use of Observations to culminate in a final group proposal from each group detailing how they would approach the questions posed in the main scenario (refer Figure 8.3). Each of the weekly sub-activity builds upon the knowledge from the previous week. Students' considerations of each of these issues in the scenario would assist them in developing their ideas for the upcoming individual course assignment (Assignment 1). This idea adhered to the guiding principle of using authentic activities to foster student collaboration in a learning community and clearly linked the course components so that they were relevant to students' participation. The previous course lacked such coherency and purposiveness in fostering online student collaboration and participation.

Your group has won a Ministry of Education research contract. The Ministry is interested in the extent to which the Internet is used to support both lecturers and learners. You are contracted to answer the following questions:

- a. **How are primary and secondary school lecturers using the Internet to support teaching and learning?**
- b. **How are students in these lecturers' classes using the Internet to support their learning?**

During the initial discussions with the Ministry it was decided that interviews, surveys, and observations are the data-gathering methods to be used in this project. However, final decisions have yet to be made about how these methods will be employed. The initial part of your contract is to finalise decisions as to how the methods will be used.

To this end, for each of these 3 methods, a draft proposal is required. The proposal should make clear the **appropriateness** of each method in addressing the research questions, and consider issues such as;

- a. strengths and weaknesses of the method,
- b. the suitability of variations within the method, and
- c. reliability and validity associated with each method.

Your group will also need to consider how to obtain a representative sample from across the whole country. While the Ministry is interested in obtaining valid and reliable answers to the research questions, there are **funding constraints** and your proposal should take into account the relative costs associated with each method.

Organisation of the discussion groups:

For the purposes of this discussion, each group will work on their own (you will not have access to other group discussions). You are to address each method in turn and post your decisions/conclusions by the specified deadline for that method (see below). When all 3 groups have posted their **Final Proposal** for a method, I will copy and paste all 3 responses into a general forum so you can see all groups' responses and learn from each other. Your final posting for this discussion should include your conclusions about the use of Observations in this project as well as your overall conclusions about how and why you will employ the methods in this project.

The deadlines for proposals are:

For **Interviews** – Discussion starts **4/8** and **deadline is 11/8**.

For **Surveys** – Discussion starts **12/8** and **deadline is 18/8**.

For **Observations and Final Decision** – Discussion starts **19/8** and **deadline is 25/8**.

I will be monitoring your progress and supporting you along the way during these closed discussions. You can make use of the readings, the textbook, and other resources that you come across and, very importantly, each other. Remember to get involved in these discussions as they help prepare you for Assignment 1.

Figure 8.3. The Scenario Developed for Module 2

Assessment Procedures. The following example of an intervention requiring refinement of the online assessment strategy can be seen in the example in Figure 8.4. It was an assignment on data collection methods known as the Sharing of Ideas for Assignment 1 (A1) discussion forum. Its purpose was to foster student interaction and participation in designing survey and interview questions. As part of Assignment 1 (an individual assignment), students were asked to share their preliminary design of survey and interview questions relevant to their individual research topics in the A1 forum within their groups. They had to provide constructive critique to one another's work to assist one another in refining their ideas and abilities in designing survey and interview questions. In their final report for Assignment 1, students then had to include their group members' feedback to their initial questions and show how they had considered their peer's comments to improve on their question designing abilities. The A1 discussion forum was specifically designed to relate the online discussions to the formal course assessment. In this way, although online participation was not overtly marked, all students had to participate actively online (i.e. post more than once) to collaborate and consider their peers' ideas in order to complete their assignments. Students in previous courses had not felt the need to interact with other students in the online discussion forum as they did not see its relevance in assisting them to pass the course. They could pass the course solely by fulfilling the requirements of the three formal individual assessments.

Sharing Ideas for Assignment 1

The discussion below is for you to share your interview questions and the short questionnaire you've constructed for Assignment 1 with one another. Working in your group, you will need to comment and provide constructive feedback on the technical aspects of one another's questions (for example, the wording, suitability, length, flow of questions, etc.). I hope that the peer feedback will help you to gain a better understanding on the appropriateness and technicalities of constructing questions for interviews and questionnaire purposes.

Other groups will not have access to your group's discussions. You will need to take into account comments from your peers and make reference to them in your written report.

If you have any questions, do use the [Can Anyone Help?](#) discussion.

Figure 8.4. The A1 Discussion Forum

Having described some examples of the intervention to enhance the teaching-learning in the online course, a summary of the intervention strategies based on the guiding principles identified in Chapter 7 is depicted in Table 8.3. Five guiding principles for the intervention

which map onto five key sociocultural ideas framed the modifications negotiated in the Research Methods course as part of the intervention development process. These ideas depict learning as a mediated, situated, distributed, goal-directed and participatory activity within a socially and culturally determined learning community (see Section 2.5 and 7.2) (refer to Appendix 8.4 for the full details of the intervention). Table 8.3 highlights the key sociocultural notion of participation in a learning community underpinned by supporting sub-ideas (e.g. entry, enculturation, legitimisation of participation; participating in practise; developing shared goals and culture for participation; generating shared histories; developing trust, respect, safety; and establishing norms and guidelines of conduct) to identify practical strategies applicable in the online class. Descriptions of how specific Web-based tools (e.g. online class announcements, online photos, online portfolios) (see Appendix 6) are used to support each idea and its related strategy are also indicated. The strategies undertaken are arranged according to whether they are adopted by the lecturer’s pedagogical, managerial, social or technological role (see Table 8.3).

Table 8.3

Intervention Activities Framed by a Sociocultural Framework

Sociocultural Principles	Mediating Web-based Tools	Lecturer Roles and Strategies
		<p><u>Prior to the class:</u></p> <p>Managerial role</p> <ul style="list-style-type: none"> • Streamline the course goals and curriculum, • Establish a coherent modular course structure, • Streamline the course readings and resources with the course goals and pedagogical strategies, • Establish the class structure in <i>ClassForum</i>, • Posts the online resources and paper-based resources, and, • Sets up the weekly online tasks/activities and discussion structures.
<p>Participation in a learning community:</p> <p>Entry, enculturation,</p>	<p>Online class</p>	<p><u>Class begins:</u></p> <p>Pedagogical role</p> <ul style="list-style-type: none"> • Course Introductions, ice-breaker - lecturer and student introductions/ biography, • Remind students to introduce themselves online &

legitimisation of participation announcements, online public discussion area, online photos

- post their photos (especially late enrolments),
- Prompt feedback to student queries
- Use of the weekly *Online group discussion*,
- Use of the *Research Overview Diagram* for students to relate their background experience to the course, and,
- Use of the weekly *Scenarios* to generate discussions.

Social role

- Use of the *Online Participation Tips and Advice from Previous Students* resource to set expectations for new and experienced online students in the class and establish norms of conduct, and,
- Reminding students and modelling good online communication strategies, e.g. posting shorter, more concise ideas instead of lengthy/ weighty postings.

Managerial role

- Clarifying expectations of the course,
- Ensuring students are aware of the course expectations for assignments, deadlines, readings, online discussions, and,
- Use of collaborative student grouping.

Technological role

- Use of the *Practice and Play* area (for students to practise using *ClassForum*'s facilities), and,
- Links to technical and library assistance.

Participating in practise, embedded in authentic contexts Online public discussion area, weblinks

Pedagogical role

- Use of the weekly *Online group discussion*,
- Use of the open-ended *Scenarios* to generate discussions and application of theory,
- Provide just-in-time resources
- Questioning, mentoring, monitoring, referring and linking students' ideas to other groups' ideas to broaden their perspectives, and,
- Prompt feedback to student queries.

Social role

- Reminding students and modelling good online communication strategies.

		Technological role
		<ul style="list-style-type: none"> • Links to technical and library assistance.
Developing shared goals, purpose and establishing culture for student participation	Online public discussion area, online class announcements, online class resources	<p>Pedagogical role</p> <ul style="list-style-type: none"> • Use of the weekly <i>Online group discussion</i>, • Use of the open-ended <i>Scenarios</i> to generate shared purpose for discussions, and, • Use of peer feedback in the <i>Sharing of Ideas for Assignment 1 discussion</i>. <p>Managerial role</p> <ul style="list-style-type: none"> • Clarify expectations of the course, • Ensure students are aware of the course expectations for assignments, deadlines, readings, online discussions, • Provide weekly updates/prompts to remind students on the week's topics and how they are to participate, and, • Use of collaborative student grouping. <p>Social role</p> <ul style="list-style-type: none"> • Use of the <i>Online Participation Tips and Advice from Previous Students</i> resource to set expectations for new and experienced online students in the class, and, • Reminding students and modelling good online communication strategies. <p>Technological role</p> <ul style="list-style-type: none"> • Links to technical and library assistance.
Generating shared histories, events and stories	Online photos, online student contacts, online public discussion area, FAQ folder	<p>Pedagogical role</p> <ul style="list-style-type: none"> • Use of the weekly <i>Online group discussion</i>, • Use of the open-ended <i>Scenarios</i> to generate shared purpose for discussions, and, • Use of peer feedback in the <i>Sharing of Ideas for Assignment 1 discussion</i>. <p>Social role</p> <ul style="list-style-type: none"> • Use of the <i>Break Time discussion</i>, the <i>Can Anyone Help discussion</i>, the <i>Farewell/ Moving On discussion</i>.

Developing trust, respect, safety	Online photos, online student contacts, online public and private discussion areas, online portfolios	<p>Pedagogical role</p> <ul style="list-style-type: none"> • Course Introductions, ice-breaker - lecturer and student introductions/ biography, • Remind students to introduce themselves online & post their photos (especially late enrolments), and, • Prompt feedback to student queries. <p>Managerial role</p> <ul style="list-style-type: none"> • Clarifying expectations of the course, • Provide weekly updates/prompts to remind students on the week's topics and how they are to participate, and, • Use of collaborative student grouping. <p>Social role</p> <ul style="list-style-type: none"> • Use of the <i>Online Participation Tips</i> as guidelines for conduct of communicating / behaviour, • Reminding students and modelling ways of good online communication and use of conflict-resolution mechanisms, • Use of students' names and informal tone of communication, and, • Use of the <i>Break Time discussion</i>, the <i>Can Anyone Help? discussion</i>, the <i>Farewell/ Moving On discussion</i>.
Establishing norms of conduct and guidelines for participating in the community	Online public discussion area, online class announcements, online class resources, online portfolios	<p>Managerial role</p> <ul style="list-style-type: none"> • Clarifying expectations of the course, • Provide weekly updates/prompts to remind students on the week's topics and how they are to participate, and, • Use of collaborative student grouping. <p>Social role</p> <ul style="list-style-type: none"> • Use of the <i>Online Participation Tips</i> as guidelines for conduct of communicating / behaviour, • Reminding students and modelling ways of good online communication and use of conflict-resolution mechanisms, • Use of students' names and informal tone of communication, and, • Use of the <i>Break Time discussion</i>, the <i>Can Anyone</i>

The key notion of participation in a learning community is framed and influenced by goal-directed, mediated action, distributed cognition and situated activity which are also built into the intervention. As in the table above, these four ideas are underpinned by supporting ideas (where applicable) to identify relevant classroom strategies, mediatory Web-based tools, and arranged according to the kinds of strategies adopted by a particular lecturer role (see Table 8.3 below).

Table 8.3 (continued)

Intervention Activities Framed by a Sociocultural Framework (continued)

Sociocultural Principles	Mediating Web-based Tools	Lecturer Roles and Strategies
<p>Goal-directed:</p> <p>Selection of activities that accomplishes particular goals</p>	<p>Online public discussion area, online class announcements, online class resources, FAQ folder, web links</p>	<p>Pedagogical role</p> <ul style="list-style-type: none"> • Use of the weekly <i>Online group discussion</i>, • Use of the <i>Scenarios</i> to generate discussions, • Use of peer feedback in the <i>Sharing of Ideas for Assignment 1 discussion</i>, • Provide just-in-time resources, and, • Prompt feedback to student queries. <p>Managerial role</p> <ul style="list-style-type: none"> • Use of collaborative student grouping. <p>Social role</p> <ul style="list-style-type: none"> • Reminding students and modelling ways of good online communication strategies.
<p>Mediated Action:</p> <p>Selection of tools and activities that afford and mediate interaction and participation</p>	<p>Online photos, Online public discussion area, web links, online portfolios</p>	<p>Pedagogical role</p> <ul style="list-style-type: none"> • Use of the weekly <i>Online group discussion</i>, • Use of the <i>Scenarios</i> to generate discussions, • Use of the weekly <i>Our Group Response discussion</i> for students to present their group's position on the <i>Scenarios</i>, and, • Use of peer feedback in the <i>Sharing of Ideas for Assignment 1 discussion</i>. <p>Managerial role</p>

Distributed

Cognition:

Shared spaces for interaction, the generation of ideas, collaboration and team products

Online photos, online announcements, online public discussion area, web links, FAQ folder

- Use of collaborative student grouping

Technological role

- Use of the *Practice and Play* area (for students to practise using *ClassForum*'s facilities, and ,
- Links to technical and library assistance.

Pedagogical role

- Use of the weekly *Online group discussion*,
- Use of the *Scenarios* to generate discussions,
- Use of the weekly *Our Group Response discussion* for students to present their group's position on the Scenarios,
- Use of peer feedback in the *Sharing of Ideas for Assignment 1 discussion*,
- Questioning, mentoring, monitoring, referring and linking students' ideas to other groups' ideas to broaden their perspectives,
- Prompt feedback to student online queries and assignments,
- Use of the *Can Anyone Help?* discussion, and,
- Provide just-in-time resources.

Managerial role

- Ensure students are aware of the course expectations for assignments, deadlines, readings, online discussions, and,
- Use of collaborative student grouping.

Social role

- Use of the *Online Participation Tips* as guidelines for conduct of communicating / behaviour,
- Reminding students and modelling ways of online interacting and communicating and use of conflict-resolution mechanisms, and,
- Use of students' names and informal tone of communication.

Technological role

- Links to technical and library assistance.

Development of emotional

Online public and private discussion

Pedagogical role

- Course Introductions, ice-breaker - lecturer and

connection,
affective support

areas, online photos,
online portfolios

student introductions/ biography,

- Use of the weekly *Online group discussion*,
- Questioning, mentoring, monitoring, referring and linking students' ideas to other groups' ideas, and,
- Prompt feedback to student queries.

Social role

- Use of the *Online Participation Tips* as guidelines for conduct of communicating / behaviour,
- Reminding students and modelling ways of good online interacting and communicating and use of conflict-resolution mechanisms,
- Use of students' names and informal tone of communication, and,
- Use of the *Break Time discussion*, the *Can Anyone Help? discussion*, the *Farewell/ Moving On discussion* to conclude the course.

Fulfilling personal
needs, rewards,
acknowledgements

Online public
discussion area,
online technical
assistance, online
portfolios

Pedagogical role

- Use of the online individual task – a personal *Literature Review exercise* to balance individual student work with group interactions, and,
- Individual student assignments, e.g. the *Self-Reflection report (Assignment Four)* for students to reflect on their personal development as a researcher in the course.

Social role

- Use of students' names and informal tone of communication , and,
- Use of the *Break Time discussion*, the *Can Anyone Help? Discussion* and the *Farewell/ Moving On discussion* to conclude the course.

Technological role

- Use of the *Practice and Play* area (for students to practise using *ClassForum*'s facilities, and,
- Links to technical and library assistance.

Situated

Activity:

Selection of

Pedagogical role

- Use of the weekly *Online group discussion*,
- Use of the *Scenarios* to generate discussions,

<p>authentic and relevant tasks that situate activity</p>	<p>Online announcements, online public discussion area, FAQ folder, web links</p>	<ul style="list-style-type: none"> • Use of peer feedback in the <i>Sharing of Ideas for Assignment 1 discussion</i>, and, • Use of the weekly <i>Our Group Response discussion</i> for students to present their group's position on the <i>Scenarios</i>. <p>Managerial role</p> <ul style="list-style-type: none"> • Use of collaborative student grouping.
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The intervention activities that were developed to facilitate lecturer and student participation in the course were constrained and shaped by the influence of the broader cultural context such as the university's regulations, structure and practices. These impacted on the planning, selection of pedagogical strategies, activities and use of technological tools and implementation of the online course. They included the fact that:

- The coverage of topics, the selection of teaching-learning and assessment activities in the case study course did not differ radically from those in other modes of the course offered at other times of the year, that is, the summer school session and the face-to-face version of the course offered in Semester A;
- As in tradition, the course was co-taught between lecturers from CSTER and School of Education during the semester in which the study occurred (see Section 8.3.1 for details). As the course coordinator Adrian undertook full responsibility for organising and conducting the course. He taught two thirds of the course and marked half of the course assessments while his co-lecturer from the School of Education (Lecturer B), taught the other one third of the course and marked the remaining half of the assessment load. Although Lecturer B was happy for the intervention to take place, the observations and intervention development work was confined only to Adrian's portion of teaching in the course;
- A stipulation in the most recent School of Education graduate degree handbook was the Research Methods course could be offered fully online without any face-to-face sessions. Resultantly, despite the merits of having an initial face-to-face class in the past to introduce students to the course formalities, requirements and to one another, no such sessions were conducted in this course. Furthermore, four of the students enrolled in the course were living overseas in Hong Kong, Japan, China and Canada. Adrian did not want them to feel disadvantaged for being unable to attend the session. Additionally, the diversity of student geographical location and different time zones

also made the possibility of conducting synchronous or real-time live chat sessions problematic;

- Adrian's time commitment and involvement in the teaching of the course was limited by his having to adhere to the university's required staff workload model; and,
- Adrian's status as the course lecturer is still maintained in the class in line with the university's culture and regulation as a learning institution recognising his role as their appointee responsible for the successful teaching and learning of the Research Methods course. Although the general literature on online learning and sociocultural views of learning indicate it would be ideal for lecturers to relinquish their traditional roles to become a co-learner and be of equal status to students in the class, this notion is not entirely possible in the purest sense. Mercer (1995) cautioned that,

Schools and other educational institutions are special...because their explicit purpose is teaching and learning, because power and responsibility are formally vested in the lecturer, and because lecturers are usually expected to teach a set curriculum, a given body of knowledge (p. 20).

For the purposes of this study, Adrian chooses to adopt the notion of participation in an OLC as a pedagogical strategy to shape and influence the teaching-learning context. This is opposed to the traditional sense of power and authority in order to facilitate student understandings and their learning experiences in the online graduate Research Methods course.

By participating in such successive cycles of negotiations involving a team-based approach as well as the informal interview sessions to refine aspects of the course and address issues as they arose from the students, Adrian hoped to progressively develop his online pedagogical repertoire and enhance the overall development of the online course. The key elements of the intervention involved a prolonged timeline of the intervention over the course of the 12-week semester; valuing and understanding the lecturer's views and role, the teaching-learning context and constraints; understanding of students' characteristics; relationship building between the lecturer, researcher and the Web-based team to design and develop the intervention and, ongoing responsiveness and refinement to the teaching practices in support of students' learning throughout the semester.

8.3.7 The Implemented Course

The main Web page for the online class as presented to students at the start of the course is depicted in Figure 8.6. This page contained a welcoming message from Adrian, and eight folders and discussion areas on *Announcements*, *Introductions*, *Course Outline and Assessment*, *Module/coursework/discussion*, *Personal Portfolios*, a *Can Anyone Help?* area, *Resources*, and an *Evaluation or Feedback* area.

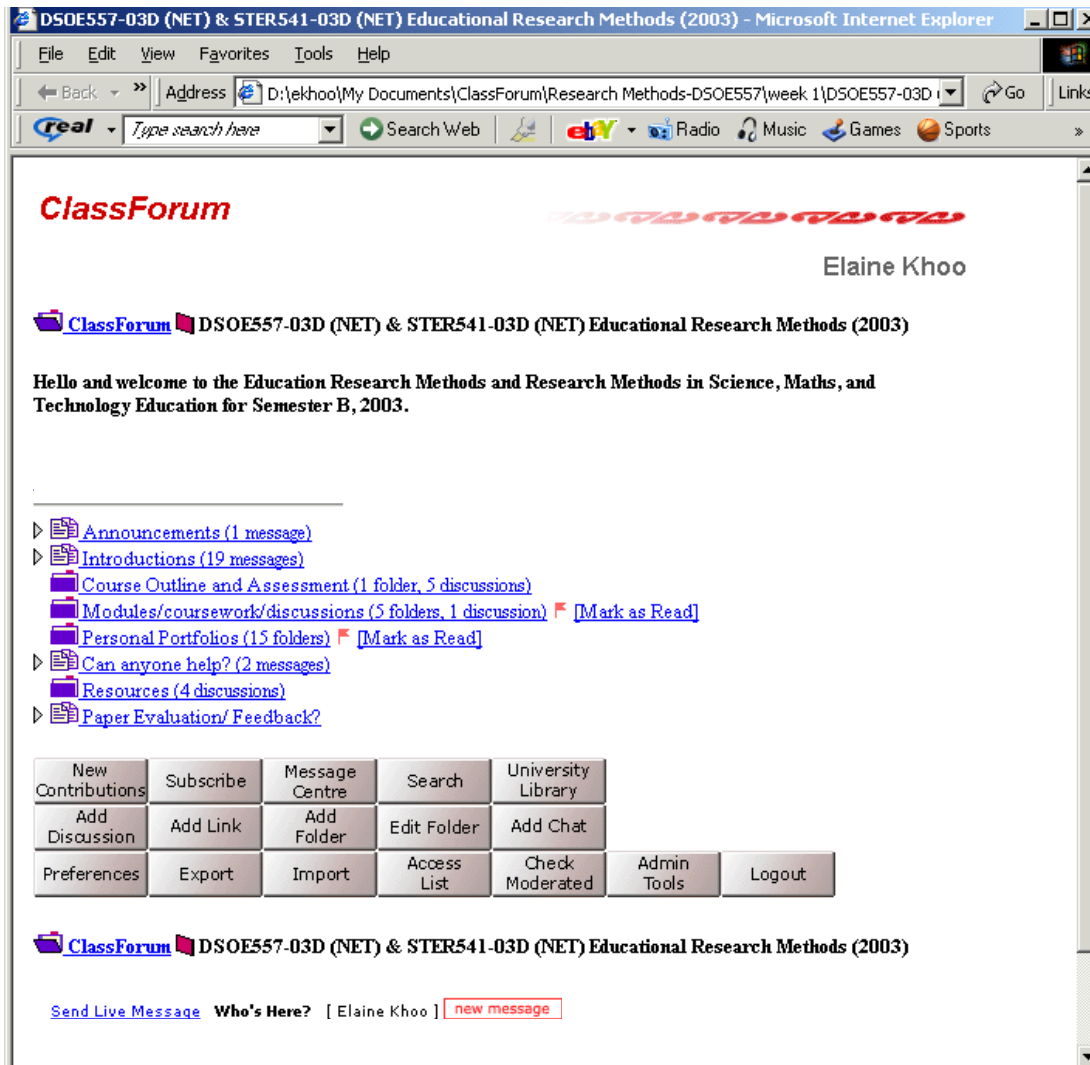


Figure 8.5. The Online Class Environment¹⁰

The welcoming message is replaced and updated weekly to highlight reminders on the week's topic and direct students to the appropriate course content folder. The course

¹⁰ Refer to Appendix 6 for some of the key features of ClassForum and their description

Announcements area was used to remind students about important messages such as the weekly readings, discussion dates, due dates for assignments, and other necessary information as the course progresses. The *Introductions* discussion area is for the lecturer and students to post a brief self-introduction and post their photo online to get know one another. The *Course Outline and Assessment* folder contained information regarding the course and the course objectives, a schedule of weekly course topics, the course outline and assessment, information about the course textbook, readings and suggested further course readings, contact details for both Adrian and Lecturer B, grading policy and criteria, the four assessment requirements, guidelines for preparing the assignments, and due dates. The *Modules/coursework/discussion* folder is the main area for the class teaching and learning discussions to occur. It contained folders for each of the four modules and a folder on students' membership in their respective discussion groups as well as their contact username for emailing purposes. Each of the four module's folder is further divided into areas for weekly discussion topic. These contained a list of required readings, discussion activities to complete for the week and reminders of the discussions' deadline. An example of a weekly discussion is seen in Figure 8.6.

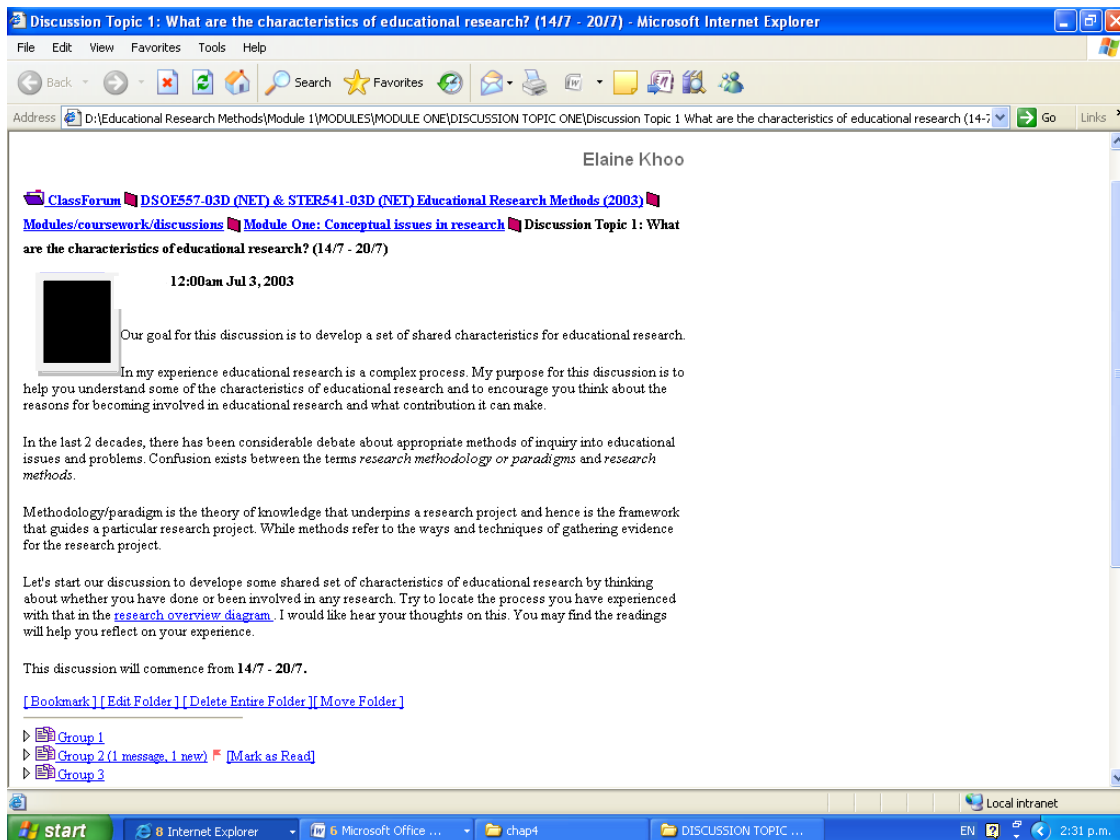


Figure 8.6. An Example of a Weekly Discussion Topic

The *Personal Portfolios* folder comprised a folder for each of the students enrolled and was for private access and communication with the lecturer. The *Can Anyone Help* area was for students to post their general questions for their peers or the lecturer to answer. The course *Resources* folder was further divided into folders containing a *Resources* area with appropriate just-in-time articles as well as useful web links to learning resources, a *Break Time* area which is an area just for the students to de-stress and socialise with one another while learning in the course, an area on *Online Participation Tips* containing reminders on how to participate and communicate online and the final area titled *Advice from Previous Students* containing useful tips collated from previous students' learning experiences on how to succeed in the course. The *Paper Evaluation/feedback* area allowed students to suggest improvements to the course any time throughout the semester. Towards the end of the course, a course evaluation form was posted in this area to obtain students' feedback. Additionally, a *Farewell/Moving On* discussion area was also created to help students bring closure to their experiences in the course and relate what they had learnt to their current life experiences.

The entire course was offered via the *ClassForum* platform. Access to the online class required user authentication (i.e. student username and password). The design of the course Website was consistent with the other online courses offered by the School of Education at the university. Overall, the final course design provided a collaborative yet lecturer-facilitated learning environment.

In order to approach and invite the Research Methods course students to participate in the research, the researcher (with the course lecturer's consent) sent invitation letters for participating in the research, research information sheets and consent form (see Appendix 8.5) as well as a self-addressed envelope in the course introductory pack. This was sent out to students during the period of 27 June to 29 July 2003 (two weeks before the course started). Students who did not return the consent forms were sent reminder letters as the course progressed towards the 5th week of the semester.

Each course introductory pack consisted of a welcoming letter from Adrian, instructions on accessing the course's website, expectations and instructions regarding the different course components (these were also displayed in the online class), a course book of readings (an average of 26 pages was assigned for each week's reading), information on the main

textbook students were to obtain, information regarding the main assessment requirements and an introductory brochure to using ClassForum - *ClassForum Pocket Guide* - to support students' access to the online class.

The online class was made available one week prior to the starting of the course. Students were informed about this in the course pack and asked to log on to familiarise themselves with the features in the class environment and the course structure. They were also notified about their discussion groups and group members and asked to post online a brief self introduction as well as their photo for other class members to get to know them before the course started. Three student discussion groups (Groups 1, 2, and 3) consisting of four to five participants each were formed. With the exception of one online discussion in Week 3 on Literature Review, all the remaining weekly discussions required group collaborative effort in responding to the Scenarios or cases posted in the coursework modules.

8.5 Summary

This chapter detailed the process of planning, designing and implementing an intervention for improving the learning experiences in an online graduate course in Research Methods. The negotiated intervention strategy enabled this complex process to take place through a series of negotiations to develop appropriate intervention strategies and activities before and throughout the semester in an emergent manner. It took into consideration the wider social, cultural, institutional factors influencing the planning, teaching and assessment of the course. Having considered the kinds of interventions developed in Phase 2 of this research, the next chapter describes the findings from the implementation experiences as encountered by the participants in the course.

Chapter 9

Phase 3: Evaluating the Intervention –

Implementation Experiences and Transformations

9.0 Introduction

Chapter 8 reported on the planning and development of the intervention adopted in the online Research Methods course. This chapter reports the findings, observations and experiences from both student and lecturer perspectives regarding the intervention. It answers the final research question, ‘How were pedagogical strategies designed to complement a particular view of learning, helpful in facilitating the teaching and learning in an online graduate Research Methods course?’ The pedagogical strategies that are of interest for the purposes of evaluation are those advocated by the five guiding principles identified in Chapter 7 and implemented as described in Chapter 8 (see Section 8.3.6 and Table 8.3). The extent the pedagogical strategies were helpful in facilitating the learning in the study is based on the lecturer’s perspective in the light of the pedagogical challenges he had faced in teaching the previous online versions of the course (see p. 269).

There are four sections. Section 9.1 details the background of the participants in the research. The analysis of the data, guided by Rogoff’s (1995) three planes of analysis, follows next. Section 9.2 describes the analysis on the broader community plane. Section 9.3 informs on the analysis on the interpersonal plane while Section 9.4 narrows the analysis to the individual plane. On the whole, the results allude to the usefulness of adopting a sociocultural view of learning as espoused through the development of an OLC in enhancing the quality of the lecturer’s and students’ learning experience in the course.

9.1 Student Background and Characteristics

Sixteen students enrolled in the Research Methods course but two dropped out. Of the remaining 14 students, 11 consented to participate in the research (See Appendix 9.1 for a brief background of each student as per the three discussion groups). Four of the 11 participants (one male and three females) volunteered to participate in a follow-up, semi-structured interview – Shaun, Sapphire, Melody and Shania. Two of the interviews were

conducted face-to-face while the other two were phone interviews. At the end of the course, a questionnaire posted online received 10 responses.

Table 9.1 shows the students' specific demographic details such as their gender, age, education level and online learning experience.

Table 9.1

Students' Demographic Characteristics (n=10)

Characteristics		Frequency	%
Gender	Male	5	50
	Female	5	50
Age Group	16-25 years	1	10
	26-35 years	4	40
	36-45 years	2	20
	46-55 years	3	30
Education Level	Masters	4	40
	Ph.D.	1	10
	Postgraduate Diploma	4	40
	Other	1	10
Online Learning Experience	None. This is my first online paper	5	50
	One	1	10
	Two	1	10
	Three to Four	2	20
	Five or more	1	10

Among the 10 students in the self-report online questionnaire, five (50%) were females and five (50%) males. Four (40%) were between 26-35 years of age; three (30 %) in the 46-55 age category; and the other two (20%) between 36-45 years of age. The majority of students (90%) were mature students over 25 years of age. Their educational backgrounds were quite similar. Ninety percent of them were working towards a postgraduate diploma or degree, i.e. Masters or PhD. Additionally, half of them had never experienced learning online before while another 40% had taken at least two online courses. This indicates the students had mixed technical abilities and were varied in their comfort level with using technology.

9.2 Community Plane of Analysis: Resources and Affordances of Participation

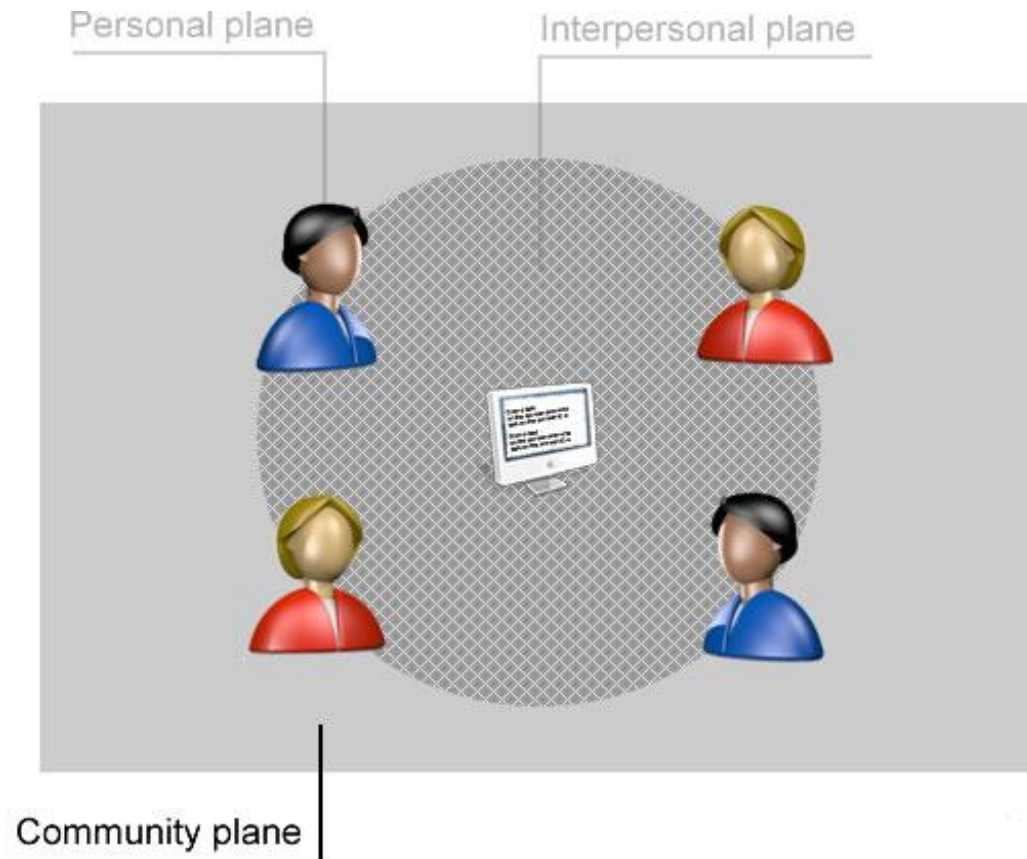


Figure 9.1. Foregrounding the Community Plane of Analysis

Figure 9.1 depicts this study of an online graduate Research Methods course which can be examined along the personal, interpersonal and community planes of analysis. It shows how the individual participants in the online course (personal plane of analysis) are connected to one another through the affordances of the web-based technology (indicated by the computer screen). The network of communication and interaction established between participants during the activities of the course (interpersonal plane of analysis) is indicated through the circular grid. The community plane, indicated outside the network grid of participants represents the influence of the overall broader institutional context, and cultural tools and activities in shaping and constraining their participation in the course. Although the investigation of a community can be conducted at any level within an institution, this study is concerned with the establishment of a learning community intentionally designed to support the teaching and learning in a semester-long online graduate Research Methods course.

The community plane of analysis, the focus in this section, examines the broader cultural context of the online course. It takes into account institutional regulations, structures and practices and the tools and activities of the course to consider how these resource and constrain lecturer and student participation (see Table 5.2 for details). Chapter 8 detailed how the broader cultural context of the course such as the university's regulations, structure and practices were influential in resourcing and constraining the development and use of particular pedagogical strategies, technological tools and activities in the course (see Section 8.3). Evidence of interest on this plane includes lecturer and student reports of tools and activities influential in resourcing their participation. In line with Rogoff's (1995) apprenticeship metaphor as the process underlying this plane, the extent to which participants are able to evolve shared learning goals as part of their apprenticing to learn more about research methods is also of interest.

This section firstly overviews the overall participation in the course as seen through participants' online postings. It also details the general reasons for participating (or not) in the course (Section 9.2.1). Secondly, the reports of the affordances of the tools and activities that the participants found valuable and influential in resourcing their participation in the course is described (Section 9.2.2). Finally, a description of the extent they have evolved shared goals is offered (Section 9.2.3).

9.2.1 Overall Participation Observed in the Course

Participation is a key element in a learning community. Overall participation in the course is evidenced through the online posting rates. Table 9.2 shows the general participation rates or number of online postings made by the students and lecturer in the main discussion forums during nine weeks of discussions.

Table 9.2

Participation Rates During the Nine Weeks of Online Discussions

Weeks	Date	Topic	Student postings in the weekly online discussions	Lecturer postings in the weekly discussions & percentage of lecturer postings to student postings
1	14/7 – 20/7	Module 1 ▪ Class Introductions ▪ Nature of education research/ Overview of research process	20	11 (55%)
2	21/7 – 27/7	Research Ethics	29	6 (21%)
3	28/7 – 3/8	Literature Review	16	9 (56%)
4	4/8 - 10/8	Module 2 Research Methods (Qualitative Approaches) Interviews	50	9 (18%)
5	11/8 – 17/8	Surveys/ questionnaire	55	8 (15%)
6	18/8 – 24/8	Observations	43	14 (33%)
7 – 8	25/8 – 7/9	Semester Break		
9	8/9 – 14/9	Module 3 What's a Case Study?	42	4 (10%)
10	15/9 – 21/9	Action Research	50	17 (34%)
15 ^a	20/10 – 26/10	Module 4 Summary / Overview of Research	20	5 (25%)
4 - 8	4/8 – 7/9	Sharing of Ideas for Assignment 1 ^b	108	3 (3%)
Total			433	86 (20%)

Note. ^aThe class schedule went over the initial 12 weeks planned due to the semester break, and extensions given to assignment deadlines. This slight extension is acceptable for courses that were offered online at the university. ^bThis was a separate online discussion set up as a side discussion (as part of the first assignment) to allow students to share and critique one another's ideas. It was reported as one of the key discussions useful to students' learning (see Section 9.2.2.1).

The nine weeks of online discussions generated a total of 433 online student postings from 10 discussion topics. The postings increased steadily from 20 in the first week to 55 in Week 5.

An exception can be seen in Week 3, which only had 16 postings. Students worked independently to write a literature review on a topic of their choice. They concentrated on their task during the week and posted their reviews at the last minute to meet the deadline. Hence, there was insufficient time for group discussions to take place.

From Weeks 4 to 10, however, postings ranged from 42 to 55 across all three student discussion groups. This was due to the Scenario used and the design of the course which fostered student collaboration and contribution of their ideas. In the final week of the course, Week 15, student postings fell to 20 as they posted their individual summaries and reflected on their participation in the course. One particular side discussion forum, *Sharing Ideas for Assignment 1 (A1)*, generated a total of 108 online postings during the four-week period from Weeks 4 to 8. It involved students clarifying their ideas, obtaining help and making suggestions for improvement from their peers and supporting one another (see Section 8.3.6 under Assessment Procedures for details).

Adrian contributed a total of 86 online postings across the 10 discussion topics. His postings and involvement were quite high initially. In the first week, his 11 postings (55 %) mostly to welcome students, announce important course management issues, establish guidelines for online contributions, and encourage student participation were about half those of his students. His postings gradually reduced to five or 25% in the last discussion topic in Week 15. The number of his postings varied from 10% to 56% of students' postings per week due to his busy work commitments. The exceptions were Weeks 6 and 10 when he had more time to concentrate on the course.

Overall, students' participation rate in the course increased steadily from the onset to the end of the course. This demonstrated their increasing active participation and collaboration in the course. Their participation rates were particularly high in two discussion forums: Module 2 on the topic of Surveys/Questionnaire where the *Scenario* was used and the *AI* discussion forum. The lecturer's general participation in the course was initially quite high and gradually declined towards the end (with the exception of Weeks 6 and 10).

9.2.1.1 Reasons for Participation in the Course

The reasons for participating in the course discussions were also explored (see Table 9.3).

Table 9.3

Students' Reason(s) For Participating in the Course Discussions (n=10)

	Frequency	%
I wanted to be a part of the online learning class	9	90
I enjoyed 'talking' my ideas through with others	8	80
I felt responsible for my group's progress	8	80
I needed help from the lecturer to clarify my thoughts	7	70
I needed help from my classmates to clarify my thoughts	7	70
I was interested in the task posed by the lecturer	7	70
I disagreed with a particular view raised in the class	2	20

The key reason for student participation in the class discussions was their wanting to feel a sense of belonging as part of the class. Next, they enjoyed 'talking' through their ideas with their peers in the course and felt responsible for their discussion group's progress. Other reasons included needing help from the lecturer and their peers and their own interest in the learning task posed. Only two students participated because they disagreed with a view raised in the class and wanted to contest it.

Overall, the students' reasons for participating in the online discussions highlight the value of belonging, interacting and being responsible in a group with shared interests. These are important basis for students developing a sense of identity as members of a learning community. Furthermore, their participation was encouraged and shaped by useful teaching-learning interactions with the lecturer and their peers in the learning community. These general interactions are examined next on the community plane in line with Rogoff's (1995b) *apprenticeship* metaphor to consider the role of active individuals taking part with others in culturally organised activity to develop more mature participation in the activity.

Learning from the Lecturer as an Expert in Research Methods. A key theme in the questionnaires and interviews was that student participation was facilitated by the lecturer's interactions. For example, students' responses from the questionnaire indicated that the three most useful teaching-learning interactions supporting their learning and participation in the online class were the lecturer's feedback in their online discussions, peer feedback (especially in the Sharing of Ideas for Assignment 1 discussion), and finally, the lecturer's feedback to their assignments (see Table 9.4).

Table 9.4

Students' Perception of Useful Teaching–Learning Interactions (n=10)

	Frequency	%
Lecturer feedback on the online discussion topics	10	100
Peer feedback on my coursework (e.g. in <i>Sharing of ideas for Assignment 1</i> discussion)	7	70
Lecturer feedback on my assignments	6	60
Completing the assignments	4	40
Participating in the online discussion topics that helped in completing the assignment(s)	2	20
The 'Farewell / Moving On' discussion	1	10

The lecturer's feedback to facilitate and guide students' developing ideas of research methods was regarded higher than peer feedback. Since lecturer feedback was valued by students, it was important to examine whether specific types of feedback was more important than others (see Table 9.5). The top three most helpful lecturer feedback, ranked according to students' response were the lecturer's feedback in clarifying key ideas in the discussion topics (M=1.30), introducing a topic to guide students' understandings (M=1.30), helping students focus on the discussion topic to avoid getting sidetracked (M=1.10), valuing student contributions (M=1.10), and finally, introducing various perspectives in a discussion (M = 1.00). Interestingly, the first six types of teaching feedback shown in Table 9.5 refer mainly to the lecturer's pedagogical role in the classroom. These types of feedback indicate a strong pedagogical role played by the lecturer as an expert member in the online class to guide, facilitate and encourage students' contributions and participation in discussions.

Table 9.5

Students' Perception of Helpful Kinds of Lecturer Feedback (n=10)

	M	s.d
Clarified key ideas in the discussion topics	1.30	0.67
Gave a clear introduction to lead me into the discussion topics	1.30	0.67
Kept me focused on the purpose of the discussion topics	1.10	0.88
Showed that my online contributions were valued	1.10	0.74
Enabled me to consider varying perspectives on the discussion topics	1.00	0.82
Helped me link my ideas with those of other students from the different groups	0.90	0.99
Modelled ways of communicating online to me	0.90	1.10
Helped me link my ideas with the course readings	0.80	0.92
Encouraged me to inquire further about the discussion topic	0.60	0.97

Note. Means were derived from a five point Likert Scale and coded as -2 = Strongly Disagree, -1 = Disagree, 0 = Neither Agree or Disagree, 1= Agree, 2 = Strongly Agree, M=mean, s.d.= standard deviation

Further responses in the open-ended section of the questionnaire corroborated the importance of the lecturer's role in guiding and facilitating student participation as a group with shared purposes. Six students confirmed the importance of the lecturer's pedagogical role in giving them clear introductions regarding a discussion topic, clarifying key ideas, giving them group and individual feedback, and, keeping them focused on the purpose of the discussion topic. For example:

Adrian's feedback to comments made by the group to [help] bring us back online and to offer further points to discuss.

Students also saw the lecturer as an important member of their learning community because he built on and added to their contributions to further their understandings in the class. This is congruent with his role as an expert within the community. Melody pointed this out:

I learnt a lot from having discussions with other people, I would always look for tutors' responses, like that was really important to me what they, how they responded to our discussions. He[Adrian] would respond to your postings, your individual comments.... He did that all the time. He was good at that you would put on your thoughts about

whatever, it was right through and then he would come on and he would say – like M actually picked up – or Kane – this idea of politics in research and it says and I sort of brushed it off – I just didn't see the importance and I didn't really get what that meant. And then Adrian said 'Well done you know that's really important', I sort of thought 'Oh okay' so I would have another look at it, and have another think about it, do you know what I mean, so it highlights things that are very important (Melody).

Shania valued Adrian's role as a more knowledgeable expert member of their learning community as his views validated the importance of ideas raised in the forum:

...because if they[students] have a different viewpoint, it is interesting to look at. I'd wonder if 'That's really valid? Is that an inappropriate view?'... There was certainly a better response when Adrian had posted comment or had written something and that does make you feel like there is an overarching, not a control but that there is somebody watching over the whole thing so you feel like there is somebody there and his comments were always very pertinent and well written and astute comments. So you felt like you had an authority to refer to or to ask and a good guiding hand in that too, which I found absolutely invaluable, you know, because I often felt like I didn't know what the hell I was doing (Shania).

Overall, students perceived that their participation was facilitated by interactions with the lecturer as an expert member in their learning community, particularly when he adopted a pedagogical role.

Learning from Peers about Research Methods. In support of the questionnaire data, the interviews revealed that student participation was also facilitated by interactions with more knowledgeable peers to further their understandings in the course. All interviewees agreed that they participated in the class activities due to the benefits of learning and sharing with more knowledgeable members of their class community. An example by Shania included:

They [group members] know heaps more than me. Well they did. They...are involved in this on a daily basis and they have experienced the reality. Doing research for them was really real... Sometimes they came up with a different viewpoint that I hadn't thought about, and that's wonderful and also nice when they came up with the same things. I would think 'Oh yes that's what I had figured out'. So that was quite reassuring...I had tried to make sure I read and read the extra papers and the text books and then I just

wrote because I just wanted to get it out on there and to see whether there was any response (Shania).

Five other students stated in the open-ended section of the questionnaire how interactions in the discussions with peers who share similar interests encouraged the most social cooperation, interaction or bonding as a group. A sample quote included:

The online discussion was when I felt most part of a group.

A student interviewee, Melody, reported feeling supported and motivated by interactions with her peers when feeling discouraged in the course:

if we were struggling with something or losing motivation we would share that and kind of encourage each other like somebody said something about 'Yeah I know I am not feeling very motivated either but let's just keep going' and those sorts of comments make you feel part of the group (Melody).

Two other interviewees found lively interaction and expertise sharing among a group of members with shared interests helpful in supporting them emotionally. Sapphire commented:

It was interesting to see where they were coming from. Because quite often within our group we had such different angles on that particular task, that to go in from another group and say, 'Thank God I am not going crazy and I am not dumb'. Someone else has thought the same way as me in that group so I guess it was quite helpful to... support what I was feeling to read other people's comments (Sapphire).

The questionnaire and interviews highlight the benefits of students learning from their more knowledgeable peers. In a group with shared interests, the sharing of different expertise and ideas can contribute to developing and supporting them intellectually through their increasing understandings in the course, socially through their increasing interaction and bonding as group, and emotionally through their developing sensitivity to what other members in the group were feeling.

Overall, this section highlights students' increasing and active participation as the course progressed. Students participated in the class in order to learn from more knowledgeable members of their class community such as the lecturer and their peers. The lecturer's interactions were clearly important followed by interactions with peers. Within a group that

has shared interests, the sharing of distributed expertise and ideas contribute to supporting students intellectually, socially and emotionally.

9.2.1.2 Reasons for Non-Participation in the Course

Although a majority of responses indicated students' keenness to participate in the online course, reasons for a lack of participation were also raised. Table 9.6 summarises these reasons. The main reason for student non-participation was they did not want to repeat what their peers had already raised in the discussions (40%). Next, students felt their peers had better ideas than them (30%), and finally, they found it hard to express their ideas in writing (30%). Only one participant cited time as factor (10%).

Table 9.6

Students' Reasons for Non-Participation (n=7)^a

	Frequency	%
Other people had already said what I wanted to say	4	40
I felt that other people had better ideas than me	3	30
I found it hard to express my ideas in writing	3	30
I found it too time consuming	1	10

Note. ^a 3 missing cases; 7 valid cases

The open-ended section of the questionnaire confirmed and added to these findings. Students' reasons for not participating in the course include time constraints in completing the discussions and assignments, non-contributing peers and individualistic or dominant views from their peers. Three responses commented on the time constraints faced:

Online discussions is a commitment, so when something comes up at work, it is difficult to make a 100 percent commitment to the discussions – especially given the tight time frames for assignments

Two other responses highlighted their dissatisfaction with the lack of contributions from their peers:

Just got pissed off with it. No one else was contributing, no one was responding.

Another student thought a peer was quite individualistic and dominant in sharing his ideas:

I also became really intimidated by a group member which shocked my confidence a little. I did feel that certain students tried to dominate the course with their perspectives and this I thought scared others from participating more actively.

This section highlights issues regarding the social nature of learning as a group in the online class. It describes how student participation within a group with shared interests was motivated mostly by their need to learn from more knowledgeable others such as the lecturer and their peers. This suggests the development of a learning community in the class which fostered the sharing of distributed expertise and perspectives. Such active participation and sharing of expertise also helped to support students intellectually, socially and emotionally. However, participation in the community was inhibited at times by factors such as students' lack of confidence and ability in expressing their ideas verbally, time constraints, non-contribution of ideas from peers and challenges faced from peers' individualistic or dominant views in the class.

In line with the findings that forming a learning community in which students can learn and support one another were valuable, the next section examines how the affordances of specific intervention activities and the technological tools adopted resourced students' participation.

9.2.2 Affordances of Mediating Tools and Activities in Resourcing Participation

On the community plane, the tools and activities adopted within a course are of interest as they afford particular types of interaction and resource student participation. This section examines how the Web-based technology afforded student participation and describes the affordances of two activities with particularly high participation rates.

The Affordances of the Mediating Tools. The Web-based tools used in the online course afforded students access, time and space to a wide range of learning opportunities in the course. This is observed through students' reasons for enrolling in the online version instead of a face-to-face course in an earlier semester in the year and their personal expectations about the online course (see Table 9.7).

Table 9.7

Students' Reason (s) for Enrolling in the Online Version of the Course (n=10)

Characteristics	Frequency	%	
Reason (s) for Enrolling in the Online version of the Course	Distance	6	60
	Time constraints	5	50
	Job commitments	5	50
	The course was available in Semester B	4	40
Participant's Personal Expectation (s) at the Start of the Course	I could learn at my own pace	6	60
	Time-saving, less time-consuming than a face-to-face paper	3	30
	Time to reflect on my thoughts before sharing them with others	3	30
	I had no personal expectations	2	20
	Opportunity to build friendships with other students from other parts of the country/world	1	10
	Other	1	10

Factors such as distance to campus, time constraints and job commitments were reported as key reasons why the online version was chosen over the face-to-face course. When asked what their expectations were at the onset of the online course, participants highlighted that they could learn at their own pace, save time and have the time to consider their ideas (part of learning at their own pace).

Additionally, two interviewees and another response to the open-ended section in the questionnaire thought the Web-based technology was a useful learning tool for accessing their course and sharing ideas with others at the time and place of their convenience. Shaun highlighted this point:

I also felt learning wise; the Internet is a really good tool for learning. I enjoy it... I would definitely do another online learning course at Waikato (Shaun).

Shania thought the asynchronous nature of communicating online meant she could access and share others' ideas and bounce ideas of others:

Being able to read other peoples contributions was good too. Particularly people in my group like Melody. Very clear thinker and very concise writer. Easy to understand what she was talking about, and interesting looking at the other contributions and reading those and thinking 'No, they are wrong' or 'No, you've missed the point there'. I have actually talked to the people I work with a lot more, so I have talked over questions with them and I researched ideas, that's been a good help (Shania).

Melody enjoyed the flexibility of time and space that online learning offered and contributed to her learning:

I do it[sign online] around the rest of my life like after school at night. I went online most days and I was at least checking what was happening if not putting something on. I tended to do quite a lot of readings on the weekends but also in the evenings depending on how much I needed to get done. And so that from the reading, that would often stimulate me to want to say something, because you know something and be able to make a comment (Melody).

Two interviewees further reported on specific Web-based tools that promoted their learning. Melody particularly liked the *Portfolios* function in the course to clarify her questions with the lecturer:

if I had a question I would just ask him in the Portfolio and if he didn't respond because if he didn't notice in there I would just ring him and tell him to look and then he would and so I had all my questions answered (Melody).

Shania found the Bookmarking tool helpful to locate online resources:

Bookmarking is important too – that would be something to do, make sure you bookmark. The Bookmarking works really well (Shania).

In addition to the affordances of the Web-based tools reported, interviewees mentioned some constraints to their learning online. Melody had to be careful about her online contributions that could be easily misinterpreted and have a more permanent presence compared to contributions in a face-to-face situation:

So online you've got to be very conscious how you come across. I usually I would think very carefully before I put something on, but also how it could be misinterpreted too or you might just be having a bad day and you might put something on and you can't like remove it (Melody).

Shania thought the lack of spontaneity and non-verbal communication cues proved difficult in learning online:

It is difficult communicating online because it is not fast like talking. You know you can't see any facial expressions, someone going (expression), and reading their reactions and you can't type as fast as you can talk, which is another difficulty and there is no immediacy in response or the communication to wait for it to come back (Shania).

Sapphire remarked on the sense of isolation experienced and time consuming nature of online learning:

But it's hard when you are isolated in the class online and it's there and things come into their lives that affect their studying (Sapphire).

It was time consuming; there wasn't a night that you couldn't not study. Especially given the time frames are so short between assignments – a month between assignments is pretty tight (Sapphire).

To sum up, the Web-based technological tools afforded asynchronous forms of communicating, and the convenience of studying at one's own time, space and place. These affordances clearly mediated and motivated participants' participation in the online course. Some constraints to using the Web-based technology were observed in terms of ease of misinterpretation, lack of spontaneity and non-verbal cues, sense of isolation and the time consuming nature of learning online.

The Affordances of the Mediating Course Activities. In addition to the affordances of the Web-based tools, particular teaching-learning activities resourced and mediated students' participation in the course. Student interviewees highlighted three activities as particularly helpful. They are ranked according to the frequency the activity was mentioned:

- Sharing of Ideas for Assignment 1 (A1) online discussion forum (raised by three interviewees);

- The use of the Scenario in Module 2's online discussion (Scenario) (raised by two interviewees); and,
- Assignment 3 to prepare a paper assignment, i.e. write a research proposal (raised by two interviewees).

The first two activities encouraged student participation as a group while the third activity developed individual students' understandings of research methods in the course. Three interviewees mentioned that the A1 discussion forum was particularly important. Although the role of the lecturer was minimal in this discussion, it was key in encouraging a balance of student collaboration and individual responsibility when learning online. Another two interviewees, indicated the realistic Scenario used in Module 2's discussions were helpful in providing them with an authentic application of research methods principles and encouraged peer accountability, delegation and negotiation skills. Finally, two interviewees mentioned the role of Assignment 3 where students were to write a research proposal at the end of the course as useful to helping them consolidate their ideas on research. The interviewees felt the course covered various topics which gradually led to writing the research proposal and provide the overall understanding of their ideas about research.

The interview data corroborates the observations of the class participation rates to highlight two intervention activities particularly valuable in resourcing and mediating students' participation as a group in the class: the A1 discussion forum and the Scenario in Module 2's discussion forum. The general analysis on how these two situated activities afforded participation as a learning community is detailed next.

9.2.2.1 Activity 1: Sharing of Ideas for Assignment 1 Online Discussion (A1)

The A1 discussion forum was designed for the goal and purpose of fostering student interaction and participation in designing survey and interview questions. When it was set up for student access in Week 4, only four student postings were observed. In Week 8, there were 55 online postings (the week before Assignment 1 was due); see Table 9.8.

Table 9.8

Student Participation Rates in the A1 Discussion Forum

Weeks	Date	Topic	Student postings in the A1 discussions
4	4/8 – 10/8	Interviews	4
5	11/8 – 17/8	Surveys	4
6	18/8 – 24/8	Observations and Final Decision	9
7	25/8 – 31/8	Semester Break	36
8	1/9 – 7/9	Semester Break	55
Total			108

The questionnaire findings on the use of A1 forum corroborated earlier interviewees' reports stating its importance in facilitating students' learning experiences (see Figure 8.4 for a description of the A1 discussion forum). Table 9.9 summarises students' responses to the use of the A1 discussion forum.

Table 9.9

Students' Perception of the Usefulness of the A1 Discussion Forum (n=10)

Statements	Responses					M	s.d.
	NU	NVU	U	SU	VU		
Refining my own ideas about interviews and questionnaires				3 (30%)	7 (70%)	1.70	0.48
Developing a better understanding of the technical aspects of interviews and questionnaires		1 (10%)		3 (30%)	6 (60%)	1.40	0.97
Developing my constructive critique skills			2 (20%)	2 (20%)	6 (60%)	1.40	0.84
As an incentive for me to contribute regularly to the online discussion			2 (20%)	4 (40%)	4 (40%)	1.20	0.79

Note. NU=Not Useful at All (-2), NVU=Not Very Useful(-1), U=Uncertain (0), SU=Somewhat Useful (1), VU=Very Useful (2), M=mean, s.d.= Standard Deviation. Responses from the Somewhat Useful and Very Useful scale are grouped as positive responses while responses from the Not Useful at All and Not Very Useful scales are grouped as negative responses.

All students (combining responses from the SU and VU scales) thought A1 was useful in refining their ideas about designing interviews and questionnaires (M=1.70, s.d.=0.48). Nine

students thought it helped to develop their understanding on the technical aspects of interviews and questionnaires (M=1.40, s.d.=0.97), and a further eight felt it helped to develop their constructive critiquing abilities (M=1.40, s.d.= 0.84).

Furthermore, an overwhelming majority of eight of the 9 students affirmed they would recommend this discussion for use in the next year's course.

The open-ended responses in the questionnaire indicated that the A1 discussion gave students the opportunity and incentive to participate (three responses) and helped to clarify their questions (two responses). An example of the first point:

I believe there needs to be more incentive to share ideas as it was frustrating when others didn't contribute. It is great to discuss assignments and ideas as there is no chance for face-to-face discussion and clarification. There should be an area [like A1] for all assignments.

Examples of the second point:

It helped clear up any issues we had.

Vital to understanding the importance of piloting (questionnaires).

Three interviewees reported on the important affordances that the A1 activity offered. Melody thought A1 brought her group members closer and made them consider one another's ideas seriously. She thought the amicable and professional attitude her group members showed towards one another helped her learning and raised her confidence in the subject:

I think that[A1] was where you made yourself vulnerable. You don't normally show people stuff that's in your assignments. For that we had to and then we needed them to critique it to refer their comments in our assignment because it was part of the grading. I found it really good because I think it all brought us closer together. We would all looked at each other's work and made what we all hoped were helpful comments. It wasn't all just roses, 'Oh gee what a great survey you posted there'. It was really good critical comments and I think we all did it in a professional way that nobody was rude about anybody's work and I just found it really valuable. And then I felt confident after that, that I could share that sort of thing again (Melody).

Shania thought the A1 exercise provided her with valuable feedback to her own work and helped her contribute to others' work and learning as well:

Posting those survey questions was really good and Melody was good. I got back good sensible comments like 'How about re-phrasing this' or that kind of thing. I made sure I did everybody's and made some comment on absolutely everybody's that posted them (Shania).

Adrian's response to the use of A1 in facilitating students' participation and learning confirmed his students' reports. He thought A1 provided them with multiple examples of authentic questions, helped them to consider a range of ideas and developed their ability to give constructive feedback. He was convinced A1 improved their technical ability to design good interview and survey questions:

It helped them[students] in that they saw a range of real questions and introduced that notion of critique... But it helped them to take into account other people's ideas, it helped to clarify things for their assignment, and it helped them to consider a wider range of issues. So I think it was quite a powerful technique (Adrian).

The A1 discussion forum was used during Weeks 4 to 8 in the course. From the discussions, Week 8's postings were selected for analysis as it recorded the highest number of online postings (a total of 55) among the three student discussion groups. Analyses of the nature of participation and interactions that occurred in A1 were also conducted to determine how they were useful in resourcing and mediating students' learning experiences (Section 9.3.1). Of the three group postings to the A1 discussion forum in Week 8, Group 2 contributed a total of 26 postings, followed by Group 1 with 21 and Group 3 with 8; see Table 9.10.

Table 9.10

Student Participation Rates in the A1 Discussion Forum (Week 8) According to Groups

Week	Group 1's Postings	Group 2's Postings	Group 3's Postings	Total Postings
8	21	26	8	55

Note. Group 1 has five members, Group 2 has five members, and Group 3 has four members.

General participation in the second valued situated activity is reported next.

9.2.2.2 Activity 2: Scenario in Module 2

The Scenario activity was designed to foster the goal and purpose of student negotiations and decision making as a group as they learn about different data collection methods (interviews, surveys and observations). Table 9.11 summarises the results of students' evaluation of the usefulness of the Scenario in the Module 2 discussions. It is noted that all the students (summarising responses from the SU and VU scales) thought the Scenario useful in depicting real life educational research issues (M=1.50, s.d= 0.53). They also thought it provided a real life context to discuss the course readings (M=1.40, s.d=0.52). Another 9 students found them helpful in relating their personal experiences to the course readings (M=1.40, s.d=0.70). Using the Scenario clearly gave students the opportunity to relate and apply their academic knowledge to authentic contexts in addition to enhancing richer online interactions (see Figure 8.3 for a description of the Scenario).

Table 9.11

Students' Perception of the Usefulness of the Scenario (n=10)

Statements	Responses					M	s.d.
	NU	NVU	U	SU	VU		
Depicting real life educational research issues				5 (50%)	5 (50%)	1.50	0.53
Providing real life context to discuss the course readings				6 (60%)	4 (40%)	1.40	0.52
Linking my experience with the course readings			1 (10%)	4 (40%)	5 (50%)	1.40	0.70

Note. NU=Not Useful at All (-2), NVU=Not Very Useful(-1), U=Uncertain (0), SU=Somewhat Useful (1), VU=Very Useful (2), M=mean, s.d.= Standard Deviation. Responses from the Somewhat Useful and Very Useful scale are grouped as positive responses while responses from the Not Useful at All and Not Very Useful scales are grouped as negative responses.

Two interviewees reported on the important affordances of the Scenario activity in Module 2. Melody highlighted the value of using the Scenario as it provided a practical and realistic context for learning about research methods. The Scenario discussion's relatedness to student assignments helped Melody see the relevance of group discussions to her own work:

Most valuable module is Module 2. That was really, really valuable...Practical stuff, it was all about observations and interviews and questionnaires. So it was not only very practical and sort of realistic because there was a lot to read around that stuff. It was really good, but also it related to the assignment. It helped us with it, so I found it really good. And you really wanted to know it, need to know because of the assignment, so you do heaps of research (Melody).

Sapphire thought the Scenario helped her group bond closer and developed joint responsibility for one another's learning:

I would say the weekly group Scenarios in class because you felt – not the pressure – but you felt like you had to perform – like you couldn't have just let the group do it all – you all had to (Sapphire).

For Adrian, a particularly useful aspect of using the Scenario was that it encouraged students' online participation by requiring them to discuss in their groups, negotiate and come to a consensus on their group's stance in relation to the issues raised in a given Scenario. This activity requiring students to establish a final group stance fostered student group interactions and accountability:

It gave them [students] a better sense of group accountability, a better sense of interacting with others...and it made them look at each other's ideas. That was crucial. It made them acknowledge each other as well. So I think there are some powerful lessons to be learnt here (Adrian).

The Scenario activity was used during Weeks 4 to 6 in the course. From these Scenario discussions, Week 5's focus on the use of surveys as a data collection method was selected for analysis as it had the highest number of online postings (a total of 55) across the three student discussion groups. Analyses of the nature of participation and interactions that occurred in the use of the Scenario in Week 5 were also conducted to determine how it was useful in resourcing and mediating students' learning experiences (Section 9.3.2). Among the three student discussion groups' postings to Week 5's Scenario discussion forum, Group 1 contributed a total of 34 postings, followed by Group 2 with 11 and Group 3 with 10; see Table 9.12.

Table 9.12

Student Participation Rates in the Scenario (Week 5) According to Groups

Week	Group 1's Postings	Group 2's Postings	Group 3's Postings	Total Postings
5 11/8 – 17/8	34	11	10	55

This section has detailed the affordances and value of two situated activities which engendered high rates of participation and were valued by participants in the course. The next section examines transformation and development on the community plane as demonstrated by the extent participants was able to come together and evolve shared learning goals on research methods.

9.2.3 Goals for Participating in the Course

An aspect of the community plane is the extent to which participants evolve shared or collective community goals. That is, how individual goals for participation are transformed. Hence, it was important to identify participants' initial goals and expectations for taking part in the online course. This determined whether there was likely alignment or conflict of interests between Adrian and his students and can provide plausible explanations to support their subsequent active, or lack of, participation in the course activities. These initial goals also serve as the baseline to ascertain whether participants' goals have changed and whether they thought their learning goals have been achieved at the end of the course.

Individual Reasons and Goals for Participating in the Course: Adrian's goals in the course were threefold (see Section 8.3.4 for details). He wanted to develop his online teaching skills and was convinced of the benefit of developing a learning community to enhance his teaching and student participation in the online course. Secondly, he wanted to improve students' learning experiences in the course, that is, increasing student confidence and participation in the class online discussion forums (better online socialisation and interaction), and exploration of a wider range of ideas so that students can grasp the broader overview of research related issues. Lastly, the Research Methods course had seven outlined learning objectives/goals (see Figure 8.2) which Adrian was keen for students to achieve. On the whole, Adrian's goals in the course are framed by the university's regulations, course

assessment policies and student learning outcomes as determined by the course’s goals as well as the technology available to him and his students (see Section 8.3.6 for details).

For students, their reasons and goals for participating in the course can be seen in Table 9.13.

Table 9.13

Students’ General Reason (s) for Enrolling in the Research Methods Course (n=10)

Characteristics	Frequency	%	
Reason (s) for Enrolling in the Course	Own interest	6	60
	Compulsory requirement to obtain a degree	4	40
	Upgrade my qualification	2	20
	It was recommended to me	2	20
	Other	1	1

When asked for possible reason(s) for enrolling in the course, participants mainly did so out of their own interest, followed by the fact it was a compulsory requirement in their programme. Data from the interviews added to understanding students’ initial expectations. They range from being mostly uncertain and anxious to being curious and motivated. Three of the four interviewees attributed their initial uncertainty and anxiety to their lack of background knowledge. This is exemplified in Melody’s response:

When I first got the information pack, I thought it’d be hard, and it was because I knew nothing about research at all. There was quite a bit of initial panic, “Oh God, how am I going to cope?” (Melody).

On the other hand, another interviewee, Shaun, was motivated to fully participate in the course as he had an understanding of good teaching and learning practices.

I definitely was eager, very interested, very motivated, very, very curious. I enjoy getting feedback -- positive but also negative criticism... I also want to find out in a constructive manner as much as I can. I try and develop myself more. So I was sort of looking for that from the start, when we began the course, but also see what I

can also contribute as well. I was very curious, very, very motivated definitely...
(Shaun).

A comparison of Adrian's and students' reasons for coming into the course revealed both share similar interests such as wanting to develop better engagement with and further understandings of research methods. Adrian had the added concern for developing better online teaching strategies to facilitate those understandings and students' online participation. Such sharing of similar interests was important to lay the foundation for developing an OLC where its members come together to purposefully learn about research methods. However, with the exception of students such as Shaun, not all students' initial goals involved interacting with other students or to form a learning community in order to learn about research methods. Nevertheless, the establishment of such initial shared interests set the scene for further participation in the class that can lead to the evolvement of shared or collective learning goals and thus the development of a learning community.

Evolved shared goals as a result of participating in the course. At the end of the course, a majority of students (80%) agreed that the course had met their expectations and, thus, their goals and purposes for participating in the course (Table 9.14).

Table 9.14

Students' Perception on Whether the Course Met Their Expectations (n=10)

	Frequency	%
Yes	8	80
No	2	20
Total	10	100

Students were also asked to report at the end of the course on the extent they felt they had become a part of a learning community as a result of their participation in the class. They were, however, divided in their response (refer Table 9.15).

Table 9.15

Students' Perception of the Extent They Became a Learning Community (n=10)

	Frequency	%
Very Much So	3	30
Somewhat	0	0
Neutral	4	40
Not Very	2	20
Not at All	1	10

Note. Results from neutral and above indicated general agreement while results below neutral indicated disagreement

Only 30% of the students agreed they had very much become a part of a learning community. However, it was unclear what students' understanding and interpretation of the term *learning community* was as no data had been collected on their interpretation or ideas of the term *community*. Nevertheless, two interviewees indicated that their goals had evolved from a competitive individualistic view of learning at the onset of the course to one of learning to collaborate with others as a group at the end of it:

...but that's a change of outlook on it -- from a collaborative instead of a competitive view. As undergrads in science we talked. I had a whole group of older students and we all hung out together so that was quite good and we did talk about a lot of stuff but always at the end was the exam, which was totally your own, you were responsible for your own results. This is kind of the other way round. It's like you are responsible for your own beginning but the group is responsible for your end. I think the attitude to have is that this is an ongoing conversation. It's a conversation and a discussion where people can contribute and every contribution is valuable to adding to the knowledge (Shania).

Such transformation from individual to shared purposes at the end of the course is an important characterisation of a learning community. Furthermore, the idea of valuing the contributions of members as part of the process of building the collective knowledge in the group is another characterisation and indicator of a thriving learning community. While the number of students who explicitly spoke of how their understanding of learning goals had evolved is low, the data presented in subsequent sections indicate that a number of students shifted in their understandings.

This section has presented data on the community plane of analysis to examine the broader cultural context of the online course. Institutional regulations, structures and practices (see Chapter 8) and the tools and activities of the course were considered in terms of how these resourced and constrained lecturer and student participation in an intentionally designed course to support the teaching and learning in a semester-long online graduate Research Methods course. The evolvment of shared learning goals was also observed as part of the process of participants' apprenticing to learn more about research methods.

The varied nature of how participants in the course come together to mutually support and develop one another as a learning community is discussed next in the interpersonal plane of analysis.

9.3 Interpersonal Plane of Analysis: Distributed Cognition Through Interaction and Participation

This section discusses the interpersonal plane of analysis. The interpersonal plane foregrounds the interpersonal processes in the study as depicted in Figure 9.2.

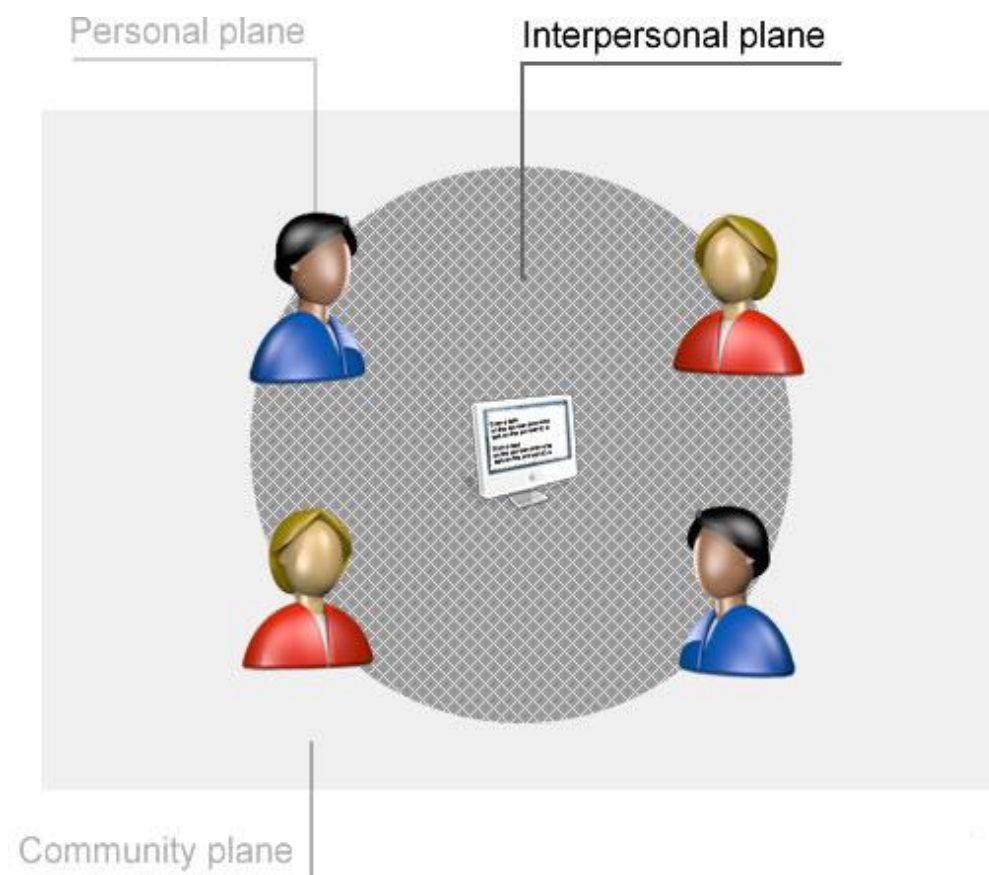


Figure 9.2. Foregrounding the Interpersonal Plane of Analysis

The interpersonal plane examines the ways the lecturer and his students interact and participate in joint activities to achieve the course goals. It also relates to the development of participant bonding as an online community for learning about research methods. Evidence of interest is the nature of the interaction (dialogue) and the participation (roles/the way one relates to others) between the online lecturer and his students and among the students. In this section, evidence is drawn from the two valued situated activities highlighted in the community plane of analysis: A1 and Scenario (see Section 9.2.2). For each activity, the nature of lecturer interactions and participation is first reported followed by the nature of student interactions and participation. Within each activity, the analysis of the lecturer and student interactions forms the basis for the analysis of the purposes (themes) that can be seen to emerge from those interactions. The analysis of the interactions also underpins the analysis and development of categories of lecturer and student participation in the course (see Section 5.5.3 for details). At a deeper level, these three analyses provide evidence of the lecturer's and students' intellectual, social and emotional development within both the A1 and the Scenario activity.

9.3.1 The Nature of Online Interaction and Participation for Activity 1 (A1)

Lecturer Interactions and Participation. Because the A1 discussion forum was set up primarily for students to give constructive feedback to one another's work, the lecturer's online presence was minimal in this discussion. Table 9.16 displays the breakdown of the lecturer's interactions with his students across the three discussion groups ranked according to their frequency of occurrence in A1 in Week 8. When he did post online in Week 8, Adrian's three chief ways of interacting were *Suggesting* new ideas with 3 postings, and *Refocusing* student responses and *Name Addressing* with 2 postings each. *Suggesting* new ideas was useful when Adrian felt that students needed to consider alternative ideas in their discussions. Furthermore, helping to *Refocus* their ideas when they became sidetracked was also necessary to guide students back to the key issues in the discussion. These three key ways of lecturer interaction are associated with the lecturer's particular purposes for interacting in the forum (see Section 5.5.3 for details). Thus, *Suggesting* new ideas and *Refocusing* students' responses chiefly occurred for the purposes of supporting students' academic needs as identified by the *Pedagogical or Intellectual* theme of interaction. *Name Addressing*, on the other hand, reflected a *Social* orientation in response to students' social needs. The other categories and ways of interacting reflecting various dimensions in the

Pedagogical or Intellectual and the *Social* themes were of less significance in this forum as were the *Technological* and *Managerial* themes of interaction.

Table 9.16

Nature of Lecturer Interactions in the A1 Discussion Forum (Week 8)

Ways of Interacting	Themes of Interaction	Number of Postings
Suggest new idea (based on concrete examples from research experience/refer to literature/ other students' contributions)	Pedagogical/Intellectual	3
Refocus students responses to guide them back to the task (prevent from sidetracking)	Pedagogical/Intellectual	2
Name addressing	Social	2
Acknowledge ideas / highlight important ideas from students' discussion (pick up important points)	Pedagogical /Intellectual	0
Feedback to student's questions (disagree)	Pedagogical /Intellectual	0
Sharing opinion with students	Pedagogical /Intellectual	0
Ask questions to facilitate students' inquiry, obtain clarification or prompts for student to think/facilitate thinking	Pedagogical /Intellectual	0
Ask for students' opinion	Pedagogical /Intellectual	0
Summarise discussion	Pedagogical/Intellectual	0
Sharing experience with student	Pedagogical /Intellectual	0
Greetings/salutations	Social	0
Thanking and encourage students' contributions	Social	0
Joke, humour, social chit chat	Social	0
Advice on e-communication related issues	Social	0
Advice on technical-related issues	Technological	0
Announcements on course management issues	Managerial	0

Table 9.17 portrays Adrian's key roles in the A1 discussion forum as grounded in the three key ways of interacting observed in Table 9.16. He primarily adopted a *Pedagogical* role followed by a *Social* role in this discussion forum.

Table 9.17

Nature of Lecturer Participation in the A1 Discussion Forum (Week 8)

Participatory Roles	Ways of Interacting	Themes of Interaction	Number of Postings ^a
Pedagogical	Suggest new idea (based on concrete examples from research experience/refer to literature/ other students' contributions)	Pedagogical /Intellectual	3
Pedagogical	Refocus students responses to guide them back to the task (prevent from sidetracking)	Pedagogical /Intellectual	2
Social	Name addressing	Social	2

Note. ^aThe earlier Table 9.2 reflects findings from the general quantitative analysis of the online postings while this table (and subsequent similar ones) presents findings from the qualitative content analysis of the online data (see Section 5.5.3). The number of online postings observed between the tables thus differs.

The adoption of a *Pedagogical* role is dominant in the A1 discussion forum given the number of Adrian's postings that fall under this role consistent with his interactions with students for the purposes of meeting their intellectual needs associated with the *Pedagogical or Intellectual* theme of interaction. Similarly, he adopted a *Social* role to a lesser extent for the purposes of meeting his students' social needs in the class. Roles associated with the *Technological* and *Managerial* themes of interaction were not evident in this forum.

Figure 9.3 is a sample online conversation between Adrian and his students. It supports the evidence from the content analysis described above highlighting Adrian's *Pedagogical* role. Pam, in Group 2, had posted her questionnaire and interview questions for feedback from her peers. Despite constructive feedback and encouragement from at least three of her peers through a number of postings, Pam was still unsure about the direction of her research. At this point, Adrian came online in a timely manner to play a *Pedagogical* role in helping her refocus her ideas and point her in the right direction (see Posting # 42). Pam was grateful for Adrian's help.

Student/ Adrian	Online Posting	Ways of Interacting (Participatory Role)
Pam (Posting # 40)	Hello All, My research question is "What do children learn from Jump Rope for Heart?", that's why I thought it would be good to have both lecturer and student input, what do you all think? Is anyone else struggling with the readings? Hope all is going well with the assignments!	Greeting (Socialite) Feedback (Mentor) Share feelings
Adrian (Posting #42)	Pam - I suggest that you have become too broad in your focus. Why don't you ask children what they learning from doing Jump rope for Heart. In that way you will be much more focused. So your research question for children is 'What do you learn from Jump Rope for Heart?' Forget the lecturers.	Name addressing (Social) Refocus (Pedagogical) Suggest new idea (Pedagogical)
Pam (Posting # 43)	Thanks Adrian that will help!	Thanking (Encourager) Name Addressing (Socialite)

Figure 9.3. Lecturer Interactions and Participation in A1 (Week 8) for Group 2

The example in Figure 9.3 highlights the *Pedagogical or Intellectual* theme of interaction and its related *Pedagogical* role. This interaction is supported by the *Social* theme of interacting and its related *Social* role. Adrian's key ways of interacting and roles adopted in Week 8 appears to be framed by the goals fostered through the A1 discussion forum. This was designed to encourage student interaction and participation as they shared their work and developed their expertise in designing survey and interview questions. Adrian contributed to the distributed expertise in the groups, which mainly supported his students' intellectual and social development in Week 8.

The nature of students' interactions and participation is detailed next.

Student Interactions and Participation. Table 9.18 displays the breakdown of the specific types of student interactions that occurred online in Week 8 across the three discussion groups. The 55 postings were carefully examined and coded into 20 ways of interacting. The four leading ways of interacting were: *Feedback* to a group member's questions which accounted for 46 postings followed by *Name Addressing* with 38, *Thanking and Encouraging*

one another next with 28, and, finally, *Jokes* with 22. *Feedback* reflects students' interactions that respond to a request for facts, opinions or advice. Interactions under *Name Addressing*, on the other hand, reflect students' conscientious use of one another's name as a means to personalise their interactions and help one another feel appreciated. Furthermore, *Thanking and Encouraging* reflect students' appreciation, gratefulness and encouragement towards one another for a job well done or support given. Finally, *Jokes* indicates that social chat or humour was mutually shared among the students. *Feedback* is associated with the *Content or Intellectual* theme of interaction to reveal that students' interactions were chiefly to support and meet one another's academic needs. Meanwhile, *Name Addressing*, *Thanking and Encouraging*, and *Jokes* fall under the *Supportive or Emotional* theme of interaction which demonstrates social and emotional support and relationship building in the forum. That these two themes of interaction feature quite significantly in this forum indicate both the *Content or Intellectual* and *Supportive or Emotional* themes of interacting were the necessary foundations for beneficial online interactions to occur in Week 8's discussions. There were minimal postings for interactions belonging to the *Teamwork or Social* (11 postings) theme in comparison to the *Content or Intellectual* (46 postings) and *Supportive or Emotional* (ranging from 22 to 38 postings) related themes of interaction. No postings were observed for *Giving Opinion*, *Summarising*, and, *Delegation* ways of interacting.

The A1 discussion forum's goals and purposes requiring students to share and obtain multiple perspectives to improve their individual abilities in designing survey and interview questions facilitated their feedback to one another's ideas for completing Assignment 1 (see Figure 8.4). This task was significantly *Content or Intellectual* related in nature. These goals and purposes relegated the *Teamwork or Social* theme of interaction reflecting students' growing accountability and responsibility for their group's achievement to a lesser extent. However, as students collaborated in their groups to enhance one another's ideas, they began to support one another towards accomplishing the shared purposes of completing Assignment 1, as evidenced through a range of *Supportive or Emotional* related theme of interacting. This suggests that the goals and purposes inherent in the A1 forum help to frame and mediate particular student interactions in the Week 8 forum such that some kinds of interactions were more evident and led to their linking to and building on one another's ideas as well as developing relationships with one another.

Table 9.18

Nature of Student Interactions in the AI Discussion Forum (Week 8)

Ways of Interacting	Themes of Interaction	Number of Postings
Feedback on question posed by group member	Content/Intellectual	46
Name addressing	Supportive/Emotional	38
Thanking and encouraging one another	Supportive/Emotional	28
Joke or humour, social chat	Supportive/Emotional	22
Ask for other's opinions	Content/Intellectual	11
Ask questions to clear a doubt	Content/Intellectual	11
Apologises for late online contributions, not participating, inability to contribute anymore during the week	Teamwork/Social	11
Sharing of feelings	Supportive/Emotional	11
Agreement / Disagreement with fellow members' idea	Content/Intellectual	8
Promises to contribute later during the week	Teamwork/Social	8
Greetings or salutations	Supportive/Emotional	8
Sharing of information / resources	Content/Intellectual	5
Refocus fellow group members' ideas when the topic gets sidetracked	Content/Intellectual	4
Ask about one another	Supportive/Emotional	4
Elaboration / restating position and possibly advancing arguments by referring to the experience, literature, formal data or proposal of relevant metaphor or analogy to illustrate view	Content/Intellectual	3
Sharing of personal experiences and concrete examples related to discussions	Content/Intellectual	3
Self-reflection	Content/Intellectual	2
Give opinion	Content/Intellectual	0
Summary or negotiation of ideas	Content/Intellectual	0
Delegates /manages / organises group to increase group efficiency in achieving task	Teamwork/Social	0

The four significant student interactions reflect the adoption of different student roles in Week 8 of the class (see Table 9.19).

Table 9.19

Nature of Student Participation in the AI Discussion Forum (Week 8)

Participatory Roles	Ways of Interacting	Themes of Interaction	Number of Postings
Mentor	Feedback on question posed by group member	Content/Intellectual	46
Socialite	Name addressing	Supportive/Emotional	38
Encourager	Thanking and encouraging one another	Supportive/Emotional	28
Socialite	Joke or humour, social chat	Supportive/Emotional	22

Giving *Feedback* to questions posed was a primary way of interacting and reflected the role of a *Mentor*. This important role involving student assistance and scaffolding of one another's ideas and understandings is highlighted in this forum which was designed for students to give constructive criticism to their peers' work. The *Mentor's* role is associated with the *Content or Intellectual* theme of interaction where students interact to support one another's academic needs. The next three leading forms of interactions, *Name Addressing*, *Thanking and Encouraging* one another, and *Jokes* underpin the roles of *Socialite*, *Encourager* and *Socialite* respectively. A *Socialite* role focuses on assisting others to feel comfortable in participating in the group. The *Encourager* role is adopted when participants indicate concern and encouragement for others in the group. The frequency with which these roles were taken up suggest that students' feedback, appreciating and encouraging one another's online contributions was valued in this discussion.

Examples of student interactions and participating can be seen from the contributions in the sample online transcript in Figure 9.4. They corroborate the evidence from the content analysis described above. For example, in Group 1's discussion forum, the interactions between Vance, Tanya, and Sapphire were rich and varied and include giving *Feedback* (*Mentor* role), *Name Addressing* (*Socialite* role), and *Thanking and Encouraging* a peer for his or her feedback or for a work well done (*Encourager* role)¹¹.

¹¹All three groups' (Groups 1, 2 and 3) online postings were analysed and all shared similar themes of interaction and participation patterns. Due to space constraint, only postings from the most descriptive group, Group 1, is chosen to exemplify the interaction and participatory themes.

Student	Online Posting	Ways of Interacting (Participator Roles)
Vance (Posting # 15)	<p>Here are my Interview questions now: I would select only a small number of interviewees dependant on the questionnaire responses, themselves dependant on type of school. I would interview in a semi-structured, quite open-ended, qualitative fashion and I would ask:</p> <ol style="list-style-type: none"> 1.What are you as a N.E.T expected to do re: the teaching of English in your secondary school in Hong Kong? 2.Do you feel that you have made any impact on the teaching of English at your secondary school, and if, so, what? 3.What do you as a N.E.T believe requires change, if anything, re: the teaching of English in your secondary school in Hong Kong? <p>I would seek permission also to record the responses with the obvious assurances that all data collected and subsequently collated would be strictly confidential re: source.</p> <p>Please feel free to criticise here. I will write my assignment once I get some feedback. Thank you.</p> <p><i>Tena koe</i> [Maori greeting]^a Vance</p>	<p>Ask for opinion (Seeker)</p> <p>Thanking peers (Encourager)</p>
Tanya (Posting # 16)	<p>I felt that your question sequence has a clear flow. Very concise. According to Cohen et al (2001, p. 270) the type of interview selected may help you “to acquire unique, non-standardized, personalized information about how individuals view the world...” He suggests that if you are not looking for comparisons across schools then this may be the way to go. In terms of the method of collection, I agree if you record and can get permission for this you can get more flow in terms of what is said.</p> <p>You can match the questions, etc stemming of each question to questionnaire responses. The type of interview gives space for interviewees to give meaning without you redirecting on a set course.</p> <p>I like it.</p>	<p>Greeting (Socialite) Name addressing (Socialite)</p> <p>Feedback (Mentor)</p> <p>Sharing of resources (Resource contributor)</p> <p>Encourage peer (Encourager)</p>
[Postings #17-19 omitted as irrelevant]		
Vance (Posting # 20)	<p><i>Kia ora</i> Tanya - thank you for your comments about my Interview questions - how about your comments re: my earlier posted Questionnaire, please or are you commenting on both</p>	<p>Name addressing (Socialite)</p>

	sets of questions here?	
	Before I comment on your own <i>patai</i> , what is the exact wording of your Research Question, please?	Thanking (Encourager) Ask question (Seeker)
	<i>Aroha mai mo taku kuaretanga e hoa!</i>	Social chit chat (Socialite)
Tanya (Posting # 21)	<i>Tena koe</i> Vance I need glasses as I didn't realise that you had posted one. Looking through it I liked the flow of multiple choice questions, getting background info and moving into the main focus. I thought at the end though that the issue re. the impact of NET and how hadn't been clear to get info from the questions though. It seems to start at the last question and then stop. As with before I am by no means in expert please take my comments in that regard. Your feedback if I am off track here would be appreciated.	Name addressing (Socialite) Joke (Socialite) Feedback (Mentor)
	<i>[Postings #22-26 omitted]</i>	Sharing of feelings (Encourager) Ask for opinion (Seeker)
Sapphire (Posting # 27)	<i>Kia Ora</i> everyone Everyone has been so busy whilst I have been laid up - hence the absence - sorry. I am just catching up with everyone's fantastic work. Well done. My comments aren't going to be anything from the ordinary at this stage. Vance, I agree with Tanya in that your questions follow a very tidy sequential order. They are clear and concise. I wish I could borrow your articulated writing skills over the weekend.	Greeting (Socialite) Apologises (Team supporter) Encouraging (Encourager) Name (Socialite) Feedback (Mentor)
	<i>[Postings #28-37 omitted]</i>	Encouraging (Encourager)
Sapphire (Posting # 38)	Hi Vance I have managed to throw together some feedback regarding your questionnaire and interview questions. Firstly, for the ease on participants, I would include tick boxes next to answer options and indicate at the end of questions whether or not you would like them to indicate their answers by ticking a box or circling an answer option. Cohen et al (2002) suggest that "clear instructions for example, 'place a tick' or 'please circle' invites participation" (p. 258). Secondly, you have moved from structured/factual questions through to open and then closed questions. Cohen et al (2002)	Name addressing (Socialite) Feedback (Mentor) Sharing of information (Resource Contributor) Sharing of information (Resource Contributor) Feedback (Mentor)

<p>suggests "a common sequence is to commence with unthreatening factual questions; move to closed (dichotomous, multichoice etc.) about a given statement or questions, eliciting responses that require opinions, attitudes, perceptions; and finally move to questions that seek responses on opinions, attitudes, perceptions" (p. 257). As a suggestion, I would modify the final question whereby respondents answer the rating scale but also give them the opportunity to offer their views and opinions. It is really good question and I think you could get more in depth insight into lecturers views. You have provided "clarity of wording and simplicity of design" which Cohen et al (2002) describe as essential when writing questionnaires (p. 258). You have done this well.</p>	<p>Sharing of information (Resource Contributor)</p>
<p>A query about question 8. You have ended the question by saying "under your own terms". For me, this seemed to be a little ambiguous, but I am not answering this questionnaire within the context for which it is proposed.</p>	<p>Feedback (Mentor)</p>
<p>The interview questions are good. You have proposed a semi-structured interview process which will allow the participants' attitudes and views to be interpreted from their perspective which is great. After referring back to Bishop (1997) I wondered whether or not you would in fact use your main research question as discussion and would use the three other questions as an interview guide?</p>	<p>Encouraging peer (Encourager)</p>
<p>I hope that this feedback is constructive enough for you. Thanks</p>	<p>Feedback (Mentor)</p>
<p>[Posting #39 omitted]</p>	<p>Sharing of feelings (Encourager)</p>
<p>Vance (Posting # 40) <i>Kia ora tatou katoa ano.</i> Sapphire - thanks for your percipience re: my stuff too. I'll be back!!!</p>	<p>Greeting (Socialite) Thanking (Encourager) Promise to contribute (Team supporter)</p>

Note. ³In New Zealand, both the English and Maori languages are recognised and acceptable forms of communication.

Figure 9.4. Student Interactions and Participation in A1 (Week 8) for Group 1

Vance (Posting #15) initiated the discussion by posting his sample interview questions in A1 and requested his peers' opinions and feedback. Tanya's detailed response added to the depth of thinking to his questions by sharing resources pertinent to his situation. She further encouraged his effort (Postings #16 and #21). Vance thanked her. Another student, Sapphire, also encouraged Vance to keep up the good work (Posting # 27) in her feedback. Notably, when students had inadequate feedback from others, they felt free to request for it explicitly. For example, Vance's request for feedback to his survey questions posted earlier in the A1

forum (Posting #20) elicited more detailed constructive critiques from Tanya (Posting #21) and Sapphire (Posting # 38). Vance appreciated both their responses and promised to reciprocate their gesture (Posting # 40). A rich interplay of *mentoring*, *socialising* and *encouraging* roles is observed through these interactions as students felt free to give genuine and honest responses usually using supportive literature to facilitate one another's understandings. The examples in Figure 9.4 illustrate how the *Content or Intellectual* theme of interaction plays out in the *Mentor* role and how important it was in spearheading the discussions in Week 8. For instance, Tanya and Sapphire's feedback to Vance's posting (Postings #16, 21, 27 and 38) proved important and valuable to his developing understandings on designing survey and interview questions. This interaction theme is shown by the *Supportive or Emotional* themes and the associated roles of *Socialite* and *Encourager*. For example, the three students assumed Socialite and Encourager roles respectively in response to one another's contributions (see Postings #16, 20, 21, 27, 38 and 40) to show their appreciation and social and emotional support for one another in the forum.

To sum up, the A1 discussion forum designed as a situated activity embedded particular affordances for fostering the goals and purposes of student sharing ideas and expertise. In practice, it created a situation where expertise was distributed in support of the individual student's developing understanding of designing survey and interview questions. In this process, the *Content or Intellectual*, and *Supportive or Emotional* themes of interaction and the roles supporting these themes supported and developed students intellectually and emotionally. Particular interactions and roles within these two themes of interactions were more valued forms of guidance and expertise compared to others. The emphasis on particular kinds of interactions over others suggests that student participation is framed and shaped by the goals and purposes inherent in the A1 discussion forum designed to foster students sharing ideas and developing their expertise in designing survey and interview questions.

The nature of lecturer and student interaction and participation in the second activity is discussed next.

9.3.2 The Nature of Online Interaction and Participation for Activity 2 (*Scenario*)

Lecturer Interactions and Participation. Within the Scenario in Module 2 in Week 5, the following kinds and number of lecturer interactions in the three discussion groups were noted. *Name Addressing* had the highest number of postings (7); *Sharing Experience* had 6;

while *Acknowledgement of Ideas*, *Suggest new idea* and *Thanking and Encouraging* student participation each had 5; see Table 9.20. *Name Addressing* indicated Adrian's concern to personalise his interactions with his students. *Sharing Experience* portrays Adrian's willingness to share his professional experiences in order to concretise students' ideas. *Acknowledgement of Ideas* is another important way for Adrian to recognise students' key ideas. *Suggest new idea* demonstrated his sharing of literature-based ideas to guide students in addressing a specific issue, and finally, *Thanking and Encouraging* shows his keenness to encourage student contributions to the discussions. These five leading ways reflect two key purposes or themes of interacting that are *Social* and *Pedagogical or Intellectual* in nature. *Name Addressing* and *Thanking and Encouraging* reflect a *Social* oriented theme of interaction in response to students' social needs. *Sharing Experience*, *Acknowledgement of Ideas* and *Suggest new idea* typically occur to support students' intellectual needs as identified by the *Pedagogical or Intellectual* theme of interaction. The *Managerial* and *Technological* themes of interacting featured minimally in this discussion.

Table 9.20

Nature of Lecturer Interactions in the Scenario (Week 5)

Ways of Interacting	Themes of Interaction	Number of Postings
Name addressing	Social	7
Sharing experience with student	Pedagogical/ Intellectual	6
Acknowledge ideas / highlight important ideas from students' discussion (pick up important points)	Pedagogical/ Intellectual	5
Suggest new idea (based on concrete examples from research experience/refer to literature/ other students' contributions)	Pedagogical/ Intellectual	5
Thanking and encouraging students' contributions	Social	5
Feedback to student's questions (disagree)	Pedagogical/ Intellectual	3
Ask questions to facilitate students' inquiry, obtain clarification or prompters for students to think/facilitate thinking	Pedagogical/ Intellectual	3
Announcements on course management issues	Managerial	2
Sharing opinion with students		1
Greetings/salutations	Pedagogical/ Intellectual	1
Ask for students' opinion	Pedagogical/ Intellectual	0
Summarise discussion	Pedagogical/ Intellectual	0

Refocus student responses to guide them back to the task (prevent sidetracking)	Pedagogical/ Intellectual	0
Joke, humour, social chit chat	Social	0
Advice on e-communication related issues	Social	0
Advice on technical-related issues	Technological	0

Table 9.21 portrays the participative roles Adrian undertook with his students. Two key roles in this forum are *Social* and *Pedagogical*. The former reflects the way Adrian interacted with his students for the purposes of meeting their social needs. The latter role was for meeting his students' intellectual needs in the class. Roles associated with the *Technological* and *Managerial* themes of interaction were not important in this forum.

Table 9.21
Nature of Lecturer Participation in the Scenario (Week 5)

Participatory Roles	Ways of Interacting	Themes of Interaction	Number of Postings
Social	Name addressing	Social	7
Pedagogical	Sharing experience with student	Pedagogical/ Intellectual	6
Pedagogical	Acknowledge ideas / highlight important ideas from students' discussion (pick up important points)	Pedagogical/ Intellectual	5
Pedagogical	Suggest new idea (based on concrete examples from research experience/refer to literature/ other students' contributions)	Pedagogical/ Intellectual	5
Social	Thanking and encouraging students' contributions	Social	5

Figure 9.5 shows a typical sample excerpt of a discussion between Adrian and Reba, a student in the Group 2 discussion in Week 5. His response to Reba's questions (Posting #18) which her peers had difficulty answering clearly demonstrated the importance of his *Social* and *Pedagogical* roles. His posting #19 reflects a combination of important interactions and roles. He began by adopting a *Social* role (*Name addressing*), followed by a number of *Pedagogical* roles (including *Acknowledging* Reba's ideas and *Sharing his experiences* with her) and concluded by adopting a *Social* role in *encouraging* her to contribute an important idea to the group.

Student/ Adrian	Online Posting	Ways of Interacting (Participatory Roles)
Reba (Posting #18)	<p>Hi all.</p> <p>I was a little confused about the sample size.</p> <p>I really put that number out there for discussion so feel free to oppose it and any other ideas I have. That's what this discussion is all about.</p> <p>I was wondering what you all think about a 5% interview sample, 10% survey sample and 5% observation sample. Although Adrian seems to think 100 schools were too big a sample to interview. Maybe 2.5% for the interview and observation. They would need to be randomly selected using statistical means. Within this 2.5% or 5% there would need to be even representation of primary, secondary, private, Maori, special needs?? It would depend on the percentage of these schools in our education system.</p> <p>What do you think about interviewing and surveying the same schools or using different ones? Hopefully hear from some of you soon.</p>	<p>Greeting (Socialite)</p> <p>Share Feelings (Encourager)</p> <p>Give opinion (Resource contributor)</p> <p>Ask question (Seeker)</p> <p>Ask for other's opinions (Seeker)</p>
Adrian (Posting #19)	<p>Reba, you have raised some interesting points about sampling for both interviews and questionnaires. Personally I would look to do fewer more in-depth interviews and then use the findings from the interviews to then move to a 5-10% sample in your questionnaires. I like the idea of piloting (pre-testing) your questionnaire – this is essential part of the process, in fact in the National School Sampling Study we had 2-3 pilot stages e.g. local schools, union groups, <i>kura</i> groups and MoE officials. Your idea of stratified (representative) sampling is crucial to this process.</p>	<p>Name addressing (Social)</p> <p>Acknowledge ideas (Pedagogical)</p> <p>Feedback (Pedagogical)</p> <p>Share experiences (Pedagogical)</p> <p>Encouraging (Social)</p>

Figure 9.5. Lecturer Interactions and Participation in the Scenario (Week 5) for Group 2

This section has indicated some of the rich repertoire of interactions and roles undertaken by Adrian in Week 5 as part the Scenario activity. They are primarily related to the *Social* and *Pedagogical or Intellectual* themes of interaction. Adrian's key interactions and roles can be seen to have been framed and mediated by the goals and affordances inherent in the Scenario activity designed to foster student negotiation and decision making as a group. Such ways of interacting and participating on Adrian's part contributed to the distribution of expertise in the discussion groups which in turn supported his students' social and intellectual developments in Week 5.

The nature of students' interactions and participation in this forum is detailed next.

Student Interactions and Participation. Table 9.22 summarises students' ways of interacting and their related number of coded postings. The five highest numbers of postings were *Greetings or Salutations*, which had 33 postings; followed by *Name Addressing* and *Thanking and Encouraging* both with 26; *Delegation* with 21; and *Agreement/Disagreement* with 20. *Greetings or Salutations* is demonstrative of students greeting and welcoming one another, while *Name Addressing* denotes their use of one another's names as a way of personalising their interactions with one another. *Thanking and Encouraging* is indicative of students' appreciation, gratitude and encouragement to one another for a job well done or support given. *Delegation* demonstrates student interactions involving communication and teamwork strategies, and *Agreement/Disagreement* reflect students' assertion of their views on a particular topic.

The *Greetings or Salutations*, *Name Addressing* and *Thanking and Encouraging* interactions are predominant features of the *Supportive or Emotional* theme of interaction where students are keen to develop social and emotional support and relationship building in their group. *Delegation* reflects student interactions associated with the *Teamwork or Social* theme of interaction portraying students developing accountability and responsibility for their group's accomplishments. Finally, *Agreement/Disagreement* is related to the *Content or Intellectual* theme of interaction when students respond to their peers' academic needs in the course. There were no postings for *Self Reflection* and *Asking about one another* ways of interacting.

The purpose and goal of the Scenario discussion requiring students to negotiate and decide on a position in order to submit their group's response (see Figure 8.3) meant that some form of group organisational strategies needed to occur to ensure each group responded in a timely manner. Hence, a majority of students' interactions (*Greetings, Name Addressing, Thanking and Encouraging*) were focused on social and emotional support and relationship building in the group (*Supportive or Emotional* theme of interaction) as part of their learning to come together and collaborate as a group. For them to submit their response in a timely fashion, students have to develop some forms of organisational structure to manage their assigned group task. Hence, a reliance on the *Delegation* way of interacting indicates the students' developing sense of accountability and responsibility towards their own and their groups' learning (this reflects the *Teamwork or Social* theme of interaction). As the Scenario involved much negotiation of ideas among group members, the *Agreement/Disagreement* interaction became quite important as they shared and contributed their ideas through the *Content or*

Intellectual theme of interaction. This suggests that the goals and purposes inherent in the Scenario help to frame and mediate particular student interactions in the Week 5 forum so that some kinds of interactions were more evident and led to them developing relationships with one another, their growing sense of accountability and responsibility towards their group's learning and developing abilities in asserting their views on a topic.

Table 9.22

Nature of Student Interactions in the Scenario (Week 5)

Ways of Interacting	Themes of Interaction	Number of Postings
Greetings or salutations	Supportive/ Emotional	33
Name addressing	Supportive/ Emotional	26
Thanking and encouraging one another	Supportive/ Emotional	26
Delegates /manages / organises group to increase group efficiency in achieving task	Teamwork/Social	21
Agreement / Disagreement with fellow members' idea	Content/Intellectual	20
Feedback on question posed by group member	Content/Intellectual	18
Promises to contribute later during the week	Teamwork/Social	17
Ask for other's opinions	Content/Intellectual	16
Sharing of information / resources	Content/Intellectual	15
Give opinion	Content/Intellectual	13
Refocus fellow group members' ideas when the topic gets sidetracked	Content/Intellectual	12
Apologises for late online contributions, not participating, inability to contribute anymore during the week	Teamwork/Social	12
Joke or humour, social chit chat	Supportive/ Emotional	11
Sharing of feelings	Supportive/ Emotional	8
Ask questions to clear a doubt	Content/Intellectual	6
Elaboration / restating position and possibly advancing arguments by referring to the experience, literature, formal data or proposal of relevant metaphor or analogy to illustrate view	Content/Intellectual	4
Sharing of personal experiences and concrete examples related to discussions	Content/Intellectual	4
Summary or negotiation of ideas	Content/Intellectual	4
Self-reflection	Content/Intellectual	0
Ask about one another	Supportive/ Emotional	0

The five leading ways of interacting reflect the students' adoption of different roles in Week 5 of the class (see Table 9.23).

Table 9.23

Nature of Student Participation in the Scenario (Week 5)

Participatory Roles	Ways of Interacting	Themes of Interaction	Number of Postings
Socialite	Greetings or salutations	Supportive/ Emotional	33
Socialite	Name addressing	Supportive/ Emotional	26
Encourager	Thanking and encouraging one another	Supportive/ Emotional	26
Coordinator	Delegates /manages / organises group to increase group efficiency in achieving task	Teamwork/Social	21
Mentor	Agreement / Disagreement with fellow members' idea	Content/Intellectual	20

The *Greetings or Salutations* and *Name Addressing* ways of interacting show students adopting the *Socialite* role as they address and greet each another and share jokes or chats to make themselves feel comfortable with participating in the group. This role is associated with the *Supportive or Emotional* theme of interaction. The next important student way of interacting, *Thanking and Encouraging*, demonstrates interactions undertaken by the role of an *Encourager* when students show concern for and encourage others in the group. It is related to *Supportive or Emotional* theme of interaction. The students' reliance on the *Delegation* way of interacting indicates their adoption of the *Coordinator* role in their group. A *Coordinator's* role emerges when students assume responsibility for organising and delegating tasks among their group members to help their group accomplish shared learning goals. It is associated with the *Teamwork or Social* theme of interaction. Finally, the students' involvement in the *Agreement/Disagreement* way of interacting indicates their adopting the *Mentor* role which is highlighted when they scaffold and assist one another in developing their ideas and understandings in the course. The frequency with which these roles were taken up suggests that students' emotional, social and intellectual support of one another was valued in this discussion.

Examples of online student interactions and participation in the Scenario are further substantiated by their online contributions. These sample contributions corroborate the findings above and richly portray the nature of interactions that were *Supportive or Emotional* (*Socialite* and *Encourager* roles), *Teamwork or Social* (*Coordinator* role), and *Content or Intellectual* (*Mentor* role) related and roles that took place for each group to accomplish their weekly online activity on time (see Figure 9.6). For example, Vance initiated the discussion and assumed the *Coordinator* role by offering to do the final proposal for Group 1 (Posting #34). Throughout the discussion, he remained a key figure in *coordinating*, delegating and organising and even *mentored* (Posting #38) his peers where needed to keep his group on track with their shared task and goals. He also played a *Socialite* role when greeting and personally addressing his group members by name. This important role complemented his *Coordinator* role to facilitate the accomplishment of the group’s task and goals. Two group members, Shaun and Sapphire, worked closely with Vance by adopting the roles of *Socialite*, *Encourager* and *Mentor* (Postings #34.1 and #38.1) as well to indicate their cooperation and support of the group’s shared task and goals.

Student	Online Posting	Ways of Interacting (Participatory Roles)
Vance (Posting # 34)	<i>Kia ora. He ra tino pai mo katoa.</i>	Greetings (Socialite)
	I volunteer to ‘do surveys’ proposal this coming week: Sapphire must be exhausted by now. Eh.	Delegation (Coordinator)
	I think much of our preamble be retained and we look at suitability of surveys as data-gathering method re: Internet Usage.	Refocus ideas (Mentor)
	I think we all agreed that surveying would be the preliminary data-gathering approach – i.e. prior to interviewing of any type – and you all know my <i>kaupapa</i> : I ad- nauseum – know from experience that many learners especially have no access to internet at school and at home. And yes – all too often they are my cousins. And my kids too actually!	Summary of Ideas (Reviewer) Share personal experiences (Resource Contributor)
	So maybe our first nationwide survey – over a sample range of diverse schools – should pose the initial question: Do you have Internet access at all? before we even decide how to go on from there.	Give opinion (Resource Contributor)

Sapphire (Posting # 34.1)	<p>Hi Vance</p> <p>My first contribution to the survey section is, can we send a survey to all Principals establishing:</p> <ul style="list-style-type: none"> - School size - Decile rating - Number of computers - Number of computers connected to the internet - Number of staff that have access to the internet - Ethnic makeup of students at the school - If students have access to internet at the school <p>All this data will enable us to sort out some coherence to the geographic locations and groups we would like to interview etc.</p> <p>Thanks Sapphire.</p>	<p>Name addressing (Socialite)</p> <p>Elaboration of ideas (Mentor)</p> <p>Thanking (Encourager)</p>
<i>[Postings #35-37 omitted]</i>		
Vance (Posting # 38)	<p><i>Kia ora ano.</i></p> <p>Sapphire – I am not sure that we would survey all principals – remember we are to be cost effective here. Let alone the time practicalities involved. I know that you have read the chapter entitled ‘Sampling’ in Cohen et al, 2000. Seems to me that this would be the way to go.</p> <p>More, may I make the suggestion that our survey be of the cross-sectional variety (Cohen et al, 2000, p. 179), i.e. one-off quick to conduct, etc.</p>	<p>Greeting (Socialite)</p> <p>Name addressing (Socialite)</p> <p>Disagreement (Mentor)</p> <p>Share resources (Resource Contributor)</p> <p>Elaboration of ideas (Mentor)</p>
Shaun (Posting # 38.1)	<p>I agree with you Vance.</p> <p>The cross-sectional variety of survey is what I feel is appropriate. Also more cost-effective. Surveying all principals I think would again clash with funding. Sampling them with teachers and students would be better.</p> <p>So now, I am away to start writing questions</p>	<p>Agreement (Mentor)</p> <p>Name addressing (Socialite)</p> <p>Elaboration of ideas (Mentor)</p> <p>Promise to contribute (Team supporter)</p>

Figure 9.6. Student Interactions and Participation in the Scenario (Week 5) for Group 1

The dialogue continued as follows with Shaun’s promise of further contributions and Vance’s response (see Figure 9.6 below).

Student	Online Posting	Ways of Interacting (Participatory Roles)
Shaun (Posting # 40)	<p>Vance – I want to help you as much as possible.</p> <p>I will look at the questionnaire and write up a set of questions. I do have a question for you all – How many surveys do we need to create? If we are doing one for principals, we will need to do one for teachers and students as well, right? Or should we look at creating 1 survey to cover all participants</p> <p>Sapphire - Thanks for the good work. I just hope I can help Vance do just a good a job as you did. I will be online again, the same time tomorrow or later on tonight.</p> <p>If all goes well, I should have a set of questions that can be picked over and recreated.</p>	<p>Name addressing (Socialite)</p> <p>Promise to contribute (Team supporter)</p> <p>Ask questions (Seeker)</p> <p>Name addressing (Socialite)</p> <p>Thanking (Encourager)</p> <p>Promise to contribute (Team supporter)</p>
[Posting #41 omitted]		
Vance (Posting # 42)	<p><i>Kia ora tatou katoa.</i></p> <p>I reckon a probability sample of the stratified type is all we need (Cohen et al, p 101): a sample covering a range of schools qua teachers and learners and beginning with formal questions about Internet capabilities and then moving onto less formal questions about usage. Maybe only 382 questionnaires are required, given Krejcie and Morgan, 1970 cited in Cohen.</p> <p>Also forget about the principals – they aren't part of the quota.</p> <p>Shaun – <i>kia ora e hoa.</i> Any questionnaire questions would be fine.</p>	<p>Greeting (Socialite)</p> <p>Share resources (Resource Contributor)</p> <p>Refocus Ideas (Mentor)</p> <p>Name addressing (Socialite)</p> <p>Greeting (Socialite)</p> <p>Delegation (Coordinator)</p>

Figure 9.6. Student Interactions and Participation in the Scenario (Week 5) for Group 1 (continued)

In Figure 9.6 above, discussions between Vance and Shaun continued with Vance playing strong *mentoring* and *coordinating* roles to guide Shaun's contribution to the group (Posting # 42). Shaun continued adopting the roles of *Socialite* and *Encourager* in support of Vance's role and the group's shared task and goals (Posting # 40).

The dialogue between Vance and Shaun continues along this similar theme as revealed in Figure 9.6 below.

Student	Online Posting	Ways of Interacting (Participatory Roles)
Shaun (Posting # 44.1)	<p>Vance, thanks for the information on Cohen. I have read it. I am curious as to the number of questions? Also, I am getting a little confused – am I writing questions for an interview, questionnaire or both? HELP Guys!</p> <p>I can do this for both but would need to know an idea of the length, etc.</p> <p>Vance – keep doing what you are doing...do not stop. I have nearly finished questions and hope to post these tomorrow for you to see. Also, I will need feedback and comments on these too!</p> <p>See you next time.</p>	<p>Name addressing (Socialite)</p> <p>Greeting (Socialite)</p> <p>Thanking (Encourager)</p> <p>Ask questions (Seeker)</p> <p>Name addressing (Socialite)</p> <p>Greeting (Socialite)</p> <p>Encouraging one another (Encourager)</p> <p>Promise to contribute (Team supporter)</p>
Vance (Posting # 45)	<p><i>Kia ora.</i></p> <p>No we are only worrying about a questionnaire here.</p> <p>Just enough questions to cover if Internet is used and when and where and if so in what way.</p>	<p>Greeting (Socialite)</p> <p>Refocus Ideas (Mentor)</p> <p>Delegation (Coordinator)</p>
Vance (Posting # 47)	<p>Outline of Proposal:</p> <p>1. Research Questions. 2. Objectives: some modifications to our earlier ones. 3. Phenomenological bracketing out of plausibly contentious issues. 4. Cross-sectional survey. Some piloting needed. See Fowler. 5. In form of sampled probability questionnaire of stratified type, based on decile system already extant. Postal, with sequenced questions from structured to less structured. 6. Ethics also considered.</p> <p><i>Homai nga patai:</i> give me some questions we need to ask and their format.</p> <p><i>Kia ora.</i></p>	<p>Summary of Group Ideas (Reviewer)</p> <p>Delegation (Coordinator)</p> <p>Salutations (Socialite)</p>

Figure 9.6. Student Interactions and Participation in the Scenario (Week 5) for Group 1 (continued)

In Figure 9.6 above, it can be seen that Vance again played prominent roles in *mentoring* and *coordinating* the group's delegation of responsibilities to achieve Week 5's discussion task and goals (Postings #45 and #47). Shaun again supported him by assuming *Socialite* and *Encourager* roles respectively (Posting #44.1). These interactions throughout Figure 9.6

highlight a rich interplay of the *Supportive or Emotional*, *Teamwork or Social*, and *Content or Intellectual* themes of interacting and their respective related roles of *Socialite*, *Encourager*, *Coordinator* and *Mentor*.

In summary, the Scenario used in Week 5 was designed as a situated context embedded with particular affordances for fostering the goals and purposes of student negotiations and decision-making as a group as they learn about the survey data collection method. This provided a platform where student expertise was observed to be distributed in support of developing a collective purpose and accomplishing shared tasks and goals. In this process, the *Supportive or Emotional*, *Teamwork or Social*, and *Content or Intellectual* themes of interacting and the roles supporting these themes proved valuable to develop students emotionally, socially and intellectually. Certain ways of interacting and roles within these three themes of interactions were also highlighted as more important than others. This suggests that the nature of student participation in Week 5 is framed and shaped by the goals and purposes inherent in the Scenario such that some roles became more valued and important compared to others.

A comparison between the A1 and Scenario activities suggests that the Scenario provided a stronger sense of collective purpose and accomplishment of shared tasks and goals compared to A1. Such differences in goals and purposes shaped different kinds of interactions and participatory roles such that some became more important in the A1 (i.e. the *Content or Intellectual* and *Supportive or Emotional* themes of interaction) compared to the Scenarios activity (i.e. the *Teamwork or Social*, *Content or Intellectual* and *Supportive or Emotional* themes of interaction) and vice versa. This provides yet another demonstration of participation that is shaped by goals and purposes of a situated activity.

Additionally, the findings on the interpersonal plane corroborate and are consistent with the observations from the community plane where students highlighted the value of interactions with the lecturer especially when he adopted a pedagogical role. They further valued interactions with their peers in supporting them intellectually through their increasing understandings in the course; socially through their increasing interaction, belonging and feeling responsible for the group and emotionally through their developing sensitivity to what other members in the group were feeling (see Section 9.2.1.1).

This section reported on the interpersonal plane of analysis. It details the interpersonal nature of interacting (evident through the kinds of dialogue) and participating (evident through the kinds of roles adopted) when participants are involved in a collaborative activity to achieve the goals of the course. Evidence was drawn from the use of two valued situated activities highlighted in the community plane of analysis: A1 (used in Week 8) and Scenario (used in Week 5).

The transformations experienced by the lecturer and his students at the end of the semester as a result of participating in the activities in the course are detailed next on the personal plane of analysis.

9.4 Personal Plane of Analysis: Transformation in Identities as Knowers and Learners in Research Methods

This section discusses the personal plane of analysis (see Figure 9.7). The plane foregrounds participants' personal transformation in the study.

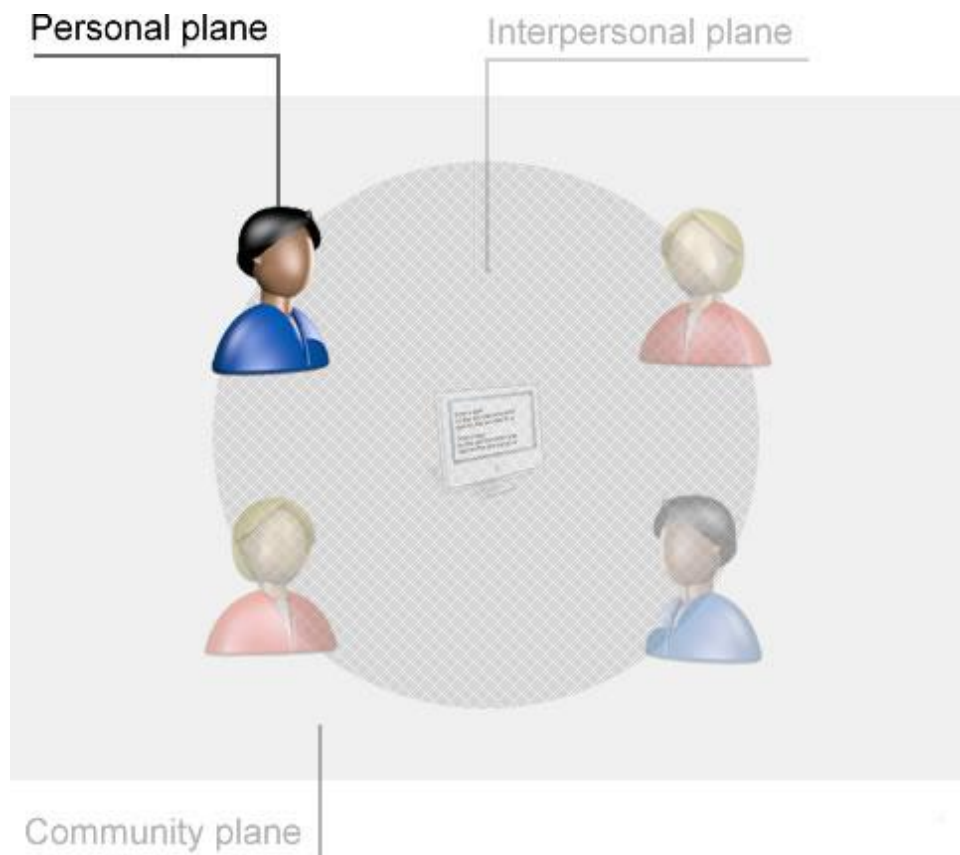


Figure 9.7. Foregrounding the Personal Plane of Analysis

The personal plane of analysis is marked by a transformation in the lecturer's and students' developing personal understandings and skills (intellectual transformation), developing responsiveness and joint responsibility for their own and others' learning (social transformation) and developing positive attitudes towards the teaching and learning of research methods (emotional transformation) as a result of their participating in the course activities. Evidence of interest on this plane comes from the lecturer and his students regarding each of these three areas of transformation. This section describes the lecturer's views followed by the students' views on their transformations.

Adrian's overall transformation and development is described in the following categories:

- Gaining expertise in the teaching of the online course (intellectual) (Section 9.4.1);
- Increasing responsible and reciprocal participation and appreciation for the social nature of learning (social) (Section 9.4.2);
- Developing confidence in the teaching of the online course (emotional) (Section 9.4.3); and,
- Constraining factors in developing the learning community and insights for improvement (Section 9.4.4).

Additionally, the students' overall transformations are described in the following categories:

- Gaining expertise as learners of research methods (intellectual) (Section 9.4.5);
- Increasing responsible participation and appreciation for the social nature of learning (social) (Section 9.4.6);
- Developing confidence and attitude regarding research methods (emotional) (Section 9.4.7); and
- Constraining factors in developing the learning community and their insights for improvements (Section 9.4.8).

Each of these is detailed in turn below.

9.4.1 Adrian's Gaining Expertise in the Teaching of the Online Course (Intellectual Transformation)

Adrian reported his development as an online lecturer due to the intervention experience that gave him opportunities to try out new pedagogical approaches and a new course structure to

promote student participation in discussions. This is seen in his active undertaking of the key *Pedagogical* role in the course. Although his *Managerial* and *Technological* roles were less dominant in this study, they were nevertheless important in contributing to and maintaining the overall efficiency of the online class. Adrian's pedagogical development is best described through four specific incidents, each portraying different aspects of his gaining expertise as an online lecturer. They are the *Lost learning opportunity regained* incident (Week 3), *Developing efficient strategies to giving online feedback* incident (Week 6), *Enhancing the use of the Scenario* incident (Week 9), and *Using just-in-time resources* (Week 9).

Lost learning opportunity regained incident: In this incident, Adrian gained insights into addressing a presumably lost opportunity to provide feedback on an earlier online discussion topic. In Week 3, for the topic on Literature Review in Research, students were to conduct an individual library search and access the library's e-journals on a topic of their interest. They had to review 2 to 3 articles published within the past 5 years and post the list of keywords used, the titles of the articles obtained, and a summary-cum-synthesis of their articles in 100 words to share in their respective groups. They also had to provide constructive comments on one another's search and review process. By the end of the week, all the students had posted their summary at the last minute but none had commented on one another's work. Pleased that they had gained confidence to post their summaries online, Adrian noted that the students still lacked the ability to critique one another's work in the early weeks of the course:

...it's taking them quite awhile just to get the work up [online, and then of course the week's finished and so they haven't commented on them. The notion of commenting on someone else's posting is quite difficult when it's a finished artefact, when they are not feeling very confident themselves. The answer is yes we want them to do it but I think that, by the time they put their posting up, people were moving away from contributing.

Adrian confessed he had a particularly busy week and had not gone online to teach as regularly as he would have liked:

Sure. And maybe I should have commented more on them, that's the other thing I could have gone through and given each person a commentary on what they've done. And I have done that in the past, this week, well okay this week got a little bit fraught with [a deadline] and I probably wasn't online as much as I should be...

On reflection, he concluded he had lost an opportunity to give feedback:

Yeah, and we should have given them some advice. End of story and we were remiss in doing that...we missed the opportunity here, sometimes when things are online and you've got 3 groups, you tend to miss things and we missed or I missed that opportunity. Yeah, I've got to take it as a learning experience too.

The suggestion was posed and negotiated with Adrian that the asynchronous nature of online communication can support discussion on the past week's learning activity even though the real time deadline was over. It highlighted that learning is a process that occurs over a period of time instead of being limited to short, discrete amounts of time determined by the structure of how topics are arranged in a course. Since students' online postings were recorded, Adrian could go into individual online portfolios to provide feedback. Adrian responded thus and obtained favourable feedback from students:

Yeah, and that worked pretty well. I think it was too late to do it in the discussion really because it would have disrupted the flow...but by going back into their portfolios, then that was a good way to do it. So, you are talking to an individual rather than as a whole group. And so you weren't disrupting the flow of Week 4...

Adrian's students found his individual comments on their literature review exercise through the individual student online portfolios very useful as it helped them feel their early online posting efforts were worthwhile and valued despite the lack of comments from their peers that week. Three quarters of the class voiced their appreciation to Adrian for his constructive feedback.

They[the student comments] were actually quite good, they were pleased that I had commented on what they had done. The students appreciated [me] getting back to them individually.

Adrian's development as an online lecturer is revealed through how he successfully refuted his initial misconception that he had lost the opportunity to provide feedback and his prior assumption of online learning as occurring only in short discrete amounts of time (his feedback confined to only a length of time that a particular learning module was available online). This episode illustrated how the role of the available Web-based tools such as the individual portfolios and the asynchronous nature of the online medium facilitated Adrian's online teaching practice to enhance students' participation. In this episode, students were clearly still thinking and reflecting on their posted contributions in Week 3's activity even

though they had move on to the topic and activity in Week 4. Hence, when Adrian gave them feedback on their Week 3 work, students appreciated this learning opportunity retrospective though it may have been.

Developing efficient strategies to giving online feedback incident: Adrian's growing expertise as an online lecturer was further reflected in his developing more effective strategies in response to the group and individual students' online postings.

In Week 6, Adrian became aware that general feedback was more effective than feedback to specific student discussion groups in the course. In Week 4, he had replied to each of the three individual group discussion summaries. In subsequent weeks, he changed his practice and compiled the main threads of all three groups' online summaries and gave a general feedback to all groups. His reflection:

I think doing the group responses though doing one response for all of the groups' postings has actually worked well because I think you're not doubling up ... But by looking at them and talking about them, then it's a way of adding more knowledge in and then for them to look at the strengths and weaknesses of what you're saying, what they've done, it's easiest to do it that way to give them a better background, a better understanding...rather than doing it individually [replying to each of the 3 groups]. I think we've got to get a right balance between individual versus group versus whole class...I think that the notion of responding to the groups responses gives you more flexibility in what you can add because it may be that they might think that you're criticising the other group and they don't take it as personal because you're talking to 15 not 5.

For Adrian, the better pedagogical strategy was to balance various types of online responses to address different levels of interactivity with students; it helped him address a richer range of ideas and decreased students' feelings of being personally criticised.

Additionally, Adrian became aware that his own online postings became shorter, more concise and focused students on the key ideas at hand as the course progressed. An example is seen in his online posting in Week 10 aimed at steering students to an action research task:

Adrian: Kia ora group one, you are certainly getting yourselves organised this week. Remember to also answer the questions related to the different views that people have of

action research. So use the questions that you are all answering to give us some idea of whether those views are appropriate or not.

He was pleased with his development:

Yeah, I think we tried to keep them short [modelling using shorter online postings], we don't want to give them a lecture either. And so you don't necessarily get all the ideas you want to get across, so that can be a bit problematic. Hopefully, by the time you've done the readings, you've given them a huge amount of resource material and the structured course. You can only take them so far. And I think we took them quite a way actually.

Enhancing the use of the Scenario incident. In Week 4, Adrian used the Scenario to encourage students to expound on the three different methods of data collection in qualitative research. Although the activity encouraged a high number of student interaction and participation, he found students were at times sidetracked in their discussions by the context provided in the Scenario:

In class, I found it easier to give the context but I usually give them lots of information so it's good that they engage with the context but the context [in the online course] took over their learning...they worry more about the context than they were about the interviews, and that's an issue for contextual teaching. And so you need strategies to pre-empt that. That was the weakness. The strength was it got them discussing things, it brought them together as a group, but the weakness was I don't think the learning was as strong because they got trapped into discussing the context. What's happened is it's actually increased the workload for students and for me... because it's asynchronous, you're often putting out fires and trying to keep them on track rather than engage with intellectual ideas. You're constraining them rather than interacting with them at the intellectual level

Subsequently, in response to this challenge, Adrian utilised a more guided and tighter bounded Scenario to give students more structured guidance in Week 9's discussion. He developed more structure and direction to focus their prior ideas on the right track at the beginning of the discussion:

I'd used the context again but develop strategies to try and get them more focused into what the key issues are rather than the context. So give them the Scenario but then give them a lot more guidance in that "I don't want you to look at too much of the issues

around this but focus on here". So be a little bit more directive about where I want them to focus... the point I'm making about bounding the Scenario tighter]? and then making the work they have to do tighter.

I think the context has been good but it's been a little bit in the way and I want them to be doing more reading, and maybe I should be saying look and reference the literature. That would be a way of handling it.

Using just-in-time resources incident: In Week 9 of the course, when the topic of Using Observations in Research was discussed, Adrian noticed that students were not quite getting into the key issues despite their having completed the course readings. He posted an article online midweek which he thought might benefit them in their discussions (he had never used this strategy in his online teaching). Adding in the resource at the appropriate time to structure and facilitate students' thinking and discussions had a positive effect. Adrian noted the qualitative difference in their discussions as a result.

I think that was a good idea [the effect of putting up the additional just-in-time reading], we should do that more. Because it gave them ideas beyond what were in the readings. It gave them a structure to think about it...and the comments they made reflected on the case study, the things they had written up.

Using just-in-time resources have been known to provide students with assistance at the time when they are needed most. It is also a development indicating the characteristics of a lecturer who is attuned to his students' learning needs (a pedagogical role).

The above four incidents described examples of Adrian's intellectual transformation and development through his gaining pedagogical expertise in the online course. Resultantly, his students felt their contributions and interactions were valued and attended to throughout the course. They responded by actively participating and contributing valuable ideas to nurture the development of a learning community.

9.4.2 Adrian's Increasing Responsible and Reciprocal Participation in the Course (Social Transformation)

Adrian's transformation in the course is also seen in his increasing social responsibility and reciprocal participation through the development of his social role. Three key incidences in the course illustrated this development: *Nurturing and preserving the dynamics in the*

learning community incident (Week 9), Utilising the learning community's resources for learning incident (Week 10), and Acknowledging students' reality incident (Week 10).

Nurturing and preserving the dynamics in the learning community incident: Adrian observed that a particular student in Group 1, Vance, had become quite disruptive in the course. On several occasions he defended his ideas in a hostile manner against Adrian's and other members' postings. Some examples were:

Adrian: Vance, You have covered all the right issues but at the moment it reads more as a class discussion rather than a literature review... The ideas are great but need to be constructed in the form of a literature review for a research paper...

Vance: With all due respect to you I do know about the 'accepted' qua Western/European/University notions of what constitutes a 'good' literary review...but I was making a deliberate attempt to break down the 'accepted' norm as part of my trying to concretize what my review was about...

Adrian's opinion on the incident:

My thought was that he hadn't put a lit review together, it was just pontificating, and we really should have just let it go and then come back with an overall comment about things. ... I think he deliberately set it up...

In subsequent interviews with two students in Vance's discussion group, they reported being intimidated by his rudeness resulting in their withdrawing from further discussions with him. Adrian was quite intolerant of such behaviour as it could potentially disrupt the dynamics of the learning community in the class:

Well, I think you're always going to have those. I think having disruptive students, he [Vance] was a bit of unusual one, it is very rare to get someone like that on the course so I don't think we should angst too much about it. And I think he was on a bit of a power trip...so it was one of those wee tests. I think what I get annoyed about is not when they have a go at me but when it affects the dynamics of the class.

An insight Adrian developed to address this problem included addressing this student in a firm but positive manner. He wanted to guide Vance to see how his contributions can be made more valuable to his and his peers' learning in Group 1. Adrian posted a response in

Vance's individual portfolio acknowledging his contributions and encouraging him to contribute constructively to his peers' online contributions.

In subsequent online interactions with Vance, Adrian added elements of socialisation and encouraged him to continue to contribute his ideas that were useful to his group's learning.

An example was:

Adrian: Kia ora Vance, trust it is a nice day in HK. My nieces and nephew like this time of the year in HK but not if typhoons hit their home. I always seem to be in HK in February when I go to work with the Department of Education. I have managed to find some Lion Red in HK.

I agree with you about the importance of the WITH and also the notion of leading to action by individuals but leading to action does not necessarily make it action research.

Adrian's efforts to draw Vance into the group and to help him realise his contributions could be of value to his peers worked:

Vance: Hey – where the hell is the Lion Red over here? I am going to go and have a look as soon as you reply Adrian!

I also want to add to the connotation that any activity that involves knowledge(qua research) necessarily involves power(Foucault) so that yes, there is a very definite ethical consideration that must be considered here: who has the power and how do they maintain it, who wants the power and how can they obtain it?...

This strategy involved Adrian's social role in giving a student the guidance and time to help him socially acclimatise to the group. Adrian comments:

That was a strategy to deal with it... So me going in and being chatty with him, is what I would do in the class just to save the dynamics of the class...but I will get chatty in the appropriate place at the appropriate time. Some of it I think in the beginning I'm always happy to be chatty but you also have to run a class and sometimes I think by being too nice, they don't see the direction that you are asking them to go.

Adrian's strategy to nurture and preserve the dynamics of the learning community by addressing an individual students' potentially disruptive behaviour was successful. Vance and other students later voiced their appreciation for Adrian's guidance and even remarked how pleased they were to have him back after an overseas trip during the course.

Vance: Kia Ora Adrian. Kei he tane kia raupapa koe.

Welcome back Adrian. I am pleased that we will now have a person who is organised as our kaiwhakahaere (organiser) and that we will know when and what exactly is expected of us...

Adrian: Kia ora (Sawadee) Vance and M. Can I say that it is good to be back. Research methods in Bangkok was fun although the security for APEC provided an interesting backdrop...

Utilising the learning community's resources for learning incident: Adrian began to appreciate using the learning community's resources and dynamics to facilitate student learning. In Week 10 of the course, he utilised the dynamics of the learning community to give students the opportunity to share resources with others in the group. This was opposed to him handing out the information all the time. For example, Reba had asked him a question in her personal portfolio about the assignment. Adrian responded and told her to share the useful information with her group members. He thought this strategy was more efficient than him replying to other similar queries individually and was pleased it resulted in a more focused discussion.

I thought it would allow her[Reba]to interact with her group more effectively rather than me coming in...So given that it was something that she asked, I thought it would be something that she would be worthwhile passing on to the group rather than coming from me. I could have phrased it, but I just thought it was important in terms of the group dynamics that she take that back. And I'm not unhappy with that actually, it worked alright...It's about efficiency and about her and about group dynamics. I think they are much more focused then.

Another example of utilising the community's resources and group dynamics in Week 10 was when Adrian referred a student, M, to other groups' online discussions to broaden her perspective. For example:

Adrian: Kia ora M, I like your comments about action research but not sure I would agree that implementing an intervention is necessarily action research...Have a look at what [another student] posted in group3#8 and see what you think...

This encouraged students to look beyond their own group's resources to the resources provided by other groups in the class and maximised their learning opportunities by using the resources provided by the learning community.

Acknowledging students' reality incident. Another example portraying the importance of Adrian's social role occurred in Week 10. Tanya was frantically attempting to complete the course:

Tanya: Tena koutou katoa

Will add my postings tonight. I am glad the date changed from Thursday to Friday. This has been a hell of a week for the last in the term.

Adrian immediately responded to her sense of panic:

Adrian: Hi Tanya, this last week of school is always a bit frantic. Hopefully you can catch your breath a bit next week.

Adrian thought it was important for him to respond to Tanya's posting to reassure and encourage her to persist with the course.

You address their [students] concerns there really. You acknowledge that you've been there. One of the important things...is that you always acknowledge the concerns and realities of the lecturers. What I'm saying that these [students] are lecturers who are dealing with problems in the classrooms and what you do to relate to them better is that you say, you show that you've been there.

This strategy was successful as students' evaluation was generally positive of Adrian's sensitivity to their needs and the challenges they faced in the course (a social role).

These three incidences portray examples of Adrian's social transformation through his increasing responsible and reciprocal participation as an online lecturer in the course. They resulted in his students feeling supported and encouraged to contribute to the overall group and their own learning development.

9.4.3 Adrian's Developing Confidence in the Teaching of the Online Course (Emotional Transformation)

Adrian's developing confidence in teaching the online course is marked by his optimism on how successful the course had been based on his expectations and his confidence in teaching online as a result of the intervention experience.

When asked to evaluate the course based on his initial expectations, Adrian was optimistic and positive about the overall conduct of the course:

On a scale of 1 to 10, 1 being worst and 10 being best, I'd rate the course a 7, 7 and ½, about ¾ of the way there. I think it's gone really well. I mean there have been hiccups where we thought it hasn't gone as well as we thought but we had pretty high expectations. So I think as a course and just from people's comments and so forth, I think it has gone really well...So I would rate it reasonably highly.

He also reported feeling more confident and relaxed about teaching the course online after this experience compared to previous years:

So yeah, I'm more relaxed about the course now.

These examples demonstrate Adrian's developing confidence and attitude (emotional transformation) towards teaching the online version of the Research Methods course.

9.4.4 Constraints to Participation in the Learning Community and Adrian's Insights for Improvements

Despite the course's overall success from Adrian's perspective, three constraining factors in developing the learning community were observed. They were related to the dominance of a particular sub-culture within the community, the individual-community tension and time constraint.

Dominance of a sub-culture within the community. A constraint of the asynchronous nature of communicating in the online course was its lack of non-verbal cues crucial in real-time communication to reduce misunderstandings and misconceptions. Adrian realised this difficulty in his observations of the way the student discussion groups had been organised. Students had been randomly assigned to discussion groups at the beginning of the semester. Moreover, Adrian had not foreseen that one group would be dominated by Maori students particularly interested in Maori cultural-related research issues and who predominantly used the Maori language in their online discussions. He comments about this difficulty:

I think Group 1 was a much more forthcoming in terms of their ideas. We had 3-4 people there who were interested in Maori research [and there was a higher composition of Maori students in Group 1] and we hadn't realise that at the time, and the other thing though was Group 1 was dominated by 1 person.

They [Groups 2 and 3] weren't as active as we would have liked actually. But how do you know? You can never tell when you put people together what would be the group interaction.

As a result, other members of the group who were from other cultural backgrounds felt intimidated and withdrew from parts of the online discussion:

...it was one of those dynamics that happen... we did not know that that was going to be an issue. The anger that Sapphire had in terms of the way Vance and the others were behaving was real. He was very angry and we couldn't have foreseen that. As Sapphire said, I obviously know more than what I put down on the page but I can't put down everything on the page. And in the class you can stop the discussion and say right let's move on, you can't do that asynchronously because they've put it up there before you've seen it. So the quick answer is I don't know but we probably do have an answer more intuitively now that it's happen. Then intuitively we probably know what to do when see it arising.

Adrian's strategy for course refinement in the future would be to better understand students' interests and sociocultural backgrounds in order to group them appropriately:

Probably in the first week, if I'd gotten them better before I'd grouped them, in terms of getting them to talk about their background, their expectations, and then [group them]. I think that's a better way to do it.

The individual-community tension. Adrian was pleased to see students' gaining responsibility for their own and their group's learning in the course but cautioned that it was dependent on a student's ability as well:

Yeah, in the beginning it[the discussion] was just a list. So there was some improvement [in students' ability to represent their group's ideas [from Module 1 to Module 4]]. But it depends on the person who is putting it together.

He concluded that the quantity of students' online postings were not necessarily demonstrative of the quality of their thinking.

I'm not going to buy into the notion the better you respond online the better you will [do better]... I think engagement is different from learning. Engaged yes, high engagement, learning I'm not so sure. I don't believe that from what we have seen from this course.

He quoted an example of M who mostly copied and pasted points in the online discussions without addressing the underlying issues in a topic:

Well, I think she [M] puts up a lot of stuff that is not relevant. And so she posts a lot to satisfy her own desire to be seen to be active but in actual fact there is no substance. Its copied stuff, I don't think it's very useful at all.

He further highlighted examples of Melody and Hal who were very thoughtful in their discussions and demonstrated quality over quantity in their postings:

Melody and Hal, they really think a lot before they put anything up. So it's not the number of posting but it's the thought that goes into the postings which is important. Shaun is less than half [of the number of other students' postings] and yet he is by far the best student. So the number of times you come online or post online has got nothing to do with your ability to even talk with others actually. Because it's the substance of what you come online with that counts. Whenever they came on, they had something really important to say.

Hence, although there was improvement in the overall quantity and quality of students' online interactions and contributions at the end of the course, each individual student's abilities also played a role in influencing the extent of their own and their group's learning. Some students who made more online postings were not necessarily contributing to the quality of the discussions in the forum compared to others who did not do so as frequently but provided quality contributions when they did.

Time constraints. Adrian observed that teaching online had restricted his availability for the students especially in the light of his other work deadlines:

If I had a 3 hour class, I will talk for 3 hours and I'll just say I can't come to the meeting, I need to do my class. And then that's not a worry. But the trouble is, it's quite insidious. You want to respond to the students, you don't want to let things go. And so although you set boundaries, then you want to make the class work as well...You know so you are spending 10 hours of contact time at least rather than 3. It's still pretty time intensive... it's very insidious in the way that it just creeps up. And it is a major workload issue. I mean the worst thing is that we are teaching this course at probably the busiest time we've ever had in this place.

A way to overcome this was to use his experience to establish a more robust structure for responding to students in future courses:

So how do we create an online environment, and not make it take over their whole work? How do we let them balance their research, and their teaching because that's significant in how we actually do that. I think the answers come with experience...the answers will come by knowing what some of the responses may be, you tend to pre-empt those in the way you structure the course, you pre-empt it in terms of copying and pasting. You see what I would have next time is I would probably have much more of generic response to Interviews. In other words, I would put a lot more of myself in there or in the responses that I would have already typed out.

Overall, it was important for Adrian's development as an online lecturer and facilitator of the learning community in the course to address the three constraints to student participation in the learning community and his insights to overcome each of them for future courses. The next section details the students' transformations.

9.4.5 Students' Gaining Expertise as Learners of Research Methods (Intellectual Transformation)

There was evidence that the pedagogical activities in the online class were useful for transforming students' expertise from that of a novice towards becoming more expert-like in the course. Table 9.24 lists students' perceptions of their transforming identities as learners of research methods in line with their perceived achievement of the course goals.

Table 9.24

Students' Perceptions of Their Identities as Learners of Research Methods (n=10)

Items	M	s.d
I better understand how to conduct educational research consistent with research ethical issues	1.80	0.42
I better understand the use of a range of research methods	1.70	0.48
I have a better understanding of educational research	1.60	0.52
I better understand how to conduct educational research consistent with research quality issues	1.50	0.71
I am better able to develop my own opinion about		

educational research issues	1.40	0.52
I am better able to analyse and critique educational research	1.20	0.42
I better understand the basic principles of research design	1.20	1.03
I am more confident in my own ability to conduct educational research	1.10	0.57
I better understand the significance of the three research paradigms in education research discussed in class	0.90	1.20

Note. Means were derived from a five-point Likert Scale and coded as -2 = Strongly Disagree, -1 = Disagree, 0 = Neither Agree or Disagree, 1 = Agree, 2 = Strongly Agree, M=mean, s.d.= Standard Deviation. A score of one and above indicated general agreement with an item.

Students generally agreed that they better understood almost all the learning goals specified in the course except for one; they still lacked an understanding of the three research paradigms discussed in the course. The top three learning goals that a majority of students agreed they have become more informed of at the end of the course included their having a better understanding of educational research ethics (M=1.80, s.d=0.42), a better understanding of the range of research methods used (M=1.70, s.d=0.48), and a better understanding of educational research as a whole (M=1.60, s.d=0.52).

The interview findings detail students' increasing understanding in research methods at the end of the course, their familiarity with the vocabulary used, and their ability to applying their knowledge in appropriate situations.

All four interviewees reported becoming more knowledgeable about research as Shaun reported:

I'm glad I participated in the programme. I'm very pleased about that. It certainly brought me up to date with the new thinking about research and stuff. I completed my masters' degree about 10-12 years ago. There has been a bit of gap since then until now, and so there are new methods coming through since then...I learned a lot about research. And I learned that I enjoyed learning about it. I'm glad I did the course (Shaun).

Five participants stressed the value of the course in helping them learn more about research related issues. Two sample quotes from the open-ended section of the questionnaire reported:

Issues such as quality of research, research frameworks, method critiques were vital. I think many things were in the course and for what I learned I enjoyed the course.

I feel that they [peers] would learn as much if not more than me. I got a lot out of this course and feel that a course that does that certainly has a lot to offer.

Three of the four students reported an increase in their understanding of the vocabulary used in research methods. Melody commented:

I have just never had a huge vocabulary and so it grows as you study, you know you learn new words, but I just thought 'Oh my gosh'. But it got better (Melody).

Meanwhile, three other students told of their increased ability to apply their knowledge to appropriate research settings. This was reported by Shania:

I can certainly cope with the research methods... what I've learnt is that yes I can do the research, yes I can understand it and I can figure out the methodology and I can actually apply it to the situations that are appropriate to me... You can change things and based on research, things are changed and people actually do action things, which is important. It's not just finding out, it's actually doing something at the end of it (Shania).

This section described how students' learning goals had been achieved in that they gained new understandings in research methods as well as being more comfortable with the vocabulary in the field and the application of the knowledge into appropriate research settings.

9.4.6 Students' Increasing Responsible and Reciprocal Participation (Social Transformation)

A recurrent theme in this online class was how much students appreciated the interactions with their peers and with Adrian in the online discussions and how these interactions fostered important participation and learning experiences for them. Reports from Adrian and the students both corroborated the development of students' increasing responsible and reciprocal participation in the course.

Adrian's perspective: Adrian highlighted that an indicator of his students' learning online was their online discussions became increasingly focused and richer in reflecting their personal experiences and ideas as the course progressed. He commented on how the group discussion responses made at the end of each weekly online topic facilitated students' gaining expertise in research methods and joint responsibility and accountability towards other members in the learning community:

It[Weekly online discussion responses] made people contribute in the end. I think that was the key in that they felt a responsibility to the rest of the group and if you look at their underlying posting, "Sorry I'm not here guys"...It gave them a better sense of group accountability, a better sense of interacting with others, and it made them look at each other's ideas. That was crucial. It made them acknowledge each other as well. So I think there are some powerful lessons to be learnt here.

He was pleased to see students developing joint responsibility for their own and their group's learning:

Yeah, in the beginning it[the discussion] was just a list. So there was some improvement [in students' ability to represent their group's ideas [from Module 1 to Module 4].

The students' perspective: The interactions and participation in the online discussions fostered students' transformation from viewing learning as occurring on an individualistic basis to one that is accommodating and appreciative of the learning community's views at the end of the course. Shaun highlighted how much he enjoyed learning from the constructive interactions in the course:

It was good to be able to interact with people again, and hear people's response to my comments and see my reactions to that as well. It was very constructive and interactive for me. So my overall impression is very, very good (Shaun).

Melody added that the sharing of multiple perspectives in her group meant there were times when they disagreed with one another's ideas but added that such contrasting views were equally valuable to her learning.

Most of the time I found it[other students' online contributions]really valuable, because they would often bring up points that I didn't think of or they might have done a reading that I hadn't done. It's affirming, they say something exactly what I think, 'Good – you

know I am on the right track'. Sometimes I disagreed with their thinking and there was one discussion that we had like that, but it was okay because there was no right or wrong about what we were saying, it's that we were thinking of it differently... I just incorporate what everyone said but it didn't matter – it's good to disagree (Melody).

Part of the students' social transformation included their forming increasing joint responsibility and accountability for their group's learning. Two interviewees reported how they became more responsible, accountable and developed a sense of ownership for their group's learning. This was demonstrated through developing better group management strategies – delegation, negotiation and resolving problematic situations at the end of the course. Sapphire commented:

...it took our group a while to actually work out to delegate out amongst the group and then come back together with that section. It was hard, five times over and then come together and disagree about it – so that was difficult. But when we got down pack and we worked out the sort of system to get it done it was pretty snassy – was really effective... (Sapphire).

Students' reflections on the course when posted in a folder set-up in the final week of discussion confirmed the value of the course, and how instrumental the lecturer and their peers had been to their learning and the sense of camaraderie established. Shaun provided an example of what eight of the participants thought:

Shaun: Hi folks...I hope you all got a lot out of this course. I did and I certainly refreshed myself with research methods. I want to take this opportunity to thank our teachers- Adrian and [Lecturer B]. Thank you, your guidance was useful. To my group – thanks for the critiques and support when offered. I want to wish you all the best and I hope you achieve your dreams for the future!

This section described how students' developed increasing responsible and reciprocal participation in the course as evident through reports of their increasing joint responsibility and accountability for their own and their group's learning.

9.4.7 Students' Developing Confidence as Learners of Research Methods (Emotional Transformation)

From the interviews, all participants referred to how much they had developed in terms of overcoming initial worries, lack of confidence and inadequacies about learning in the course by the end of the course:

So I signed up with the course, was really really scared of it actually, scared of the thought of research and really, really had no idea where to start, fear of the unknown I think. But it was okay, it wasn't as scary as I thought (Sapphire)

One interview participant who had training in a pure Science background also reported a changed attitude towards educational research:

I was quite concerned, a lot of science people look on social science research as airy fairy, that it has no value because there is no yes/no there are no facts, that it's not worthwhile and its pointless engaging in it. I knew I was going to have trouble overcoming this attitude [coming from a Science background] ...and it's nice to learn that the concerns of rigor and truthfulness and how are you sure, what your conclusions are [in educational research], that that is of as much concern to social scientists as it is to everybody else and interesting to find ways of dealing with it (Shania).

Importantly, all students also agreed that they would recommend the course to their peers in the following year.

This section highlights the transformation in participants' confidence and attitude towards research methods at the end of the course.

9.4.8 Constraints to Participation in the Learning Community and Students' Insights for Improvements

Suggestions and insights for further course improvements were shared by seven participants in the questionnaire and all interviewees. Three key factors were raised concerning constraints to students' participation in the learning community. They are a stronger establishment of a supportive class culture, flexibility in grouping and more time for the process of learning.

Stronger establishment of a supportive class culture. All interviewees raised the importance of establishing a stronger supportive class culture at the start of the course. This includes clear criteria for language and ways of communicating online and for the lecturer to keep in earlier check potentially disruptive students in the course. Sapphire, in commenting about her group's culture (Group 1), underscored the need for a stronger supportive class culture early in the semester. Such a culture needs to transcend across the group instead of being dominated by single sub-culture within her group as her group members were predominantly from a Maori cultural background:

I think that culture needs to be established in that group situation. I was lacking any culture other than obviously the Maori culture but it's not that culture that I am talking about. I am talking about the culture of the group, in our case there wasn't because you had such disparity between members that there couldn't be a culture for all members in that group. I think there was a culture amongst a few of the members of the group but not [others], so I think establishing that culture would be something that I would really set out to do, really early (Sapphire).

All interviewees stated the use of bombastic or high level language written in a long-winded manner by some of the students hindered their learning. Shaun, in Group 1, raised this point concerning two students in his group - M and Vance:

M and Vance both used very bombastic, used a lot of adjectives, long sentences. A lot language which was not necessary. When you're writing on an online venue, keep your answers simple and easy and short and to the point. I found very, very long-winded. The general point of what they had to say, I agreed with them, they had some good things to say but you don't need 25 words to say one point (Shaun, p.3)

Melody, in Group 3, added that the high level language use initially affected her confidence in the class:

The first sort of week or so online, one of the very early contributions about 'what is education?' was very technical. Could have been Vance and I couldn't even understand what he was saying and I was thinking 'Oh God, how am I going to do this course? I don't understand what they are talking about. I haven't heard half the words they'd used'. Then luckily somebody online – I think it was a Maori lady – she said basically that she couldn't even understand what he was saying. She actually said it in the forum and that really

helped me because there are other normal people like me on this course that don't have the sort of huge vocabulary and knowledge already (Melody).

Two students in Group 1 spoke about the challenges they faced with Vance who also displayed individualistic views of learning in the class. Vance (already holds a graduate qualification but chose to take the course out of his own interest) had earlier responded to one of Adrian's postings quite negatively (refer to 'Nurturing and preserving the dynamics in the learning community incident' in Section 9.4.2). Sapphire reported:

I think people like that aggressively write because they don't get challenged and they get away with it and that's probably why he is what he is and where he lives, what he does for a job. He doesn't get challenged and that's his own security. I don't think he could cope if he got challenged...Adrian got a pretty cutting comment back, because he did... the comment made to Adrian, was a knee jerk reaction - 'Well I've done a PhD in literary whatever' - I just thought 'Why are you doing this course then?' That has no relevance to what we're doing here. So I'm glad you've done that but get into this context, this is where we are, this is what we do and we need to be working together as a group but it was about that power over and I just don't play power games (Sapphire).

Shaun felt such manner of writing was disrespectful to the lecturers and other students in the class:

I thought some people who were posting didn't show proper respect for the environment and also for other people online as well. Especially for [Lecturer B] and Adrian. The way they posted, I thought was very, very rude and very crass. Showed a lack of netiquette, so to speak. Because to me if you're online, you've got not f2f communication, therefore when you're writing and when you're posting, you've got to make sure that you convey very clearly and accurate what's going on and to make sure you get some good cooperation from other people as well as from the teaching staff. It pays to be polite and have some manners showing. Some of the people online didn't show that. And that was really disappointing (Shaun).

Such challenges faced in terms of bombastic language use, long winded writings, predominant use of Maori language by a minority of students and students' individualistic views of learning in the class affected the online interactions and participation to an extent

and resulted in students feeling excluded from the group discussion, disappointed, frustrated, intimidated and disadvantaged. Shaun reported on feeling excluded:

I found that very disappointing. I didn't find anything that could help me learn from that. If anything, I thought it scared people away. People instead of walking with them, walked around them online...the issue of language for me is because the online is supposed to be interactive. And we can read everybody's posting. If there are other groups in the course who are also going to read the Maori that was written, 'How do they feel? Do they feel shut out?' So when I was reading their postings in Groups 2 and 3, I knew what they were saying, 'Oh that's a good point', 'Oh that's a good point' but when you see it in Maori, I'm thinking 'Oh I can read the first 2 lines. Oh, it's from Vance, okay, what did he say?' I don't know, which is sad for me because that environment is designed to support and encourage and to bounce ideas off each other. And if you do it in a second language, I don't speak Maori so I have no idea. With other people in the course too who don't have any Maori language skills, they're probably shut out from them as well (Shaun).

Sapphire reported feeling disempowered:

I would love nothing more than to be able to converse in Maori with them, but because I couldn't I guess I felt disadvantaged. Online, anyone can read it but I would feel disempowered and I wouldn't want to expose myself to that (Sapphire).

Students suggested establishing a stronger supportive culture in the course. Three interviewees highlighted the need for a standard criteria or expectation for language and communication when making contributions in the online class. This was fundamental to enable class members to feel safe to contribute their ideas and feel supported. It was interesting to note that such language and communicating online challenges persisted despite the lecturer posting a set of guidelines for supportive kinds of online communication at the onset of the course. Furthermore, since both English and Maori are recognised as official languages in New Zealand, both are and can be used in the university's classes although a very large majority of the population only speak English. Shaun thought the guidelines need to be explicit about the language for online communication and interaction and a separate forum could be established for students interested in communicating in other languages:

I think from the beginning, you make very clear that the language of formal discussion should be done in one language, to be pre-determined before the course starts, and then another folder set up saying 'If you wish to use Maori, French, German, Martian

whatsoever, go to this folder, and chat away'. That way you can say there's a clear distinction between the 2 folders. That way, no one gets upset, no one gets shut out. I think it is an issue of supporting me but letting other people know that if they wish to use the Maori language there is provision for it on the course, but to make it very clear that the main language of instruction is one set language and that in the active discussions, it should all be set in one language. I just thought about this[online learning] in terms of a communication tool, it's a learning environment, and people learn from each other, so if you're writing and working in a language which nobody understands or can interact with, not really contributing (Shaun).

Shaun also raised the need to keep online contributions shorter:

...when you do write or post a message, 'KISS'- keep it simple (Shaun).

Sapphire strongly felt the lecturer ought to explicitly reprimand and deal with students who displayed negative and individualistic views of learning which disrupted learning in the class:

I think Adrian...should have contacted him or emailed him and said you know, the way you talk to people online is disempowering or inappropriate. You need to look at how you converse... he needed to say something. He needed to be pulled back into line (Sapphire).

Sapphire added that the guidelines for online interactions need to include students being considerate and respectful of others for a supportive class culture to be established:

Treat people how you want to be treated online. Because if you are wanting feedback on your assignment, you are actually giving feedback to everyone else. It's just that give and take respectful relationships that you want to establish (Sapphire).

Flexibility in grouping. Two interviewees and one response from the questionnaire wanted more flexibility in the class structure in terms of how students were grouped into the discussion groups. They felt the option of moving to other groups could have served their interest better or rearranging groups with fewer students would have been more helpful to them. This was observed especially in Groups 1 and 3. In Group 1, the Maori sub-culture was especially predominant among a few minority students which hindered others in the group who did not understand Maori from contributing. One student from Group 1 felt they should be given the option of moving to another group as that could have better served their interest. Sapphire reported:

...or people should have been given an option to move groups or maybe groups should have been mixed up – people shouldn't have been in one group all the time, because I do feel that I never got to know anyone else in the course other than my five friends – I mean there was some really interesting people in the other groups. So maybe mixing the groups up for each module or mixing them up for each Scenario. I think we missed out on meeting other people or hearing other people's contributions and ours even (Sapphire).

In addition, Sapphire thought the lecturer's understanding of student background and interests was important to ensure members in each group could collaborate in a safe and trusting manner:

It's about grouping those groups based on entry criteria, where you have to find out what their interests are or where they come from or where their backgrounds lay. I just think doing across the board blend, putting people into groups because they come on, when they come on, doesn't provide for a safe forum for people to express how they are feeling (Sapphire).

Students in Group 3, however, faced a different challenge from that faced in Group 1. There was quite a high student turnover rate initially in the course with students dropping out and other students coming in. At one point in time, there were only three members in the group before other new students enrolled in the course. As Melody reported, she would have liked more flexibility to join other groups as her group had quite a high turnover rate initially. This caused her some anxiety about her interactions in her group:

The other thing is everybody else disappeared. Where did they go? You know there was one lady that started off contributing and next thing there is a message from Adrian saying so and so has withdrawn from the course... I think the groups need to be really closely monitored and adjusted. The course would have worked well with two groups instead of three. So, fairly early on they shouldn't be afraid to just adjust the groups. Every week is a new discussion anyway and even half way through – I think a couple of people dropped out part way through – even then they could have just said, 'Well, we will put you two into Group 2 and you two into Group 1' (Melody).

More time for the process of learning. Students also mentioned they would like more class time to be spent on the process of learning. Two interviewees and two questionnaire

responses would like more time allocation for online interactions to allow further discussion of ideas and support for one another. This includes the lecturer spending more time to facilitate and guide students' thinking. Sapphire reported:

Facilitate the discussions, when I said facilitate the learning probably facilitating if someone was really off track with what they were writing about. Popping online and putting something on there about steering them, just turning them a bit round or maybe they should read so and so or group one has suggested this and, maybe, at the end of each group contribution/response, shifting them around so that you have to actually evaluate the next group's response... 'Cause quite often you all stuck your group response in and you knew group responses were there but you didn't particularly take on board what that group was saying. Maybe less group tasks and opportunity to do that or maybe the group tasks shouldn't be so intense (Sapphire).

Shania added she would like more interactions between the groups and in her group:

I do like the format, I like the introductory questions and all that stuff. The only thing I would do differently is, put a bit more time in to it, in that talk a bit more within the groups and between the groups... Yeah. Just communicating a little more often (Shania).

In summary, students were concerned with social issues related to communicating online and the class culture, as well as pedagogical issues such as more lecturer facilitation and peer interactions in the discussion forums. Suggestions were also made on how these issues could be minimised in future courses. Issues related to managerial or technical factors in the class were not relevant suggesting that a majority of the participants were sufficiently skilled to cope with the technology.

This section has detailed Adrian's and his students' individual transformation on the personal plane of analysis. Their transformations were demonstrated through their developing personal understandings and skills (intellectual transformation), developing responsiveness and joint responsibility for their own and others' learning (social transformation) and developing positive attitudes towards the teaching and learning of research methods (emotional transformation) as a result of participating in the course's activities. Importantly, both Adrian and his students perceived that their goals and expectations for participating in the course had been successfully achieved. Constraints to participation in the course were also reported, including their insights and suggestions for improvements for future courses.

The overall findings are remarkably consistent on how the activities, tools and resources mediated participants' participation to facilitate their achieving of the goals of the course. The Web-based technology and situated activities such as A1 and Scenario resourced and structured participants' interaction and participation such that they had to collaborate to complete assignments. The use of the two situated activities to foster different goals for learning afforded particular kinds of interaction and participatory roles such that some were more valued than others in the accomplishment of those goals. This suggests that the nature of lecturer and student participation is framed and mediated by the goals and purposes inherent in the activities that are designed with particular affordances to provide a context for expertise to be distributed in support of the accomplishment of those goals and purposes. This finding resonates with the notion of participation in a learning community that is framed and shaped by the use of authentic and relevant tasks to situate the activity (situated activity); the use of interaction and collaborative teamwork to tap into cognition that is distributed (distributed cognition); the use of activities to direct the accomplishment of particular goals (goal-directed) and the use of tools and activities to mediate action (mediated action). At a deeper level, participation in the learning community mutually shapes and supports the teaching and learning experiences in the course. Changes in participation are observed in terms of lecturer and student intellectual, social and emotional transformations and development as a result of participating in the valued activities of the OLC.

9.5 Summary

This chapter has detailed the findings of the study using Rogoff's (1995) three planes of analysis – community, interpersonal and personal. Each plane foregrounded different aspects of the study to provide different and complementary foci of analyses on the whole sociocultural activity. The community plane of analysis examined the broader cultural context of the online course and took into account institutional regulations, structures and practices and the tools and activities of the course. It considered how these resourced and constrained lecturer and student participation. The interpersonal plane investigated the nature of the interaction and the participation between the lecturer and his students and among the students in support of students' intellectual, social and emotional development in the context of the tools and activities used to accomplish joint purposes or goals. The personal plane of analysis considered the lecturer's and his students' developing understandings and skills (at the intellectual level), increasing responsiveness and joint responsibility for their own and

others' learning (at the social level) and gains in positive attitudes towards (at the emotional level) the teaching and learning of the course over time.

The next and concluding chapter discusses the findings, key implications and proposed recommendations for further research.

Chapter 10

Discussion, Implications and Conclusion

10.0 Introduction

This chapter overviews the key research findings and discusses the research's contributions. It has six sections: Section 10.1 revisits the research aims and summarises the key findings; Section 10.2 discusses the key research findings, Section 10.3 examines the research implications while Section 10.4 reports on the limitations. Section 10.5 presents recommendations for further research and Section 10.6 concludes on the significance of the research.

10.1 Summary of the Research and Key Findings

The general literature indicates intensifying efforts and initiatives in online distance learning by tertiary institutions and lecturers to provide and access educational and training opportunities in a convenient and flexible manner. As discussed in Chapter 1, this process is driven more by a technicist approach rather than the integration of systematic pedagogical framework to engage students in deeper and more meaningful learning processes. Many researchers and practitioners are appealing for more innovative approaches where online lecturer use of technology is guided by a clear philosophy of learning to engage students in more meaningful learning. This research study addressed these concerns and aimed to better understand teaching and learning in an online learning environment through the development and application of an appropriate pedagogical framework to facilitate successful learning experiences. To achieve this aim, a qualitative interpretive methodology was adopted to case study an online lecturer and his 14 students' experiences in a semester long fully online asynchronous graduate Research Methods course in a New Zealand tertiary institution. This research sought to contribute to knowledge and understanding through investigating two main research questions and their corresponding underpinning questions:

1. What is the nature of online learning?
 - a. How can students' learning be facilitated in online learning environments?
 - b. What view(s) of learning can better inform us about the design of successful online teaching and learning practices?

2. How were pedagogical strategies designed to complement a particular view of learning, helpful in facilitating the teaching and learning in an online graduate Research Methods course?

a. To what extent do the findings support the efficacy of the view of learning proposed?

Phase 1, the Review Phase, was a baseline survey to elicit the views of various online lecturers and their students on the nature of online learning and how learning can be successfully facilitated in such environments (see Chapter 6). The findings and recommendations from the literature led to identifying five guiding principles to frame the development of a pedagogical intervention. The principles, which map onto five key sociocultural ideas, depict learning as a mediated, situated, distributed, goal-directed and participatory activity within a socially and culturally determined learning community (see Sections 7.2 and 2.5).

Phase 2, the Designing the Intervention and Implementation Phase, concerned designing an intervention to facilitate student learning experiences. An emergent and iterative strategy, the negotiated intervention strategy (see Section 8.1), framed the collaborative design process used by the researcher to work with the case study lecturer (see Section 8.3). Teaching strategies supporting each of the guiding principles were shared with the lecturer, planned for and implemented in the case study course (see Table 8.3).

Phase 3, the Evaluation Phase, examined how successful the intervention was in terms of three planes of participant development: the personal, interpersonal and the community (Rogoff, 1995) (see Chapter 9). These findings are summarised in Table 10.1.

Table 10.1

Summary of the Phase 3 Findings

1. Community Plane of Development					
(Examines the institutional regulations, structures and practices and the tools and activities of the course to consider how these resource and constrain lecturer and student participation)					
Web-based Tools and Activities	Important Affordances	Mediated Outcomes			
Technological Tools	<ul style="list-style-type: none"> • Access to the course and lecturer and peers; • Time saving, learn at own pace; and, • Flexibility and convenience. 	<p><u>Evolved shared goals</u></p> <p>A competitive, individualistic view of learning at the onset of the course</p>			
A1	<p>Fostered the incentive and opportunity for students to:</p> <ul style="list-style-type: none"> • Participate in the online discussion and consider one another's ideas; • Learn about designing survey and interview questions; and • Develop their critiquing skills. 	<p style="text-align: center;">↓</p> <p>Learning to collaborate with others as a group and valuing contributions of peers as part of building the collective knowledge in the group at the end of the course</p>			
Scenario	<p>Fostered the opportunity for students to participate by:</p> <ul style="list-style-type: none"> • Providing a meaningful and realistic context to learn about research data collection methods; • Linking the readings to students' experiences; • Relating the discussions to the assignment and linking theory to practice; and, • Considering others' ideas and working towards shared learning goals. 				
2. Interpersonal Plane of Development					
(Examines the nature of lecturer and student interaction and participation in joint activities to achieve the goals of the course)					
Situated Activity	Goal	Participant	Key Interactions	Themes (Purpose) of Interaction	Key Participatory Roles
A1	Foster student interaction and participation in designing survey and interview questions	Adrian	<ul style="list-style-type: none"> • Suggest new idea • Refocus 	Pedagogical/Intellectual theme	Pedagogical role

			• Name addressing	Social theme	Social role
		Student	• Feedback	Content/Intellectual theme	Mentor
			• Name addressing • Thanking and Encouraging • Jokes	Supportive/Emotional theme	• Socialite • Encourager • Socialite
Scenario	Foster student negotiations and decision making as a group as they learn about the survey data collection method.	Adrian	• Name addressing • Thanking and encouraging	Social theme	Social role
			• Sharing Experience • Acknowledge Idea • Suggest new idea	Pedagogical/intellectual	Pedagogical role
		Student	• Greetings/salutations • Name addressing • Thanking and Encouraging	Supportive/Emotional theme	• Socialite • Socialite • Encourager
			• Delegation	Teamwork/Social theme	Coordinator
			• Agree/Disagree	Content/Intellectual theme	Mentor

3. Personal Plane of Development

(Examines transformations in participant's intellectual, social and emotional development as a result of participating in the course's activities)

Adrian's Transformations in Participation

- Intellectual - gaining expertise in the teaching of the online course;
- Social - increasing responsible and reciprocal participation; and,
- Emotional - developing confidence as an online teacher in the course.

Students' Transformations in Participation

- Intellectual - gaining expertise as learners of and knowers about research methods;
- Social - increasing responsiveness and adopting joint responsibility for own and others' learning; and,
- Emotional - developing positive attitudes towards the learning of research methods.

At each level of development, the broader context of the course, the activities and tools adopted and the members of the community resourced and mediated participation to achieve the goals of the course, albeit in different ways. Overall, characteristics highlighted in the findings included increasing and active participation and active and diverse interaction and participation patterns contributing to the distributed expertise in the group to develop collective and shared understandings. Coupled with participants' developing identity as members of a group with accountability and responsibility to the group, the characteristics are suggestive indicators of a thriving learning community. Although evidence has been provided that the qualities of a learning community were demonstrated, factors constraining participation and the development of the community were also raised. On the whole, the findings support a sociocultural notion of learning as transformation of participation in the valued activities and practices of a community.

A discussion of the findings is detailed next.

10.2 Online Learning as a Mediated, Situated, Distributed, Goal-directed and Participatory Activity within a Learning Community

The research findings contribute to and inform our understanding of the application of a sociocultural approach to the design and facilitation of online learning experiences. They highlight that successful online teaching and learning experiences are facilitated when a learning community develops in a class. On the whole, the learning processes and outcomes observed conform with Rogoff's (1994) notion of the characteristics of a thriving learning community - active and diverse interaction and participation patterns contributing distributed expertise to the group to develop collective and shared understandings. Evidence of interactions with intellectual, social and emotional foci also supported the existence of a learning community within the class (Sewell & George, 2008) (see Section 4.5).

This finding resonates with the work of others who espouse developing OLCs as a pedagogical strategy to shape and influence the teaching-learning context to engage students in deeper and more meaningful learning processes (e.g. Balcaen & Hirtz, 2007; Barab, Thomas, & Merrill, 2001; Brown, 2001; Conrad, 2002;

Lock, 2002; Palloff & Pratt, 1999; Schwier, 2001). In a learning community, individual and collective knowledge growth, mutually shape each other with a focus on achieving or furthering educational outcomes. This study lends support to the contention that learning communities are productive for promoting “human relationships, affirming and recognizing students’ input; providing opportunities for students to develop a sense of group cohesiveness, maintaining the group as a unit, and in other ways helping members to work together in a mutual cause” (Palloff & Pratt, 1999, p. 76).

A learning community has a specific focus on learning as the transformation of participation. It is concerned with the teaching and learning process and educational outcomes (Lave & Wenger, 1991; Rogoff et al., 1995; Sfard, 1998). This research lends support to the notion that participation in the valued activities of a learning community is central and fundamental to its development and growth. As such, it is consistent with Conrad’s (2002) assertion that “participation in online learning activities exists *before* community, that it contributes to community, that it is the vehicle for maintaining community, and that it eventually becomes the measure of the health of community” (¶ 63). The research builds on the work of Hung and Der-Thanq (2001), Bonk et al. (2004), and Wilson et al. (2004), amongst others (see Section 4.4.2), in terms of adopting a sociocultural orientation to the development of OLCs. Although others have proposed models for developing OLCs from a sociocultural perspective, no one has considered the notion of participation that is framed and shaped by the use of authentic and relevant tasks to situate activity; the use of interaction and collaborative teamwork to tap into cognition that is distributed; the use of activities to direct the accomplishment of particular goals and the use of tools and activities to mediate action as has been achieved in this study. The model developed within this research to explain the nature of the teaching and learning experienced by the lecturer and his students in the OLC is shown in Figure 10.1.

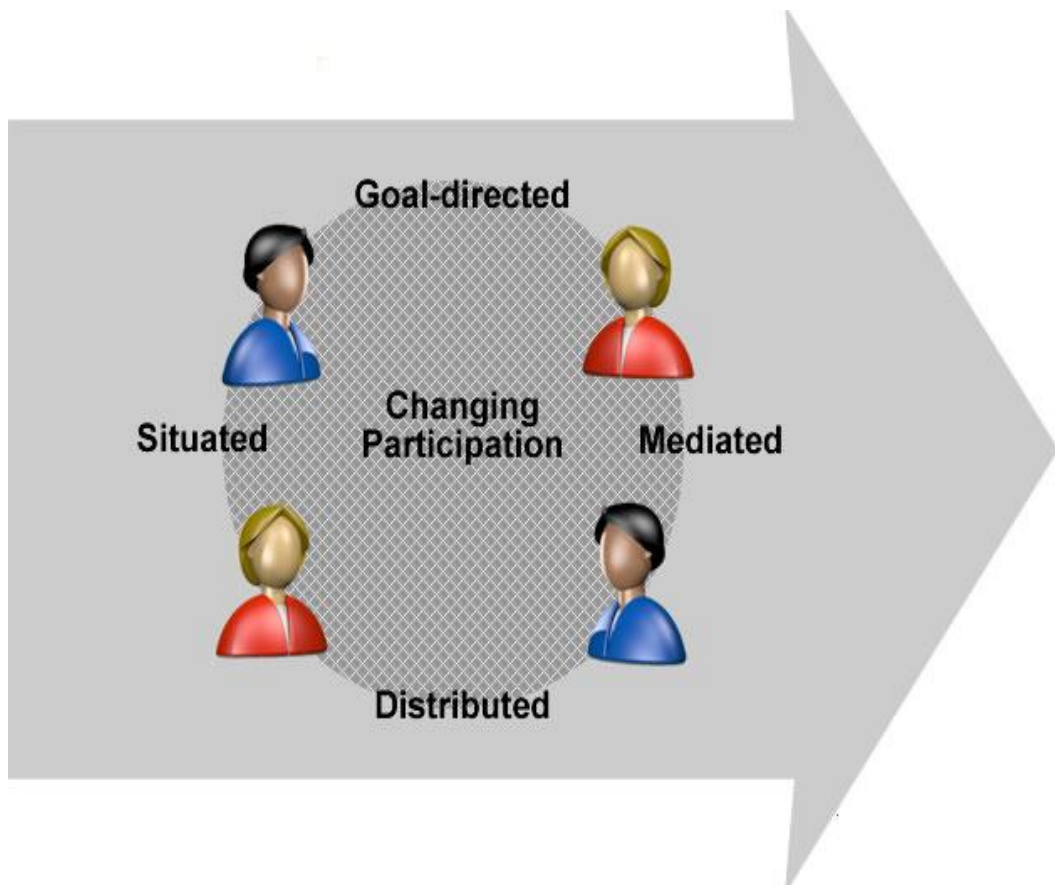


Figure 10.1. The Nature of an Online Learning Community

In Figure 10.1 the outline of the grey arrow denotes the boundaries of the learning community. It delimits the learning community to the lecturer and students enrolled in the course. The arrowhead in Figure 10.1 is included deliberately to depict the community as progressing along a learning trajectory over time. Through a process of participation, participants' identities as teachers and learners of research methods are shaped and in turn shape that of the community. As the course participants are enculturated into the valued activities and practices of the learning community, they begin to appropriate increasingly sophisticated understandings, responsibilities and positive attitudes about the teaching and learning of research methods. The social process of active and changing participation is thus central in bringing about desired participant transformations. The centrality of participation is portrayed in Figure 10.1 by locating changing participation at the core of the OLC. The nature of this active and changing participation is framed by and accomplished through four key aspects: mediated action, distributed cognition, situated activity and goal-directed (see Sections 2.5, 7.2 and Table 8.3). These four ideas are interdependent and important. They

interact dynamically, and in an ongoing manner, to influence participation within the context of the learning community. They are examined next.

As Wertsch (1991a) points out all action is mediated. In this study, a focus on mediated action highlights the way that the different Web-based technological tools and teaching and learning activities mediated lecturer and student teaching-learning interactions. The tools and activities of the course clearly resourced and constrained lecturer and student participation (see Section 9.2.2). The tools and activities shaped student understandings and the processes involved in developing these understandings. The affordances (Gibson, 1977, 1979) of the Web-based technology provided for rich participation and interaction opportunities between the lecturer and his students, and among the students. This was evident in the participants' reports of accessibility, flexibility and convenience of learning in their own time and space in a manner consistent with the findings of others (see for example Anderson, 2004a; Hill, 2000; Ownston, 1997; Porter, 1997; Reeves, 1999). The Web-based technology and tools in the course were fundamental in mediating the development of the relationships and intimacy to nurture important social and emotional qualities within the learning community (Garber 2004; Kearsley, 2000; Kowch & Schwier, 1997; Misanchuk & Anderson, 2001). Furthermore, two valued web-based activities, the A1 discussion forum and the Scenario in Module 2, engendered high rates of participation and were valuable in resourcing and mediating students' participation as a group in the class (see Section 9.2.2). Although it was possible that students' participation rates in the course may have been influenced by the fact that participating in the online discussions was a required course activity, it was unlikely they would have been able to discuss the course material in as much detail were it not for the careful and timely implementation of the activities designed to simultaneously foster community development and student understandings of research methods (see Section 9.4).

Distributed cognition draws attention to the use of interaction and teamwork to tap into cognition as distributed. This occurs within the affordances and constraints offered by the available Web-based technology and resources. The findings from this study highlight that as the lecturer and students communicate, interact and collaborate with one another, they access the knowledge, understandings and

skills distributed across the group to achieve results otherwise difficult for an individual to accomplish (Fischer, 2003; Hung & Der-Thang, 2001; Perkins, 1993). Within this collaborative learning process, particular kinds of interactions and participation were more useful than others in fostering the goals that guided students towards becoming responsible participants and contributors (see Section 9.3). Interaction and collaboration formed the basis of *intersubjective* understandings leading to higher quality discussions (Dennen & Wieland, 2007; Newman et al., 1989; Rogoff, 1990). In this way, the distribution of cognition across the learning community can be seen as being stretched over, rather than divided up amongst participants (Salomon, 1993). The varied and diverse ways of interacting and participating contributed to the overall distribution of expertise in the community and were instrumental in supporting and developing the lecturer and students intellectually, socially and emotionally.

Situated activity highlights the role of authentic and relevant activities as the context for learning and development. Authentic activities provide for a meaningful learning experience. They provide a context for members of a learning community to draw on and to work collaboratively with their peers as they become involved and enculturated in the beliefs and behaviours of the community (Barab & Duffy, 2000; Brown et al., 1989; Jonassen, 1998; McLellan, 1996; Oliver & Herrington, 2000; Wilson & Myers, 1999). The affordances offered by a situated activity can encourage learners to participate and thus contribute to the distribution of cognition in that activity (Greeno, 1994; Slaouti, 2007). In this research, the A1 and Scenario activities were designed to afford authentic collaborative knowledge-building through the requirement that students interact with their peers and consider their ideas in order to complete their assignments (see Section 9.3).

Finally, the notion of goal-directed draws attention to the different goals embedded within situated activities designed to support the development of shared goals. The findings from this study highlight that the differing goals embedded in the A1 and Scenario activities resulted in some types of interactions and some participative roles becoming more prevalent than others. The Scenario, fostering a stronger collective sense of purpose and teamwork, highlighted the need for the *Teamwork* or *Social* theme of interaction and participative role (*Coordinator*) not

evident in the A1 activity (see Section 9.3). The A1 activity focused on the exchange of ideas in designing research instruments, and promoted the *Content or Intellectual* and *Supportive or Emotional* themes of interaction and their associated participative roles. Taken together, this suggests that the nature of student participation in activities is framed and shaped by the goals and purposes these activities most readily afford.

Overall, the research findings support Rogoff's (1994) characterisation of a learning community as involving members' active interaction using participation patterns that portray an asymmetry of roles, a high degree of interaction and negotiation of meaning, and an increasing joint responsibility for individual and collaborative learning (see Section 4.5.1). Her sociocultural characterisation of a face-to-face learning community was originally conceptualised in the context of children learning in a USA public elementary school. The findings also indicate her ideas are useful and pertinent for application in the context of a fully online graduate Research Methods course.

Besides demonstrating that successful online teaching and learning experiences are facilitated when a learning community develops in the class, this study also contributes to the literature through its exploration of an emergent and iterative strategy to developing an OLC. In accord with a sociocultural orientation, this was achieved through a *negotiated intervention strategy* (see Chapter 8). The strategy framed the development and implementation of the interventions through a series of researcher-lecturer negotiations to assist the experienced, face-to-face lecturer to further develop and teach an existing asynchronous online graduate course. Although the lecturer had taught the online version of the research methods course twice before (see Section 8.3), he attested to gaining new insights into improving his pedagogical practice as a result of participating in this strategy to develop an OLC in the class (see Section 9.4). The literature on OLC development, although recognising the need for such an emergent sociocultural strategy (Johnson, 2001; Schwen & Hara, 2004) (see Section 4.4.3), has yet to report on one.

The next section reports on the changing nature of participation in a learning community.

10.2.1 Changing Participation – Intellectual, Social and Emotional Transformations

Another key finding from this study is that the nature of participation in the learning community is constantly changing as the community is shaped by and in turn shapes the development of its members. As students enter into the course with the goals of learning more about research methods and to pass the course (see Section 9.2.3), they increasingly participate and become enculturated in the beliefs and valued activities of the developing OLC in the class. They gradually come to see themselves as full members of the community as their “changing knowledge, skill, and discourse are part of their developing identity” (Lave & Wenger, 1999, p. 122) as knowers and learners of research methods. This change is consistent with the view that “development (whether viewed in the personal, interpersonal, or community plane) is a process of transformation through people’s participation rather than of acquisition of knowledge” (Rogoff et al., 1995, p. 46) in the valued activities of a learning community. In this study, intellectual, social and emotional transformations were observed.

General intellectual transformations were observed through the evolution of shared learning goals experienced by members in the OLC, over the period of the course as they willingly participated and developed from novice towards becoming an expert in research methods (and to pass the course) (see Section 9.2.3) (Bond-Hu & Fiorello, 2003; Lave & Wenger, 1991; Palloff & Pratt, 1999; Wenger 1998). Specific individual development in research methods understandings and skills were further noted as a result of member participation in the valued activities of the community (see section 9.4.5, Table 9.21). At the end of the course, participants agreed that their expectations, goals and purposes for participating in the course had been met. Social transformations in the form of increasing participant responsiveness and adopting of joint responsibility for own and others’ learning was indicated (see section 9.4.6). Finally, increasing positive attitudes towards the teaching and learning within the course over time was substantiation of participants’ emotional transformation (see section 9.4.7).

The research findings successfully elaborate and illustrate the application of Rogoff’s (1995) analytical framework for development within an OLC as comprised of three planes: personal, interpersonal and community. Her

framework provided for different and complementary foci of analyses on the whole sociocultural activity. The personal plane considered the lecturer's and his students' developing understandings and skills (at the intellectual level), increasing responsiveness and joint responsibility for their own and others' learning (at the social level) and gains in positive attitudes towards (at the emotional level) the teaching and learning of the course over time (see Section 9.4). The nature of lecturer and student interactions and participation in the course as occurring for the purposes of supporting and developing one another intellectually, socially and emotionally (see Sections 9.3 and 9.4) was highlighted in the interpersonal plane. The community plane examined the broader cultural context of the online course and took into account institutional regulations, structures and practices and the course tools and activities. It considered how these resourced and constrained lecturer and student participation (see Section 9.2). Although others have extended and applied Rogoff's work in other contexts such as online teacher professional development (Gray & Tatar, 2004) and the analysis of the development of a face-to-face learning community in a New Zealand primary school classroom (Sewell, 2006), none have specifically studied and applied her notion of multiple planes of development in the context of developing an OLC for a fully online graduate Research Methods course. This study, thus, highlights the use of Rogoff's (1995) multiple planes of development analytical framework as relevant and important in the context of understanding transformations of participation within an OLC.

Additionally, the findings from this study are consistent with current ideas on developing OLCs for the purposes of supporting members' intellectual, social and emotional development (see Sections 4.5.2 and 4.6). In particular, the three kinds of reciprocal interactions (intellectual, social and emotional) (Sewell, 2006; Sewell & George, 2008) beneficial to supporting the existence and development of a learning community (see Section 4.5.2) are also substantiated in this study (see Section 9.3). Although Sewell's (2006) study described these three types of interactions in the context of developing a face-to-face learning community in a New Zealand primary classroom, this research extends her contributions through its analysis of the nature of interactions and participation related to the purposes (themes) of supporting intellectual, social and emotional development in the

context of a fully online graduate Research Methods course in a New Zealand tertiary institution.

The next section elaborates on participation as demonstrated through the roles community members adopt.

10.2.2 Participation is Realised through Roles

Participation in a learning community is realised through the ways members of the community relate to one another. That is, through the kinds of roles they take up. These, in turn, are grounded in the kinds of interactions participants are involved with. Four lecturer roles and 9 student roles were identified in this study, each invoking different responsibilities, teaching-learning strategies and serving different purposes in the learning community. Online lecturers can participate by adopting the four roles – pedagogical, managerial, social and technological roles, to serve students' intellectual, managerial or administrative, social and technical needs. It was observed that as the lecturer strategically undertook each of the four key roles, they cultivated the collaborative nature of a learning community to foster a sense of belonging as participants shared expertise. These formed the basis of an OLC. Online students, on the other hand, participate by adopting a number of roles associated with meeting intellectual, social or emotional needs. Specifically, student undertaking of each of the 9 roles at appropriate times during a teaching-learning activity supported and addressed the other members of the community's intellectual, social and emotional needs in the course (see Section 9.3). The undertaking of each lecturer and student role was fluid depending on the types of interactions fostered at different times in the class which were guided by the goals and affordances of the situated activities. These findings support and are consistent with Rogoff's (1994) idea of asymmetry of roles (see Section 4.5.1) and Lave and Wenger's (1991) and Wenger's (1998) claim that a community's members can assume different levels of participation, each implying a different sort of responsibility, a different set of role relations, and a different interactive involvement (see Section 2.5.5). Such shifts in forms of interaction and participative roles portray learning that is progressing along identity trajectories (Wenger, 1998) and are evidence of a thriving learning community dependent on its members distributed knowledge and expertise.

Furthermore, this study has made an important distinction between the terms *participation* and *interaction* in the context of developing an OLC. The literature in online learning and OLCs generally does not distinguish between these terms, using them interchangeably. However, these terms denote different meanings. *Participation*, in accord with a sociocultural stance, emphasises the development of relationships and identities. That is, how people relate to others through the kinds of roles they adopt or who they are when they engage in activities to achieve (shared) goals. *Interaction*, on the other hand, emphasises the mutual and reciprocal exchanges between people when they are involved in activities to achieve (shared) goals. Sixteen ways of lecturer interaction and 20 ways of student interaction were identified in this study (see Section 5.5.3). This distinction between the terms interaction and participation is important because they make specific references to different but related ideas in the OLC development literature. The implications for practice of this distinction are detailed in Section 10.3. The implications for analysis are highlighted through a three-step process for analysing online interactions and participation (see Section 5.5.3 for details). This process extends Zhu's (1996) original online analytical framework for analysing differing lecturer and student roles. Zhu had proposed eight types of online interactions to underpin the adoption of four lecturer and student roles (see Section 3.3.1). This study proposed and tested 16 ways of lecturer interaction and 20 ways of student interaction as underpinning four key lecturer roles and 9 student roles. This expanded analytical framework was successfully applied to the context of developing an OLC for adult learners studying in a Research Methods course. At a deeper level, these three analyses provide evidence of lecturer and student intellectual, social and emotional development within the context of the course.

The notion of participation as based on the kinds of roles adopted, in particular, the four key lecturer roles highlighted in this study, lends support to Bonk and Dennen's (2003) online lecturer roles framework (see Section 3.2.1). This research's findings extends their work by grounding the study of these key lecturer roles in the range of lecturer interactions observed. These interactions were judged as responding to students' intellectual, managerial, social or technical inquiry or issue. These key lecturer roles were further applied in the context of an OLC formed to learn more about research methods. Current OLC development

literature although recognising the importance of lecturer roles, has yet to systematically delineate and apply those roles successfully as this research has indicated.

This research's findings on the notion of participation further lend support to the idea of guided participation proposed by Rogoff (1995) (see Section 2.5.5.1). In addition to Rogoff (1999), Liu et al., (2007), Lock (2002) and Roberts (2007) amongst others, have highlighted the importance of understanding the nature of contributions and interactions in online learning contexts because not all forms of interactions are beneficial to students' learning or to their developing relationships with their peers (Lock, 2002). This study extends Rogoff's (1999) original conceptualisation of guided participation as evinced through the roles participants adopt that are grounded in their interactions. The current literature on developing OLCs while recognising the importance of lecturer and student roles and the fact that not all interactions are beneficial to OLC development have yet to establish such a systematic analysis of roles based on the kinds of interactions occurring to identify those beneficial for particular purposes of teaching and learning. This study has contributed to this issue.

The next section discusses factors involved in, and the impact when, full participation fails to occur in the learning community.

10.2.3 When Participation Fails

This study also identified factors inhibiting participants' full participation in the OLC. The first had to do with the diversity of cultural and learning preferences among participants as exemplified through the existence of sub-group cultures within the community. In this case, Maori students who were interested in Maori cultural-related research issues and who predominantly used the Maori language in online discussions (see Section 9.4.4 and Section 9.4.8). Secondly, some students' individualistic views of learning and preferences for individual rather than group collaborative work inhibited the full development of an OLC in the class (see Section 9.4.1 and Section 9.4.8). Two reasons are postulated for the occurrence of these challenges: a lack of trust among the community members and a lack of shared goals. Researchers including Poole (2000) and McLellan (1997) have found that the development of a learning community is based largely

on trust. If a lack of trust exists, community members will not feel comfortable to actively participate in the community (Baek & Schwen, 2006; Hawthornthwaite et al., 2000) nor attest to being a member of the community. These ingredients of trust were not always present in class in the study as reported by the two student interviewees who almost withdrew from the learning community (see Section 9.4.8 on students' suggestions regarding those who disrupted the class dynamics). The second reason could be a lack of identification with the community's goals by an individual member. Hindrances to a learning community's growth can happen when its individual members fail to identify with the language and culture or to share the overall goals of the community. When members fail to fully participate in the community, their formation of relationships with others and their identities are hindered. Lave and Wenger (1991) highlight this idea of identity as central to the learning or lack of learning in the community.

These findings reveal the importance of attending to social and emotional aspects in developing an OLC. They indicate that participation in a learning community can be enhanced through more explicit and frequent reminders of accepted norms of participation and interaction in the community to guide the implementation of roles and language use to ensure the respectful inclusion of all community members (Lock, 2002; Palloff & Pratt, 1999). The timely use of conflict resolution mechanisms in dealing with disruptive student behaviours have also been proposed to guide participants who exhibit disruptive behaviour in the class towards understanding and embracing the benefits of shared learning practices in the learning community (Lock, 2002). Furthermore, a clear definition and promotion of shared values and goals for participating in the learning community is imperative to underpin community development efforts (Brown, 2001; Garber 2004, Palloff & Pratt, 1999). As Nuthall (1999) observes, the development of a learning community entails that students be guided to change the way they have been accustomed to relate to their lecturer and peers in the class. Students need to understand and appreciate the benefits of learning collaboratively and of teamwork as they participate in developing a learning community in the course in order to achieve their shared and overall learning goals (Palloff & Pratt, 1999; Riel & Fulton, 2001; Vonderwell & Zachariah, 2005). The findings suggest some value in grouping students in their online discussion groups according to similar intellectual and cultural interests rather than randomly assigning them to groups.

Muffoletto (1997) has shown that collaboration works well in a graduate course where the level of homogeneity among students is higher. Only when fundamental socio-emotional structures have clearly been established can the nurturing of qualities such as trust, safety, sense of belonging, connectedness, respect, reciprocity, mutual appropriation, collaboration and risk taking be facilitated more explicitly in the OLC (Issroff, 2005; Jarvenpaa & Leidner, 1998; Jones & Rovai, 2000; Schwier, 2001; Swan & Shea, 2005; Vonderwell & Zachariah, 2005; Wilson et al., 2004).

The second constraint involves the tension between the individual and the community. This idea is advocated by Salomon's (1993) view of the role of both the individual and distributed cognition as interacting in a developmental *spiral and reciprocal relationship*. The lecturer specifically reported on the challenge faced due to the mutual and reciprocal influence between individual community members and the community itself. Adrian noted that even though the notion of an OLC supported and assisted the continual development of the students in class, an individual student's ability still played a role in influencing the extent of their individual and their group's learning. He pointed out examples of individual students who did not contribute online as often but instead provided very well thought-out responses in their contributions and went on to obtain better assignment grades in the course. This contrasted with students who contributed online more often but lacked substance in their postings. Although the structure of the course goals and activities were designed to mediate collaboration and participation, not every student was contributing on an equal basis, quantitatively and qualitatively, in the OLC. Hence, although the overall learning community gained from the distributed expertise of its members, this is not necessarily translated at the individual member's level of development. That is, the individual member's development is not homogenous as a result of participating in the learning community.

Two reasons are postulated for this individual-community tension. Even though a high number of online interactions seem to indicate a thriving learning community and a successful online class, it may not necessarily be a reflection of the quality of learning that was occurring (Liu et al., 2007; Roberts, 2007). As Resnick (1991) claims, certain fundamental individual member capacity is necessary for

successful participation in shared learning activities. Although distributed cognitions can serve the individual's development, individual participants need to undertake responsibility for their own learning and motivation which was not always apparent in this study (see Table 9.6 on participants' reports on their lack of participation in the course mainly due to a lack of confidence and ability in expressing their written ideas online). As a result, those who lacked the initiative and responsibility to participate in the course or who failed to take the time to contribute considered and thoughtful online responses failed to fully appropriate the benefits of participating in the learning community. Similar findings by McIssac et al. (1999) indicate that it was ultimately the students who were highly motivated and able to think things critically through on their own who benefited the most from the online interactions. The unequal individual appropriation of the community's benefits occurring within the OLC in this study support the notion that "not all cognitions...are distributed *all the time*, by *all individuals* regardless of situation, purpose, proclivity, or affordance [original emphasis]" (Salomon, 1993, p. 113) although the distributed cognition can serve the individual's development of *cognitive residue* and vice versa. As such, there may be learning that some members of the OLC could not achieve because of their situation, affordance or simply because it cannot be distributed (Perkins, 1993; Salomon, 1993). Another explanation for this finding is supported by Lave and Wenger's (1991) and Wenger's (1998) idea that a community member can assume different levels of participation, and Rogoff's (1999) claim that guided participation in interpersonal interactions can be asymmetrical in nature. Each type and level of participation implies a different responsibility, role relation and interactive involvement. Such changing individual participation and identities, despite some being more valued than others, are nevertheless still integral to the overall learning community's learning process. The findings suggest that there may be value in finding an appropriate balance of academic and social input as well as member autonomy and interdependency for the whole community to collaborate and support individual members towards their shared learning goals (Jonassen et al., 1998; Schwier, 2002).

The final constraint arises from the lack of time dedicated to develop the learning community (Ma, 2006). The development of persistent and constant community membership and identity in an OLC can involve a long and fluid process (Brown,

2001; Hawthornthwaite & Kazmer, 2004; Palloff & Pratt, 2001). The lecturer needs to allow sufficient time for online students to get to know one another, build trust, identify and share common goals, overcome safety concerns, especially in the initial first few weeks of the course (Palloff & Pratt, 2001). In this study, Adrian was compelled to move right into the learning of the course content in order to fulfil his responsibilities as a lecturer for student learning within the 15-week time frame of the course (see Section 9.2.1 on the lecturer's participation rates and Section 9.4.4 on the lecturer's acknowledgement of time constraints). Although specific pedagogical activities had been developed to foster collaborative knowledge-building opportunities, interactions and development of identities within the learning community, reducing this initial relationship building time stunted the development of more meaningful ways of participation possible among the students.

This section has described factors inhibiting full participation in the OLC. These constraints highlight the complexities of developing an OLC involving people, processes and technology in order to achieve shared overall learning goals (Weller, 2007). Their identification is important because those developing an OLC need to consider both what supports and constrains development.

In summary, the key findings from this research characterise successful online teaching and learning experiences as active and changing participation in a learning community. This participation is framed and shaped by the use of authentic and relevant tasks that situate activity; the use of interaction and teamwork to tap into cognition as distributed; the use of goal-directed activities that support the development of shared goals; and the use of Web-based technological tools and activities designed to mediate action. Participation is realised through the kinds of roles members of the community adopt in support of each other's intellectual, social and emotional development over time.

Overall, the findings confirm the value of a sociocultural approach in the design and facilitation of online learning experiences. 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 the different purposes of teaching and learning. These ideas can inform our

understanding of appropriate conditions for successful teaching and learning and have important implications for guiding teaching-learning practices in online learning environments. They substantiate the idea that OLCs are about what people *do together* rather than where or through what means they do them (Bond-Hu & Fiorello, 2003; Wenger, 1998).

10.3 Implications of the Research for Practice

This research has implications for the use of OLCs as a pedagogical strategy in the design and facilitation of online learning experiences, and for institutional recognition and support for OLCs. These implications are elaborated next.

1. Pedagogical and assessment practices in support of OLCs. Developing OLCs as a strategy to enhance teaching-learning experiences in an online environment aligns with sociocultural perspectives of knowledge as socially constructed. Sociocultural ideas for the design of OLCs, as developed in this study, are encapsulated in the following: the notion of participation in a learning community as framed and shaped by the use of authentic and relevant tasks that situate activity; the use of interaction and collaborative teamwork to tap into cognition as distributed; the use of activities that direct attention towards the accomplishment of particular goals, and the use of Web-based technological tools and activities to mediate action. The implications of these ideas for pedagogical practice are summarised in Table 10.2.

Table 10.2

Key Sociocultural Ideas for Developing an OLC and Their Implications for Practice

Sociocultural Ideas	Implication for Pedagogical/Assessment Practices
Participation in a learning community. Learning is active and increasing changing participation in the valued activities of a learning community.	<ol style="list-style-type: none"> 1. Lecturers have to be clear about their reasons for establishing an OLC to guide their planning. 2. Lecturers need to be aware of and facilitate learning as entry, enculturation, and legitimate participation in valued activities situated within the learning community. They need to make community-building expectations clear to students. 3. Both the lecturer and students are co-learners and partners in the interactive, developmental process of teaching-and-learning. They evolve goals, knowledge, skills in a mutually influential way. 4. Lecturers need to deliberately design learner-centred pedagogical strategies for community-building. 5. Lecturer modeling of different roles and student adoption of different roles can promote effective collaboration to serve

different learning needs in the OLC.

6. Lecturers need to allocate time for students to develop relationships, trust and other important socio-emotional qualities as a basis for the OLC to grow.

7. Guidelines and rules to specify norms for interaction and participation are needed as well as explicit mechanisms for conflict resolution to ensure all community members are included in the class.

Mediated action.

Participation is mediated between people through tools and activities.

1. Lecturer selection of Web-based technological tools and activities afford different types of teaching-learning interactions in the class.

2. Lecturers need to ensure that the Web-based technology and tools utilised in the class are transparent and supportive of the OLC members' needs.

3. Current course assessment practices need to consider the broadening of practices to recognise the individual, social and community contributions to learning in an OLC.

4. Assessment and evaluation is an ongoing process taking place throughout a course. Responsive feedback and scaffolding is a standard part of the evaluation process.

Distributed cognition.

Participation is socially distributed between people and tools.

1. Lecturers need to create learning environments that foster interaction and collaborative teamwork where students can capitalise on the diverse expertise in the community

2. Lecturers need to consider the diverse interaction and participative role available that can be planned for and best be utilised to serve specific functions in the teaching-learning process.

3. Lecturers shift from being sage-on-the-stage to facilitators of learning. Students shift from being passive receivers to active learners to undertake more active participation instead of relying on the lecturer as the sole authority in the subject domain of their learning.

Situated activity.

Participation is embedded in authentic and meaningful contexts.

1. Lecturers need to carefully select teaching-learning activities. These activities need to be couched in terms of their authentic contexts for students to see real-world relevance and application.

2. Particular activities situated in authentic contexts can afford and encourage learners to attend to relevant ideas and contribute to distribute expertise in that activity.

Goal-directed.

Participation is a goal-directed activity.

1. Lecturers need to consider the kinds of goals valued by the community. These goals can be derived from real problems, cases, or projects valued within the community

2. Reward structures, incentives and/or valued goals need to be established for students to subscribe to the idea of a learning community given the many other priorities that compete for their time and energy.

Participation in a learning community. This notion advocates the view that learning is active and increasing changing participation in the valued activities of a learning community. This changes the pedagogical focus to emphasise learning as entry, enculturation, and legitimate participation in valued activities (Brown & Campione, 1996; Leach & Moon, 1999). Lecturers need to be clear about their reasons for establishing an OLC and use these to guide their planning to

deliberately incorporate learner-centred pedagogical strategies for community-building. They need to make community-building expectations clear to students. In such an environment, the lecturer, although an expert in the community, recognises that he or she is a co-learner and partner in the interactive, developmental process of teaching-and-learning with his or her students. The lecturer needs to share and perhaps negotiate aims, strategies and expectations for learning with students and evolve goals, knowledge, skills with them in a mutually influential manner over time. Additionally, lecturers need to allocate time for students to develop relationships, trust and other important social-emotional qualities as a basis for the OLC to grow. Guidelines and rules to specify norms for interaction and participation are needed as well as explicit mechanisms for conflict resolution to ensure all community members feel included and accepted.

The notion of participation through the adoption of different roles has the potential to enhance teaching. Lecturers can participate by adopting managerial, pedagogical, social or technological roles while online students participate by adopting a number of roles associated with meeting intellectual, social or emotional needs. Each role implies different responsibility, relationship, interactive involvement and strategies to serve different teaching-learning purposes within the context of the OLC. For example, developing an OLC at the onset of a course calls attention to establishing important socio-emotional qualities within members of the community. An online lecturer can, thus, structure teaching-learning activities to deliberately target the involvement of student roles that serve *Social* and *Emotional* themes (purposes) of interactions. When students are comfortable with interacting and communicating in the OLC, roles serving *Intellectual* themes of interaction can then be strategically utilised and so forth. As such, the timely implementation of the activities and tools in the course can promote particular kinds of roles to simultaneously foster community development and student understandings. Another implication from this notion of adopting different participative roles in an OLC is that successful online pedagogical practices go beyond mere *shovelware* and demand conscientious effort on the lecturer's part to adopt four main roles – pedagogical, social, managerial, and technological – important to executing their related practices for supporting the learning experiences in the class.

From a mediated action perspective. Participation in the learning community is mediated through the tools and activities designed to support the teaching-learning process. Online lecturers need to carefully select the types of web-based tools and activities that can afford and mediate the kinds of teaching-learning interactions they value. For the purposes of OLC development, the selection of web-based tools and activities affording communicative and interactive opportunities is beneficial to shape student interaction and collaboration in the class. Furthermore, the Web-based tools chosen and utilised need to be transparent and supportive of the OLC members' needs.

As the notion of mediated action calls attention to *people-in-action*, that is, students' participating through the valued tools and activities in the class, consideration needs to be given to the broader context of class planning and assessment. As such, a consideration of all three – personal, social and cultural – processes of student development is warranted. These processes allow a lecturer to observe, analyse and plan for the course from three perspectives. That is, he or she can consider the use of a personal perspective for planning, an interpersonal perspective for planning and a community/institutional perspective for planning. Current course learning and assessment strategies and regulations in tertiary institutions, however, tend to focus solely on the individual and on the end products of learning. The adoption of an OLC as a pedagogical strategy importantly entails the broadening of current online course assessment practices to recognise the individual, social and community contributions to learning in the community.

From a distributed cognition perspective. Participation in a learning community is supported when it is socially distributed across the members of the community and the tools and or activities used. Online lecturers need to create learning environments that foster interaction and collaborative teamwork so that students can capitalise on the diverse expertise in their community. Within an OLC, reciprocal interaction between and participation among all or most members is vital. Some kinds of interactions and participation are more useful than others in fostering shared goals in a community. Lecturers, thus, need to be aware of the diversity of interactions and participative roles that they can utilise to serve a

specific function in the teaching-learning process. They can usefully plan for these and in this way better organise the online discussions and activities to support learning. Additionally, for student interaction and collaboration to be successful and for the OLC to prosper, lecturers need to feel comfortable in relinquishing control of their teaching to students in the learning process. Lecturers need to change from being a *sage-on-the stage* to a *guide-on-the-side* to facilitate collaborative interactions among students. Online students, on the other hand, need to reframe their roles to feel comfortable and confident with relying on their peers. Put another way, they need to place less reliance on the lecturer as the sole authority in the subject domain of their learning. The implication of this is that they need to take on more responsibility for the planning of their own learning, negotiate their learning goals as a group and actively participate to mutually contribute and draw from the group's resources.

From a situated activity perspective. Participation is embedded in authentic and meaningful contexts. The selection of teaching-learning activities needs to be carefully considered as particular activities afford more opportunities for interaction, collaboration and participation than others. This study suggests that activities situated in authentic and meaningful contexts that require students to interact and allow them to see real-world relevance and application of ideas are likely to be productive. Activities that provide a context where expertise is distributed in support of course goals and purposes are also recommended.

From a goal-directed perspective. Participation is shaped by goal-directed activities. Online lecturers need to design activities and promote the kinds of goals that contribute to the development of a community that is not only collaborative but also pursues learning outcomes congruent with the intellectual goals of the particular course. These goals can be developed from real problems, cases, or projects that are seen to be of likely value within the particular community. Additionally, the overall course structure, strategies, incentives and goals entailed in a course need to be examined to ensure they are supportive of community-building strategies and participation. Reward structures, incentives and or valued goals need to be established for students to subscribe to the idea of a learning community given the many other priorities that compete for their time and energy. This is important because not all students enrolled would choose to participate in

a course's learning activities. This may be the case for the very highly motivated students but not for everyone else. Creating a learning community is hard work for a lecturer. Students' cannot be coerced but instead need to be motivated and provided with opportunities to form a community.

2. Institutional recognition and support for OLCs. If embracing OLC as a strategy to enhance learning is the goal, this idea needs to be built into the design and implementation of the online course(s) and also the entire online programme. The findings of this study show that simply making the technology with all its affordances available to students would not have resulted in quality learning experiences were it not for the lecturer's intervention in terms of the view of learning, roles assumed and course design and activities established to foster student participation. This suggests that to promote successful online teaching-learning, there perhaps needs to be a broader programme level initiative and effort at the institutional level to ensure there is sufficient time and persistent membership critical to creating values such as trust and identity in developing and maintaining the OLC. This importantly implies that administrators, course designers and online lecturers play key roles in planning and developing these structures and in fostering the relationships that help build learning communities. It is the informed initiative of members and the leadership of the community that influence and foster and sustain the vibrancy and resiliency of an OLC.

A further implication involves institutional support for online lecturer development programmes to go beyond a technician approach in merely introducing lecturers to the hardware and software used to deliver their online class. Emphasis needs to be given to the process of online learning that is OLC oriented to motivate and excite lecturers on the potential of online learning. This can further compel them to consider the complex relationships between the technology, pedagogy and students' learning in order to shape a successful teaching and learning experience in the online classroom.

10.4 Limitations of the Research

The following are some limitations of this research:

- Given the research was a case study, the findings are not necessarily generalisable to other courses. The research context is limited to the investigation of a fully online single Masters level course in the subject domain of Research Methods in a tertiary institution in New Zealand. However, a detailed description of the research site, the participants, the course, the research design and findings have been included to provide a vicarious experience for the reader to draw *naturalistic generalisations* (Stake, 1995) or generate *working hypotheses* for judging the degree of *transferability* (Lincoln & Guba, 1985) of the findings from the case study's context to the reader's context (Kennedy, 1979; Tripp, 1985). To the extent that other online learning contexts resemble the one described in this study in terms of course design, lecturer role, student characteristics and course content, it may be possible to make tentative and limited generalisations so that the study can provide insights into the development and implementation of an OLC as a pedagogical approach in other online courses. It is hoped that other researchers, educators, policy makers will be able to learn from the lessons gleaned from this research to make more informed decisions in their own context of interest;
- The research findings are limited to participants' self reports, observations of their online interactions and discussions. Participants' writing skills and computer literacy are a confounding factor in researching online group interactions (Merriam, 1988). Hara et al. (2000) also suggest that the nature of online communication is such that the discussions may not adequately capture the thoughts and processes of more introverted students. Another compounding factor is when participants purposefully create different online personas, an occurrence increasingly common in online environments (Merriam, 1988). The methods of prolonged engagement, persistent observation and triangulation adopted in this research go some way towards mitigating these issues. Data triangulated from the questionnaire, interviews and observations indicate support for the general themes reported in the analysis of the student interactions;
- The research findings are limited by the fact that the researcher did not have access to any of the email, phone or written communications that took place outside the online class between the course lecturer and his students in the intervention. As Merriam (1988) cautioned, not all critical

interactions are necessarily available for investigation, particularly in online contexts. Hence, the data collected may not be comprehensive. Although multiple sources were used to provide a rich description of the learning experiences in the course, having access to communication outside the course structure would have provided a more holistic picture of the lecturer's workload and the nature of guidance provided to students, as well as the nature of students' learning needs and outcomes;

- The findings are further limited by the fact that the researcher had no access to the grades awarded to student for their assignment work. Hence, it was necessary to rely on participant self-report to ascertain the quality of the students' learning. The findings of the study could be enhanced if they were triangulated with evidence of students' formal assessments and course grades;
- The key advantage of using the negotiated intervention strategy to frame the development and implementation of the intervention was that it acknowledged the sociocultural realities and constraints faced by Adrian in the teaching of his course. A limitation was that not all intervention strategies negotiated with Adrian were implemented. Adrian's agreement to adopt particular pedagogical activities and strategies was dependent on the extent to which he was willing, ready and confident to adopt them in his teaching practice; and,
- In collaborating with Adrian in this research, every effort has been made to ensure that the findings obtained were credible and dependable. It is possible that with the attention given to him and the investigations in his course, Adrian may have projected a more positive picture of the course. Further, distortions arising from bias on the part of either the researcher or Adrian or his students could have possibly occurred (Lincoln & Guba, 1985). This is a difficulty in qualitative research inquiry when the researcher is intimately associated with the context being researched. Being aware of this potential distortion and adopting measures such as prolonged engagement and close monitoring of responses, persistent observation and triangulation went some way to overcoming this issue.

10.5 Recommendations for Future Research

Based on the findings in this research, five recommendations for future research are proposed: the need to research the pedagogical strategies that shape a learning community, further development of the online analytical framework, the community life cycle, blended learning approaches to OLC development and the application of the negotiated intervention strategy.

Pedagogical Strategies that Shape a Learning Community. This study indicated that a more structured approach to managing online learning activities especially when the lecturer adopts the use of authentic learning contexts can be effective (see Section 9.4.1). Furthermore, the findings suggest value in finding an appropriate balance between academic and social input as well as member autonomy and interdependency (see Section 10.2). Future research could explore these ideas and their impact on the development and growth of OLCs.

This research demonstrated the qualities of an OLC in a fully online graduate Research Methods courses. Ma (2006) has queried whether some content domains are more suitable or applicable for OLC approaches. Further research could usefully address this issue of the potential suitability of OLCs in varying subject domains as well as their application for students at different levels of study whether undergraduate or postgraduate.

Additionally, it has been suggested that grouping participants from more homogenous backgrounds together would be more beneficial than grouping participants from diverse backgrounds (Lidstone & Lucas, 1998; Muffoletto, 1997; Ragoonaden & Bordeleau, 2000). Further research can be conducted to ascertain the quality and extent of student participation under differing online collaborative conditions.

Further Development of the Online Analytical Framework. This research has importantly proposed a preliminary analytical framework to categorise and understand learning experience in an OLC through the varied and different ways a lecturer and students participated and interacted in an online learning environment. The elements in this framework are worthy of exploration by other researchers and practitioners interested in developing and maintaining OLCs.

Community Life Cycle. Since this research is a case study situated in the specific context of a graduate online course, it is recommended that other case studies of OLCs be implemented in courses that are longer (or shorter) than a semester to further understand the life cycle of such communities (Brook & Oliver, 2003), and their impact on the individual community member's persistency in and commitment to community membership (Ma, 2006).

Blended Learning Approach to Community Development. Another suggestion is to 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. This was an issue for some participants in this study who found their interactions constrained by the text-based and asynchronous nature of online communication.

The Application of the Negotiated Intervention Strategy. The findings of this research have attested to the usefulness of the negotiated intervention strategy in designing, developing and implementing an OLC in the context of a fully online graduate course. The strategy proved to be a powerful tool for responding to the 'messiness' of real life online classroom contexts. The strategy could be considered by other researchers as a method for working with lecturers as they take the risks involved in adopting new online pedagogical strategies.

10.6 Conclusion

This description of a one semester online graduate Research Methods course represents a microcosm of online distance learning. It extends past research in online learning and heeds the concerted call to investigate how online learning can be facilitated through the development and application of pedagogically sound frameworks. One aspect of its contribution lies in understanding the processes involved in planning, developing and implementing a pedagogical strategy appropriate to an online learning environment. This is achieved through careful consideration of the social and cultural aspects of researching educational issues in the context of a particular New Zealand tertiary institution. The findings underscore the need to reconceptualise online learning from transmission and delivery to that of a mediated, situated, distributed, goal-directed and participatory

activity within a particular socially and culturally determined learning community. Although bringing adult graduate students together in an online course can result in their achieving the course goals, online lecturers can only provide an impoverished technicist environment for their students' learning if they ignore the rich potential of online learning communities espoused in this research.

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APPENDICES

The University of Waikato
Centre for Science and Technology Education Research (CSTER)
Research on Effective Web-Based Graduate Learning in
Science and Technology Education
Information for Participating Focus Group Students (Phase 1)

Researcher: Elaine G.L. Khoo (PhD student, Centre for Science and Technology Education Research (CSTER)
(ph: 4035, Room: KP G.22, e-mail:ekhoo@waikato.ac.nz)
Supervisor: Dr Mike Forret, CSTER
(ph: 4481, Room: KP G. 21, e-mail: mforret@waikato.ac.nz)

The Study

This research on Effective Web-Based Graduate Learning in Science and Technology Education is part of a PhD research in promoting effective learning outcomes for graduate students in the On-line/ Web-based Learning (WBL) environments. The main focus is to gain insights into critical pedagogical issues in teaching and learning in a WBL environment and to develop more effective teaching-learning strategies in WBL environments. The practical implication from this research is that student learning outcomes might be improved.

This research is divided into three phases with the general objectives to:

1. Explicate key features of web-based teaching-learning from the perspectives of lecturers, students, and technical support team,
2. Design and develop an intervention for teaching and learning in the WBL environment for graduate courses at CSTER, and,
3. Evaluate the learning outcomes of the intervention.

Your Contribution

You are invited to participate in the first phase of the research, which will involve participating in a focus group interview with about 6 other students (for a maximum period of one and a half hours). The results from this interview will be used to help develop a questionnaire to obtain further information on students' On-line teaching-learning experiences. The interview will be audio taped as a record for research purposes.

Research Questions

Some of the questions relating to this research include:

1. What are the current practices in the web-based course (s)?
2. What are your views of the effectiveness of the teaching and learning in the web-based courses?
3. What improvements would you suggest be made in the web-based learning environment?

Ethical Guidelines

The research will follow the University of Waikato Human Research Ethics Regulations 2000 and the ethical guidelines of the NZARE. If you participate in this study, you have the following rights:

Confidentiality and Anonymity

The researcher is committed to respecting the research participants' privacy and confidentiality. The information collected from the interview will be treated as strictly confidential. All quotes and transcripts will be coded and a pseudonym will be used in the report in order that participants' identities will not be revealed

Consent

Your informed consent will be obtained in writing. You have the right to withdraw from the research at any stage or choose not to answer any particular question. You can direct any questions regarding the research to me (please see the contact details above). If you feel the terms agreed in the consent form have been breached, please contact firstly, Dr Mike Forret (ph: 4481, Room: KP G. 21), the supervisor, or subsequently to the Director, Assoc Prof Alister Jones (ph: 4245, Room: KP G.25).

Ownership

You have copyright on any data produced by you while the researcher has the copyright on any analyses and materials she produces. You will have the right to access the data collected from you and transcripts of the interview will be made available to you for checking the accuracy as well as approving its usage in the research. All information collected in the form of audiotapes, transcripts, notes, disks and computer printouts will be kept in secure storage at CSTER and destroyed at the conclusion of the research.

Use of information

The information obtained will be inform the development of the questionnaire for identifying key features of effective web-based teaching and learning practices for the PhD research and other publications arising from the research.

Thank you in advance for your participation.

Yours sincerely,

Elaine Khoo

The University of Waikato
Centre for Science and Technology Education Research (CSTER)
Participating Focus Group Student's Consent Form

This form should be read in conjunction with the attached "Information for Participating Focus Group Students"

I understand that participation in this research project will involve the following:

- 1 I will be involved in a study on *Effective Web-based Graduate Learning in Science and Technology Education*
- 2 Data gathered for this project will not be made available to any third party and will be subject to the provisions of the New Zealand Privacy Act (1993)
- 3 I will not be identified in any way other than a code number or pseudonym in data records or reports of the research findings
- 4 My participation in this project will not in any way affect my academic progress
- 5 I may withdraw from parts of this study at any stage, or decline to answer particular questions in the study, and if I wish I may withdraw from the project completely
- 6 If I have any concerns about my participation in this research project I may approach Elaine Khoo (ph: 4035, Room: KP G.22), or Dr Mike Forret (ph: 4481, Room: KP G. 21), the supervisor, or the Director, Assoc Prof Alister Jones (ph: 4245, Room: KP G.25).

Signed

Date

The University of Waikato
Centre for Science and Technology Education Research(CSTER)
Research On Effective Web-Based Graduate Learning in Science
and Technology Education
Information for Participating Lecturers (Phase 1)

Researcher: Elaine G.L. Khoo (PhD student, Centre for Science and Technology Education Research (CSTER)
(ph: 8387, Room: KP G.23, e-mail:ekhoo@waikato.ac.nz)
Supervisor: Dr Mike Forret, CSTER
(ph:4481, Room: KP G. 21, e-mail: mforret@waikato.ac.nz)

To Lecturers teaching On-line courses at the School of Education and CSTER (Semester B 2002),

The Study

Hello. This study is part of my PhD research in promoting effective learning outcomes for graduate students in the on-line/ Web-based Learning (WBL) environments. The main focus is to gain insights into critical pedagogical issues in teaching and learning in a WBL environment and to develop more effective teaching-learning strategies. The practical implication from this research is that student learning outcomes might be improved.

This research is divided into three phases with the general objectives to:

1. Explicate key features of web-based teaching-learning from the perspectives of lecturers, students, and technical support team,
2. Design and develop an intervention for teaching and learning in the WBL environment for graduate courses at CSTER, and,
3. Evaluate the learning outcomes of the intervention.

Your Contribution

You are invited to participate in the first phase of the research. Participation will involve an interview with you (for a maximum period of one and a half hours). The results from this interview will be used to contribute to developing more effective teaching-learning strategies for phase 2 of the research. The interview will be audio taped.

Research Questions

Some of the questions relating to this research include:

1. What are the current practices in your web-based course (s)?
2. What are your views of the effectiveness of the teaching and learning in the web-based courses?
3. What suggestions for improvements would you make in the web-based environment?

Ethical Guidelines

The research will follow the University of Waikato Human Research Ethics Regulations 2000 and the ethical guidelines of the NZARE. If you participate in this study, you have the following rights:

Confidentiality and Anonymity

The researcher is committed to respecting the research participants' privacy and confidentiality. The information collected from the interview will be treated as strictly confidential. All quotes and transcripts will be coded and a pseudonym will be used in the report in order that participants' identities will not be revealed

Consent

Your informed consent will be obtained in writing. You have the right to withdraw from the research at any stage or choose not to answer any question. You can ask questions regarding the research and if you have any concerns regarding participation in the project, they can be directed firstly, to Dr Mike Forret (ph: 4481, Room: KP G. 21), the supervisor, or subsequently to the Director, Assoc Prof Alister Jones (ph: 4245, Room: KP G.25).

Ownership

You have copyright on any data produced by you while the researcher has the copyright on any analyses and materials she produces. You will have the right to access the data collected from you and transcripts of the interview will be made available to you for checking the accuracy as well as approving its usage in the research. All information collected in the form of audiotapes, transcripts, notes, disks and computer printouts will be kept in secure storage at CSTER and destroyed at the conclusion of the research.

Use of information

The information obtained will be used for the PhD thesis and other publications arising from the research.

Thank you in advance for your participation.

Yours sincerely,

Elaine Khoo

The University of Waikato
Centre for Science and Technology Education Research (CSTER)
Participating Lecturer's Consent Form

This form should be read in conjunction with the attached "Information for Participating Lecturers"

I understand that participation in this research project will involve the following:

- 1 I will be involved in a study on *Effective Web-based Graduate Learning in Science and Technology Education*
- 2 Data gathered for this project will not be made available to any third party and will be subject to the provisions of the New Zealand Privacy Act (1993)
- 3 I will not be identified in any way other than a code number or pseudonym in data records or reports of the research findings
- 4 I may withdraw from parts of this study at any stage, and if I wish I may withdraw from the project completely
- 5 I have the right to correct, edit or delete any parts of the summary transcript of the interview
- 6 The information collected will be used in the PhD thesis and other publications arising from the research
- 7 If I have any concerns about my participation in this research project I may approach Dr Mike Forret (ph: 4481, Room: KP G. 21), the supervisor, or the Director, Assoc Prof Alister Jones (ph: 4245, Room: KP G.25).

Signed

Date

Interview Schedule for Online Lecturers (Phase 1)

Interviewee

Date:

Time started:

Time ended:

Gender:

English native or first language:

Introduction

Hi, I am interviewing selected online lecturers who have gained considerable experience in offering an online course. Please be assured that what you share in this interview will be kept confidential and your identity as an individual will not be revealed. Do please feel free to share what you really think and feel; this will be the most helpful in trying to find out how to improve things for students and lecturers in the future.

I will be tape recording the interview to make sure an accurate record of your views and experiences are noted. Additional notes will also be taken just in case something goes wrong with the recording.

[Note: start tape recorder, announce name of interviewee and date]

Outline of Questions:

A. Background of Lecturer

1. Can you tell me how you got involve with teaching online?

[Probe: when started, how started, why started, how many years]

2. Which courses have you developed and taught online?

[Probe: type of courses - fully online or mix mode (web enhanced/ supplement), current online course teaching and number of students in online class]

Note: Choose the one that has been taught most often as the focus for the rest of this interview.

B. Description of the Online Course

1. Can you share with me how you developed the online course/put online course together?

[Probe: course goals/objectives, etc...]

2. What were some of the course design considerations?

[Probe: student learning outcomes:

-interactivity with other students / lecturer- was a sense of community of learners developed

-technology – layout, ease of use, functionality

-selection of course content

- selection of learning activities

- arrangement of course content

- implementing online course activities, assignments, and discussion topics]

C. Process of Online teaching

(The ways how online teaching may have affected your role as a lecturer, please describe how your experiences have changed over time)

1. What are the key features of good online teaching practices contributing to the success of student learning?

How does this differ from good face to face teaching practices?



2. What are the essential skills required of the online lecturer?
3. Are there things you tried online that did not work well?
[Probe: what were they and what went wrong? What solutions/ strategies would you suggest?]
4. Have you experienced any particularly challenging situations or incidents online?
[Probe: If yes, please describe the incident? How did the group respond to the incident? How did you respond to the incident? How did the individuals who initiated the situation respond? What was the outcome?]
5. How do you assess student's learning in the online context?
[Probe: type of assignment, individual or group assessment, summative vs formative, opportunities for student feedback]

D. Student learning outcomes

1. How would you describe the student learning outcomes in your online course?
[Probe: academic performance, affective outcomes, social skills to be equal to or superior to traditional classes? Why?]
2. What does the online technology allow your students to do—either physically or intellectually—that would have been impossible (or at least more difficult) before technology was widely available?
3. What are the essential skills required of the online student?
4. Can you describe some of the feedback received from students who participated and completed your online courses?

E. Technological components & Support Issues

1. What features in ClassForum did you use in your course?
[Probe: What purposes do they serve? Access to technological support? Any features missing in the technology that you would like to see to facilitate your teaching?]
2. Who are the other key people/ services that are crucial to the online teaching-learning process? (e.g. library services, technical support, fellow lecturers)
[Probe: Why?]

F. Reflection/Evaluation

1. Overall, how do you see the dynamics of learning changing with online teaching-learning with regards to:
 - a. the roles of lecturers
 - b. the roles of students
2. Overall, in what ways has teaching online courses been a fulfilling experience as a teacher?
3. Overall, what are the most important ways in which it has been a frustrating experience?

4. Would you continue to teach online?

THANK YOU VERY MUCH FOR YOUR PARTICIPATION....
If you have any further thoughts, please feel free to email me with them

The University of Waikato
Centre for Science and Technology Education Research (CSTER)
Research On Effective Web-Based Graduate Learning in
Science and Technology Education
Information for Participating Interview Students (Phase 1)

Researcher: Elaine G.L. Khoo (PhD student, Centre for Science and Technology Education Research (CSTER)
(ph: 4035, Room: KP G.22, e-mail:ekhoo@waikato.ac.nz)
Supervisor: Dr Mike Forret, CSTER
(ph: 4481, Room: KP G. 21, e-mail: mforret@waikato.ac.nz)

To Students enrolled in online courses at School of Education and CSTER in Semester B 2002,

The Study

Hello. This study is part of my PhD research in promoting effective learning outcomes for graduate students in the online/ Web-based Learning (WBL) environments. The main focus is to gain insights into critical pedagogical issues in teaching and learning in a WBL environment and to develop more effective teaching-learning strategies. The practical implication from this research is that student learning outcomes might be improved.

Your Contribution

You are invited to participate in the research. Participation will involve an interview with you (for a maximum period of forty five minutes). The results from this interview will be used to contribute to developing more effective teaching-learning strategies for the research. If it is all right with you, the interview will be audio taped and notes will taken. I will be interested to hear your thoughts on the following:

1. Your online learning experience,
2. How the experience benefited you,
3. What was useful to your learning in the course,
4. The type of challenges you faced while doing the course, and,
5. Any suggestions for improvements that you would like to make in relation to learning in the web-based environment.

Your participation is important in providing feedback on your web-based learning experience(s), the issues that you consider important in learning in this context and your suggestions for improving the quality of your web-based learning experiences.

Ethical Guidelines

The research will follow the University of Waikato Human Research Ethics Regulations 2000 and the ethical guidelines of the NZARE. If you participate in this study, you have the following rights:

Confidentiality and Anonymity

The researcher is committed to respecting the research participants' privacy and confidentiality. The information collected from the interview will be treated as strictly confidential. All quotes and transcripts will be coded and a pseudonym will be used in the report in order that participants' identities will not be revealed.

Consent

Your informed consent will be obtained in writing. You have the right to withdraw from the research at any stage or choose not to answer any question. You can ask questions regarding the research and if you have any concerns regarding participation in the project, they can be directed firstly, to Dr Mike Forret (ph: 4481, Room: KP G. 21), the supervisor, or subsequently to the Director, Assoc Prof Alister Jones (ph: 4245, Room: KP G.25).

Ownership

You have copyright on any data produced by you while the researcher has the copyright on any analyses and materials she produces. You will have the right to access the data collected from you. All information collected in the form of audiotapes, transcripts, notes, disks and computer printouts will be kept in secure storage at CSTER and destroyed at the conclusion of the research.

Use of information

The information obtained will be used for the PhD thesis and other publications arising from the research.

Thank you in advance for your participation.

Yours sincerely,

Elaine Khoo

The University of Waikato
Centre for Science and Technology Education Research (CSTER)
Participating Interview Student's Consent Form

This form should be read in conjunction with the attached "Information for Participating Interview Students"

I understand that participation in this research project will involve the following:

- 1 I will be involved in a study on *Effective Web-based Graduate Learning in Science and Technology Education*
- 2 Data gathered for this project will not be made available to any third party and will be subject to the provisions of the New Zealand Privacy Act (1993)
- 3 I will not be identified in any way other than a code number or pseudonym in data records or reports of the research findings
- 4 My participation in this project will not in any way affect my academic progress
- 5 I may withdraw from parts of this study at any stage, or decline to answer particular questions in the study, and if I wish I may withdraw from the project completely
- 6 If I have any concerns about my participation in this research project I may approach Elaine Khoo (ph: 4035, Room: KP G.22), or Dr Mike Forret (ph: 4481, Room: KP G. 21), the supervisor, or the Director, Assoc Prof Alister Jones (ph: 4245, Room: KP G.25).

Signed

Date

Interview Schedule for Online Students (Phase 1)

Introduction

Hi, -----thanks for agreeing to participate in this interview. What I would like to do in this interview is to ask you some questions that will give me a deeper insight into your own personal experiences and reactions to the online course you had participated in. This is in addition to your responses to the online questionnaire you had completed last month. This interview will only take about ½ hour. Please be assured that what you share in this interview will be kept confidential and your identity as an individual will not be revealed. Do please feel free to share what you really think and feel; this will be the most helpful in trying to find out how to improve things for students and lecturers in the future.

I will be tape recording the interview to make sure an accurate record of your views and experiences are noted. Additional notes will also be taken just in case something goes wrong with the recording.

[Note: start tape recorder, announce name of interviewee and date]

1. In the questionnaire you'd completed, you said that the things you liked best about online learning were[read quote]. Could you expand on that?
[Probe: how students felt about their successes, what helped them learn]
2. While you were learning in the online course, did you feel that you were part of a group or class (teacher & student) working together, or did you feel that you were pretty much alone in learning the course material?
(If felt part of group) -- Did you or the lecturer do anything in particular that helped you to be able to work or socialise with other students in the online class?
3. What more could the course lecturer(s) have done to help you with your learning?
4. If you were to teach an online course, how would you do it differently?
[Probe: Why?]
5. You also said that the worst thing about learning online were [read quote]. Is there anything else you'd like to add to that?
[Probe: how students felt about the hindrances]
6. What did you wish you had known before starting to learn online...?
[Probe: What advice would you give to a student who is thinking of signing up for an online course?]
7. Is there anything else you would like to share about your experiences?

THANK YOU VERY MUCH FOR YOUR PARTICIPATION

Interview Schedule for Online Students (Phase 3)

Purpose of Interview:

Follow up on students from their questionnaire which was to evaluate the effect of the specific interventions that have been built into the course:

- a. The course materials / activities,
- b. the teaching/facilitating of the class,
- c. students learning achievement as measured against the course objectives

Introduction

Hi, -----thanks for agreeing to participate in this interview. What I would like to do in this interview is to ask you some questions that will give me a deeper insight into your personal experiences and reactions to the Educational Research Methods online course. Although the course was co-taught by both Adrian and [Lecturer B], I'd like to **focus specifically on the parts of the course that were taught by Adrian**. Please be assured that what you share in this interview will be kept confidential and your identity will not be revealed. Do please feel free to share what you really think and feel; this will be the most helpful in trying to find out how to improve things for students and lecturers in this course for the future.

I will be tape recording the interview to make sure an accurate record of your views and experiences are noted. Additional notes will also be taken just in case something goes wrong with the recording.

[Note: start tape recorder, announce name of interviewee and date]

- a. I am interested in finding out about your initial feelings or impressions during the first week of the class? Can you remember what you particularly liked, or what you didn't like or found confusing? (probe... anything else?)
How did your feelings or impression change over the course? How do you feel now?
(Check with questionnaire d8 – whether course expectations have been met, question d9 – whether he/she would recommend this course to another friend)
- b. In the survey/questionnaire, when asked about Adrian's MOST useful online contribution, you mentioned that it was[read quote]. Could you expand on that?
- c. In the survey/questionnaire, when asked about Adrian's LEAST useful online contribution, you mentioned that it was[read quote]. Could you expand on that?
[Probe: How students felt about the hindrances]
- d. In the survey/questionnaire, when asked which part of the course encouraged the MOST cooperation, you said[read quote]. Could you expand on that? Relate this to his/her answer on indication of extent of feeling part of supportive, and collaborative group (scale of 1-5)
While you were learning in the online course, did you feel that you were part of a group or class (teacher & student) working together, or did you feel that you were pretty much alone in learning the course material?
(If felt part of a group)—Did you or the lecturer do anything in particular that helped you to be able to work and socialise with other students in the online class?
[Probe: What kinds of student-student interactions, student-lecturer interactions?]

- e. What were your reactions to reading the comments or contributions by the other students?
[Probe: To what extent did you find this interesting or helpful, and to what extent did you feel this was a waste of time? Why?]
- f. Did you have any sort of regular schedule each week when you would sign online to participate, or how was it that you decided when to log on??
- g. What did you learn from this course?
[Probe: Course goals(content -cognitive achievement- understand important concepts and relationships), learning process (empowered to develop their own learning rather than wait for the lecturer to tell them what to do etc.), learning how to be a uni student, learning how to learn online...]
- h. What did you find MOST useful about the course? (Focus on the specific intervention activities, then on specific teaching strategies)
[Probe: How students felt about their successes, what helped them learn?]
- i. In the survey/questionnaire, when asked about the LEAST useful to your learning in the course it was....[read quote]. Could you expand on that?
[Probe: Relate to the suggestions for improving the course, which he/she has suggested]
- j. What more could the course lecturer (s) have done to help you with your learning?
- k. If you were to teach this course, how would you do it differently?
[Probe: Why?]
- l. What I wished I had known before I started online learning...
[Probe: What advice would you give to a student who is thinking of signing up for this course?]
[Probe: Advice for learning online in this course?]
- m. Is there anything else you'd like to share about your experiences?

Note: Would you like me to send the transcript of this interview back to you to give you the opportunity to edit/ correct/ add any other comments you might have before I use this in my research? YES / NO

THANK YOU VERY MUCH FOR YOUR PARTICIPATION....

If you have any further thoughts, please feel free to email me with them

The University of Waikato
Centre for Science and Technology Education Research(CSTER)
Research On Effective Web-Based Graduate Learning in Science
and Technology Education
Information for Participating Pilot Questionnaire Students

Researcher: Elaine G.L. Khoo (PhD student, Centre for Science and Technology Education Research (CSTER)
(ph: 8924 / 4035, Room: KP G.22, e-mail:ekhoo@waikato.ac.nz)
Supervisor: Dr Mike Forret, CSTER
(ph: 4481, Room: KP G. 21, e-mail: mforret@waikato.ac.nz)

The Study

Hello. This study is part of my PhD research in promoting effective learning outcomes for graduate students in the On-line Learning environments. The main focus is to gain insights into critical pedagogical issues and to develop more effective teaching-learning strategies in On-line learning environments.

Your Contribution

You are invited to participate in the research, which involves a pilot study of a questionnaire designed to obtain feedback about students' On-line teaching-learning experiences. Participation is voluntary and will involve completing a questionnaire and obtaining your feedback (through the phone or face to face meeting, whichever is convenient for you) to improve on the questionnaire.

I would appreciate it if you could please:

- a. Complete the questionnaire, time yourself to see how long you took, and,
- b. Since the questionnaire is still in a preliminary draft, I would like your opinion on ways of improving it. Please indicate at the end of the questionnaire, the questions you believe are poorly worded, ambiguous, or unanswerable. Do specify changes that you believe would correct any problems you discover in the questionnaire. Also, feel free to write in questions that you believe are relevant to the study, which have not been asked.

The results from this study will be used to refine the questionnaire before it is distributed to other On-line students.

Ethical Guidelines

The research project will follow the University of Waikato Human Research Ethics Regulations 2000 and the ethical guidelines of the NZARE and include the following:

- The researcher is committed to respecting the research participants' privacy and confidentiality;
- The information collected will be kept secured and confidential, and destroyed at the conclusion of the research.
- Any identifying information (eg. your name, e-mail addresses) will be removed to protect the anonymity of your responses in the research report;
- Participation in this study will not affect your academic progress in any way;
- You have the right to decline or withdraw from the research at any time or choose not to answer any particular question;
- You have the right to access the information you've provided at any time;
- You can direct any questions regarding the research to me (please see the contact details above), or if you feel the terms agreed in the consent form have been breached, please contact firstly, Dr Mike Forret (see contact details above), the

Appendix 5.7

supervisor, or subsequently to the Director, Assoc Prof Alister Jones (ph: 4245, Room: KP G.25); and,

- The information collected will be used in the PhD thesis and other publications arising from the research.

For further information, or if you have any concerns about the research, please contact me (see above for contact details) or Dr Mike Forret (see above for contact details).

Thank you in advance for your participation.

Yours sincerely,

Elaine Khoo

**The University of Waikato
Centre for Science and Technology Education Research (CSTER)
Research On Effective Web-Based Graduate Learning in
Science and Technology Education**

Information for Participating Survey Students (Phase 1)

Researcher: Elaine Khoo (PhD student - Centre for Science and Technology Education Research - CSTER,
ph: 838-4466 ext 8924 / 4035, Room: KP G.22, e-mail: ekhoo@waikato.ac.nz)

Supervisor: Dr Mike Forret, CSTER
(ph: 838-4466 ext 4481, Room: KP G. 21, e-mail: mforret@waikato.ac.nz)

Kia Ora and Hello. My name is Elaine and I invite you to take part in this survey to obtain students' views on their online learning experiences. Your participation is **voluntary** and important to impact future online teaching-learning development.

There are **SIX** parts to this survey:

- A . The Online Paper
- B . The Teaching of the Online paper
- C . Your Perceptions of Learning
- D . Technology and Support Issues
- E . Overall Comments and Suggestions
- F . Your Background

It will take approximately **20 mins** to complete the survey (based on pilot studies).

If you would like to share more about your online learning experiences, I would like to interview you (takes about 30-45 mins). Please provide your contact details (eg. e-mail, phone number or mobile number) when asked in the survey.

I would be grateful if you can submit this survey to me by **10 November 2002**.

Click [Ethical Guidelines](#) for more information about your rights as a participant in this project.

Thank you for your time and helpful participation.

Yours sincerely
Elaine Khoo

[Start Survey](#)

NOTE: The term '**Online**' in this survey refers to the use of the Internet as the main mode of communication/ interaction for teaching and learning purposes.
If you are taking **more than one online paper** this semester, make your evaluation based on the online paper through which you had received information about this survey.

You are now at Section

A	B	C	D	E	F
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A. Online Paper

This section is focused on the nature and structure of the online paper through which you had received information about this survey.

1. Paper Organisation

1. Which of the following activities did you participate in as part of the paper assessment?

Please mark all that apply

- Individual Assignments
- Group assignments
- Group online assignments
- Online postings/ discussions
- Chat group

Others (please specify) :

2. Were you required to attend any *face-to-face** meeting with your lecturer and classmates as part of this paper?
(* *face-to-face* refers to a physical meeting as opposed to communicating virtually over the Internet).

- No.
- Yes, we were required to meet times (please specify) during the semester

3. How **IMPORTANT** was/were the face-to-face meeting(s) with your lecturer and classmates for you?

Please mark all that apply.

- Helped to personalise the online learning experience
- Helped me to connect socially with my classmates

- Helped to build trust in relating with my classmates
- Helped to clarify the paper requirements (eg. assignments, deadlines, paper guidelines etc)
- The meetings were not important
- Not Applicable

Others (please specify):

4. Please give an approximate number of students who are enrolled in this online paper :

2. Response to the online paper

Please use the following scale to express your opinion:

“Not Useful At All”, “Not Useful”, “Uncertain”, “Useful”, “Very Useful”, or N/A (not applicable for the paper being considered in this survey.)

1. Based on your experience in the online paper, how **USEFUL** were the following elements in contributing to the success of your learning in this online paper?

		Not Useful At All	Not Useful	Uncertain	Useful	Very Useful	N/A
1.	Clear paper outline	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	Clear grading criteria	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	Clear assignment deadlines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	Clear guidelines for preparing the assignment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.	Clear paper readings / resources specified	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.	Clear paper expectation for student participation in the online discussions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.	Readings on the Web that were listed on the paper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix 5.8

	outline						
8.	Recommended Websites throughout the semester that were not in the paper outline	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9.	Actively participating in the online discussion with other students, the lecturer(s) or invited guests	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10.	Participating in the online group assignment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.	Participating in Chat groups in ClassForum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.	Witnessing the message interactions of others in the online discussions (eg. Lurking)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13.	Direct e-mail contact with other classmates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.	Phone contact with other classmates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.	Help / support from other classmates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16.	Direct e-mail contact with the lecturer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17.	Phone contact with the lecturer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18.	Individualised feedback from the lecturer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19.	Timely feedback	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20.	Submitting my assignment online to the lecturer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21.	Technical assistance with the online paper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22.	Support from partner/ family members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Any other features which helped you? Or what needs to be improved?

You are now at Section

A	B	C	D	E	F
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B. THE TEACHING OF THE ONLINE PAPER

This section is focused on the teaching of the online paper

Please use the following scale to express your opinion:

“Not Useful At All”, “Not Useful”, “Uncertain”, “Useful”, “Very Useful”, or N/A (not applicable for the paper you are taking)

1. How **USEFUL** are the following activity (s) in drawing you into the online discussion?

		Not Useful At All	Not Useful	Uncertain	Useful	Very Useful	N/A
1.	Online discussion topics that will help in completing the paper assignment(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	Online discussions topics that are not related to the paper assessment but give a general overview of the subject area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	Online discussion topics that are linked to the focus questions raised in paper readings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	Clear weekly schedules for online discussion topics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.	All discussion topics for the paper posted online at the beginning of the semester (rather than as the semester progresses)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.	Online interactions that are friendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.	Lecturer summarises the key issues at the end of each online discussion module	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.	Lecturer can be contacted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	during the times when he/she has specified						
9.	Lecturer gives clear introduction to lead students into a discussion topic rather than students initiating discussion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10.	Lecturer provides a scenario/ case which students had to complete through online discussion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.	Lecturer poses some questions or issues for discussion that reflect key aspects of the topic/readings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.	Lecturer continues to put up online postings even when students do not participate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13.	Lecturer provides rules/guidelines on posting messages online.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Any other activities which were useful? (Please explain):

2. Please explain some of the rules/guidelines you found helpful on posting online messages?

3. Please describe the most interesting discussion starters/ prompts that you have encountered when participating in the online discussions.

You are now at Section

- | | | | | | |
|---|---|---|---|---|---|
| A | B | C | D | E | F |
|---|---|---|---|---|---|

C. PERCEPTION OF LEARNING

This section is focused on your learning in the online paper

1. In your opinion, which of the following attributes are **IMPORTANT** for a student to be a successful online learner?

Please mark all that apply.

- Initiative / Personal responsibility
- Motivation to learn
- Time management
- Discipline in finding a routine to log on and participate in the online discussions
-

- Able to cope with the technology
- Able to communicate through writing

Any other skills? (Please specify):

2. Why did you participate/ contribute in the online discussions?

Please mark all that apply.

- It was a compulsory component in the paper (we were required to)
- I needed help from my classmates to clarify my thoughts/questions
- I needed help from the lecturer to clarify my thoughts/questions
- I disagreed with a particular view raised in the class
- The lecturer posed an interesting issue/question/ task for us to complete
- I wanted to be part of the online learning class

Others (please specify):

3. Please specify the average number of times you would contribute to the online discussions IN A WEEK

4. If you **DID NOT** participate in the online discussions, why is that?

Please mark all that apply.

- It was not part of the paper assessment
- It was hard to express my ideas in writing
- Other people have better ideas than me
- Other people have said what I wanted to say
- I find the technology difficult to use
- It was too time consuming

Others (please specify):

5. What did you learn from this paper?

Please use the following scale to express your opinion: “Strongly Disagree”, “Disagree”, “Neither Agree or Disagree”, “Agree”, “Strongly Agree”, or N/A (not applicable for the paper you are taking)

		Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree	N/A
1.	I learned a great deal of facts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	I gained a good understanding of the paper topics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	I found my existing ideas changing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	I become competent in the subject area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.	I am able to think more	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	critically about the paper topics						
6.	My ability to integrate facts and develop generalizations improved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.	I became more interested in the subject	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.	I was stimulated to do additional reading	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9.	I was encouraged to think for myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10.	I became more confident in expressing my ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.	I gained a better understanding of myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.	I developed the ability to communicate more clearly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13.	I learned to value other points of view	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.	I shared personal experiences to make the online discussion more relevant/ interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.	I come to regard myself as a part of an online community of learners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16.	I increased my competence with using technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Any others (please specify) :

You are now at Section

- | | | | | | |
|---|---|---|----------|---|---|
| A | B | C | D | E | F |
|---|---|---|----------|---|---|

D. TECHNOLOGY AND SUPPORT ISSUES

This section is focused on your experiences using the technology (ClassForum) and support issues in the online paper.

Please use the following scale to express your opinion:

Appendix 5.8

“Not Useful At All”, “Not Useful”, “Uncertain”, “Useful”, “Very Useful”, or N/A (not applicable for the paper you are taking)

1. How **USEFUL** are the following to your learning in the online paper?

		Not Useful At All	Not Useful	Uncertain	Useful	Very Useful	N/A
1.	Online lecturer introduction (biography)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	Online student introductions (biography)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	Online lecturer photo	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	Online student photos	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.	Using “Folders” in ClassForum to organise the paper material and discussions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.	Using the “New Contribution” (red flags) feature in ClassForum to alert me to new online postings in the paper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.	Using the “Portfolio” in ClassForum for private discussions with the lecturer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.	Using the online access to the Library in ClassForum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9.	Saving or printing documents from the online paper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Any other technology features which were helpful? (Please explain):

2. When you were studying for your online paper and needed paper related help, how did you get it?

Please mark all that apply.

- Lecturer
- Classmates
- Department's Administrator
- Lecturer appointed contact person
- Family/ Whanau

Others (please specify):

You are now at Section

[A](#) [B](#) [C](#) [D](#) **[E](#)** [F](#)

E. OVERALL COMMENTS AND SUGGESTIONS

This section is focused on any additional comments or suggestions for improvements that you would like to make.

1. The **BEST** thing about learning online is...

2. The **WORST** thing about learning online is

3. Other comments or suggestions for improving your online learning experience?

4. Would you like to be interviewed about your online learning experiences? It will take about 30 - 45 mins and provide valuable information for the future development of online teaching-learning.

- No
- Yes. Please provide your name, phone number and e-mail address

5. Overall, I **WOULD** recommend learning online to my friends.

Yes ▼

You are now at Section

A	B	C	D	E	F
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F. YOUR BACKGROUND

This section is focused on your general demographic background.

1. Paper number (the online paper that you are taking/ evaluating):

2. Are you?

Male ▼

3. Your age at last birthday?

16-25 years ▼

4. Is English your native or first language?

Yes.

No.

		Not Fluent at all	Not Very Fluent	Moderately Fluent	Quite Fluent	Very Fluent
5.	Please indicate the fluency of your English <u>speaking</u> skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.	Please indicate the fluency of your English <u>writing</u> skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. How many online papers have you taken previously?

None. This is my first online paper

8. What degree or certificate are you currently pursuing?

Undergraduate - Year 1

9. What personal expectation(s) did you have about learning online at the START of the semester?

Please mark all that apply.

- Flexible
- Time-saving, less time-consuming than a face-to-face paper
- Time to reflect on my thoughts before sharing them with others
- Convenient
- I can learn at my own pace
- Overwhelmed by the technology
- Opportunity to build friendships with other students/experts from other parts of the country/world

Others (please specify):

11. Did any of your expectation about learning online change over the semester?

- No
- Yes. If, yes, what most changed your expectation?

Thank you very much for participating!

By clicking on this button, I agree to submit this information for research purposes only.

The University of Waikato

Centre for Science and Technology Education Research (CSTER)

Research On Extricating the Web of Learning: A Case Study on Web-Based Graduate Learning

Information for Participating Survey Students (Phase 3)

Kia Ora and Hello. My name is Elaine and I invite you to take part in this survey of your experiences in this course. This survey constitutes the second part of my research in this course. Your participation is **voluntary** and I would really appreciate your **frank feedback** on what was useful and not so useful for your learning.

There are **four** parts to this survey dealing with the following aspects:

- A. The Online Course
- B. Your Teaching and Learning Experience
- C. What Have You Learnt?
- D. Your Background

It will take approximately **25 mins** to complete the survey (based on pilot studies).

Please note: When completing this survey, please confine your answers to Adrian's teaching of the course

If you would like to share more about your course learning experiences, I would like to interview you (takes about 30-45 mins). Please provide your contact details (eg. e-mail, phone number or mobile number) when asked in the survey.

I would be grateful if you can submit this survey to me **at your earliest convenience**.

Click Ethical Guidelines for more information about your rights as a participant in this project. Thank you for your time and helpful participation.

Yours sincerely

Elaine Khoo

(ph: 838-4466 ext 8924 or 4035, Room: KP G.22, e-mail: ekhoo@waikato.ac.nz)

Supervisor: Dr Mike Forret

(ph: 838-4466 ext 4481, Room: KP G. 21, e-mail: mforret@waikato.ac.nz)

See Below to Start the Survey

NOTE: The term '**online**' in this survey refers to the use of the Internet as the main mode of communication for teaching and learning purposes.

A. The Online Course

This section focuses on the nature and structure of the course.

1. In your opinion, was this course well structured?

Please click **ONE** box from the following category.

- Yes
- No
- Uncertain

2. From the list provided below, we are interested to know which activities (if any) you found useful for your learning.

In the left hand box column, click **ALL** activities that you found useful and put an **ADDITIONAL** click in the right hand box column for the **THREE** activities you found **MOST** useful.

Useful Activities	Three Most Useful Activities	
<input type="checkbox"/>	<input type="checkbox"/>	Participating in the online discussion topics that helped in completing the assignment(s)
<input type="checkbox"/>	<input type="checkbox"/>	Participating in the online discussions topics that were not related to the assignments but gave an overview of the specific topic
<input type="checkbox"/>	<input type="checkbox"/>	Coming to a group consensus (e.g. in <i>Our Group Response</i> discussion)
<input type="checkbox"/>	<input type="checkbox"/>	Peer feedback on my coursework (e.g. in <i>Sharing of ideas for Assignment 1</i> discussion)
<input type="checkbox"/>	<input type="checkbox"/>	Lecturer feedback on the online discussion topics
<input type="checkbox"/>	<input type="checkbox"/>	Lecturer feedback on my assignments
<input type="checkbox"/>	<input type="checkbox"/>	Completing the assignments
<input type="checkbox"/>	<input type="checkbox"/>	The <i>Break Time</i> discussion
<input type="checkbox"/>	<input type="checkbox"/>	The <i>Farewell / Moving On</i> discussion
<input type="checkbox"/>	<input type="checkbox"/>	The <i>Advice from Previous Students</i> resource
<input type="checkbox"/>	<input type="checkbox"/>	The <i>Online Participation Tips</i> resource
<input type="checkbox"/>	<input type="checkbox"/>	Other (please explain)
		<div style="border: 1px solid black; height: 20px; width: 450px;"></div>

3. This question relates to the **Research Overview Diagram** used in the course. Please indicate the usefulness (if at all) of the **Research Overview Diagram** for helping you in the following activities.


Please click **ONE** box for each statement from the following scale: “Very Useful”, “Somewhat Useful”, “Uncertain”, “Not Very Useful” or “Not Useful at All”

	Very Useful	Somewhat Useful	Uncertain	Not Very Useful	Not Useful At All
a. Developing an overall understanding of educational research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Relating my background experience to the educational research process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Making connections between the different parts of the course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Other (please explain)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<div style="border: 1px solid black; height: 80px; width: 230px; margin-top: 5px;"></div>					

4. This question relates to the **scenarios** used to introduce the discussion topics in the course. Please indicate the usefulness (if at all) of the **scenarios** for helping you in the following activities.

Please click **ONE** box for each statement from the following scale: “Very Useful”, “Somewhat Useful”, “Uncertain”, “Not Very Useful” or “Not Useful at All”

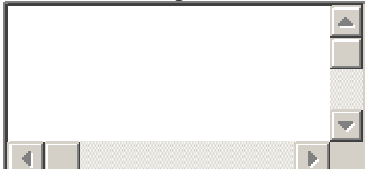
	Very Useful	Somewhat Useful	Uncertain	Not Very Useful	Not Useful At All
a. Depicting real life educational research issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Providing real life context to discuss the course readings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Linking my experience with the course readings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Other (please explain)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



5. This question relates to the **online group discussions** used the course. Please indicate the usefulness (if at all) of the **online group discussions** for helping you in the following activities.

Please click **ONE** box for each statement from the following scale: “Very Useful”, “Somewhat Useful”, “Uncertain”, “Not Very Useful” or “Not Useful at All”

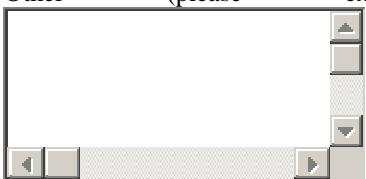
	Very Useful	Somewhat Useful	Uncertain	Not Very Useful	Not Useful At All
a. Developing my ability to communicate ideas about educational research to my classmates.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Encouraging me to share personal experiences with my classmates that were relevant to the discussion topics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Supporting my ongoing involvement in the course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Generating ideas as I read my classmates' contributions in the class discussions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Other (please explain)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



6. This question relates to your being required to present your group's consensus in the **Our Group Response** discussions used in the course. Please indicate the usefulness (if at all) of the **Our Group Response** discussions for helping you in the following activities.


Please click **ONE** box for each statement from the following scale: “Very Useful”, “Somewhat Useful”, “Uncertain”, “Not Very Useful” or “Not Useful at All”

Very Useful Somewhat Useful Uncertain Not Very Useful Not

	Useful	Useful	Useful	Useful	Useful At All
a. Synthesising the key discussion ideas from my group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Developing my own opinion(s) about educational research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Encouraging me to be accountable to my group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Focusing my group's discussion on the week's discussion topic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Other (please explain)					
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. This question relates to **Break Time** discussion used the course. Please indicate the usefulness (if at all) of the **Break Time** discussion for helping you in the following activities.

Please click **ONE** box for each statement from the following scale: "Very Useful", "Somewhat Useful", "Uncertain", "Not Very Useful" or "Not Useful at All"

	Very Useful	Somewhat Useful	Uncertain	Not Very Useful	Not Useful At All
a. Getting to know the other students in the course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Supporting my ongoing involvement during the course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Sharing of useful information with others in the course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Other (please explain)					
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. This question relates to **Online Participation Tips** resource used the course. Please indicate the usefulness (if at all) of the **Online Participation Tips** resource for helping you in the following activities.

Please click **ONE** box for each statement from the following scale: "Very Useful", "Somewhat Useful", "Uncertain", "Not Very Useful" or "Not Useful at All"

	Very Useful	Somewhat Useful	Uncertain	Not Very Useful	Not Useful At All
a. Identifying the lecturer's expectations regarding online discussions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Better planning for the course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Framing my online contributions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Developing my confidence to post my contributions online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Other (please explain)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. This question relates to **literature review exercise** in **Discussion Topic Two** in **Module One** used the course. Please indicate the usefulness (if at all) of the **literature review exercise** for helping you in the following activities.

Please click **ONE** box for each statement from the following scale: “Very Useful”, “Somewhat Useful”, “Uncertain”, “Not Very Useful” or “Not Useful at All”

	Very Useful	Somewhat Useful	Uncertain	Not Very Useful	Not Useful At All
a. Applying theoretical ideas about literature review into practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Understanding the technical aspects of doing literature review	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Improving my literature searching skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Other (please explain)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. In **Assignment One**, you were asked to share and constructively critique the technical aspects of your peer’s interviews and questionnaires in class. Please indicate the usefulness (if at all) of the **Sharing of Ideas for Assignment One** discussion for helping you in the following activities.

Please click **ONE** box for each statement from the following scale: “Very Useful”, “Somewhat Useful”, “Uncertain”, “Not Very Useful” or “Not Useful at All”

	Very Useful	Somewhat Useful	Uncertain	Not Very Useful	Not Useful At All
a. Developing a better understanding of the technical aspects of interviews and questionnaires	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Developing my constructive critique skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Refining my own ideas about interviews and questionnaires	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. As an incentive for me to contribute regularly to the online discussion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Other (please explain)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11a. Would you recommend that we continue with this **Sharing of Ideas for Assignment One** discussion for next year?

Please click **ONE** box from the following category.

- Yes
- No
- Uncertain

b. Please explain your answer in 11a.

12. In **Assignment Four**, you were asked to reflect on your personal development as a researcher in this course. Please indicate the usefulness (if at all) of the **Self-Reflection report** for helping you in the following activities.

Please click **ONE** box for each statement from the following scale: “Very Useful”, “Somewhat Useful”, “Uncertain”, “Not Very Useful” or “Not Useful at All”

	Very Useful	Somewhat Useful	Uncertain	Not Very Useful	Not Useful At All
a. Thinking about the changes in my ideas regarding educational research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Developing a coherent understanding of educational research ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. As an incentive for me to contribute regularly to the online discussion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Other (please explain)					
<div style="border: 1px solid black; height: 60px; width: 100%;"></div>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13a. Would you recommend that we continue with this **Self-Reflection report** for next year?

Please click **ONE** box from the following category.

- Yes
- No
- Uncertain

b. Please explain your answer in 13a.

14a. To you, which part of the course (if any) encouraged the **MOST** cooperation, communication, and / or “bonding” with the other students in the class?

b. In thinking about your overall experiences in the course, to what extent (if at all) do you feel you’ve become a part of a supportive and collaborative group?

Please click **ONE** box from the following options ranging from “Very Much So” (1) to “Neutral”(3) to “Not at All” (5)

	1	2	3	4	5	
Very Much So	_____					Not at All
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

B. The Teaching and Learning Experience

This section focuses on the teaching and learning in the course.

1. Based on your experience in this course, please indicate the extent to which you agree with the following statements:
“[Lecturer A]’s online contributions were helpful because they...”

Please click **ONE** box for each statement from the following scale: “Strongly Agree”, “Agree”, “Neither Agree or Disagree”, “Disagree” or “Strongly Disagree

	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
a. Gave a clear introduction to lead me into the discussion topics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Enabled me to consider varying perspectives on the discussion topic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Clarified key ideas in the discussion topics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Encouraged me to inquire further about	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- d. the discussion topic
- e. Helped me link my ideas with the course readings
- f. Helped me link my ideas with those of other students from the different groups
- g. Kept me focused on the purpose of the discussion topics
- h. Modelled ways of communicating online to me
- i. Showed that my online contributions were valued
- j. Other (please explain)

2. Of the above, what did you find **MOST** useful for your learning in the course?
Please explain.

3. Of the above, what did you find **LEAST** useful for your learning in the course?
Please explain.

C. What Have you Learnt?

This section focuses on your learning in the course.

1. After taking this course, to what extent would you agree with the following statements:

Please click **ONE** box for each statement from the following scale: “Strongly Agree”, “Agree”, “Neither Agree or Disagree”, “Disagree” or “Strongly Disagree

Strongly **Agree** **Neither** **Disagree** **Strongly**
Agree **Agree** **Agree or** **Disagree** **Disagree**

Disagree

- | | | | | | | |
|----|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| a. | I have a better understanding of educational research. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. | I better understand the significance of the three research paradigms in education research discussed in class | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. | I better understand the basic principles of research design | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. | I better understand the use of a range of research methods | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. | I better understand how to conduct educational research consistent with research quality issues | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f. | I better understand how to conduct educational research consistent with research ethical issues | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| g. | I am better able to analyse and critique educational research | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| h. | I am better able to develop my own opinion about educational research issues | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| i. | I am more confident in my own ability to conduct educational research | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| j. | Other (please explain) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

2. Of the times when you **DID** contribute to online class discussions, it was because...

Please click **ALL** that apply

- It was a compulsory component in the paper (we were required to)
- I needed help from my classmates to clarify my thoughts
- I needed help from the lecturer to clarify my thoughts
- I disagreed with a particular view raised in the class
- I was interested in the task posed by the lecturer
- I wanted to be a part of the online learning class
- I enjoyed 'talking' my ideas through with others
- I felt responsible for my group's progress
- Other (please explain)

3. If you **DID NOT** contribute to the online class discussions, it was because...

Please click **ALL** that apply

- I felt that other people had better ideas than me
- Other people had already said what I wanted to say
- I found it hard to express my ideas in writing
- I found ClassForum difficult to use
- I found it too time consuming
- Other (please explain)

4. Based on your experience, what did you find **LEAST** useful to your learning in the course? Please explain.

5. Do you have any suggestions for improving the course?

D. Your Background

This section focuses on your general demographic background.

This information will be used for purely statistical purposes of the research only

(e.g. to describe the types of participants' background in this research).

Please click **ONE** box for each category

1. Are you...?

- Male
- Female

2. What was your age at your last birthday?

- 16-25 years
- 26-35 years
- 36-45 years
- 46-55 years
- 56-65 years
- 66 years and above

3. How many online courses you have taken previously?

- None. This is my first online course
- One
- 2
- 3 to 4
- 5 or more

4. Which academic level are you pursuing?

- Undergraduate (Honours)
- Masters
- Ph.D.
- Other (please explain)

5. What is the **purpose** of your taking this course?

Please click **ALL** that apply

- Compulsory requirement to obtain a degree
- Upgrade my qualification
- Own interest

- It was recommended to me
- Other (please explain)

6. Why did you enrol for the **online** version of this course?

Please click **ALL** that apply

- Time constraints
- Distance
- Job commitments
- The course was available in Semester B
- Other (please explain)

7. What **personal expectation(s)** did you have about taking this course online?

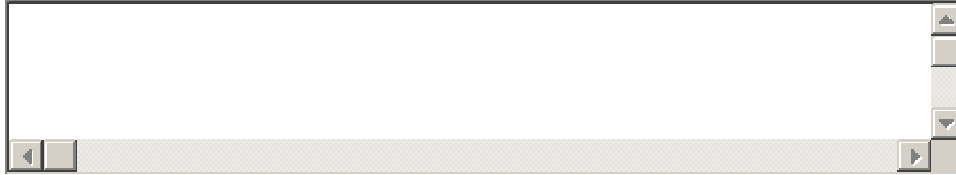
Please click **ALL** that apply

- Time-saving, less time-consuming than a face-to-face paper
- Time to reflect on my thoughts before sharing them with others
- I could learn at my own pace
- I thought I might have difficulty with ClassForum
- Opportunity to build friendships with other students from other parts of the country/world
- I had no personal expectations
- Other (please explain)

8 a. After taking this course, do you think it met your expectation(s)?

- Yes
- No

b. Please explain your answer in 8a.

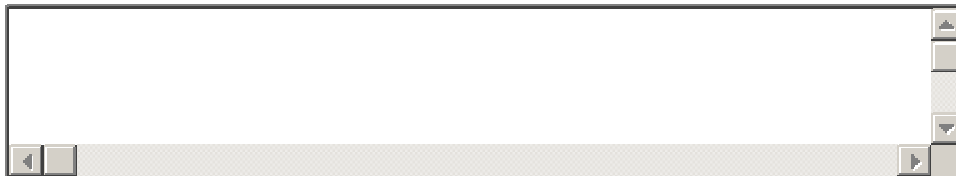


9 Would you recommend this course to a friend?

a.

- Yes
- No

b. Please explain your answer in 9a.

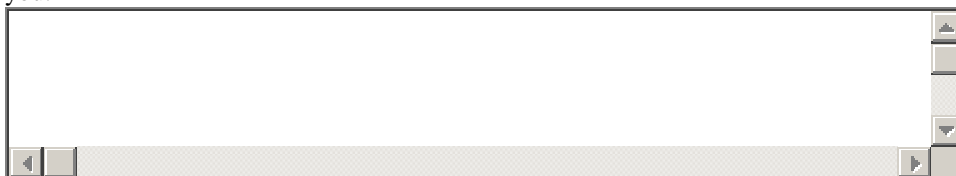


10. Would you be interested to be **interviewed** about your online learning experiences?

It will take about 30 - 45 mins and provide valuable information for the future development of online teaching and learning in this course.

- Yes

ddd Please provide your name, contact details (phone or email) and the best time to contact you.



- No

Thank you very much for participating!

By clicking on this button, I agree to submit this information for research purposes only .

Emergent Key Themes and Categories from Online Student Interview Data in Phase 1

Raw Data (Interview Transcript)



(Categories and Sub- themes observed emerging from the data)

CATEGORIES :

Social and interactive way of learning from others

- Idea of a community of learners
- Learning is through critical self reflection, dialogue, course assessments
- Community provides support

E.g. Social connection with peers/ teachers, consideration of others’ ideas, and equal opportunities for participation

Affordances & Constraints of the Online Technology

Teacher’s course management skill

Eg. Clear course structure and layout, clear expectations for readings, assignments, discussions, coherent linking of readings, assignments, and online discussions, allowing student choices and input, clear assessment expectations, etc.

Teacher guiding/ Facilitation of online discussions

Eg. teacher online visibility, monitoring discussions – reminding students to contribute online, providing just-in-time resources/ relevant/ personalised resources, guides/ contextualises readings for discussions, wait time, etc.

Teacher’s knowledge of netiquette / e-communication conventions, Eg. Giving guidelines to students on how to contribute / “talk” online, lecturer’s tone /style of communication sets the classroom climate, avoiding long online postings, encouraging students to jump into discussions early, allowing the use of informal language, etc.

Teacher’s knowledge of online software capabilities and constraints

Eg. Teacher’s technical ability and guiding students to use technology, use of software tools - personal “Portfolios”, “red flags” to indicate new postings, “Live Chats”, understanding and helping students facing technical difficulties, awareness of limited power supply in rural areas, etc.

SUB-THEMES:

Nature of learning

Course Management Capability

Facilitative Role and Capability

E-communication Capability

Knowledge of online software capabilities and constraints

THEMES:

Nature of learning

Managerial Role

Pedagogical Role

Social Role

Technical Role

Answers Research Question on:

What is the nature of online learning?

How students’ learning be facilitated in online learning environments?

Key Themes on Online Lecturers' Perception of the Nature of Online Learning in Phase 1 (arranged according to frequency of responses)

Research Question: What is the nature of online learning?

Key Themes	Description	Number of Participants
Online learning is a social and interactive process		
<i>Learning from others via interaction</i>	Learning through interaction and discussion with the lecturer and (or) peers is an integral part of the online learning process. The means of learning is through Interaction-learning through reading, thinking, debating, dialogue, writing, asking questions, trying out ideas, contradictions, reformulations with one another. This is closely related to lecturer's own philosophy of teaching and learning (refer to Pedagogical Role)	10
Particular ways of interacting are more helpful than others	Lecturers need to be careful that the class interactions are constructive and not reproductive in nature (eg. discussions are not merely reflecting the lecturer's dialogue)	5
	Lecturers found that forming a community of learning in their class helped students to interact more constructively and purposefully.	5
	This learning environment is:	
	- Considerate of others. All participants need to consider their own and others' ideas, and be respectful of one another (agree or disagree in a respectful manner).	6
	- Supportive of students' sharing of ideas from their own experiences/readings/resources from multiple experts, helping their peers to make links, learning from their peers in a cooperative manner, sharing to build up discussions, allowing students to 'feed off' each other.	5
	Learning is demonstrated by:	
	- Constructive thinking. Students become more critical and reflective thinkers, constructive questioners, able to link own ideas with expert ideas/theory.	9
	- Quality writing. Students become better writers.	6
	- Independent researching. Students become more independent in their search for resources	3
Affordances & Constraints of the Technology		
Affordances		
Accessibility:	Student can access and refer to discussions in other student groups, view samples of their peer's work, link their questions to the appropriate group discussions, and answer their peer's questions	10
	Gives students the opportunity to access education, especially for those unable to	8

	come to campus and increases the department's student enrolment numbers	
	Enables student access to international experts and references	5
Flexibility:	Gives lecturers flexibility in teaching (accessing class independent of time/place)	9
	Allows for pedagogical possibilities, eg. structuring of class, using online student presentations, online submission of assignments, allowing for digression in discussions, marking online, and the reusing of the course for the next term	7
Asynchronous nature of communication:	The asynchronous nature of online learning implies a different set of class dynamics- Lecturers can observe student participation in learning (eg. follow multiple student group discussion simultaneously), there is permanent record of students' thoughts, and the delayed communication allows students more reflection time (time to think).	5
	Lecturers can use the online tools available to personalise interactions with students and have more individual contact. As a result they tend to know their online students better than their face-to-face students.	5
Constraints		
Technical failure	In situations when the technology fails, there is a loss of student assignments, disappearance of various online tools, or power cuts- all these disrupt the communication between the lecturer and student	6
Impersonal nature of communication (textual-based)	Online communication is very textual-lack of body language, non-verbal cues which lecturers are used to in face-to-face interactions. It also does not allow real time practical work to be conducted.	5
Asynchronous nature of communication:	Permanent record of offending online messages - Online messages that are offensive are recorded permanently for others to view unless the lecturer deletes them	4
	Delayed nature of communication - Lecturers are unable to clarify a point as quickly with students	3
	Isolation - Students feel isolated when studying online	3
<i>Implications from the affordances and constraints</i>		
Difficult to cope with online teaching	Lecturers report coping with online teaching is challenging as it is time consuming, becomes more demanding and has expanded their workload. This results sometimes in unmet student expectation or learning goals.	9
Student reticence /disappearance from the online class	Students tend to be slower to join in online discussions, like to 'hide'/'lurk', are difficult to engaged with, and a higher student dropout rate	5

Key Themes on Online Students' Perception of the Nature of Online Learning in Phase 1 (arranged according to frequency of responses)

Research Question: What is the nature of online learning?

Key Themes	Description	Number of Participants
<i>Online Learning is a social and interactive process</i>		
Learning from others via interaction	Learning through social interactivity is an integral part of online learning process .Means of learning is through:	8 (survey) 12 (interviews)
	- Critical reflection. There is time to reflect, clear thinking, follow others' arguments, justify own ideas and provide evidence	5 (interviews)
	- Professional dialogue/focused dialogue	2 (interviews)
	- Assessment conscious. Learning driven by assessment requirements of the course	2 (interviews)
Learning community/ community of learners	Learning through social interactivity is characterised as being a part of a supportive learning community	7 (interviews)
	A supportive learning community entails:	
	- Social support/connection with lecturer and peers. This is also characterised by having supportive peers and the formation of friendships	9 (interviews)
	- Consideration for others' ideas/ feelings and development. Learning is through an acceptance of others' ideas, a consideration for others' ideas/ feelings/ development and a willingness to contribute/share one's own ideas	7 (interviews)
	- Equal opportunity for participation. There is opportunity for sharing as opposed to competition with peers and lecturers.	1 (survey) 4 (interviews)
<i>Affordances & Constraints of the Technology</i>		
<i>Affordances</i>		
Flexibility	Allowing students the convenience of studying while balancing work and family commitments, students can study at their own pace, saves time in travelling and post their assignments and obtain feedback online	22 (survey) 9 (interviews)
Accessibility	Enable student access to resources, the lecturer, their peers and technical help	4 (survey) 5 (interviews)
Asynchronous nature of communication	Permanent record, delay in communication and participation, notable online participation/visibility	4 (interviews)
<i>Constraints</i>		
Isolation	Students report an acute sense of isolation and loneliness, missing contact from peers and lecturer while studying online	8 (survey) 6 (interviews)

Appendix 5.12

Technical failure	When the technology fails, students are left in a lurch without any support.	7 (survey) 6 (interviews)
Impersonal nature of communication(textual-based):	The lack of body language, non-verbal cues which students are used to in face-to-face interactions	5 (survey) 6 (interviews)
	Allows for miscommunication to occur – The lack of non-verbal cues also allows for easier misunderstandings to occur	5 (interviews)

Key Themes on Online Lecturers' Perception of How Learning is Facilitated in an Online Environment (arranged according to the frequency of responses)

Research Question: How can students' learning be facilitated in online learning environments?

Key Themes	Description	Number of Participants
PEDAGOGICAL ROLE		
Clear philosophy of teaching and learning	Online lecturers need very clear views of teaching and learning before translating them into their practice. This is more crucial than in face-to-face classes.	10
	- It is important to hold non-technocratic views in teaching.	10
	- Online lecturers also caution against a 'one size fits all' assumption in designing their class, i.e. there is no recipe for teaching online.	5
Lecturer approachability	Lecturers need to consider students' perspective, giving students choices, listening to student feedback, valuing students and their online contribution, giving students time to be comfortable in the class, respect students, respond to student queries	9
Facilitative skill	The lecturer's ability to facilitate and guide the online class interactions and discussions is crucial to engaging students in the learning process. There is a need to be aware of and understand the <u>dynamics</u> in an online discussion. Appropriate teaching practices are called for at each stage of the discussion, i.e. the start of an online discussion, the middle of the discussion and the closure of a discussion	8
	Online lecturers play differing roles and interact in different ways at the:	
	- <u>start of an online discussion</u> – a more active role in introducing ideas, questions, personalising course readings, using course resources that are personal and relevant to students' learning (eg. scenarios and open ended cases), using appropriate triggers for discussions, promoting socialisation among students and encouraging students to make their first online contribution;	8
	- <u>during the middle of the discussion</u> – a monitoring role in following and sustaining the threads of discussions, stimulating further student online participation in discussions, modelling appropriate "wait time" to allow students to have their say before jumping into discussion, providing just-in-time resources where needed;	7
	- <u>at the end of the discussion</u> – a less dominant role in summarising the key ideas from the module/readings and helping students to bring closure to the	6

	discussion	
Regular lecturer presence	Students note that regular teacher presence in monitoring, facilitating, and modelling course expectations is crucial in the online class.	8
Consider the medium in teaching practice	Lecturers need to consider which course activities are better conducted for face-to-face vs online components of their course.	6
	There is also a caution against repeating face-to-face practice in online teaching (eg. 'shovelware', dominating discussions, putting up powerpoint slides, using abstract discussion questions, lack of facilitation of discussions)	6
Being a participant and a listener in the class	Lecturers need to be willing to be a participant/co-learner/listener in the class (and not a head of a unit) in favour of less hierarchical relationships with students	6
MANAGERIAL ROLE	Lecturer's course management capability-refers to online lecturer's ability in planning, structuring, and organising the online course. This skill is even more crucial in the online class than in the face-to-face class.	
This capability is reflected in the following:		
Clear course layout and structure	Lecturers need to structure their online classes very clearly in a user-friendly online screen layout for students to follow:	
	- set up appropriate folders to organise information	7
	- have minimal levels of information for ease of access	6
	- provide a clear picture for students to follow	5
Course planning	Online course planning and preparation requires that:	
	- Lecturer's be very organized and plan very carefully for their course	6
	- Lecturer's need to be very clear in stating their expectations and instructions for students	4
Allowing for student feedback	Lecturer listens carefully to student feedback to improve on their course	9

Appendix 5.13

Assessment of online student participation	Lecturers need to give incentives for students to participate in the online discussion, eg. by assessing their online participation, etc.	8
Formative course assessment	Lecturers need to structure online class assessment to have more formative or smaller assignments throughout the term to ensure students are following the course.	7
Encouraging collaboration in student grouping	Lecturer needs to group students for online discussion in appropriate numbers and composition which can be based on their gender or ability or geographic location to encourage their sharing of experiences and discussion. Such active group dynamics however requires a minimum number of students enrolled in a course to generate the necessary constructive level of discussion.	7
Coherent links between course components	Lecturer needs to link and balance the course components, i.e. the course readings, online discussion, and assessment coherently and purposively to enable students to see the “big picture” and relevance of participating in the course	6
Modular course organisation according to themes	Lecturer needs to organise their online course into modules with specific content themes	6
Regular course update	It is important for lecturer’s to update their course regularly throughout the term or at the end of the term to be prepared for the next term.	4
SOCIAL ROLE (E-communication Capability)		
Clear expectations/ criteria for students’ online contributions and discussions	Lecturer provides guidelines for participating and contributing online for the online class. Some examples of guidelines – participating frequency, how to participate, the need to communicate well (eg. spell correctly), how to contact lecturer, limiting the size of online contributions, and the lecturer contacting students who are not participating enough online.	9
Explicitly teaching good online communication practices	Lecturers explicitly teach /practice/ model and informs the class of the importance of discussing ideas in class (eg. provide readings on communication, teach students the principles of being a ‘Community of Inquiry’, etc)	5
TECHNICAL ROLE		

Appendix 5.13

Lecturer's technical ability in supporting students adoption of the technology	Refers to lecturer's ability in using the online technology with confidence and providing support to students in adopting the online software and technology.	8
Technological skills	Lecturers would need a basic technical ability and interest in computers	6
Knowledge of online software capabilities and constraints	This refers to lecturer's knowing how and when to use particular online software capabilities to support their teaching and students learning. Lecturers also have to be aware of and make provisions for technology limitation in cases of rural students experiencing limited power supply.	6

Key Themes on Online Students' Perceptions of How Learning is Facilitated in an Online Environment (arranged according to the frequency of responses)

Research Question: How can students' learning be facilitated in online learning environments?

Key Themes	Description	Number of Participants
MANAGERIAL ROLE (Course Management Capability)	Lecturer's course management capability- refers to online lecturer's ability in planning, structuring, and organising the online course. This skill is even more crucial in the online class than in the face-to-face class.	6 (survey) 4 (interviews)
This capability is reflected in the following:		
Clear course layout and structure	This refers to clarity in terms of course structure, course components (eg. clarifying course expectations, listing course readings requirements, having a clear criteria for assessment, number of assignments required, deadlines specified for assessments/online discussions/ readings, not changing course instructions halfway through the course, online discussion areas/folders specified and all arranged in a user-friendly online screen layout).	12 (interviews)
Including a supplementary face-to-face session	This refers to conducting a face-to-face session to enable students to meet with the lecturer and their peers to clarify course requirements and personalise the online class interactions.	11 (interviews)

Coherent links between course components	This refers to the lecturer's ability in linking the course components such as the course readings, online discussion, and assessment to enable students to see the "big picture" and relevance of participating in the course	8 (interviews)
Balancing course activities to obtain a realistic workload	Lecturer's ability in structuring a balance in course activities (for example, between face-to-face activities and online activities as well as allowing students space to conduct informal chats as well purely academic discussion in the online course). These activities are conducted within a realistic division of course workload.	7 (interviews)
Encouraging collaboration in student grouping	This refers to grouping students for online discussion according to their ability to encourage their sharing of experiences and discussion. Such active group dynamics however requires a minimum number of students enrolled in a course to generate the necessary constructive level of discussion.	7 (interviews)
Considering student interest/ input	This refers to giving student choices to choose / participate in course components such as choice of online discussion topics, assignments or formation of online group discussions as well as giving students the option of talking to previous students to obtain more course information.	6 (interviews)
Assessment of online student participation	Students' recommendation that the online discussion and participation be assessed (with clear assessment criteria specified) to encourage more student contributions	5 (interviews)
Modular course organisation according to themes	Lecturer organising their online course according to modules with specific content themes	3 (interviews)
PEDAGOGICAL ROLE		
Facilitative role of the lecturer	The lecturer's ability to facilitate and guide the online class interactions and discussions is crucial to engaging students in the community building and learning	2 (survey) 4 (interviews)

	process. Accommodating and guiding students' contributions and their style of communication/learning and avoiding spoon-feeding students is part of this quality.	
	The facilitative role is characterised by:	
	<p>The online lecturer playing differing roles at the:</p> <ul style="list-style-type: none"> - <u>start of an online discussion</u> – a more active role in introducing ideas, questions, personalising course readings, using course resources that are personal and relevant to students' learning (eg. scenarios and open ended cases) promoting socialisation among students and encouraging students to make their first online contribution; - <u>during the middle of the discussion</u> – a monitoring role in following and sustaining the threads of discussions, stimulating further student online participation in discussions (including prodding inactive students to come online), creating a safe environment for students to participate in class, modelling appropriate “wait time” to allow students to have their say before jumping into discussion, providing just-in-time resources where needed; - <u>at the end of the discussion</u> – a less dominant role in summarising the key ideas from the module/readings and helping students to bring closure to the discussion 	<p>18 (survey) 10 (interviews)</p> <p>8 (interviews)</p> <p>2 (interviews)</p>
Prompt and constructive feedback to student queries	Students appreciated lecturers who gave them prompt feedback/answers to their questions. This included prompt and constructive feedback on their assignments.	10 (interviews)
Regular lecturer presence to provide feedback and help	Students note that regular teacher presence in monitoring, facilitating, and modelling course expectations is crucial in the online class.	8 (interviews)
Lecturer approachability/ professional attitude towards students	Online lecturers need to have a positive attitude in relating to students, be friendly, welcoming, interested in students' success, accessible, collegial, supportive,	8 (interviews)

reasonable, flexible at times, inclusive of students’ different learning styles and cultural backgrounds. Lecturers need to avoid having hierarchical power relationships when relating to students.

TECHNICAL ROLE		
Knowledge of online software capabilities and constraints	This refers to lecturer’s knowing how and when to use particular online software capabilities to support their teaching and students learning. For example in Classforum, students appreciated the use of the online portfolios for private communication with lectures, use of live chats to interact with peers and students regarding questions and answers, the user friendliness of the software and the of the red flag indicators to indicate when they have new online messages. Lecturers also have to be aware of and make provisions for technology limitation in cases of rural students experiencing limited power supply, or students in general who are faced with technical difficulties when studying online	10 (interviews)
Teacher’s technical ability and guiding students to use technology	Refers to lecturer’s ability in using the online technology with confidence and providing students with guidelines to use the software and technology.	5 (interviews)
SOCIAL ROLE (E-communication Capability)		
Knowledge of netiquette/ e-communication protocol	This refers to a lecturer’s knowledge and ability in using and modelling appropriate Netiquette conventions for students to follow in order to establish the tone and class environment. It includes understanding the nature of distance students when communicating online and playing an assertive role when online student discussions are not progressing well.	4 (interviews)
Guidelines for students’ online contributions	Lecturer provides guidelines for participating and contributing online for the online	10 (interviews)

class. Students can be invited to give input in the guidelines. Some examples of guidelines – limiting the size of online contributions, respecting others in communicating online, limiting usage of capital letters, etc.

Emergent Key themes and Categories from the Data in Phase 3 (Lecturer and Student Interviews)

Research Question: How were the pedagogical strategies designed to complement a particular view of learning helpful in facilitating the teaching and learning in an online graduate Research Methods course?

a. To what extent do the findings support the efficacy of the view of learning proposed?

Note: (T=Teacher, St=students, RM=research methods, G=group, W=week)

1. <u>Individual Plane of Development:</u>		
1. Lecturer Perception regarding the intervention in terms of facilitating successful learning experiences		
Key Themes	Category	Description
Intervention facilitated lecturer's learning		
Intellectual Development	Facilitated his online teaching-learning experience	<p>Better moderation, facilitation, refocusing, management</p> <p>T more summarising and refocusing Strategy – responding to whole grp instead of to ind. St T learn to manage grps more effectively, actively, guide, facilitate, refocus St with big picture in mind (balance telling vs guiding/challenging) T more comfortable with housekeeping</p> <p>Pedagogy Online- more relaxed, comfortable, confident, better bonding with Students Pedagogy- more relaxed teaching online e-facilitation- more comfortable to dive in and moderate activity T recovered 'lost' opportunity to comment on Students' individual postings (W3- Lit Review, received quite well by St) (learning – process over time, not short, discrete chunks of time) T coping with time consuming</p> <p>Teaching RM-increased skills and changed beliefs teaching online Teaching RM- change beliefs, increased skills (balancing breadth vs depth/ coverage)</p>
Social Development	More Strategic use of the dynamics in social learning situations	<p>Exploiting community resources</p> <p>T refer St to other St's postings as resources (13/8, MH's AI portfolio – RG's postings)</p> <p>T more efficient in using group dynamics to answer St queries (Postings no 4, 5, 9, G3, W10)</p>
	Improving his own online communication skills and social role	<p>Improving E-communication Strategies</p>

		<p>e-communication – more chatty, more willing to personalise posting in open discussion areas, less lurking, more shorter, more postings earlier in course, going into online class more often (W 10)</p> <p>e-communication – balance being chatty with providing directions to St</p> <p>T more coaching St how to post online</p> <p>T addressing St by first names (personalising)</p> <p>Observation- Quantity of Students’ online postings did not equate quality of thinking</p>
Emotional Development	<p>Becoming more confident in addressing online teaching challenges</p> <p>Bonding with Students</p>	<p>Teaching online – T more confident to handle difficult St</p> <p>Final week- T bonds with class, misses class</p>

1. Personal Plane of Development:

2. Student Perception regarding the intervention in terms of facilitating successful learning experiences

Key Themes	Category	Description	Number of Participants
Intervention facilitated Students’ learning			
Intellectual Development	RM content	- more knowledgeable about RM content, more awareness of the depth of RM (changed perception) and good grades	4
	RM content- skills	(vocab (fr jargon to more understanding), use of references, application or RM principles/ can conduct research)	3
	Technical	Learning online was a positive experience, learning to use the Net	3
Emotional		From scared of RM, fear, worried about terminology/ language to confidence, enjoyment, comfort, assertive, motivated, feeling safe	4
Social	Learning from Peers: Process of building the Learning Community	Learning from knowledgeable others (peers, tutor) (learning community)	4
		- cooperative, reciprocal teaching and learning	
		Good communication, positive and constructive interaction, happy with peers (Group 3- members not rude)	
		Provides:	
		constructive feedback/ interaction	4
		multiple perspectives (agree/affirm or disagree)	3
		Support and encouragement	2

	From competition to cooperation, Affirming of members	2
	Increased accountability, delegation, negotiation skills	2

2. Interpersonal Plane of Development:

1. Lecturer Perception regarding the intervention in terms of facilitating successful learning experiences

Key Themes	Category	Description
		Observations of 4 key roles
		Observations of 16 Ways of Interactions

2. Student Perception regarding the intervention in terms of facilitating successful learning experiences

Key Themes	Category	Description
		Observations of 9 Roles
		Observations of 20 Ways of interactions

3. Community Plane of Development:

1. Lecturer perception regarding how the pedagogical Strategies were helpful in facilitating the learning experiences in the course

Key Themes	Category	Description
Using of tools/intervention/course structure to promote community goals	Using the Scenarios	T learning to teach online using Scenarios – suggests in future to relate Scenarios and St work closer, to give more direct feedback, more directive moderating early in the use of Scenarios to help St focus
	Overall rating of the intervention	T rates intervention at 7 ¾ out of 10, would refine intervention structure for next year

2. Student perception regarding how the pedagogical Strategies were helpful in facilitating the learning experiences in the course

Key Themes	Category	Description	Number of Participants
Role of web-based technology	Affordances	Open forum for discussion	3
		Flexibility	2
		Technical - Personal portfolio, bookmark	2
	Constraints	Lack of verbal cues (impersonal)/ spontaneity	2
Intervention Activity	Sharing of ideas for Assignment 1	encouraged cooperation/ collaboration, individual responsibility	3
	Assignment 3 (research proposal)	small sections building up to overall picture , Helped to consolidate learning	2
	Scenarios (Module 2)	Realistic application of RM, Encouraged accountability, delegation skills, negotiation	2
	Online grouping and posting of group summary	Cooperative learning, promotes interaction	1

Learning from the Expert	Lecturer Social Role (positive)	Teacher Attitude- supportive of Students, Professional, fair, Open, approachable, diplomatic, Encourage interaction	2
		Positive role modelling (disruptive Student, teacher as a guide)	2
		Set the tone of the class Moral Responsibility : Teacher responsibility in establishing online group culture (safety, valued, respected/ supported)	1
	Pedagogical Role (positive)	Teacher as a guide <ul style="list-style-type: none"> - Questioning, guide discussion - Highlight - Experienced and knowledgeable (refer Students to lit) 	4 (2) (2) (2)
		Good moderating/facilitating of online discussions: Feedback(personal progress, assignments, constructive comments) <ul style="list-style-type: none"> - Validity of teacher feedback 	4 (3)
	Managerial Role (positive)	Clear course Structure/layout <ul style="list-style-type: none"> - Set appropriate readings/ textbooks 	4 (2)
		Good course, good flow, Set assignments with Small sections building up to overall picture in course,	2

Miscellaneous: Feedback on Enhancing Participation in the OLC			
Key Themes	Category	Description	
Lecturer Social Role (can be improved)	Establishing Group goals & culture early in the course	Establish group culture early <ul style="list-style-type: none"> - support late enrolled Students - To take a Stronger role in reprimanding Students - Second language use (Standardised language used or provide for alternative language in other discussion areas) 	2
	Norms for communicating	Criteria /Guideline for online communication	2
Lecturer Pedagogical Role (can be improved)	Timely facilitation	More facilitation, more process emphasis rather than group outcome, More communication/participation from teacher, Lack of time(teacher's busyness impacts on online teaching) (T acknowledge teaching RM- increased skills - Using more bounded cases eg W9, 10 compared to W4-6)	2
	St grouping	Course layout and Structure: <ul style="list-style-type: none"> - Online grouping flexibility (similar interest group, moving groups, change grouping, buddy up) (T acknowledge need to handle St groupings differently- get to know st first before grouping, avoid ethnic/mismatch ability problem)	2
Necessary St skills &	Social	Enjoy constructive feedback, contribute to own and others learning (reciprocal teaching and	3

attributes that contribute to learning in community		learning/ treatment)	
		Keeping a Professional attitude (tolerance of others, not to feel threatened by others)	3
		View of teacher as a guide/role model	3
	Intellectual	Time Management/ conscientious, motivated, take charge of own learning	4
	Emotional	Risk taking (willingness to share)	2
		Individual responsibility/ accountability	2
Student-peer interaction that inhibits participation in the OLC	Social	a. Language affecting interactivity Language - use of bombastic language, - use of different language(multilingual confusion (barrier, distraction)	4
		b. Negative Peer attitude Disrespectful/ Rude/ cutting remarks/ ego/ power game/dominant peers, aggressive attitude, disruptive member ,Forced Delegation	2
		Lack of online interaction/ ignored	4
		Validity of peer comments- question validity of peer's comments, too many different/ diverse perspectives vs validity of Teacher's comments	2
		c. Individualistic attitude	2
	Result in:		
	Members not feeling part of community	Disappointment	2
		Feel Shut Out, Didn't learn anything new from peers	2
		Frustrated	2
		feeling unsafe, avoidance, uncomfortable, Guarded, disinterested	2
		Intimidated	2
		Unfair/Disadvantaged/ disempowered	2

Key Themes From Observations Triangulating the Interviews:

1. Pedagogy Online- T more relaxed, comfortable, confident, active, better bonding with students, care for students & class dynamics
2. T Better moderation, facilitation, refocusing, management
3. Using of tools/intervention/course structure to promote community goals. However context based teaching can distract students
4. Teaching RM-increased skills and changed beliefs teaching online
5. Quantity does not equate quality online postings
6. Improved E-communication strategies for T and St
7. Better socialization, interactivity (T & St)
8. Dependency on community for learning –social nature of learning (inter & intra group), Exploiting community resources (T and students) (social, G1>G2>G3 and intellectual, G2>G1>G3, linking, building up of ideas,)
9. St discussions become more focused, less distracted, better representation of grp ideas, student reflection of personal experience in course (better quality)
10. Increased Group ownership, accountability, responsibility, respect

11. Better Group management/organizational strategy
12. Increased confidence for self-disclosure and to post online
13. Process of teaching-learning is more of a concern than product in online course
14. St more concerned with pedagogical, social issues and managerial rather than technical.
15. Grades dependent on student capability rather than number of postings/socialisation/ artifact of intervention
16. Communication (diversity of students, cross cultural, sub-group culture, self-centred student attitudes, student prejudice/ bias, misconception, disruptive student, lack of student participation, lack of sharing of community goals) affect group dynamics and students are themselves affected by it (eg. G1, G3)
17. T/St busyness impact on online teaching-learning (affect interactivity & quality of guidance)
18. Constraints of online environment persists- st can shy away/ choose not to interact, demands of online teaching-learning

A Sample Field Note in Phase 3

Observed Activity	Researcher Impression
<p><i>Week 1 (14-20 July 2003)</i></p> <p>Week 1, Day 2 of the course (15/7/03), posting in 'Announcements' folder</p> <p><u>Teacher-Student interaction:</u> Adrian: "It is good to see the number of people who have introduced themselves. There are just a few more to introduce themselves and I look to the contributions of all of you in the discussions. Make sure you activate your photos, if unsure how to do this contact KE [technical assistance]. You don't have to have long postings, shorter and more frequent contributions works better"</p> <p>Week 1, Day 1 of the course (14/7/03), posting in 'Discussion Topic 1' folder</p> <p><u>Group 1:</u> VR: "Kia ora. [Maori greeting]. Educational research is such an all-encompassing, amorphous term and indeed this - to me, based on my own experiences and readings - is the prime characteristic of 'educational research!' ... Given the postmodern qua wrecking ball insights of Foucault, Baudrillard et al, the entire field of 'educational research' has further eroded..."</p> <p>Week 1, Day 6 of the course (19/7/03), posting in 'Discussion Topic 1' folder</p> <p>TT: "Whoa VR. I don't know what category you are in, but I think I'm at least two steps down from you... From what I understand, I agree totally with you VR. Your conception of how knowledge is generated, etc is key. Research Design should come first..."</p>	<p>This week is more of introducing students to the course and to one another. Students are introduced to the course and one another, given opportunities to share about self, background.</p> <p><u>Teacher-Student Interaction:</u> Adrian is encouraged to see students come online. He plays an active role in inviting, personalising interactions with students (addressing students by name), going into portfolios to encourage students, and building their confidence to learn in the course and learn through the online medium.</p> <p><u>Student Interactions:</u> Some students have started to socialise in their group. Group 1- Students have started addressing each other by first names, sharing their experiences, and starting to get comfortable with one another. Especially the sub-group dynamics amongst the Maori students in the group (VR & TT). Note: Would be interesting to see the impact of this developing sub-group culture on the other students in the group</p> <p>TT tells VR off for posting in such difficult terminologies, then offers her own opinion. Good interactions involving risk to post their ideas online. Note: Will need to observe if VR's 'profound' sounding postings could intimidate the other members from posting online. May need to encourage a balance of group and individual postings.</p>

Key Features of the ClassForum System (Main Web page and Discussion page)

The screenshot shows a Microsoft Internet Explorer browser window displaying the ClassForum website. The browser title is "DSOE557-03D (NET) & STER541-03D (NET) Educational Research Methods (2003) - Microsoft Internet Explorer". The address bar shows the local file path: "D:\ekhoo\My Documents\ClassForum\Research Methods-DSOE557\week 1\DSOE557-03D". The website header includes the "ClassForum" logo and the name "Elaine Khoo". Below the header, there is a welcome message: "Hello and welcome to the Education Research Methods and Research Methods in Science, Maths, and Technology Education for Semester B, 2003." The main content area lists several discussion folders and messages, such as "Announcements (1 message)", "Introductions (19 messages)", "Course Outline and Assessment (1 folder, 5 discussions)", "Lectures/coursework/discussions (5 folders, 1 discussion)", and "Personal Portfolios (15 folders)". A navigation menu contains buttons for "New Contributions", "Subscribe", "Message Centre", "Search", "University Library", "Add Discussion", "Add Link", "Add Folder", "Edit Folder", "Add Chat", "Preferences", "Export", "Import", "Access List", "Check Moderated", "Admin Tools", and "Logout". At the bottom, there is a "Who's Here?" section showing online users: "Maree Mullooly", "Nicholas Willis", and "Symone Vincent". A "Live Message" section shows a "new message" notification. Callout boxes provide detailed explanations for these features.

This shows the title of a discussion or folder

Discussion: This is a discussion forum for participants to respond to one another's postings

Folders: Course materials can be organised into folders

Portfolios: This allows the lecturer to set up individual student folders to allow for direct communication

New Contributions: This allows a user to view just the new contributions in a discussion

Live Message: This allows a user to send an instant live message to another user who is online at the same time

Who's Here?: This shows a user who is online at the same time he/she is

New Message: This shows the user he/she has received a new LiveMessage from another user

This notifies a user the number of postings posted in a discussion forum

Red Flags: This alerts a user that there are new messages

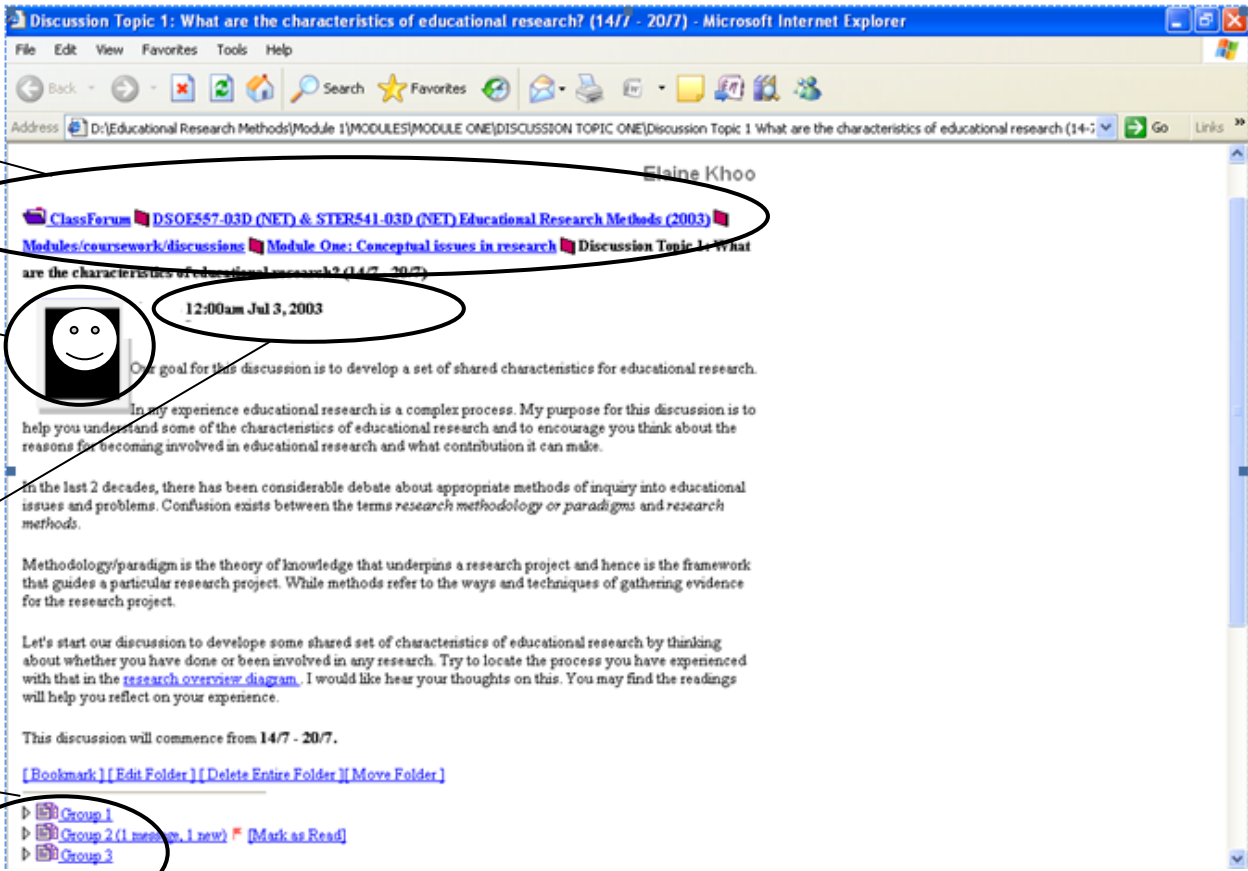
University Library: This accesses the library's resources

This shows the levels a particular discussion forum is embedded within an online course

A photo of the user appears here

The name of the user and the date and time a particular posting was made is shown here

The lecturer can set up as many discussion groups as required in a course



The University of Waikato
Centre for Science and Technology Education Research(CSTER)
Research On Extricating the Web of Learning: A Case Study on
Web-Based Graduate Learning
Information for Participating Case Study Lecturer

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To Lecturers teaching Net courses at CSTER (Semester B 2003),

The Study

Hello. This study is part of my PhD research in promoting effective learning outcomes for graduate students in Web-based Learning (WBL) environments. The main focus is to gain insights into critical pedagogical issues in teaching and learning in a WBL environment and to develop more effective teaching-learning strategies. The practical implication from this research is that student learning outcomes might be improved.

This research is divided into three phases with the general objectives to:

4. Explicate key features of web-based teaching-learning from the perspectives of lecturers, students, and technical support team,
5. Design and develop an intervention for teaching and learning in the WBL environment for graduate courses at CSTER, and,
6. Evaluate the learning outcomes of the intervention.

Your Contribution

You are invited to participate in the second and third phase of the research. This will involve working with you to design strategies to enhance the quality of teaching and learning in the Research Methods course you will be teaching in Semester B, 2003.

Participation in this study will involve :

- a. A series of discussions with you prior to the course being offered in Semester B 2003 to gain a better understanding of how you are currently conducting your Web-based courses, your views on the goals you would like to see achieved in your Web-based course in terms of effective teaching and learning, and ideas you may have to improve your course. In the discussions with you, I will be able to assist by providing input from the data collected from phase one of the research in terms of lecturer and student perspectives on effective Web-based teaching and learning, input from the literature in the field supporting effective Web-based teaching and learning, and my own ideas to enhance Web-based teaching and learning. I welcome the opportunity to work with you to design and try out some of these ideas as an intervention strategy in your course;
- b. A series of regular reflective interviews/discussion with you during the duration of the course (eg. on a weekly basis) to monitor the implementation of the intervention;
- c. Observation and analysis (with your consent and that of your students) of any Web-based interactions, discussions and contributions;
- d. May also involve analysis of the class grades obtained at the end of the semester; and,

- e. An interview with you and or your students at the end of the course to obtain further information on the effect of the intervention.

The information collected from you will include field notes of the discussions and interviews, researcher's observations, Web-based course contributions/ postings and student grades. Your participation in this study is highly valuable in contributing to the support and enhancement of future Web-based teaching and learning at CSTER.

Ethical Guidelines

The research will follow the University of Waikato Human Research Ethics Regulations 2000 and the ethical guidelines of the NZARE. If you participate in this study, you have the following rights:

Confidentiality and Anonymity

The researcher is committed to respecting the research participants' privacy and confidentiality. The information collected from the interview will be treated as strictly confidential. All quotes and transcripts will be coded and a pseudonym will be used in the report in order that participants' identities will not be revealed.

Consent

Your informed consent will be obtained in writing. You have the right to withdraw from the research at any stage or choose not to answer any question. You can ask questions regarding the research and if you have any concerns regarding participation in the project, they can be directed firstly, to Dr Mike Forret (ph: 4481, Room: KP G. 21), the main research supervisor.

Ownership

You have copyright on any data produced by you while the researcher has the copyright on any analyses and materials she produces. You will have the right to access the data collected from you and transcripts of the interview will be made available to you for checking the accuracy as well as approving its usage in the research. All information collected in the form of audiotapes, transcripts, notes, disks and computer printouts will be kept in secure storage at CSTER and destroyed at the conclusion of the research.

Use of information

The information obtained will be used for the PhD thesis and other publications arising from the research.

Thank you in advance for your participation.

Yours sincerely,

Elaine Khoo

The University of Waikato
Centre for Science and Technology Education Research (CSTER)
Participating Case Study Lecturer's Consent Form

This form should be read in conjunction with the attached "Information for Participating CSTER/ School of Education Lecturers"

I understand that participation in this research project will involve the following:

- 1 I will be involved in a case study on *Extricating the Web of Learning: A Case Study on Web-Based Graduate Learning*
- 2 Data gathered for this project will not be made available to any third party and will be subject to the provisions of the New Zealand Privacy Act (1993)
- 3 I will not be identified in any way other than a code number or pseudonym in data records or reports of the research findings
- 4 I may withdraw from parts of this study at any stage, and if I wish I may withdraw from the project completely
- 5 I have the right to correct, edit or delete any parts of the summary transcript of the interview
- 6 The information collected will be used in the PhD thesis and other publications arising from the research
- 7 If I have any concerns about my participation in this research project I may approach Dr Mike Forret (ph: 4481, Room: KP G. 21), the main supervisor

Signed : _____

Name : _____

Date : _____

Schedule of Web-based Team Meetings

Meetings	Dates	Purpose
Meeting 1	19/5/03	<ul style="list-style-type: none"> ▪ To understand and discuss the nature, and concerns Adrian had with the online Research Methods course ▪ To share the key findings from Phase One on facilitative teaching-learning strategies ▪ Discuss some of Phase One's implications for conducting the Research Methods course for Semester B 2003.
Meeting 2	26/5/03	<ul style="list-style-type: none"> ▪ To share the key findings from the literature review of useful pedagogical strategies for teaching Research Methods (eg. course goals, approaches, strategies) ▪ Discussed some of its implications for conducting the course ▪ Refinement of the current course goals
Meeting 3	4/6/03	<ul style="list-style-type: none"> ▪ To understand the parameters of the intervention (eg. course will be shared between two lecturers, etc) ▪ To understand concerns from previous lecturers who have taught the course and students' reported concerns ▪ Propose strategies to improve on current pedagogical and organisational practises
Meeting 4	16/6/03	<ul style="list-style-type: none"> ▪ Propose a streamlined four-module organisational structure for the course ▪ Incorporate suggestions for pedagogical strategies from previous lecturers and students' report (eg. the use of authentic problem-based or case-based approach)
Meeting 5	17/6/03	<ul style="list-style-type: none"> ▪ Discussed the logistics of conducting the course (eg. number of students enrolled, to have a face-to-face session or otherwise, etc.). ▪ Discussed refinement to the course topics within each module
Meeting 6	18/6/03	<ul style="list-style-type: none"> ▪ Decide on the final refinement of the course topics ▪ Discussed the researcher's role as the intervention progressed (eg. having regular reflective chats, and the nature of the lecturer-researcher interactions)
Meeting 7	19/6/03	<ul style="list-style-type: none"> ▪ Development of the course readings booklet, and further logistics of conducting the course
Meeting 8	20/6/03	<ul style="list-style-type: none"> ▪ Met with the online course technical support and shared details of the intervention approach and role clarification
Meeting 9	23/6/03	<ul style="list-style-type: none"> ▪ Further refinement to the course materials, and logistics of conducting the course

Appendix 8.2

Meeting 10	24/6/03	<ul style="list-style-type: none">▪ Further refinement to the course materials, and logistics of conducting the course
Meeting 11	25/6/03	<ul style="list-style-type: none">▪ Course materials sent to students including information regarding the researcher's involvement in the course
Meeting 12	3/7/03	<ul style="list-style-type: none">▪ To set up the online class based on the materials developed▪ Discussed the logistics of the online course
Meeting 13	4/7/03	<ul style="list-style-type: none">▪ Further refinement of the online course materials▪ Discussed and implemented suitable pedagogical strategies and activities for Module 1
Meeting 14	21/7/03	<ul style="list-style-type: none">▪ Discussed and implemented suitable pedagogical strategies and activities for Module 2▪ Discussed progress and concerns observed from students' response in Module 1
Meeting 15	25/8/03	<ul style="list-style-type: none">▪ Discussed and implemented suitable pedagogical strategies and activities for Module 3▪ Discussed progress and concerns observed from students' response in Module 2
Meeting 16	7/10/03	<ul style="list-style-type: none">▪ Discussed and implemented suitable pedagogical strategies and activities for Module 4▪ Discussed progress and concerns observed from students' response in Module 3

Meeting notes from the WEB team at CSTER

Date: 26/5/03

Time: 9.20-10.40 am

Place: Publications Room, CSTER

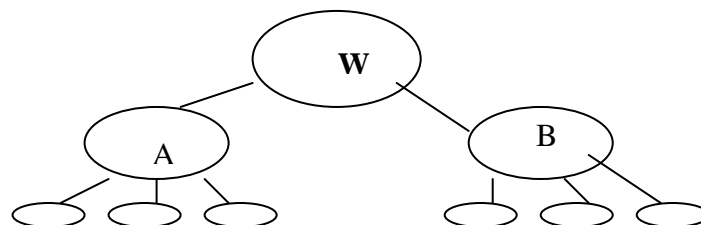
Attendance: Adrian, Team Member 1, Team Member 2 and researcher

Purpose:

1. Look at literature review of Research Methods course (purpose, approaches, strategies) to see what other people have done
2. Discuss some of its implications for conducting the Research Methods (RM) course for Semester B 2003.

Outcome:

1. Discuss possible ideas to approach RM, eg, problem-based learning. Challenges: students think they know how to approach the problem (dogmatic in thinking and using only one method). Possibility: get students to critique one another's ideas in approaching the problem.
2. Student group comprise of early to mid-career students, mostly experienced teachers.
3. Suggestion: to approach RM so that it contains aspects of
 - a) Problem-based scattered through the course, and, b) exploration of ideas (Mixed approach)
4. Proposed class group structure: small clusters of research teams (eg. 3-4 students) with the possibility of combining them into bigger groups
Suggestion: Have guidelines ready for students to work in groups early in the course, and have students work together on small tasks/ problems to get comfortable with the group and with working with one another.



5. Challenge: how to teach the epistemological part of RM?

Possibility: individual position papers, form student groups to critique each other's position papers and produce a general agreed one

Suggestion: Learning epistemology by doing vs presenting/debating ideas about epistemology first then applying into a problem. Epistemology coverage needs to be done early in course and then touched on at the end of the course again.

Suggested agenda for next meeting: To look into contents of the revised RM course

**Schedule of Informal Interviews with Adrian throughout the Semester
(Phase 3)**

Chat	Dates	Purpose
Chat 1	18/7/03	To reflect and evaluate on Week 1 of the course
Chat 2	30/7/03	To reflect and evaluate on Week 2 of the course
Chat 3	6/8/03	To reflect and evaluate on Week 3 and overall Module 1
Chat 4	5/9/03	To reflect and evaluate on Weeks 4-8 and overall Module 2
Chat 5	26/9/03	To reflect and evaluate on Weeks 9-10 and Module 3
Chat 6	4/11/03	To reflect and evaluate on Week 10-14 and the overall course achievement.

Teaching-learning Interventions Developed in Phase 2

	Curriculum Planning	Pedagogical Strategies	Assessment Procedures
Managerial role	<ul style="list-style-type: none"> Refined the Research Methods' course curriculum Reorganised the content according to a thematic modular organisation consisting of four modules (Modules 1 – 4) Reorganised and streamlined the course readings Set up the online class and the structures for weekly discussions- <i>Online Group Discussion</i> and <i>Our Group Response</i> for each group Student grouping was organised and allocated into three groups, Groups 1,2 and 3. Each group could read other groups' messages but only contribute to their own group. Developed weekly online reminders to remind students of important course events and schedules (see below this table) Course expectations and instructions for different course components were also clearly 	<ul style="list-style-type: none"> Although no marks were allocated for participating in online discussions, the course was structured such that online participation was a compulsory component in passing the course and required in certain assessment activities The students' online discussion consisted of four major components: Adrian's introductory cue and reading advice, the cases (Scenarios) or individual student task, each online group participation comments or individual comments, and each group's response to the case posed (or individual response depending on the task posed). The course adopted a bounded case-based approach to learning where students engaged in weekly asynchronous activities as part of their weekly discussion topics and worked together to resolve set tasks. The complexity of the cases was set to a level that encouraged students to work together in order to effectively manage the required workload. Each case was open-ended and groups were encouraged to develop their own approach to resolution. 	<ul style="list-style-type: none"> Developed online reminders to remind students of course assessment deadlines <i>A Paper Evaluation/feedback</i> discussion area was also set up for students to give course-related feedback throughout the semester

	displayed online and in students' readings.		
Pedagogical role	<ul style="list-style-type: none"> Developed a set of tips, <i>Advice from Previous Students</i> (see no. 1 under Pedagogical role below this table), on how to survive the course based on previous students' experiences. This was shared as a learning resource for students. Developed individual student's private <i>Online Portfolio</i> for private communication between Adrian and each student 	<ul style="list-style-type: none"> Adrian's understanding and adopting the four key online lecturer role when teaching the course Adrian's agreeing to adopt the principles and strategies that will lead to the development of an online learning community Developed a framework to summarise the research process to provide students with the overall picture (big picture) of the course's coverage- <i>Research Overview Diagram</i> (see no. 2 under Pedagogical role below this table). This was used in Module 1 (week 1)'s discussions to also encourage students to share their experiences in relation to the framework (part of an ice-breaking strategy). This framework was reused in Module 4 (Week 12) for students to evaluate the extent of their understanding and experiences in the course. Developed Module 1 (week 2)'s <i>Literature Review exercise</i> (see no. 3 under Pedagogical role below this table) for individual 	

		<p>students to share a short literature review in their area of research interest</p> <ul style="list-style-type: none"> • Developed an authentic dilemma for Module 1 (week 3)’s discussion on Research Ethics where students had to discuss and reply to in their groups (see no. 4 under Pedagogical role below this table). They had to provide a group answer at the end of the discussion- <i>Our Group Response discussion.</i> • Used a case-based approach in Module 2 (weeks 4-6) by posing authentic scenarios for students to collaborate and develop their position on. Each week’s online task builds on the previous weeks’ knowledge to culminate in a group proposal in reply to the issue raised in the scenario- <i>Our Group Response discussion.</i> • Developed 3 different mini-cases on understanding Case Studies for Module 3 (Week 7)’s discussion (see no. 5 under Pedagogical role below this table) • Developed a cartoon caricature 	<ul style="list-style-type: none"> • Developed a separate online discussion called <i>Sharing of Ideas for Assignment 1</i> discussion or A1 for students to collaborate in their groups to critique one another’s sample interview and survey questions. In assignment 1 they had to submit their improved questions and explained how their group’s feedback contributed to their improvement. • Students’ consideration of the issues in Module 2’s scenarios will assist in their preparation of their first assignment (Assignment 1). • Assignment 2 • Assignment 3 • Developed Assignment 4- <i>Self-Reflection report</i> for students to reflect on their gaining expertise as a researcher in the course (see below this table)
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		<p>for Module 3(Week 8). Students are required in their groups to discuss and debate on each of the caricature to show their understanding of Action Research (see no. 6 under Pedagogical role below this table). They had to pose a group stance at the end of the discussion- <i>Our Group Response discussion</i>.</p> <ul style="list-style-type: none"> • Implemented various ways of teacher questioning to scaffold student thinking and encourage participation. This helped Adrian to be more explicit in guiding students' thinking and modelled to students' ways of constructive questioning (see no. 7 under Pedagogical role below this table). • Adrian explicitly facilitating student discussions, eg. linking, weaving, summarising their contributions 	
<p>Social role</p>	<ul style="list-style-type: none"> • Developed a set of <i>Online Participation Tips</i> (see below this table) to help guide students' participation in the online discussions. Also clarified expectations required of students in 	<ul style="list-style-type: none"> • Implemented class introductions and sharing of biographies as an ice-breaker • Adrian and students posted online photos to personalise their 	

	<p>the online discussions.</p> <ul style="list-style-type: none"> Developed a separate online discussion area called <i>Break Time</i> to allow students to have informal online discussions with one another. 	<p>interactions</p> <ul style="list-style-type: none"> Developed a <i>Farewell/Moving On discussion</i> area to help students bring closure at the end of the course Adrian modelling good online communication strategies to students , e.g. using student names and informal tone of communicating, posting shorter messages online 	
Technical role	<ul style="list-style-type: none"> Developed the <i>Practice and Play</i> area (for students to practise using <i>ClassForum</i>'s facilities /html formatting) which has links to technical assistance Introduced students to a technical staff dedicated to assisting them with technical queries in the course Sent out a <i>ClassForum Pocket Guide</i> in the course pack to guide students in using Class Forum two weeks before the course commenced. 	<ul style="list-style-type: none"> Developed a <i>Can Anyone Help? discussion</i> area to support students with technical or course concerns. Students are encouraged to reply to one another. 	

Managerial Role:

Example of Adrian's Weekly Online Reminders

- helped students focus in the course announcements for the third week of the course, followed by the updated reminder used for the fourth week of the course.

For Week Three of the course:

Welcome to week three of the course. This week, we are looking at literature reviews.

This week you have to write a very short literature review using the on-line journals in your field and share these with your groups and get feedback. If you are not clear about the process, please let me know sooner rather than later.

I really enjoyed the discussion and group responses on ethics. Keep up the good work.

For Week Four of the course:

Welcome to week four of the course. This week, we are starting module two which looks at three methods.

This week you are given a scenario and over three weeks you need to discuss how you will use the three methods to explore the scenario that you have been given. If you are not clear about the process, please let me know sooner rather than later.

Pedagogical Role:

1. Advice from Previous Students

-helped to create a shared history for learning online

Below are excerpts of advice given by previous students to give you an idea of what to expect and how to prepare for this course:

"Jump into the discussions early!"

"Learn to skim and scan for big ideas in the readings! Reading word by word is too slow"

"Share your understanding or lack of understanding with others in your group. That's what the group is for - to support one another!"

"Don't just have your say and sit back and watch others interact."

"Take the risk to share your thoughts, others could be thinking or feeling the same way too"

"Get to know APA referencing fast"

"Be prepared to put in the time to learn"

"Stop worrying about what other people think about your contributions"

"Don't wait until the end to do the work- prepare for the course, do the readings, give yourself time to think through the ideas"

"Be organised and be structured"

"Regularly read and contribute to the online forum, don't wait until they pile up!"

"Online learning is hard, it takes commitment, a lot of self motivation. You can't do it if your mind is really not there"

"My grades would have been a lot better if i'd asked for help earlier"

"Have good support from your whanau/family/children/ spouse and good emotional support at home to help you through"

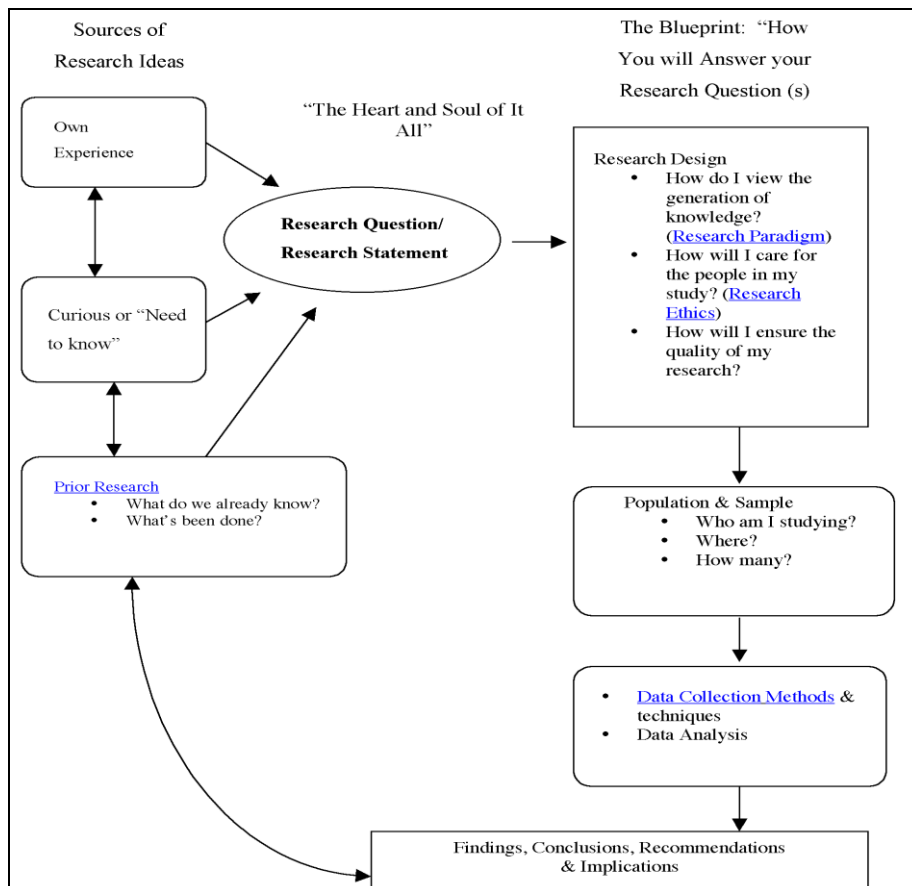
"You have to be mindful of people, give them space, give them time, give everyone a chance to speak even if you know the answer"

"It's intimidating to read long weighty online contributions"

"Be aware about the way you word things online as it can be very subjective and easily misconstrued"

2. Research Overview Diagram

The key features of educational research are illustrated in the following diagram along with how they link to the modules.



3. Literature Review Exercises (Week 2)

Welcome to week three of the course. This week, we are looking at literature reviews.

This week you have to write a very short literature review using the on-line journals in your field and share these with your groups and get feedback. If you are not clear about the process, please let me know sooner rather than later.

I really enjoyed the discussion and group responses on ethics. Keep up the good work.

4. Research Ethics' Dilemmas (Week 3)

Discussion Topic 2: Notions of benefit and harm (21/7 - 27/7)

Notions of benefit and harm are key issues in educational research. They relate to the concept of ethics. Care is also an essential component of ethics. Care includes consideration of privacy issues, the potential harm of the research and benefits.

For this discussion I want you to work in your groups to address the scenario presented. Each group will be presented with a different scenario. Communicate with one another in your group to see how best to address the scenario. At the end of the discussion, appoint someone (or someone can volunteer) within your group to summarize and post your group's consensus response to the scenario in the 'Our Group's Response' discussion.

You will be able to read other groups' response but not post in them.

This discussion commences from **21/7 - 27/7**

For Group 1: When I wish to observe a class as part of some educational research do I need to get ethics approval from every class member and their parents/caregiver? If I seek this and don't get all the approvals, what do I do? What ethical issues are there here?

For Group 2: I am observing children in the playground. I wish observe a child and their interaction with other children, do I need ethical approval from all the children he or she may interact with? What ethical issues are there here?

For Group 3: If you are a principal or a teacher doing research in your own school on colleagues or students at the school, what ethical issues might you face?

5. Understanding Case Studies (Week 7)

What's a Case Study? (8/9 - 14/9)

Hi everyone, this week we are looking at case studies. Case studies are good for studying bounded systems such as a classroom, individual or groups of people related to a particular situation. They provide rich descriptions which illustrate the complexity of the situation rather than isolating particular variables to investigate.

Case studies can utilise a number of methods to explore a particular setting and the data is usually gathered in a systematic manner.

There are two parts to this week's discussion on Case Studies. In Part 1, you are asked to discuss case studies as a research approach in general. In Part 2, you are to apply a case study approach to the situation you have been given.

Part 1:

Examine the characteristics of case studies in general by considering the following:

- strengths and weaknesses
- types of case studies
- varying units of analysis
- appropriate data gathering methods,
- issues of reliability and validity associated with case studies, and,
- the degree to which researchers can generalize from a case study

Part 2:

For the situation you have been given and using the issues discussed in Part 1, you are to use a case study approach to:

- describe the type of case study appropriate for your situation, and why, and,
- the headings you would use in reporting your case study (eg. Background, case unit of analysis, etc.). Writing up a case study can be quite distinct from writing up other types of research approach

So work in your groups to address Parts One and Two according to the situation presented to your group. Each group has a different situation. At the end of the discussion, please have a volunteer to summarize and post your group's response in the *Our Group Response* discussion.

You will be able to read other groups' response but not post in them.

This discussion will be from **8/9 - 14/9**.

I am looking forward to hearing your ideas.

For Group 1:

A low decile secondary school is implementing a new teaching approach, known as the "X Approach" to help underachieving students learn English. They have implemented it in one of their Year 9 classes and would like to see how successful it has been.

The initiative has the full support of the MOE, board of trustees and the school community.

For Group 2:

A primary school is interested in enhancing students' learning of Mathematics and has implemented a new Education Outside the Classroom (EOTC) programme for their Year 6 students. They wish to evaluate the impact of the initiative on their Year 6 students.

The initiative has the full support of the MOE, board of trustees and the school community.

For Group 3:

A secondary school has decided to change their school organisational structure to implement a new approach, known as the “Z style of Management” to the school leadership. They wish to evaluate the impact of the initiative in their school. The initiative has the full support of the MOE, board of trustees and the school community.

6. Understanding Action Research (Week 8)

Action Research is...? (15/9 - 22/9)

Hi everyone, we're moving on to understanding action research this week. This week we will be addressing some common notions of action research and using the literature to scrutinize them further to see what action research actually is. In the discussion called *The Discussion* you'll find the instructions for this week's activities. There is a picture containing some common ideas about action research. How true or accurate they are is what you'll have to decide at the end of the day. So work in your groups to address the picture presented.

In thinking about action research it will be useful for you to use the following questions as a guide.

- What do you see as some of the key characteristics/principles of action research?
- What type of research questions can be approached using action research?
- What are some of the methods of data collection that might be used?
- What are some of the ethical issues that you might have to consider?
- How can research be collaborative without it being action research?

You can use these to help you focus your discussion and comments on the ideas that are being presented in your group. As usual, at the end of the discussion, please have a volunteer to summarize and post your group's response in the *Our Group Response* discussion.

You will be able to read other groups' response but not post in them.

This discussion will be from **15/9 - 22/9**.

Looking forward to the discussion. Cheers

To what extent do the following three views accurately describe the characteristics of action research and why?



In thinking about action research it will be useful for you to use the following questions as a guide.

- What do you see as some of the key characteristics/principles of action research?
- What type of research questions can be approached using action research?
- What are some of the methods of data collection that might be used?
- What are some of the ethical issues that you might have to consider?
- How can research be collaborative without it being action research?

7. Developing Adrian 's Online Questioning Repertoire

-to scaffold and encourage students' online interactions (modified from Brookfield, & Preskil, 1999))

Questions that ask for more evidence:

How do you know that?

What does the author say that supports your argument?

What evidence would you give to someone who doubted your interpretation?

Questions that ask for clarification:

What's a good example of what you are talking about?

Can you explain the term you just used?

What did you mean by that?

Linking or Extending Questions:

How does your comment fit in with John's earlier comments?

Is there a connection between what you've just said and what Mary was saying a moment ago?

Does your idea challenge or support what we seem to be saying?

Cause and effect Questions:

How might halving our class size affect our discussions?

What is the likely effect of raising the average class size from twenty to thirty on the ability of learners to conduct interesting and engaging discussions?

Summary and Synthesis Questions:

What are the one or two important ideas that emerged from this discussion?

What remains unresolved or contentious about this topic?

Based on our discussion today, what do we need to talk about next time if we're to understand this issue better?

Social Role:

Developing Guidelines for Online Communication

Hi there! Since most of us may not be familiar with some of the conventions of communicating online, this folder is dedicated to assisting you in this process and also a good reminder for those of us who may be veteran online folks. Feel free to add any new guidelines you find useful during the course or if you have any questions, do let me know.

For you to obtain the maximum benefit from learning online in this yours, the following guidelines may be of help:

- Participate actively in our class discussions based on your understanding of the readings and discussion topics set up in the course. You will not be assessed on the number of the online contributions you make but you will not be able to pass this class without participating in the online discussions. Also refer to the assignments requiring you to refer to yours and others' online comments in order to complete them.
- It is important that you try to make at least 3 regular and quality contributions each week. Simply saying "I agree" or "Hello" (after the first week of the course) is less a substantive contribution to your learning or your peers.
- All class members share the responsibility in ensuring that the class / group discussions work to the benefit of all.
- Check the topic, understand the focus, read what has been contributed, contribute to the discussions either by relating your contribution to what others' have said (you can share your understanding of the readings and your experience), or start a new "thread" of discussion by introducing a new aspect of the topic
- It is all right to share "immature" ideas that are developmental in nature. Hey, we have to start from somewhere!
- Be a risk-taker, being a bit self-disclosive about yourself, eg. "I believe", "I feel..." in sharing your ideas. We don't have it all together all the time!
- Feel free to share any relevant theory/reading/resources with may be helpful for others in the *Course Resources* folder. Feel free to ask for clarification from others if required.
- Have fun with ideas and interacting as a way of learning more effectively / building a community.
- Please try very hard to limit your contribution to 300 words each time to give others a chance to say something too.

- Address the person before you by his/ her name and try to link your contribution to his/her or acknowledge him or her before starting a new “thread”.
- Limit each contribution to one key issue or point at a time. It gets confusing for the rest of us otherwise.
- Give time for others to have their say before you jump in and have your say again
- It is expected that we will conduct the discussions in an honest, friendly, constructive, respectful and supportive manner. Online behaviours such as spamming, flaming, forwarding others’ messages without their consent, using rude language or talking down to others are unacceptable.
- To ensure the safety and confidence of our class community, the confidentiality of our class discussions is strictly preserved. Only myself and (Lecturer B) will have access to our class (we will not enter the *Break Time* Folder which is left for you as your personal space to communicate with one another ala cafe style). Your permission will be sought before any of the class discussions are shared with outsiders.
- I will try to respond to your queries within 24 hours or inform you if I will be away
- I strongly suggest that all issues or queries be dealt with online whether in the general *Can Anyone Help* forum or in your private portfolios with me, but you can still contact me by phone or e-mail if need be.
- Use good *Netiquette* (etiquette on the Net) such as: Capitalise words only highlight a point or for titles- otherwise it is generally viewed as SHOUTING!
- Be professional and considerate in your online interactions. Deal ONLY with the issues raised.

The University of Waikato
Centre for Science and Technology Education Research(CSTER)
Research On Extricating the Web of Learning: A Case Study on
Web-Based Graduate Learning
Information for Participating Case Study Students (Phase 3)

Researcher: Elaine G.L. Khoo (PhD student, Centre for Science and Technology Education Research (CSTER)
(ph: ++(64) 07-838 4035, Room: KP G.22, e-mail: ekhoo@waikato.ac.nz)
Supervisor: Dr Mike Forret, CSTER
(ph: ++(64) 07-838 4481, Room: KP G. 21, e-mail: mforret@waikato.ac.nz)

The Study

Kia Ora and Hello. My name is Elaine Khoo and I am a Phd student at the Centre for Science and Technology Education Research (CSTER) at the University of Waikato. My research interest is in online learning or web-based learning. As part of my Phd study, I am conducting research to gain a better understanding of what it is like to learn online and what helps the learning experience in this graduate Educational Research Methods or Research Methods in Science, Mathematics and Technology Education online course in Semester B, 2003. I invite you to take part in this research.

Your Contribution

Earlier this year, I had the opportunity to work with the lecturers teaching this course to design teaching and learning activities with the aim of enhancing the quality of the teaching and learning experience in the online learning environment. In this course, we will be trying out these activities with you as part of your normal coursework.

Participation in this study will involve:

- a. my observing and analysing the online interactions that take place as the course progresses during the semester,
- b. it may also involve your completing a questionnaire to evaluate the course at the end of the semester (takes about 20 mins), and,
- c. an interview with you if you would like to further share your views on your web-based learning experience with me at the end of the semester (takes about 30 - 45 mins and will be at a time of your convenience). We can conduct the interview over the phone if it is not possible to meet on a face-to-face basis.

Your participation in the research is important in providing information and feedback on the teaching and learning you've experienced in this course and will be very valuable in enhancing future web-based courses.

Ethical Guidelines

The research project will follow the University of Waikato Human Research Ethics Regulations 2000 and the ethical guidelines of the NZARE and include the following:

- I am committed to respecting the research participants' privacy and confidentiality;
- Any information collected will be kept secured and confidential, and destroyed at the conclusion of the research.

Appendix 8.5

- Any identifying information (eg. names or e-mail addresses) will be removed to protect the anonymity of your responses in the research report (a pseudonym will be used instead);
- Participation in this study will not affect your academic progress in any way;
- If you choose to withdraw or decide not to participate in this study, no data collected from you will be used in this study.
- If you decide to take part in the study, you may choose not to answer any particular question during the interviews or in the questionnaire,
- You have the right to access the information you've provided at any time;
- You can direct any questions regarding the research to me (please see the contact details above), or if you feel the terms agreed in the consent form have been breached, please contact Dr Mike Forret (see contact details above), the research supervisor.
- By agreeing to participate and provide the required information in this study, you agree to allow me to use your input for research purposes only; and,
- Any information collected will be used in my thesis and may be used in other publications arising from the research.

Thank you in advance for your time and helpful participation.

Yours sincerely

Elaine Khoo

The University of Waikato
Centre for Science and Technology Education Research (CSTER)

Participating Case Study Student's Consent Form

This form should be read in conjunction with the attached "Information for Participating Case Study Students"

I understand that participation in this research project will involve the following:

- 1 I will be involved in a study on *Extricating the Web of Learning: A Case Study on Web-Based Graduate Learning*
- 2 Data gathered for this project will not be made available to any third party and will be subject to the provisions of the New Zealand Privacy Act (1993)
- 3 I will not be identified in any way other than a code number or pseudonym in data records or reports of the research findings
- 4 My participation in this project will not in any way affect my academic progress
- 5 I may withdraw from parts of this study at any stage, or decline to answer particular questions in the study, and if I wish I may withdraw from the project completely
- 6 If I have any concerns about my participation in this research project I may approach Elaine Khoo (ph: ++(64) 07-838 4035, Room: KP G.22), or Dr Mike Forret (ph: ++(64) 07-838 4481, Room: KP G. 21), the research supervisor.

Signed : _____

Name : _____

Date : _____

Contact Phone: _____

Details: Email: _____

Online Students' Background (Phase 3)

The online student participants in Phase 3 were grouped into one of three discussion groups randomly - Group 1, Group 2 and Group 3 (n=14). Their brief background is shown below. Of the 14 students, only 11 consented to participating in the research. Pseudonyms have been used for each participant.

Group 1: Consisted of five members, four of whom consented to participating in the research

Student	Background
Sapphire (female)	- Of New Zealand European background - Currently a trained early childhood educator
Shaun (male)	- Of New Zealand European background - Currently teaching English overseas
Tanya (female)	- Of Maori background - Currently a trained secondary school teacher
Vance (male)	- Of Maori background - Currently teaching English overseas - Holds a postgraduate degree
M	- Did not consent to participating in the research but was mentioned in the text

Note: Three of the group members in Group 1 are of Maori background

Group 2: Consisted of five members, four of whom consented to participating in the research

Student	Background
Esta (female)	- From Indonesia - First time online student
Hal (male)	- From China - Currently teaching English teacher at a Chinese University
Pam (female)	- Of New Zealand European background - Currently completing an Honours paper
Reba (female)	- Of New Zealand European background - Had taught English overseas and was planning to move overseas in the midst of this online course - Holds a postgraduate diploma

Group 3: Consisted of four members, three of whom consented to participating in the research

Student	Background
Kane (male)	- Of New Zealand European background - Currently a trained secondary school teacher - Has extensive teaching experience including overseas experience - Has a family
Melody (female)	- Of New Zealand European background - Currently a trained secondary school teacher in a remote school but very motivated to complete her postgraduate degree - Has a family
Shania (female)	- Of New Zealand European background - Currently a staff at the university

GLOSSARY

Affordances	-	The positive benefits flowing from the choice of web-based technological tools and activities for achieving teaching-learning goals
Andragogy	-	The opposite of pedagogy, this European term introduced into the English vocabulary by Malcom Knowles (1973) refers to the art and science of helping adults learn
Asynchronous communication	-	Communication mode allowing a user to participate at any time from anywhere by sending messages to a central location (e.g. an online discussion forum) for archiving and retrieval by other participants.
COP	-	Communities of practice. A term to describe a group of individuals who actively participate in the practices and endeavours of a community, and thereby, construct and identity in relation to that community
Constraints	-	The limitations presented by the choice of technological tools
Distance learning	-	Learning through an array of communication technologies, including video, teleconferences, e-mail, and the World Wide Web to allow educational interaction between teachers and students or between students
Emoticon	-	A term derived from emotion and icon, it involves a combination of keystrokes to form a picture portraying an emotion such as :) for Happy face and :(for Sad face. Emoticons are used in electronic communication to show humour and express emotions that are difficult to communicate in a text-based environment
FAQ	-	Frequently asked questions. An information list, in question and answer format, of common inquiries from users about a topic and standard responses
F2F	-	Face-to-face, a term is used to describe the traditional classroom environment
Graduate students	-	Students enrolled at the University of Waikato pursuing qualifications in one of the following; Graduate Diploma, Postgraduate Diploma, Bachelors degree with Honours, Masters degrees, and Doctor of Philosophy or Doctor of Education.
Internet	-	Commonly called the Net, this worldwide network connects many smaller networks of computers via telecommunication resources such as phone lines or satellites. Any computer can communicate with another as long as both are connected to the Internet.
Learning Community	-	A community concerned with the teaching and learning process and educational outcomes. Espouses sociocultural ideas of viewing learning as apprenticeship and transformatory participation.
Lurking	-	A person is lurking when he/she reads the postings in an online discussion forum but does not contribute to the discussion
Netiquette	-	A term derived from Internet etiquette referring to the rules of online behaviour / standards of courtesy in online communications such as not typing in capitals as it is seen as shouting, not sending bulk emails or spams, not defaming people online

	and responding appropriately to requests
Online	- The state in which a computer is connected to another computer or server on the Internet. The connection can be through a phone line, using a dial-up or DSL modem, a cable line via a cable modem, or through a wireless connection. A computer communicating with another computer
Online community	- A meeting place on the Internet for people who share common interests and needs.
Online environment	- Courses, discussions, or other communication occurring in an electronic format via the Internet.
Online interaction	- The kinds of dialogue occurring between the lecturer and students and among the students. It occurs to satisfy either academic or social or emotional needs when learning online.
Online learning	- Formal teaching and learning activities using the Internet and the World Wide Web (Web) to support teaching and learning
Online learning community (OLC)	- Characteristics of a learning community established through the use of the Internet
Online participation	- A complex process comprising doing, communicating, thinking, feeling and belonging, which occurs both online and offline. Emphasises the development of relationships and identities when a newcomer is enculturated in the practices and activities of the community. It is demonstrated through the undertaking of various <i>roles</i> in the learning process.
Synchronous communication	- Real-time communication or live exchange of messages in a medium that requires the simultaneous presence of the sender and the receiver (e.g., in an electronic chat system).
Web-based technologies	Technologies that utilise the connectivity and communicative affordance of the Web to allow asynchronous and synchronous modes of communication. Web-based technologies are used to share and disseminate information and gather information in a mass environment in a centralised format. They can be used locally or remotely. Types of Web-based technologies include websites, e-mail, file management, database applications, audio and video applications
World Wide Web	- Commonly known as WWW or W3 or the Web, this is a graphical part of the Internet to enable access and dissemination of information over the Internet. The Web also utilises browsers such as Internet Explorer or Firefox to access Web documents called Web pages (or Web sites) that are linked to each other via hyperlinks. Web pages are formatted in html and supports links to other documents containing text, graphics, audio and video files. Users accessing a Web page can jump from one page to another by clicking on hyperlinks.

Acronyms used in the Thesis

A1	-	Sharing of Ideas for Assignment 1
ALN	-	Asynchronous Learning Network
CGTV	-	The Cognition and Technology Group at Vanderbilt
CMC	-	Computer-mediated communication
COP	-	Communities of Practice
CSILE	-	Computer Supported Intentional Learning Environment
CSTER	-	Centre for Science and Technology Education Research
eCDF	-	E-Learning Collaborative Development Fund
ELAG	-	E-Learning Advisory Group
ESRC	-	Economic and Social Research Council
FAQ	-	Frequently asked questions
F2F	-	Face-to-face
ICTs	-	Information and Communication Technologies
ISP	-	Internet Service Provider
LPP	-	Legitimate peripheral participation
MERLOT	-	Multimedia Educational Resource for Learning and Online Teaching
MMP	-	Mixed Media Programme
MoE	-	Ministry of Education
OECD	-	Organisation for Economic Co-operation and Development
OLC	-	Online learning community
PCK	-	Pedagogical Content Knowledge
REAL	-	Rich Environments for Active Learning
RM	-	Research Methods
SoE	-	School of Education
SPSS	-	Statistical Package for the Social Sciences
TeLRF	-	Tertiary E-Learning Research Fund
TPCK	-	Technological Pedagogical Content Knowledge
USA	-	United States of America
WICeD	-	Waikato Innovation Centre for Electronic Education
m	-	Means
s.d.	-	Standard deviation
NUA	-	Not Useful at All
NU	-	Not Useful
Unc.	-	Uncertain
U	-	Useful
VU	-	Very Useful