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**MOTIVATION TO LEARN IN ONLINE
ENVIRONMENTS: AN EXPLORATION OF TWO
TERTIARY EDUCATION CONTEXTS**

A thesis presented in partial fulfilment of the requirements for the degree of
Doctor of Philosophy in Education

at Massey University, Manawatu,
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Margaret Katherine Hartnett

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ABSTRACT

Research evidence suggests that motivation is an important consideration for online learners. Notably, existing research has frequently focused on the design of motivating online learning environments. Alternatively, motivation has been viewed as a collection of relatively stable personal characteristics of learners. In contrast, a contemporary view that acknowledges the complexity and dynamic interplay of factors underlying and influencing motivation to learn (e.g., Turner & Patrick, 2008) is adopted here. From this 'person in context' perspective, this study investigates the nature of motivation to learn in online distance learning environments. The study explores how student motivation relates to online participation in these contexts. In addition, social and contextual factors that foster and undermine motivation are identified.

The research design utilises a case study approach which focuses on learners in two separate online distance courses within the same university programme. The boundary for each case study is defined by one piece of assessed work and the associated activities within each course. Interview and questionnaire data, supported by archived online data and course resources, were collected. Analysis of the data were made using the three conceptual lenses of self-determination theory (Deci & Ryan, 1985) and the continuum of human motivation encompassed within this theoretical framework.

Findings indicate that the motivation of learners in online environments was multidimensional. Intrinsic motivation and various types of extrinsic motivation were shown to co-exist. Complex relationships were also shown to exist between motivation and participation that were sensitive to situational influences. Multiple factors fostered the expression of high quality (i.e. more self-determined) motivation. Most prominent among these were the relevance of the learning activity, the provision of clear guidelines, and ongoing support and feedback from the teacher that was responsive to learners' needs. Supportive caring relationships were also important. A range of factors also undermined the motivation of learners; most notably high workload, assessment pressure, and the perception that the learning activity lacked relevance.

Student motivation to learn within these contexts was found to be multifaceted, complex and sensitive to situational factors. The use of self-determination theory has confirmed it as a useful analytic tool for exploring the complexity of motivation in online contexts. Implications based on the findings are considered for stakeholders.

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CHAPTER ONE

INTRODUCTION TO THE STUDY

None of us are to be found in sets of tasks or lists of attributes; we can be known only in the unfolding of our unique stories within the context of everyday events. (Paley, 1990, p. xii)

1.1 Introduction

Over the last decade and a half, distance education has undergone a period of considerable change (Larreamendy-Joerns & Leinhardt, 2006). The growth of the Internet and related technologies has resulted in a merging of online teaching and learning into the routine practices of universities. At the same time, it has given distance education a new appeal (Tallent-Runnels et al., 2006). Online learning is viewed by some as a sub-category of distance education (Ally, 2008) that specifically uses the Internet and the worldwide web (Bates, 2005). It is one increasingly popular method being used by institutions in various countries, including New Zealand (Scott, 2005), to provide opportunities and meet the needs of a growing and increasingly diverse, student population (Moore & Kearsley, 2005; Rumble & Latchem, 2004). This includes teacher education, which has seen a dramatic increase in the availability of technology-enabled distance education programmes over the last decade (Robinson & Latchem, 2003).

Online learning has a number of potential benefits, not least of which is the ability to overcome the temporal and spatial restrictions of traditional educational settings. In doing so, it provides learners with the flexibility to learn at their convenience in any setting (Bates, 2005). Another benefit of this form of distance learning is greater equity of access. People previously excluded from education due to location, personal circumstances, financial constraints, disabilities, or lack of course availability, can now participate in distance education (Mason, 1998). Access to an extensive range of library resources and leading authorities in different fields are other advantages cited for online learning (Harasim, Hiltz, Teles, & Turoff, 1995).

Notwithstanding the advantages of flexibility and equity of access that online learning offers, a variety of factors have been identified as crucial to the success of online

courses (McIsaac & Gunawardena, 1996). Motivation is one such factor (Bekele, 2010; A. Jones & Issroff, 2007). Just as motivation is a key factor in learning and achievement in face-to-face educational contexts (St. George & Riley, 2008), so it is in online distance learning environments (Sankaran & Bui, 2001).

A growing body of research highlights motivation as an issue requiring further investigation in online contexts (Artino, 2008; Bekele, 2010; A. Jones & Issroff, 2007; Keller, 2008; McCombs & Vakili, 2005). While the uptake of technology continues apace, research and development into the application and use of new technologies, underpinned by pedagogically relevant theory, is lagging (Lynch & Dembo, 2004). This highlights the need for ongoing research, based on sound theoretical principles, as part of the ongoing development of online teaching and learning practices.

1.2 Research aims of the study

The study explores the nature of motivation to learn of students situated within online learning environments. Specifically, it examines undergraduate, pre-service teachers' motivation within two distinct online distance learning contexts situated within a New Zealand university. In addition, relationships between participants' motivation and their actual participation within these environments are explored. Finally, recognising the mutually constitutive relationship of the learner and the learning environment (Hickey & Granade, 2004), a range of social and contextual factors are also investigated to elicit their relationship with pre-service teachers' motivation to learn.

1.3 Rationale for the study

Paris and Turner (1994) describe motivation as the 'engine' of learning. Motivation can influence what we learn, how we learn and when we choose to learn (Schunk, 1995). Research shows that motivated learners are more likely to undertake challenging activities, be actively engaged, enjoy and adopt a deep approach to learning and exhibit enhanced performance, persistence and creativity (see Brophy, 2010; Ryan & Deci, 2000b; Schunk, Pintrich, & Meece, 2008; Stipek, 2002; Wlodkowski, 1999 for reviews). Given the important reciprocal relationship between motivation and learning (Svinicki, 2004), it is not surprising that motivation has been actively researched across a wide range of traditional educational settings (Schunk, Pintrich, & Meece, 2008).

Despite this, studies that explore motivation to learn in online contexts are limited both in number and scope, as others have noted (Artino, 2008; A. Jones & Issroff, 2007; Yukselturk & Bulut, 2007).

Of the research that is available, there has been a tendency to adopt a limited view of motivation that does not acknowledge the complexity and dynamic interplay of factors underlying and influencing motivation to learn (Brophy, 2010). Instead, designing motivating learning environments has received attention (Keller, 1999, 2008; Keller & Suzuki, 2004; Reeves & Reeves, 1997; Zaharias & Poylymenakou, 2009).

Alternatively, motivation has been viewed a relatively stable personal characteristic and studies have focused on identifying lists of traits of successful learners (Holcomb, King, & Brown, 2004; Kerr, Rynearson, & Kerr, 2006; Kickul & Kickul, 2006; Wighting, Liu, & Rovai, 2008; Yukselturk & Bulut, 2007). Comparative studies between online and on-campus students are common using this approach (Rovai, Ponton, Wighting, & Baker, 2007; Shroff & Vogel, 2009; Stevens & Switzer, 2006; Wighting, Liu, & Rovai, 2008) and findings indicate that online distance students are more intrinsically motivated than their on-campus counterparts.

Perceptions regarding the motivation of online learners have also developed out of earlier distance education models (Moore, 1989, 1993) and adult learning theories (Knowles, 1984) that consider such learners as independent, self-efficacious and having high motivation to learn (Bates, 2005; Cercone, 2008; McCombs & Vakili, 2005). But as the student population becomes increasingly diverse, these underlying assumptions are being questioned (Lee, 2003; McCombs & Vakili, 2005).

Moreover, there is a perception that students who choose to undertake a professional degree, such as gaining a teaching qualification, are more intrinsically motivated (Leppel, 2001; Moran, Kilpatrick, Abbott, Dallat, & McClune, 2001; Richardson & Watt, 2006). While learners may be initially attracted for altruistic reasons, attitudes towards teaching of students enrolled in pre-service teacher education programmes tend to take a downward turn as initial enthusiasm is tempered with the realities of the profession (Hayes, 2004).

A further related issue that lends support to the view that student motivation is more complex than suggested by Moore (1989) and Knowles (1984), is the higher dropout rates associated with online courses compared to similar face-to-face ones (Kemp, 2002; Levy, 2007; S. Liu, Gomez, Khan, & Yen, 2007; Willging & Johnson, 2004). Delany and Smith (2001) found that students enrolled in pre-service teacher education programmes, offered by a New Zealand institution and studying by distance, had lower success rates than their on-campus counterparts. Levy (2007) concluded that students undertaking online learning courses had considerably higher dropout rates than on-campus learners. Feelings of isolation (Paulus & Scherff, 2008), frustrations with the technology (Hara & Kling, 2003) and time constraints due to other responsibilities (Keller, 1999) have all been identified as factors influencing students' decisions to withdraw from online courses. However, poor motivation has also been identified as a decisive factor in contributing to the high dropout rates (Artino, 2008; Keller, 2008; Muilenburg & Berge, 2005; Pineau, 2007). Therefore, student motivation is considered a crucial factor for success in online distance learning environments (Artino, 2008; Keller, 2008; McCombs & Vakili, 2005; Muilenburg & Berge, 2005; Sankaran & Bui, 2001) and is a primary reason for the current study.

The preceding discussion has highlighted several factors that point to the timeliness of this research. They include: 1) the increasing importance of distance education, and rapid growth of e-learning (Larreamendy-Joerns & Leinhardt, 2006); 2) the limited amount of existing motivation research in online contexts (A. Jones & Issroff, 2007); 3) the lack of available research that adopts a situated view of motivation (Xie, DeBacker, & Ferguson, 2006); 4) the increasing diversification of the student population (Jeffrey, Atkins, Laurs, & Mann, 2006; McLoughlin, 2007; Rumble & Latchem, 2004); and 5) the growing concern over attrition rates in online courses (Levy, 2007; Morris, Finnegan, & Wu, 2005; Muilenburg & Berge, 2005; Pineau, 2007). Viewed collectively, these factors point to the need to reconsider motivation to learn in technology-mediated environments that incorporates an analysis of students, the context, *and* the complex interactions between the two.

1.4 Context of the study

Within the New Zealand context, the majority of initial teacher education providers offer on-campus programmes. However, there are an increasing number of tertiary institutions also offering alternatives via distance and technologically-mediated means (M. Cameron & Baker, 2004; Marshall, 2005). One university provides the context for this investigation. Within this university, pre-service teacher education students have the option to undertake their entire three-year degree via a technology-mediated distance education programme. The structure of the distance programme mirrors the on-campus offering. Although the students are not located at the main university campus, time in schools on teaching practice courses is identical, and students are required to participate in course work and undertake all assessment tasks in a similar manner to internal students. For the majority of students it is a full-time programme of study.

In addition to the ‘fully’ distance students (i.e. those enrolled in the pre-service teacher education distance programme option), there are a small number of students located at a small satellite campus of the university. While they are able to take some of their courses in face-to-face mode at this campus, there are several courses within their degree programme that are only offered as an online distance option. For these courses, the satellite campus students complete the course requirements in a similar manner to the fully distance students. In the case studies reported here all students, regardless of location (distance or satellite campus), were required to complete all prescribed coursework via the Internet through the WebCT learning management system.

Participants in this research investigation were generally in their second or third (and final) year of study towards gaining their teaching qualification. They were predominantly female and mature-age and therefore typical of distance students undertaking educational studies (Moore & Kearsley, 2005; Robinson & Latchem, 2003). Given this, the utility value (Ryan & Deci, 2000b) of gaining a professional teaching qualification may be expected to play a role in their motivation to learn in the contexts explored here. It is acknowledged that the broader institutional climate plays an important role in learner motivation (Schunk et al., 2008). However, the adoption of a contemporary situational approach to investigate motivation to learn (Paris & Turner,

1994; Turner & Patrick, 2008) meant institutional influences were considered more distal and beyond the scope of this investigation.

1.5 The place of the researcher

As Bogdan and Biklen (2007) note, “no matter how much you [the researcher] try, you cannot divorce your research and writing from your past experiences, who you are, what you believe, and what you value. Being a clean slate is neither possible nor desirable” (p. 38). Therefore, it is important to include some information about myself and my experiences as this inevitably influenced the data collection, analysis and the interpretation of the findings that have been undertaken throughout this study.

Prior to this research, I was a tutor in range of disciplines for several institutes of technology within New Zealand. This involved work as an online instructor as well as face-to-face teaching. In addition to teaching, I also undertook part-time study for a Masters in Education degree with an endorsement in online education. I completed this degree as an online distance student over the course of several years, only meeting and getting to know my fellow learners and lecturers in ‘cyberspace’. Many of these experiences were stimulating and valuable, some were transformational and a few were disappointing. These experiences have contributed to my interest in why certain situations, within the context of technology-mediated learning environments, encouraged my tendency towards making an effort, persisting in the face of difficulties and wanting to do well; while others fell into the ‘just get it done’ category. I understood at some level that it wasn’t just me who contributed to my motivation to learn, but that there existed a complex relationship between myself as a learner and the learning environment.

1.6 Thesis overview

The thesis is organised into seven chapters. Chapter One states the aims and rationale for the study and provides a background in which to place and interpret the research. Chapter Two reviews the literature on online learning and motivation that informs and supports the aims of the investigation. Chapter Three discusses the case study methodology that underpins this study and outlines the methods used to generate and analyse data. Chapter Four presents the findings for Case Study One. This is followed

by Case Study Two findings in Chapter Five. In Chapter Six, the key cross-case findings are synthesised and discussed with reference to the literature. Chapter Seven completes the thesis by presenting the conclusions and implications for theory, research and practice as well as recommendations for future research.

CHAPTER TWO

LITERATURE REVIEW

Human learning is a combination of processes whereby whole persons construct experiences of situations and transform them into knowledge, skills, attitudes, values, emotions and the senses, and integrate the outcomes into their own biographies. (Jarvis, 2004, p. 111)

2.1 Introduction

This study is focused on the nature of *motivation to learn* in online environments, possible relationships between motivation and online participation, and social and contextual factors that may influence motivation. Therefore, this chapter reviews research literature relevant to motivation to learn in online contexts. First, the term online distance learning is clarified in the context of this investigation. Second, several foundational distance learning concepts are discussed along with their relevance to the current investigation. Third, contemporary pedagogical approaches used in online learning environments are explicated as these are important considerations within the context of the present study. Fourth, existing research into motivation to learn in online environments is discussed in light of contemporary theoretical motivation frameworks. Finally, self-determination theory (SDT) – an intrinsic-extrinsic theory of motivation that underpins this investigation – is discussed in detail. Justification for the use of SDT as the conceptual framework is provided.

2.2 Online distance learning

Given the rapid advances in technology over the last decade, the line between traditional and distance learning environments is blurring, with similar technologies being used to support learning in both environments. This has led to the emergence of flexible/blended and mixed modes of learning that Bullen and Janes (2007) conceptualise on a continuum from face-to-face to fully distance environments. E-learning is now a common term used to describe anything on this continuum that incorporates digital resources and some form of technology-mediated communications in the learning process (Nicols, 2008). Therefore, it is important to define what is meant by online distance learning as it relates to the context of this study.

2.2.1 Definition

Online learning has its roots in distance education. Bates (2005) points out that the terms ‘online learning’ and ‘e-learning’ are used interchangeably, but makes the distinction that e-learning can encompass any form of technology while online learning refers specifically to using the Internet and the Web. The term “fully online” is used by Bates (2005, p. 9) to distinguish distance courses where students *must* have access to a computer and the Internet to undertake the course. Ally (2008) also highlights that there are many definitions of online learning that reflect the diversity of practice and technologies in use. He goes on to define it in the following way:

... the use of the internet to access materials; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience (p. 5).

Given the lack of consensus of terminology, for the purposes of this investigation, the author has adopted the term *online distance learning*. This terminology encompasses the definition offered by Ally *and* incorporates the fully online distinction used by Bates that makes cognisant the distance context of courses and the use of supportive print-based materials. In other words, *online distance learning* in this study is taken to be a form of distance education mediated by technological tools and supported by print-based resources, where learners are geographically separated from the instructor and the main institution.

2.2.2 Concepts of learner autonomy and control in distance education

While it not the intention here to offer a comprehensive review of the history of distance education, it is important to explicate two theoretical concepts that have been influential in the overall development of the field and continue to influence our understanding of learning and motivation in contemporary distance education contexts (McIsaac & Gunawardena, 1996). These concepts are *transactional distance* that encompasses the notions of structure, dialogue and autonomy suggested by Moore (1990); and the alternative concept of *learner control* (Garrison & Baynton, 1987). Similar concepts

exist within contemporary motivation literature, particularly those associated with self-determination theory (Deci & Ryan, 1985) – the motivational framework that underpins this investigation.

Moore (1990) coined the phrase *transactional distance* to define the psychological separation frequently experienced by students, as a result of the spatial and/or temporal separation between learners and instructors in a distance learning context. From this perspective, the relative amount of structure and dialogue inherent in the learning activity determines the degree of ‘distance’ experienced by the learner (Dron, 2007a). Structure refers to the design of the course and expresses the flexibility or rigidity of the teaching methods, objectives and assessment methods (Moore, 1993). Dialogue refers to the degree of interaction with the instructor and is associated with the communication medium (Moore & Kearsley, 2005). In Moore’s theory, low dialogue and structure equate to high transactional distance and vice versa (Garrison, 2000). However, the theory points out that high dialogue and structure are difficult to achieve simultaneously (Dron, 2007b). The theory also incorporates a third concept, learner autonomy. The greater the transactional distance (i.e. low structure and dialogue), the more responsibility is placed on the learner (Moore & Kearsley, 2005). In this model, Garrison (2003) argues that autonomy is associated with independence and self-directed learning. While Moore points out that the transactional distance model does not imply that autonomous learners do not require teachers, he does suggest that they require less dialogue and minimal structure when compared with less autonomous learners (Moore, 2007).

Other researchers in the field have argued that the term *autonomy* has suffered from the lack of clear definition (Garrison, 2000; Garrison & Baynton, 1987). Garrison and Baynton (1987) argue that a richer, more inclusive concept is that of *learner control*, as it helps to address the confusion associated with the role of independence in distance education. In this conceptualisation, “control is concerned with the opportunity and ability to influence, direct, and determine decisions related to the education process” (p. 5). This can only be achieved by striking a balance between *independence* (being free to make choices without restrictions or outside influences); *power* – later referred to as competence – (the capability to be responsible for and take part in the learning process); and *support* (the resources, including the teacher, available to the learner throughout the

learning process). In this model, support from the teacher enhances greater control on the part of the learner; it does not take away from it. Baynton (1992) tested this model via confirmatory factor analysis and found that the subsequent three main factors mirrored the proposed dimensions.

Since then, the work of other researchers has influenced our understandings of choice, control and autonomy in distance education, most notably Candy (1991). Candy focused on self-direction and distinguished two different types: self-direction as 1) a personal characteristic; and 2) the degree of control a learner has in determining his or her learning path. This is an important distinction because it recognises that autonomy is both a personal and situational variable. In other words, the degree of autonomy a person expresses can vary from situation to situation.

Most recently, Dron (2007a) has built on the work of previous theorists and developed a conceptual model called *transactional control*. Transactional control has to do with choice and attempts to explain the dynamics of transactional distance. In this model, structure is equivalent to teacher control, dialogue relates to negotiated control, and autonomy relates to learner control (Dron, 2007b). In other words, control is seen as a continuum from learner control at one end to teacher control at the other, which is determined by the choices made throughout the learning trajectory.

While the concepts of autonomy and independence have been central to the development of distance education theory, other theories have also been influential. With the advent of the Internet and communication technologies that now enable interaction between and among student groups, contemporary learning theories increasingly inform the teaching and learning practices in online distance learning contexts (Ally, 2008; Dyke, Conole, Ravenscroft, & de Freitas, 2007).

2.2.3 Contemporary theories of learning

Given the relative newness of the field, models and theories of online distance learning are in the developmental stage (Ally, 2008). Those that do exist (Ally, 2008; T. Anderson, 2008a; Mayes & de Freitas, 2004; Salmon, 2002) are not considered to be models of e-learning so much as “e-enhancements” of existing models (Mayes & de

Freitas, 2004, p. 4). Increasingly, constructivist and social constructivist perspectives of learning have gained prominence in the online education literature (Ally, 2008; Dyke et al., 2007).

Constructivism sees the student at the centre of the learning process and actively involved in the construction of knowledge (Dalgarno, 2001). Learning from this perspective places emphasis on authentic activities, collaboration, learner control, reflection, active engagement and intrinsic motivation (Dalgarno, 2001; Herrington & Oliver, 2000; Moallem, 2001). There are several strands of constructivism. Two which figure prominently are cognitive constructivism and social constructivism (Dyke et al., 2007; C. H. Liu & Matthews, 2005).

Individual cognitive constructivism has grown out of the foundational work of Piaget (1977) and is an approach that views learning as an active process of individual meaning-making. Favoured approaches tend to be task-oriented, hands-on and self-directed (Dyke et al., 2007). Examples of cognitive constructivist methods include: active learning, problem-based learning and inquiry learning (Kirschner, Sweller, & Clark, 2006; Savery & Duffy, 1995; Schmidt & Moust, 2000). Jonassen, Howland, Marra, and Crismond (2008) have noted the benefits of online environments in enabling learners to choose, assemble and construct their own representations of knowledge.

The foundations of social constructivist theory can be found in Vygotsky's cultural-historical theory (1978) and the writings of Dewey (1916). Social constructivism conceptualises learning as participation in shared activities where the context and the situated nature of learning are integral considerations (Cullen, 2001). From this perspective, knowledge is distributed among members of a community, and learning involves individuals' abilities to participate successfully in community practices (Lave & Wenger, 1991; Wenger, 1998). Language is a central tool for learning and co-construction of knowledge (Dyke et al., 2007). Social constructivist theory also acknowledges the importance of motivation and the crucial part contextual factors play in the fostering of motivation among learners (McInerney & Van Etten, 2004).

The situated, social and constructed nature of learning has been recognised in the literature of online learning (Jonassen et al., 2008; McCombs & Vakili, 2005; Rovai, 2004). Principles such as mediation, zone of proximal development, internalisation, cognitive apprenticeship and distributed intelligence have been adopted to underpin the design and development of online learning environments (Bonk & Cunningham, 1998; Dyke et al., 2007). Particular emphasis has been placed on the development of online learning communities (Palloff & Pratt, 1999; Rovai, 2000, 2002b) where opportunities for collaboration and interaction through dialogue and discussion are being realised through the use of technology-mediated communication (CMC) technologies (C. Jones, Cook, Jones, & De Laat, 2007). While there is a focus on the socially-mediated nature of learning in the sections that follow, this does not negate the importance of individual constructions of knowledge. Learner interactions with course content in particular, frequently occurred at an individual level in the online distance learning contexts described in this investigation.

2.2.4 The role of interaction in online distance learning

Interaction has been used in online learning to denote anything from clicking on a link to interpersonal dialogue among many participants (Nicols, 2008). However, for the purposes of this investigation, a useful starting point is the work of Moore (1989). Moore identified three types of interaction in earlier generations of distance education, namely: learner-instructor, learner-content, and learner-learner interaction. With the emergence of technology use in distance learning environments, Hillman, Willis, and Gunawardena (1994) added a fourth type, learner-interface interactions.

Learner-instructor

Learner-instructor interaction refers to exchanges that occur between learners and the teacher and are characterised by attempts to motivate and interest the learner. They also provide a mechanism for feedback which allows for clarification of misunderstandings. Thach and Murphy (1995) identified seven types of learner-instructor interactions in distance education settings: 1) establishing learning outcomes/objectives; 2) providing timely, useful feedback; 3) facilitating information presentation; 4) monitoring and evaluating student progress; 5) facilitating learning activities; 6) facilitating discussions; and 7) determining learning needs and preferences. More recently, Garrison, Anderson,

and Archer (2000) have developed the concept of teaching presence as part of the community of inquiry model. While teaching presence is not always the sole responsibility of the instructor (T. Anderson, 2008a), it is concerned with the teaching role in online environments which encompass instructional management, development of understanding and direct instruction (Garrison et al., 2000).

Teaching presence and the effective facilitation of learner-instructor interactions, particularly via online dialogue, has continued to be an area of active research in recent years (e.g., T. Anderson, Rourke, Garrison, & Archer, 2001; Mayes, 2006; Mishra & Juwah, 2006; Pena-Shaff & Nicholls, 2004; Rovai, 2007; Shea, Swan, & Pickett, 2005; Thorpe, 2003). From this, guidelines for facilitating effective practice have emerged that build on those of Thach and Murphy (1995). For example, Rovai (2007) explicates design and facilitation guidelines for effective online discussions based on research and experience. They include ways of encouraging learner motivation, incorporating opportunities for learner choice, and clarification of expectations as well as developing and nurturing a strong sense of community. Mishra and Juwah (2006) highlight the importance of establishing a purpose and context for discussions, clarifying the relevance of discussions by making links to learning outcomes and the importance of encouraging learners to participate through the provision of appropriate support.

Learner-content

The learner-content interaction describes the intellectual process that occurs between the learner and the resources associated with the topic of study (Moore, 1989). Learner-content interactions occur when learners access such things as textual and graphical representations of the subject matter (Hirumi, 2006). With the increasing availability of technology, learners can now choose from a huge variety of information at any time or from any place. But in order to interact with content, learners need to be able to access relevant and appropriate resources which frequently, requires guidance from the teacher (T. Anderson, 2006). Availability of adequate resources has also been shown to be important from a motivational perspective (Stipek, 2002).

Learner-learner

Learner-learner interactions highlight processes that take place between peers undertaking a course together (Moore, 1989). This can include processes such as sharing information and understandings, working together to interpret and complete activities, solving problems, and sharing opinions or personal insights. Technology-mediated communication (CMC) technologies, for example, provide learners with opportunities to collaborate and actively participate in knowledge co-construction via online discussion (Hirumi, 2006; Mishra & Juwah, 2006).

CMC is the process whereby learners and instructors use networked technologies to communicate, interact and exchange information via synchronous and asynchronous communication (Berge & Collins, 1995). Synchronous interactions enable discussion in 'real-time'. Asynchronous communication offers greater flexibility as it does not require participants to be online at the same time and provides opportunities for all community members to have input to the discussion by giving learners time to think and reflect before responding (Andrusyszyn & Davie, 1997; Roblyer, 1999). Written language is the primary tool in asynchronous CMC contexts (Mershman, 2009) and examples include email, bulletin boards and discussion lists (Mishra & Juwah, 2006).

Juwah (2006) argues that in order for learners to participate and have positive experiences of peer interactions, they need know how to effectively use technology and must understand how to learn. This includes having the necessary prerequisite, prior knowledge and an understanding that successful learning requires self-regulation. Even with the necessary skills, peer interactions in technology-mediated environments are complex and cover a range of intellectual (e.g., reviewing, conceptualising), social/emotional and instructional interactions (e.g., critiquing). Much of what is known today about what is required for effective peer interactions to occur in technology-mediated environments has been developed from the analysis of asynchronous discussion transcripts (De Wever, Schellens, Valcke, & Van Keer, 2006; Gunawardena, Lowe, & Anderson, 1997). For example, Garrison et al. (2000) developed the community of inquiry model that posited that interactions must consist of three core elements for effective peer learning to occur. They are: cognitive presence – the degree to which the participants can construct meaning through ongoing communication; social presence –

the ability of participants to present themselves as ‘real’ to other community members; and teaching presence – the design and facilitation of the learning experience.

Since the model was developed, its use and validation has become an active area of research (Garrison, 2007; Garrison, Cleveland-Innes, Koole, & Kappelman, 2006). Cognitive presence (Angeli, Valanides, & Bonk, 2003; Garrison, Anderson, & Archer, 2001; Garrison & Cleveland-Innes, 2005; Zhu, 2006), social presence (Kehrwald, 2007; Rourke, Anderson, Garrison, & Archer, 1999; Rovai, 2007) and teaching presence (T. Anderson, 2008a; T. Anderson et al., 2001; Shea et al., 2005) have also been the focus of research interest. Moreover, learner online participation (both active and passive) and possible relationships with achievement behaviour is a growing area of research (Andresen, 2009; Beer, Jones, & Clark, 2009; Gerber, Grundt, & Grote, 2008; Hoskins & van Hooff, 2005; Johnson, 2005; Pena-Shaff & Nicholls, 2004; Picciano, 2002; Rovai & Barnum, 2003; Schellens & Valcke, 2006; Webb, Jones, Barker, & van Schaik, 2004; Zhu, 2006).

Learner-interface

Learner-interface interaction refers to a learner’s ability to use the required technological tools in order to interact and communicate with the instructor, other students and the course content (Hillman et al., 1994). A learner’s belief in their ability to use the necessary technological tools to learn online has also been found to be related to performance within the context of web-based instruction (Yi & Hwang, 2003; Young-Ju, Bong, & Choi, 2000).

Online communities

Rovai and Lucking (2003, p. 6) state that “interaction is the primary mechanism through which community is built and sustained”. Interaction between learners and the development of learning communities has gained considerable attention (T. Anderson, 2006; Dede, 1996; Rourke et al., 1999; Rovai, 2000, 2001, 2002b) because it has been identified as a crucial factor in the success or failure of an online course (McIsaac & Gunawardena, 1996; Rovai, 2002a; Rovai & Wighting, 2005; Shea et al., 2005; Swan & Shea, 2005).

The development of a supportive network among learners can foster motivation to learn, commitment to group goals, encourage the co-construction of knowledge (Dede, 1996), and has been shown to be significantly related to perceived cognitive learning (Rovai, 2002b). However, building such a network is not straightforward. Interaction is an essential element of a supportive community but will not occur by simply providing the technological tools to learners (Garrison & Cleveland-Innes, 2005; Kehrwald, 2010). Course structure (T. Anderson, 2008a; Vrasidas & McIsaac, 1999), class size (Vrasidas & McIsaac, 1999), prior experience (Juwah, 2006), social presence (Cheung, Hew, & Ling Ng, 2008; Kehrwald, 2008; Y.-M. Lin, Lin, & Laffey, 2008; Rovai, 2000, 2002b), instructor immediacy (A. Jones & Issroff, 2007; Shea et al., 2005; Whipp & Chiarelli, 2004), use of self-disclosure (Cutler, 1995), collaborative learning (Boekaerts & Minnaert, 2006; Gerber et al., 2008), group facilitation (A. Jones & Issroff, 2007; Juwah, 2006), personal agency (B. Anderson, 2006), and the ability of learners to meet their peers' affective needs within small group settings (B. Anderson & Simpson, 2004), have all been found to influence student interaction and their sense of being part of an online community.

The discussion to this point has identified that the adoption of constructivist principles that encompass the concepts of collaboration, interaction, and dialogue are important underpinnings in the development of successful online learning communities.

Developing and sustaining a sense of online community is also important in fostering motivation among learners (Dede, 1996; Kehrwald, 2008). Just as motivation is a key factor in learning and achievement in face-to-face educational settings (St. George & Riley, 2008), so it is in online distance learning environments (Sankaran & Bui, 2001). Even though concern about student motivation in technology-mediated environments has been evident for sometime (D. H. Lim & Kim, 2002; Rovai, 2003), research in this area is limited (Artino, 2008; Huett, Kalinowski, Moller, & Huett, 2008; A. Jones & Issroff, 2007). In the section that follows, the existing research that has focused on motivation of learners in online distance environments is explored. Given the limited amount of literature available, the studies drawn upon were not limited to pre-service teacher education but cover a range of disciplines. To shed light on these complex issues, this review draws upon the extensive motivation literature, situated within traditional face-to-face learning contexts.

2.3 Motivation to learn in online distance environments

The characteristics of independence, self-direction and intrinsic motivation have long been associated with distance learners (Garrison, 1997; Moore, 1989). Recently, intrinsic motivation has been identified as an important characteristic of online learners (Cercone, 2008; Shroff, Vogel, Coombes, & Lee, 2007; Styer, 2007). Findings from comparative studies between online students and on-campus students (Huett et al., 2008; Rovai, Ponton, Wighting, & Baker, 2007; Shroff & Vogel, 2009; Stevens & Switzer, 2006; Wighting, Liu, & Rovai, 2008) also suggest that online students are more intrinsically motivated than their on-campus counterparts at both undergraduate and postgraduate level.

But as Martens, Gulikers, and Bastiaens (2004) argue, online learners are often required to be more intrinsically motivated *because* the learning environment typically relies on intrinsic motivation and the associated characteristics of curiosity and self-regulation to engage learners. In fact, the technology itself is viewed by some as inherently motivating because it provides a number of qualities that are recognised as important in the fostering of intrinsic motivation: challenge, curiosity, novelty and fantasy (Lepper & Malone, 1987; Malone, 1981). The novelty factor tends to wear off as users become accustomed to the technology (Keller & Suzuki, 2004) and intrinsic motivation can wane. Frustration with technical problems can also reduce intrinsic motivation.

While the intrinsic motivation of learners is an important consideration, contemporary research studies exploring motivation in these environments is limited in both number and scope (Artino, 2008; Huett et al., 2008; A. Jones & Issroff, 2007). Of the research that is available, there has been a tendency to adopt one of two approaches. The first approach concentrates on the design of the learning environment and the factors considered necessary to provide optimum learner motivation (ChanLin, 2009; Keller & Suzuki, 2004; Zaharias & Poylymenakou, 2009). The second views motivation as a relatively stable personal characteristic of the learner (Bures, Abrami, & Amundsen, 2000; Washull, 2005; Wighting et al., 2008; Yukselturk & Bulut, 2007). While students may come with certain dispositions, the environment is also influential (Stipek, 2002; Turner & Patrick, 2008). Few existing studies have acknowledged this

contemporary 'person in context' situated view of motivation and have done so in a limited way (Shroff et al., 2007; Xie et al., 2006).

After defining what is meant by the term motivation, existing research is discussed. The organisation of the discussion is based on the different approaches that have been adopted when exploring motivation to learn in online environments. That is, motivation conceptualised from 1) an instructional design approach; 2) an individual traits approach; and 3) a situated, 'person in context' approach. Throughout the discussion, the various motivational theories used to underpin different research investigations are also discussed.

2.3.1 Motivation defined

Schunk et al. (2008, p. 4) define motivation as "the process whereby goal-directed activity is instigated and sustained". Motivation involves goals that provide the impetus for purposeful action with an intended direction. Whether physical or mental, activity is an essential part of motivation. Inherent in this definition is the notion that motivation is a process rather than an end result. This has implications in terms of measurement of motivation. That is, because it cannot be observed directly it must be inferred from actions such as choice of tasks, persistence, effort and achievement, or from what individuals say about themselves (Schunk et al., 2008). Contemporary views link motivation to individuals' cognitive and affective processes such as thoughts, beliefs and goals, and emphasise the situated, interactive relationship between the learner and the learning environment (Brophy, 2010).

The relationships between motivation, learning and performance are also important. Motivation can influence what, when and how we learn, and is a significant factor in performance (Schunk, 1995). While there are definite links between motivation, learning and performance, they are not synonymous. In other words, motivation influences learning and performance. What individuals do and how they perform, in turn, influences their motivation (Svinicki, 2004).

While most would agree that motivation is an important factor in the study of learning (Schunk et al., 2008), the complexity and multifaceted nature of the construct has

resulted in the development of several theories. These can be broadly conceptualised in terms of a general *expectancy – value model of motivation* (Brophy, 2010). The expectancy component is concerned with learners' beliefs about whether they are able to perform a task (Bandura, 1997). The value component relates to beliefs a learner holds about the task itself (Eccles & Wigfield, 2002; Wigfield, 1994). In addition, reviews of the motivation literature have resulted in the development of several motivation design models. These include Keller's ARCS model (Keller, 1979; Keller & Suzuki, 2004) and Ginsberg and Wlodkowski's motivational framework for culturally responsive teaching (Ginsberg, 2005; Ginsberg & Wlodkowski, 2000; Wlodkowski & Ginsberg, 1995). Keller's model, in particular, has been frequently used as a conceptual framework for the development of online distance learning environments that enhance learner motivation.

2.3.2 Motivation conceptualised as design of the environment

One distinct approach when examining motivation in online learning settings has been to concentrate on the design of the environment to enhance student motivation. Several instructional design models have been put forward, some of which consider learner motivation as a component of a broader design approach, and others which focus exclusively on motivation. For example, Reeves and Reeves (1997) identified 10 dimensions that need to be considered when developing interactive web-based learning systems. A key element in this framework is the source of learner motivation, which is operationalised along a continuum from extrinsic to intrinsic. Kawachi (2003) provides an overview of four types of motivation (academic, vocational, social and personal) and ways in which these can be incorporated in online environments.

By far the most frequently used instructional design framework for the development of motivating online learning environments is Keller's ARCS model (Keller, 1979, 1987a). The framework was developed as a means of influencing learner motivation by using a systematic approach to instructional design. The attention, relevance, confidence and satisfaction (ARCS) categories serve as guidelines for systematically developing instructional strategies that capture learner attention, establish relevance of what is being taught, encourage learner confidence, and provide a sense of satisfaction via intrinsic and extrinsic rewards (Keller, 1987a). Though not originally developed for it,

the ARCS model has been used as a design approach for instruction in online learning contexts (Keller, 1999, 2008; Keller & Suzuki, 2004) and has underpinned a variety of other studies (ChanLin, 2009; Hodges, 2004; Huett et al., 2008; Paas, Tuovinen, van Merriënboer, & Darabi, 2005; Park & Choi, 2009; Tao, 2009; Zaharias & Poylymenakou, 2009).

Despite the fact that exploration of instructional design approaches is important in developing our understanding of motivation, they are not sufficient to explain the complex processes that are occurring. Such approaches concentrate on the view that it is the designer and developer who make the material motivating (Keller, 1987b) and reflect earlier behaviourist theories of motivation that assume that behaviour is caused by events or stimuli external to the person (Hickey & Granade, 2004; Stipek, 2002). Motivation theory has since moved on and contemporary motivation literature suggests that it is a complex mix of these as well as other factors that contribute to a learner's motivation in any given situation (Brophy, 2010).

2.3.3 Motivation conceptualised as learner traits

The second and predominant method for investigating motivation has been to conceptualise various motivational constructs as learner characteristics or traits. The impetus for conducting much of this research has been in an attempt to identify factors that contribute to the higher attrition rates (Levy, 2007; Muilenburg & Berge, 2005; Pineau, 2007; Rovai, 2003). Conversely, other studies have attempted to identify characteristics that predict learner success (Kerr, Rynearson, & Kerr, 2006; D. H. Lim & Kim, 2002; Simpson, 2006; Yukselturk & Bulut, 2007).

While contemporary theories of motivation acknowledge that aspects of motivation are dynamic and responsive to situations (Paris & Turner, 1994; Turner & Patrick, 2008), existing studies using the learner traits approach have frequently adopted such theories without acknowledgement of the bi-directional nature of motivation. Conceptual frameworks used to investigate motivation in online environments include: self-efficacy theory (Bandura, 1997); goal orientation theory (Midgley, Kaplan, & Middleton, 2001); interest theory (Hidi, Renninger, & Krapp, 2004); and intrinsic–extrinsic motivation theory, in particular self-determination theory (Ryan & Deci, 2000a). Several studies

have also used various combinations of these theories to support their research. Of these, self-efficacy theory has been used most frequently.

1. Self-efficacy theory as a conceptual framework

Social cognitive theory proposes that motivation influences both learning and performance (Schunk, 1995) and focuses on how people acquire knowledge, skills, beliefs and strategies through their interactions with and observations of others.

Bandura's (1986) social cognitive theory is central to this area of motivational research. It is based on the premise that there is a reciprocal interactive relationship among personal factors, behaviours and environmental influences. A focal point of this theory is the notion of self-efficacy, defined as the belief that one is capable of learning or performing at a certain level in order to attain particular goals. Self-efficacy, unlike similar constructs such as self-concept, is focused on an individual's beliefs about their performance capabilities for a particular task within a particular context that has yet to be undertaken.

Bandura (1997) proposed that individuals use information from a number of sources in order to judge self-efficacy. These include actual experiences (successes, failures), vicarious experiences (model observation), attributions, verbal persuasion, and physiological symptoms. Actual experience plays a major role in assessing self-efficacy for a task, with success generally raising self-efficacy and failure lowering it. Ability and effort attributions affect self-efficacy with positive ability attributions enhancing self-efficacy more than effort attributions (Schunk et al., 2008).

Observing similar peers successfully completing a task can convey to the observer that they too have the capabilities for success where model similarity is an important factor. Having a trusted person tell you that you have the ability to succeed is a further important source of information. Physiological symptoms such as increased heart rate or sweating can act as a signal of anxiety, indicating a lack of skills or ability. Alternatively, it may be interpreted as positive anticipation suggesting confidence in the ability to succeed.

Self-efficacy has been linked to factors influencing goal setting and goal performance (Locke & Latham, 1990) and has been shown to be a major motivational factor that

affects students' task choices, effort, persistence and achievement (see Brophy, 2010; Schunk et al., 2008; Stipek, 2002). Various researchers have established that self-efficacy is a strong predictor of performance and student motivation (see Stipek, 2002; Svinicki, 2004).

Self-efficacy has also been highlighted as an important predictor of successful outcomes and satisfaction in online learning environments (Artino, 2008; Holcomb, King, & Brown, 2004). Academic self-efficacy (Artino, 2008; D. H. Lim & Kim, 2002; Lynch & Dembo, 2004; Rentroia-Bonito, Jorge, & Ghaoui, 2006; Young-Ju et al., 2000) and efficacy to learn online (Artino, 2007; Bures et al., 2000; Bures, Amundsen, & Abrami, 2002; C. K. Lim, 2001; Thompson, Meriac, & Cope, 2002; A. Y. Wang & Newlin, 2002; Yi & Hwang, 2003; Young-Ju et al., 2000) have both been found to be significantly related to a number of factors. These include: use of high level learning strategies (S.-L. Wang & Wu, 2008); critical thinking and metacognitive learning strategies (Artino & Stephens, 2006); academic performance (Thompson et al., 2002; Yi & Hwang, 2003; Young-Ju et al., 2000); persistence (D. H. Lim & Kim, 2002); satisfaction (Artino, 2007, 2008; C. K. Lim, 2001); and participation (Bures et al., 2000). Prior successful experience with distance education has also been found to be important for learners to feel efficacious about future learning in distance education contexts (Holcomb et al., 2004; King, Harner, & Brown, 2000).

However, several recent studies exploring self-efficacy to learn online did not predict student achievement outcomes (Bell, 2007; Xie et al., 2006). One possible reason for this is with the current wide-spread availability and use of computers, learners are more familiar with technology and therefore feel more self-efficacious when using it in new situations.

Self-efficacy theory is a contemporary theory of motivation that emphasises the mutually constitutive relationship between the person and the context (Bandura, 1997). Several of these studies have explored a limited range of contextual factors and their relationship with self-efficacy (e.g., Artino, 2007, 2008; S.-L. Wang & Wu, 2008). However, the majority have adopted a cognitive view of self-efficacy and considered it as a characteristic of the individual.

2. Goal orientation theory as a conceptual framework

A second conceptual framework commonly used to support studies investigating motivation to learn in online contexts, is goal orientation theory. Goal orientation theory explores learners' reasons for engaging in achievement behaviour, in particular the beliefs that result in "different ways of approaching, engaging in, and responding to achievement situations" (Ames, 1992, p. 261).

Although there are numerous types of goal orientations, the two that have been studied most extensively are learning (mastery or task-involved) goals and performance (ego-involved) goals (Schunk et al., 2008). Learners who adopt a learning goal orientation tend to focus on learning for understanding, developing new skills, and improving or developing competence where the standard for judging the achievement or otherwise is internal to the learner (Eccles & Wigfield, 2002). In contrast, a performance goal orientation tends to focus on demonstrating competence or ability where the standard for measurement is in comparison to others (Stipek, 2002).

While earlier research focused on the differences between learning and performance goals, more recent work recognises that performance goal orientation can be further categorised into performance-approach (wanting to demonstrate competence in relation to others) and performance-avoid (wanting to avoid looking incompetent) orientations (Midgley et al., 2001). This research also suggests that performance-approach goals can be potentially positive for learning and, when combined with learning goals, can lead to optimal motivation (Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002). What is also clear from the research is that a performance-avoidance orientation is negatively related to various learning outcomes (Brophy, 2010).

In a study of learner motivation variables in computer conferencing, Bures et al. (2000) found that a performance orientation was negatively related to the number of voluntary messages a student contributed. That is, students who adopted a performance orientation were most likely to only contribute to assessed activities. Conversely, Hoskins and van Hooff (2005) found that voluntary use of online learning systems related to a performance orientation among undergraduate psychology students. Other research has shown a significant correlation between learning orientation and effort in computer conferencing as measured by the number of messages posted by a learner (Bures et al.,

2002). Learning goal orientation has also been found to be a key factor in influencing learners' perceptions of learning and overall satisfaction in online courses (Kickul & Kickul, 2006). The type of orientation adopted has also been linked to distinct online behaviours. Dawson, Macfadyen, and Lockyer (2009) found that learners who adopted a learning goal orientation were more likely to participate in discussions related to learning and sharing. Those with a performance orientation were more often associated with administrative activities.

While studies such as those discussed above do provide some useful insight into the behaviour of online learners, they have several limitations. First, research has shown that although individuals enter a learning situation with already developed dispositions toward particular goal orientations, these can change in response to influencing factors within the environment, such as the teacher (see Brophy, 2010). These studies do not take into account the dynamic nature of the goal orientation construct, but consider it a relatively stable trait of the individual. Second, performance goal orientation is conceptualised as a single construct rather than the two (i.e. approach and avoid) discussed in the wider motivation literature (Midgley et al., 2001). Finally, while the broader motivation literature acknowledges that students can and do hold multiple goals simultaneously (Pintrich, 2000), this has not been considered in studies of online motivation.

3. Interest theory as a conceptual framework

Interest, a concept closely related to intrinsic motivation, is a further motivational term evident in some online motivational research. Research in traditional educational contexts has consistently shown that the level of an individual's interest has a significant influence on their learning (Hidi & Renninger, 2006). Interest is a concept that has been characterised in a number of ways, but is most often viewed as a psychological state that "involves focused attention, increased cognitive functioning, persistence, and affective involvement" (Hidi, 2000, p. 311). Interest is always content specific (Krapp, 2002) and two types of interest have frequently been associated with this psychological state. These are individual and situational interest (Hidi & Harackiewicz, 2000). Individual interest is seen as a relatively stable disposition or motivational orientation towards certain activities. Situational interest is engendered in

response to particular conditions within the environment and tends to be less enduring (Hidi & Ainley, 2008).

Rather than being seen as opposites, situational and individual interest are considered distinct constructs that can interact and influence each other. While researchers have highlighted the importance of individual interest on learning and motivation (Hidi & Renninger, 2006), research has also focused on situational interest as a way for educators to foster student involvement and motivation in specific activities (Hidi & Harackiewicz, 2000). In their four-phase model of interest, Hidi and Renninger (2006) describe two different types of situational interest, triggered and maintained. Triggered situational interest tends to be short-lived. Maintained situational interest follows on from the triggered state and is usually sustained over a longer period of time.

Triggered situational interest has been linked to learning environments that include group work and use of computers (Hidi & Renninger, 2006; Lepper & Malone, 1987). Maintained situational interest has been linked to a variety of conditions such as personal relevance and utility value (Durik & Harackiewicz, 2007; Hidi & Renninger, 2006), collaborative work (Blumenfeld, Kempler, & Krajcik, 2006; Boekaerts & Minnaert, 2006), as well as authentic and meaningful activities (see Hidi & Renninger, 2006).

Studies of online learning have shown that higher engagement occurs when students are personally interested in the topic (Schallert & Reed, 2003), and that situational interest was increased with the inclusion of conceptual scaffolding (Moos & Azevedo, 2008). However, course interest was not found to significantly affect student learning in one study (D. H. Lim & Kim, 2002). The few studies available did not distinguish between different types of interest and as such did not highlight the important role contextual factors, such as the teacher, can play in generating situational interest. Even in the Moos and Azevedo (2008) study, conclusions indicated that interest fluctuated over the duration of the course, but the authors did not explore the influence of factors such as the learning approach or environment.

4. Intrinsic–extrinsic motivation as a conceptual framework

Perhaps one of the more well-known theories of motivation, that has been used to investigate learner motivation in online environments, is that of intrinsic and extrinsic motivation. “Intrinsic motivation is defined as the doing of an activity for its inherent satisfactions rather than for some separable consequence” (Ryan & Deci, 2000a, p. 56). Intrinsic motivation often results from the challenge, interest or fun an individual derives from an activity. In contrast, “extrinsic motivation is a construct that pertains whenever an activity is done in order to attain some separable outcome” (Ryan & Deci, 2000a, p. 60). In other words, intrinsic motivation is associated with undertaking an activity for the enjoyment or interest inherent in it. Extrinsic motivation is associated with a source outside the activity itself, such as undertaking a course of study to improve future career prospects. Research suggests that individuals who are intrinsically motivated are more likely to undertake challenging activities; be actively engaged and enjoy learning; adopt a deep approach to learning; and exhibit enhanced performance, persistence, and creativity (Amabile, 1985; Brophy, 2010; Ryan & Deci, 2000b; Schunk et al., 2008; Stipek, 2002).

A number of studies have used intrinsic motivation theory to explore students’ reasons for engagement in online environments (e.g., Rentroia-Bonito et al., 2006; Shroff & Vogel, 2009; Xie et al., 2006). Several studies have compared the motivation characteristics of online learners with traditional on-campus students (Rovai et al., 2007; Shroff & Vogel, 2009; Stevens & Switzer, 2006; Wighting et al., 2008). The main finding from these studies was that online learners were more intrinsically motivated than their campus-based counterparts at both undergraduate and postgraduate level. Reasons put forward to account for this include the concepts of independence and autonomy that comprise the theoretical foundations of distance education (Moore, 1993, 2007), and the freedom it affords (Wighting et al., 2008). Therefore, intrinsically motivated students are more likely to select this mode of learning. While useful, there is the potential to conclude that all students undertaking online study do so because they are predominantly intrinsically motivated, regardless of the context. McCombs and Vakili (2005) argue that this is not a valid assumption.

Heeding the call to move beyond group comparisons (Perraton, 2000), several studies have focused solely on investigating the motivation of learners in online environments

from an intrinsic-extrinsic perspective. For example, Huang and Liaw (2007) found that learners' perceptions of autonomy were predictive of both intrinsic and extrinsic motivation. A study by Martens et al. (2004) examined the intrinsic motivation of psychology and technology undergraduates undertaking authentic computer tasks. They found that high levels of intrinsic motivation were not necessarily indicative of higher levels of achievement. Instead, intrinsic motivation was associated with greater exploration of the learning environment. In another study, Yukselturk and Bulut (2007) explored a number of motivational factors including intrinsic goal orientation – a concept similar to intrinsic motivation (Eccles & Wigfield, 2002) – and found that this was significantly positively correlated with online success.

Once again there are a number of limitations associated with these studies. Viewing motivation as a learner attribute does not acknowledge the widely held view that intrinsic and extrinsic motivation tend to change over time and are unique to the context and person (Paris & Turner, 1994; Stipek, 2002; Turner & Patrick, 2008). Furthermore, some studies have adopted an overly simplistic approach to intrinsic–extrinsic motivation (e.g., Huang & Liaw, 2007), considering them as dichotomous constructs. This contrasts with the contemporary view that recognises that individuals can be simultaneously intrinsically and extrinsically motivated to a greater or lesser degree in any given context, at any given time (Schunk et al., 2008). Finally, even though some studies have used self-determination theory (Ryan & Deci, 2000a) – the framework adopted for this study – there has been the tendency to focus only on intrinsic motivation (Martens et al., 2004; Rovai et al., 2007; Shroff & Vogel, 2009). In doing so, the power of the model to explore a broader range of motivation, particularly different types of extrinsic motivation, has been neglected.

The discussion to this point has highlighted studies that have explored motivation to learn in online contexts where one contemporary theory of motivation was used to support the research. Several more studies have used various combinations of motivation constructs to underpin their investigations.

5. Studies using combined theories

Various research studies have explored the usage, success, satisfaction, and enjoyment of online learners and possible relationships to learner motivation. The studies discussed

here have typically adopted various combinations of multiple motivation constructs in order to identify learner characteristics related to online success. For example, Yukselturk and Bulut (2007) examined a wide range of variables including intrinsic–extrinsic orientations, task value, self-efficacy and locus of control beliefs, as well as test anxiety, cognitive strategy use and self-regulation to explicate predictors of student success in online courses. Results showed that among other findings, intrinsic orientation, high task value and high self-efficacy were significantly positively correlated with online success.

Other studies have used a smaller number of motivation constructs and combined them in various ways. Permutations include: self-efficacy, goal orientation and task value (Y.-M. Lin et al., 2008); self-efficacy, goal orientation and enjoyment (Yi & Hwang, 2003); self-efficacy, task value and self-regulation (Artino, 2007, 2008; Lynch & Dembo, 2004); self-efficacy, course relevance and interest (D. H. Lim & Kim, 2002); self-efficacy, goal orientation and outcome expectations (Bures et al., 2000); self-efficacy, intrinsic motivation and locus of control (Kerr et al., 2006); as well as locus of control and task value (Drennan, Kennedy, & Pisarki, 2005).

By combining motivation constructs in various ways, these studies further highlight the cognitive approach to motivation that underpins them (Hickey & Granade, 2004). That is, they assume that motivation can be explained in terms of relatively stable, trait-like characteristics attributable to the learner, rather than something that constantly changes as a result of interactions between the learner, the situation and the environment (Schunk et al., 2008).

However a few studies, situated in online contexts, have adopted a ‘person in context’ approach, focusing not only on the learner or the environment but also on the interactions between the two.

2.3.4 A contemporary situated approach

Although few in number, motivation studies do exist that are underpinned by a contemporary situated perspective (Turner & Patrick, 2008). Once again, various motivational frameworks have been applied in these studies. For example, using self-

efficacy theory, studies have shown that receiving elaborated and timely feedback significantly enhanced student self-efficacy (D. H. Lim & Kim, 2002; S.-L. Wang & Wu, 2008). Collective efficacy, “people’s shared beliefs in their collective power to produce the desired results” (Bandura, 2000, p. 75), is a related construct that has been shown to have positive effects on discussion behaviour and group performance in computer supported collaborative learning environments (S.-L. Wang & Lin, 2007a, 2007b).

Using goal orientation theory, Matuga (2009) found that goal orientation changed from a performance to learning orientation over time, within the context of an online science course. In a related study, Whipp and Chiarelli (2004) found that instructor support, peer support and course design all influenced learner interest within a web-based course environment. Even though Bures et al. (2002) argue that trait-like motivational variables were more important predictors of outcomes in terms of contributions to online discussions, grades achieved and effort, they did explore contextual variables such as task value, interest, course design and instructors’ intentions to explore student acceptance of learning via computer conferencing. Cramton (2001) adopted attribution theory (Weiner, 1986, 1992) to show how insufficient situational information explained problems observed within collaborating groups working within an online distributed environment.

Self-determination theory as a conceptual framework

Arguably the construct that has been most utilised when investigating motivation, has been intrinsic–extrinsic motivation. An influential theory that explicates intrinsic – extrinsic motivation, and one that has provided the foundation for several studies, is self-determination theory (SDT) (Deci & Ryan, 1985). Self-determination theory is a contemporary theory of situated motivation that is built on the fundamental premise of learner autonomy. SDT argues that all humans have an intrinsic need to be self-determining or autonomous, as well as competent and connected, in relation to their environment.

Connell (1990) defines *autonomy* as “the experience of choice in the initiation, maintenance and regulation of activity and the experience of connectedness between one’s actions and personal goals and values” (pp. 62-63). When autonomous, students

attribute their actions to an internal locus of causality and experience a sense of freedom and choice over their actions. *Competence* is defined as “the need to experience oneself as capable of producing desired outcomes and avoiding negative outcomes” (Connell & Wellborn, 1991, p. 51). *Relatedness* “encompasses the need to feel securely connected to the social surround and the need to experience oneself as worthy and capable of ... respect” (Connell & Wellborn, 1991, pp. 51-52).

SDT states that if the environmental conditions are such that they support an individual’s autonomy, competence and relatedness needs, then a learner’s inherent intrinsic motivation will be promoted (Ryan & Deci, 2000a). When intrinsically motivated, outside incentives are unnecessary as the reward lies in the doing of the activity (Ryan & Deci, 2000b). In contrast, students who are extrinsically motivated undertake activities for reasons separate from the activity itself (Ryan & Deci, 2000a); for example gaining good grades, avoiding negative consequences, or because the task has utility value such as passing a course in order to earn a degree.

Several studies (Harper, 2009; Rovai et al., 2007; Shroff et al., 2007; Shroff, Vogel, & Coombes, 2008; Xie et al., 2006) have utilised self-determination theory as a theoretical basis. Collectively, these studies have demonstrated that feedback, the instructor’s role in online discussions, choice, competence, challenge, interest, relevance and collaboration all influenced student intrinsic motivation to learn in the various online learning contexts. However, the study by Xie et al. (2006) was the only one to draw on multiple perspectives by incorporating instructors’ points of view on the purpose of online discussions. This study was also the only one to specifically identify contextual factors that increased student intrinsic motivation (e.g., clearly stated guidelines, well-designed discussion topics and instructor involvement) and those that decreased it (e.g., lack of instructor and peer feedback).

As with the other online motivation studies explored in this literature review, several limitations are apparent. Apart from the limited range of contextual factors explored, a further notable limitation has been the tendency to focus exclusively on intrinsic motivation. Much of the power of the SDT model lies in its conceptualisation of extrinsic motivation as a continuum (see Figure 2.1) rather than as an opposing construct to intrinsic motivation. By exclusively focusing on intrinsic motivation, the

power of the model to explore a broader range, particularly more autonomous types of extrinsic motivation, has been neglected.

2.4 Self-determination theory as a framework for this study

Self-determination theory (Deci & Ryan, 1985) has been described as a “macrotheory of motivation that provides an approach to understanding and enhancing student motivation” (Reeve, Deci, & Ryan, 2004, p. 33). It explains how external events can affect motivation and posits that if the conditions are such that they support an individual’s need to experience competence through optimal challenges, autonomy via an internal locus of causality and relatedness by feeling connected to others, then high quality (i.e. more self-determined) motivation will emerge (Deci & Ryan, 2000, 2002; Ryan & Deci, 2000a; Vallerand, Pelletier, & Koestner, 2008). Alternatively, if social or environmental factors exist such that a student’s perception of competence or sense of autonomy are undermined, such as a task that is too difficult or an excessively controlling teacher, or if they feel disconnected from the people around them, then motivation will be detrimentally affected (Reeve et al., 2004).

Ryan and Deci (2000a) also recognised that learners will not be intrinsically motivated at all times and in all situations. SDT explains extrinsic motivation processes in terms of external regulation, as the reasons for undertaking the task lie outside the individual. However, the degree to which an activity is perceived as externally regulated can vary and therefore *different types of extrinsic motivation exist*. The SDT model (see Figure 2.1) conceptualises a continuum of regulation that incorporates amotivation (lack of motivation) at one end through to intrinsic motivation at the other, with different types of extrinsic motivation sitting between the extremes. The various forms of extrinsic motivation highlight a shift in the degree to which externally motivated behaviour is autonomously determined. They range from externally controlled with little or no self-determination, to more internal control and self-regulation where a learner engages in an activity because of its significance to their sense of self.

Research has shown that intrinsic and extrinsic types of motivation can and do co-exist (Lepper, Henderlong Corpus, & Iyengar, 2005). It is the degree to which a student is intrinsically or extrinsically motivated that is important, with more self-determined

students experiencing positive learning outcomes even when extrinsically motivated (Reeve et al., 2004; Reeve, Jang, Hardre, & Omura, 2002). Furthermore, autonomous forms of motivation have also been shown to have a potential buffering effect on less self-determined types of motivation (Y. G. Lin, McKeachie, & Kim, 2003; Ratelle, Guay, Vallerand, Larose, & Senécal, 2007; Sheldon & Krieger, 2007).

According to this taxonomy (see Figure 2.1), an *amotivated* individual lacks intention because he/she feels incompetent or has low self-efficacy (Bandura, 1997). They feel that what they do will not affect the outcome, or they place low value on the task being undertaken (see Eccles & Wigfield, 2002). Within the four patterns of extrinsic motivation, *external regulation* refers to individuals who are responsive to threats of punishment or the offer of rewards and tend to be compliant as a result. This is the type of motivation that is the focus of operant conditioning theory (Skinner, 1974) and the type of extrinsic motivation often contrasted with intrinsic motivation, especially in earlier research (see Schunk et al., 2008).

Type of motivation	Amotivation	Extrinsic Motivation				Intrinsic Motivation
Type of Regulation	Non-Regulation	External Regulation	Introjected Regulation	Identified Regulation	Integrated Regulation	Intrinsic Regulation
Associated processes	Non-relevance Low competence Perceived non-contingency Non intentionality	Rewards/punishment Compliance/Reactance	Approval from self/others	Utility value Conscious valuing of activity Self-endorsement of goals	Congruence Hierarchical synthesis of goals	Interest Enjoyment Inherent satisfaction
Quality of Behaviour	Non-self-determined				Self-determined	

Figure 2.1: Continuum of human motivation (from Ryan & Deci, 2000a, 2002)

Introjection refers to students who engage in a task because they feel they should due to the expectations of others and feel guilty if they do not participate. So even though the feelings are internal, the student is not self-determining as they are being controlled by their feelings (Schunk et al., 2008). This has also been called ego involvement and is

related to a performance goal orientation (Deci & Ryan, 2002). The third level of extrinsic motivation, called *identification*, is associated with individuals who engage in the task because it has personal value to them. The locus of causality is internal in the sense that the individual has chosen the goal or identifies with it and is aware of its importance. But the motivational pattern is still considered extrinsic in the sense that it is the utility value (a means to an end), personal importance and/or relevance of the task rather than the task itself that determines the behaviour (Brophy, 2008; Eccles & Wigfield, 1995; Reeve, 1996).

The final level within the extrinsic motivation types is *integration*, where learners engage in the activity because of its significance to their sense of self. Both identified and integrated types of motivation share some of the qualities of intrinsic motivation (Ryan & Deci, 2000a) and have similar consequences for learning and motivation. This has important implications as it highlights how educators can assist learners to appreciate the importance and value of learning activities even when they are not intrinsically interesting. The placement of intrinsic motivation on the far right is not intended to suggest that extrinsic motivation can shift to intrinsic motivation, as this depends on the intrinsic interest of the activity to the individual. It is placed here to highlight that it is the best example of human autonomy (Deci & Ryan, 2002).

Research shows that autonomy support within the learning context leads to more self-determined forms of motivation among learners (Deci, Koestner, & Ryan, 1999; Deci & Ryan, 2008; Guay, Ratelle, & Chanal, 2008; Reeve, 2006, 2009; Reeve, Ryan, Deci, & Jang, 2008; Ryan & Deci, 2000a; Vallerand et al., 2008; Van Etten, Pressley, McInerney, & Liem, 2008). Examples include: providing rationales for tasks, the use of non-controlling language, and the provision of relevant and meaningful instructional activities that align with students' personal interests.

Conversely, external regulation such as deadlines, directives and compliance requests serve to undermine self-determined types of motivation (Deci & Ryan, 1992, 2008; Guay et al., 2008; Ryan & Deci, 2000a; Vallerand et al., 2008; Van Etten et al., 2008). Rewards can have a similar effect if used in order to control behaviour such as task engagement, completion or performance (Deci et al., 1999). Choice has also been shown to be supportive of learners' autonomy needs (see Assor, Kaplan, & Roth, 2002;

Katz & Assor, 2007; Patall, Cooper, & Robinson, 2008; Reeve et al., 2008). However, it is the perception of choice, or lack of it, rather than the actual choices that is critical in terms of self-determination (Reeve, Nix, & Hamm, 2003).

Support for the competence needs of learners is also necessary to facilitate motivation (Schunk & Zimmerman, 2006). The provision of structure (Connell & Wellborn, 1991), has been shown to be important in supporting competence needs and facilitating self-determined types of motivation. Structure includes explicit, detailed information that clarifies expectations without seeking to control behaviour; provision of informational feedback given in a timely manner; and responsiveness to student questions, comments and suggestions, (Deci & Moller, 2005; Deci, Vallerand, Pelletier, & Ryan, 1991; Donaghy, McGee, Ussher, & Yates, 2003; Reeve, 2002, 2006, 2009; Reeve et al., 2004; Reeve et al., 2008; Zepke, Leach, & Butler, 2009).

The fact that high structure within the learning activity can co-exist and be seen as mutually supportive, rather than conflicting with the autonomy needs of learners, is something that has been previously noted in the general motivation literature (Reeve, 2002). In fact, structure has been positively correlated with the provision of autonomy support (Jang, Reeve, & Deci, 2010; Reeve, 2009). In addition to structure supporting learner competence, learning activities designed to be optimally challenging, that is where the challenge of the task is high and reasonably well-matched to learners' skill levels (Csikszentmihalyi, 1985), encourage feelings of capability and high quality (i.e. more self-determined) motivation.

The more an individual experiences having their autonomy, competence and relatedness needs met within a relationship, the more connected and trusting they feel towards that person (Ryan, La Guardia, Solky-Butzel, Chirkov, & Kim, 2005). In line with this, teacher involvement in terms of the amount of time invested, care taken, and attention given, have also been shown to be powerful motivators (Brophy, 2010; Connell & Wellborn, 1991; Reeve, 2006). Inclusion, which encompasses respect and connectedness, has also been identified as one of the basic conditions necessary for encouraging and supporting motivation across diverse groups of learners (Ginsberg, 2005; Ginsberg & Wlodkowski, 2000; McCombs, 1994). Conversely, difficulties in

relationships with teachers and other learners have been associated with a corresponding undermining of autonomy needs (Martens & Kirschner, 2004).

Criticism of self-determination theory centres around the argument that the fundamental assumptions on which it is based adopt a distinctly Western perspective and may not be universal (McInerney & Van Etten, 2004). In particular, the assumption that autonomy is a universal human need is questioned within collectivist cultures (Markus & Kitayama, 1991). However, research in non-Western cultures supports SDT, although with slightly differing emphasis on autonomy and relatedness (for a summary see Reeve et al., 2004). Several researchers (Reeve et al., 2004; Ryan & Deci, 2006) point out that this criticism often stems from the misunderstanding of the concept of autonomy where it is frequently equated with individualism and separateness. Research has shown that autonomy and relatedness are compatible constructs (Hodgins, Koestner, & Duncan, 1996; Ryan & Deci, 2006).

While many of the current theories of motivation have been used to underpin research in online learning contexts (e.g., Artino, 2008; Bures et al., 2002; Cramton, 2001), self-determination theory is foregrounded in this research investigation. In addition to the wealth of educational research that points to the validity of SDT (Deci & Ryan, 1985, 2008; Ryan & Deci, 2000a, 2002), support for its use as a theoretical framework in online studies has been demonstrated (Harper, 2009; Martens et al., 2004; Shroff et al., 2007; Shroff et al., 2008; Xie et al., 2006).

Furthermore, SDT provides a useful analytic tool for exploring the complexity of motivation to learn. In particular, the underpinning psychological needs of autonomy, competence and relatedness (Shroff et al., 2008) provide a powerful framework for clarifying and presenting the social and contextual influences that serve to enhance or constrain high quality motivation among learners. Coupled with this, the explicatory power of the continuum of human motivation (Deci & Ryan, 2008) highlights the value of the model to explore more autonomous types of extrinsic motivation, such as identified regulation. These types of motivation have largely been neglected in studies to-date, which have tended to focus exclusively on intrinsic motivation even when using self-determination theory as an underlying framework (Martens et al., 2004; Shroff & Vogel, 2009; Xie et al., 2006). This has resulted in a tendency by some researchers to

characterise online distance learners as intrinsically motivated (Rovai et al., 2007; Styer, 2007), even though some warn that this is no longer a valid assumption (McCombs & Vakili, 2005). Therefore, there is a pressing need to investigate motivation to learn in online distance environments that moves beyond simplistic comparisons of intrinsic and extrinsic while simultaneously recognising its situated nature (Paris & Turner, 1994; Turner & Patrick, 2008). Self-determination theory provides a framework for doing exactly this.

2.5 Chapter summary

With advances in technology that have enabled greater connectivity among learners contemporary learning theories, in particular social constructivism, have increasingly informed teaching and learning practices in online distance learning contexts.

Constructivist principles that encompass concepts of collaboration, interaction and dialogue, where the context and situated nature of learning are integral considerations, have been shown to be important underpinnings in the development of successful online learning communities. Motivation has been identified as a key factor in developing and sustaining a sense of community as well as learning and achievement in online contexts.

The review of the literature has highlighted the limited number and scope of studies that have explored motivation to learn in online distance learning settings. Moreover, the majority of existing studies have either adopted a behaviourist approach, focusing on the environment, or a cognitive perspective that concentrates on the characteristics of the learner. Both overlook the dynamic and responsive nature of motivation to learn (Turner & Patrick, 2008). Contemporary theories of motivation have been used to underpin some research. However, they have generally been applied in limited ways. Studies that have used a situated approach do exist, but are also limited in terms of the breadth of social and contextual motivational influences explored and their use of narrow conceptualisations of motivation. An example of this has been the tendency to view intrinsic and extrinsic motivation as a simple dichotomy and to focus exclusively on intrinsic motivation in studies using self-determination theory as a conceptual framework, the motivation theory adopted for this investigation.

Taken together, these issues highlight the importance and timely nature of the current investigation. This study explores motivation from a contemporary situated perspective, in 'real-life' online distance settings and includes consideration of a broad range of social and contextual influences. By adopting such an approach, findings from this study are not only informative but also have important practical implications for educators teaching in online contexts.

In the chapter that follows, the research questions and methodology that guide the present study are outlined.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This study seeks to explore the nature of motivation to learn of students in online distance learning settings, from a contemporary situated perspective. This includes consideration of a variety of social and contextual influences. Inherent in this aim is the importance of seeking out student perspectives and exploring the nature of the learning context. This investigation uses case study methodology to explore the complex phenomenon of motivation in a manageable way and foregrounds self-determination motivation theory, described in Chapter Two, as an organisational framework to guide data collection and analysis.

This chapter is divided into two main parts. The first part explores the methodology underpinning the present study. It begins by stating the research questions and examining the paradigm that supports the aims of this study. Next, implications of operating from this worldview are addressed. Then, case study methodology is examined along with the issues that arise from selecting such an approach. This is followed by a description of the context of the study and discussion of the ethical principles that guide the investigation.

The second half of the chapter describes the implementation of the chosen methodology. It presents an account of the procedures used to select the cases, the ethical processes that guided the collection of data and the data generation sequence. The data generation instruments are described in detail. Finally, procedures used for coding and analysing the data are explained.

3.2 Research questions

Questions guiding the investigation are as follows:

1. What is the nature of motivation to learn of pre-service teachers¹ in online distance learning environments?
2. How does the motivation to learn of pre-service teachers relate to their participation in online distance learning environments?
3. In what ways do social and contextual factors relate to pre-service teachers' motivation to learn in online distance learning environments?

3.3 Research methodology

Given the emergent nature of online learning theory and practice (Ally, 2008; Mayes & de Freitas, 2004), and that research into motivation in online environments is limited (Artino, 2008), this study seeks to use the experiences and interpretations of participants to inform understandings of motivation. Since the focus of this study is on understanding rather than explanation, the approach adopted in this research study is primarily qualitative (Denzin & Lincoln, 2003).

Denzin and Lincoln (1994) describe qualitative research in the following terms:

Qualitative research is multimethod in focus, involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them. (p. 2)

Qualitative research asserts that meaning is constructed by individuals from interaction with their world. This “reality is not the fixed, single, agreed upon, or measurable phenomenon that it is assumed to be in positivist, quantitative research” (Merriam, 2002, p. 3). It is the multiple constructions and interpretations of reality that qualitative researchers are interested in, in order to gain insight and understanding of the phenomenon being studied (Hoepfl, 1997).

¹ Referred to as students or learners throughout the thesis.

Several writers (Bogdan & Biklen, 2007; Lincoln & Guba, 1985; Merriam, 2002; Patton, 2002) have identified a number of key features of qualitative research relevant to this study. These include: the intention of the researcher is to understand the meaning people have constructed about their world and their experiences; the researcher is the primary tool for data collection and analysis; the analysis process is often inductive in that meanings and understandings emerge from the data itself; the product of qualitative inquiry is richly descriptive using the participants' own words; and the quality of the research is judged using criteria for trustworthiness.

Existing research studies exploring student motivation in online learning contexts have tended to adopt a positivist approach common to the natural sciences (e.g., Artino, 2008; Rovai et al., 2007; Wighting et al., 2008; Yukselturk & Bulut, 2007). However, Berglund, Daniels, and Pears (2006) argue that adopting a qualitative approach grounded in pedagogical principles provides a clear frame of reference and allows the researcher to gain additional insights not available through purely quantitative research. This, in turn, has the potential to be of value to the broader education research community.

3.3.1 Interpretivist paradigm

Bogdan and Biklen (2007, p. 24) describe a research paradigm as a "loose collection of logically related assumptions, concepts, or propositions that orient thinking and research". These beliefs shape how the researcher sees and acts in the world and what constitutes the limits of inquiry (Denzin & Lincoln, 2003; Guba & Lincoln, 1998).

The research worldview adopted here is predominantly *interpretive*. The researcher seeks to understand how individuals experience and interact with their social world through the use of naturalistic methodological procedures (Denzin & Lincoln, 2003). This paradigm is premised on relativist ontology; that there is no one, 'true' way of seeing the world, but rather there are multiple realities. These subjective realities are socially and experientially based and are time and context dependent (Guba & Lincoln, 1998). A researcher operating from an interpretive paradigm is therefore interested in understanding individuals' experiences, in this instance online distance learners, and how this is related to their motivation to learn. In terms of epistemology, the

interpretive paradigm assumes that the knower and known are linked and shape one another so that the “findings” are created as a part of the ongoing process (Denzin & Lincoln, 2003; Guba & Lincoln, 1998).

This belief in multiple subjective realities and view of knowledge as constructed are compatible with contemporary theories of motivation that emphasise the situated, mutually constitutive relationship of the learner and the learning environment (Hickey & Granade, 2004). This consistency is further emphasised by Paris and Turner (1994), who describe situated motivation as having four critical characteristics, namely: 1) that motivation is a consequence of cognitive evaluations that individuals make in a given situation; 2) that cognitive interpretations of events are constructed and, following on from this; 3) that these interpretations are contextualised because people make unique interpretations in different situations; and finally, given its constructed and contextualised nature, 4) that situated motivation is necessarily unstable.

3.3.2 Ensuring quality

Research framed within different beliefs systems leads to different knowledge claims and different criteria for their evaluation (Lincoln & Guba, 1985). Therefore it is inappropriate to review research undertaken from an interpretive perspective in terms of conventional positivistic criteria. To establish the trustworthiness of qualitative research findings, Lincoln and Guba (1985) suggest four issues need to be addressed: credibility, transferability, dependability, and confirmability.

Credibility

Credibility refers to the confidence that users of the research can have in the truth of the findings and interpretations (Lincoln & Guba, 1985). Qualitative researchers typically establish the credibility of their research design via strategies such as: participant language and verbatim accounts, mechanically recorded data, participant review, negative case testing, and triangulation (Lincoln & Guba, 1985; McMillan & Schumacher, 1997). Strategies adopted in this study include: 1) audio recording of interviews; 2) clarification of participant meanings during the interview process, in the form of rephrasing questions or the use of probes; 3) the provision of interview transcripts to participants for review; 4) inclusion of “thick” descriptions of participant

accounts in the research findings; and 5) the provision of summarised research findings to research participants. In addition, negative case analysis involved the re-examination of findings from each case once the initial analysis phase was complete, to see whether emergent themes could be confirmed during cross-case analysis.

Triangulation is another strategy that can contribute to the credibility of qualitative analysis (Patton, 2002). Approaches used in this study include methods triangulation, using multiple techniques for gathering information (e.g., interviews, questionnaires, and asynchronous discussions); and sources triangulation involving the gathering of data using the same method from multiple sources (e.g., student and lecturer² interviews). Multiple sources of data also occurred due to the replication of the investigation across more than one case. Theory/perspective triangulation was a further source of credibility used in the study described here. While self-determination theory (Ryan & Deci, 2000a) was the motivational theory foregrounded as a research framework, other contemporary motivational theories were considered and drawn upon to interpret findings where relevant, including self-efficacy theory (Bandura, 1997) and interest theory (Hidi & Renninger, 2006).

Transferability

Transferability essentially refers to the degree to which other researchers or consumers can apply the findings of the study to their own setting or situation. The researcher cannot determine the transferability of findings but can only provide sufficient information so that readers can determine for themselves whether the findings are applicable to a new context (Lincoln & Guba, 1985). To assist transferability of findings, ‘thick descriptions’ of the cases in this study were used so that the reader can share in the interpretation of findings.

Dependability and confirmability

Dependability pertains to the stability of findings and confirmability to the internal coherence of the data in terms of findings, interpretations, and recommendations. This can be accomplished using an audit trail which someone else can then use to confirm or contradict the analysis (Lincoln & Guba, 1985). Yin (2009) also recommends the

² For the purposes of brevity and to avoid confusion, all academic teaching staff involved in this research investigation are commonly referred to as lecturers or teachers throughout the thesis.

maintenance of a chain of evidence for case studies, so that an external observer can then follow the steps from original research questions through data collection to conclusions and vice versa if they so choose. The maintenance of a chain of evidence was an approach adopted for this investigation.

3.3.3 Researcher Subjectivity

Qualitative research is premised on the beliefs that all research is value laden, context and time dependent (Bogdan & Biklen, 2007). But rather than viewing naturalist research as sloppy, undisciplined or weak because of its subjective approach, it can also be viewed as a strength (Van Manen, 1997). Erickson (1973) defines disciplined subjectivity as a rigorous process of continuous self-monitoring and re-evaluation throughout the research process. By undertaking such a process, the researcher was mindful of predispositions, perceptions and potential biases that could have affected data collection, analysis and interpretation. Moreover, data were collected from sources that had minimal chance of participant behaviour being influenced by researcher presence (e.g., archived online data) and were used to triangulate findings (Berg, 2004).

3.4 Case studies

The research methodology adopted for this investigation is case study because such an approach can be of value where the research aims to investigate a complex phenomenon in a manageable way with a view to advancing understanding (Cousin, 2005; Hitchcock & Hughes, 1995). Case studies are the preferred strategy for contemporary ‘what’, ‘how’ and ‘why’ questions embedded in the real world, where the scope is difficult to define and the case can only be understood within context (Gillham, 2000a; Yin, 2009). That cases are complex is reflected in the numerous contexts or backgrounds in which they are embedded.

A key characteristic of case studies is that they are bounded (Stake, 1994). Case studies can be used for the detailed examination of one event, setting, or subject or can encompass multiple sites or subjects (Bogdan & Biklen, 2007). Berg (2004) outlines the advantages of adopting a case study approach:

By concentrating on a single phenomenon, individual, community, or institution, the researcher aims to uncover the manifest interaction of significant factors characteristic of this phenomenon, individual, community, or institution. But, in addition, the researcher is able to capture various nuances, patterns, and more latent elements that other research approaches might overlook. (p. 251)

Case studies 1) incorporate a range of data gathering measures that are typically qualitative but can include quantitative (Cousin, 2005; Gillham, 2000a); 2) rely on multiple sources of evidence; and 3) benefit from the prior development of theoretical propositions to guide data collection and analysis (Yin, 2009). Sources can include documents, artefacts, interviews and observations (Berg, 2004) where all sources of evidence are analysed so that the findings are based on convergence (triangulation) of information (Yin, 2009). This approach addresses one of the main criticisms levelled at case study methodology, namely its perceived lack of rigour (Bassey, 1999). The main aim of case studies is to provide a ‘thick description’ of the study in question (Cousin, 2005; Creswell, 2007). The information gathered, therefore, tends to be “extremely rich, detailed, and in-depth” (Berg, 2004, p. 251).

A collective case approach was adopted (Stake, 1994, 1995) where the central issue of interest was the nature of student motivation within online distance learning environments, situated within the context of a pre-service teacher education programme. Two cases were chosen to explore motivation to learn in-depth from personal, social and contextual perspectives. The rationale for choosing the two cases was for their instrumental value (Stake, 1994), that is, their ability to advance the researcher’s understanding of the motivation of learners in online contexts, while providing manageable volumes of data.

It must be noted that this investigation could be considered an example of mixed methods research as it has some of the elements of such an approach, namely the collection of both qualitative and quantitative data (Creswell, 2008). From this perspective it is most similar to an embedded design where a small amount of quantitative data (see Section 3.8) is used to support and enhance a largely qualitative study (Creswell & Plano Clark, 2007). On the other hand, rather than defining such an

approach as a distinct methodology, a number of researchers (Cousin, 2005; Gillham, 2000a; 2002; Yin, 2009) argue that while qualitative methods and data remain central in case study research, quantitative data and analysis can add to the overall picture of the case. This is the perspective adopted by the researcher throughout this investigation.

Purposeful or purposive sampling methods were used to select information-rich cases (McMillan & Schumacher, 1997; Patton, 2002). Even though the broader institutional context was beyond the scope of this study, the impact such influences can have at the situational level have been noted previously (Vallerand & Ratelle, 2002). Therefore, potential cases were identified from the same programme within the same institution in order to minimise differential context influences at the situational level. Cases were chosen based on them meeting predetermined criteria of importance (Patton, 2002). Criteria included: 1) courses were required to be predominantly web-based with only limited resources provided by alternative methods such as print-based materials; and 2) course expectations required students to participate within the online learning community as an integral part of assessed coursework. An overview of the study is outlined in Table 3.1 and is discussed in detail in the remainder of this chapter.

3.5 Context of the study

Online education has been put into practice in a number of different ways in New Zealand (Marshall, 2005). A variety of e-learning options were in use within the institution at the time this research investigation took place. Traditional distance education courses using predominantly print-based materials with some web-support, typically in the form of a discussion board facility were common. Blended courses, incorporating face-to-face and online components, were also evident. As were wholly online courses delivered entirely via the Internet.

The two courses that provided the context for the case studies for this research investigation, were offered as part of the three-year pre-service teacher education programme within a New Zealand university. Students in this programme were preparing to teach in New Zealand primary schools, teaching students from year one to year eight. These courses were considered Internet-based rather than fully online

because students received some print material (study guide) and digital resources (CD-ROM – Case Study One) at the beginning of their course.

Table 3.1: Overview of the study

Research focus	<ul style="list-style-type: none"> ▪ Explore the nature of motivation to learn of pre-service teachers in online distance learning environments. ▪ Identify how the motivation to learn of pre-service teachers relates to their participation. ▪ Identify ways in which social and contextual factors relate to pre-service teachers' motivation to learn. 	
Methodology	Case Study	
Research Context	Case Study One	Online integrated science and technology course
	Case Study Two	Online introductory social studies curriculum course
Boundaries of the case	Case Study One (late February – early April 2008)	Case Study Two (late February – late March 2008)
	Small group (typically 3) collaborative online problem based learning (PBL) assignment of 6 weeks duration	Individual microteaching assignment and whole class online collaborative activities of 4 weeks duration
Participants	Case Study One Students=12 F=11 M=1 Teaching staff (M=2)	Case Study Two Students=9 F=8 M=1 Teaching staff (F=1)
Methods	<ul style="list-style-type: none"> ▪ Questionnaires (students) ▪ Semi-structured interviews with students and lecturers 	
	<ul style="list-style-type: none"> ▪ Archived online data <ul style="list-style-type: none"> - asynchronous online discussion transcripts (students and lecturers) - usage statistics (students) 	
	<ul style="list-style-type: none"> ▪ Course resources (printed study guide, CD-ROM (Case Study One only)) ▪ Aggregated achievement and usage data (student research participants and non-participants comparisons) 	
Sequence of research during 2008 occurring concurrently	Case Study One (semester one online distance cohort)	Case Study Two (semester one online distance cohort)
	Student Questionnaires Student interviews Lecturer interviews Collection of course resources Archived online data collection Aggregated data collection	Student Questionnaires Student interviews Lecturer interview Collection of course resources Archived online data collection Aggregated data collection

The online learning platform used for online communication and some content delivery was the WebCT Learning Management System, version 4.1 (Campus Edition). Both

courses had a compulsory, but ungraded requirement for regular participation in online activities which were predominantly asynchronous online discussions.

The majority of students undertaking these courses were located throughout New Zealand and undertook their entire pre-service teaching programme as fully distance students. However, a number of students, including several who participated in this study, undertook their programme of study at a satellite campus of the university. For students based at this campus, several of the courses that form part of the pre-service teacher education programme were taught in a face-to-face manner.

Notwithstanding this, in both case studies described here, the satellite campus students were required to complete all prescribed coursework via the Internet in the same manner as the fully distance students. This was not unfamiliar to them as they had previously undertaken courses online. The predominantly full-time nature of study meant that this group considered themselves as a separate cohort to the ‘fully distance’ students because of their co-location at the satellite campus.

Fully distance students also viewed themselves as a cohort and while some changes occurred over time (due to dropouts, part-time students, and so on), a core group of students moved through each year of the programme together. Students’ formed impressions and made judgements about their online peers, particularly in relation to their preferences of who to work with when it came to collaborative assignments.

The boundary for each case study centred on one assignment and its associated online activities. The two cases studies were situated within the larger context of a pre-service teacher education programme within a New Zealand tertiary institution. This is depicted in Figure 3.1. Detailed descriptions of Case Study One and Case Study Two are provided in Chapters Four and Five respectively.

3.6 Research ethics

In common with all research approaches, a number of ethical considerations were addressed to ensure the rights of the people involved in the study were respected. Issues of privacy and anonymity, voluntary and informed consent, the protection of the rights

and interests of participants, the potential benefit outweighing potential harm, and the likelihood of important knowledge being generated from the research, were overarching ethical principles (Berg, 2004).

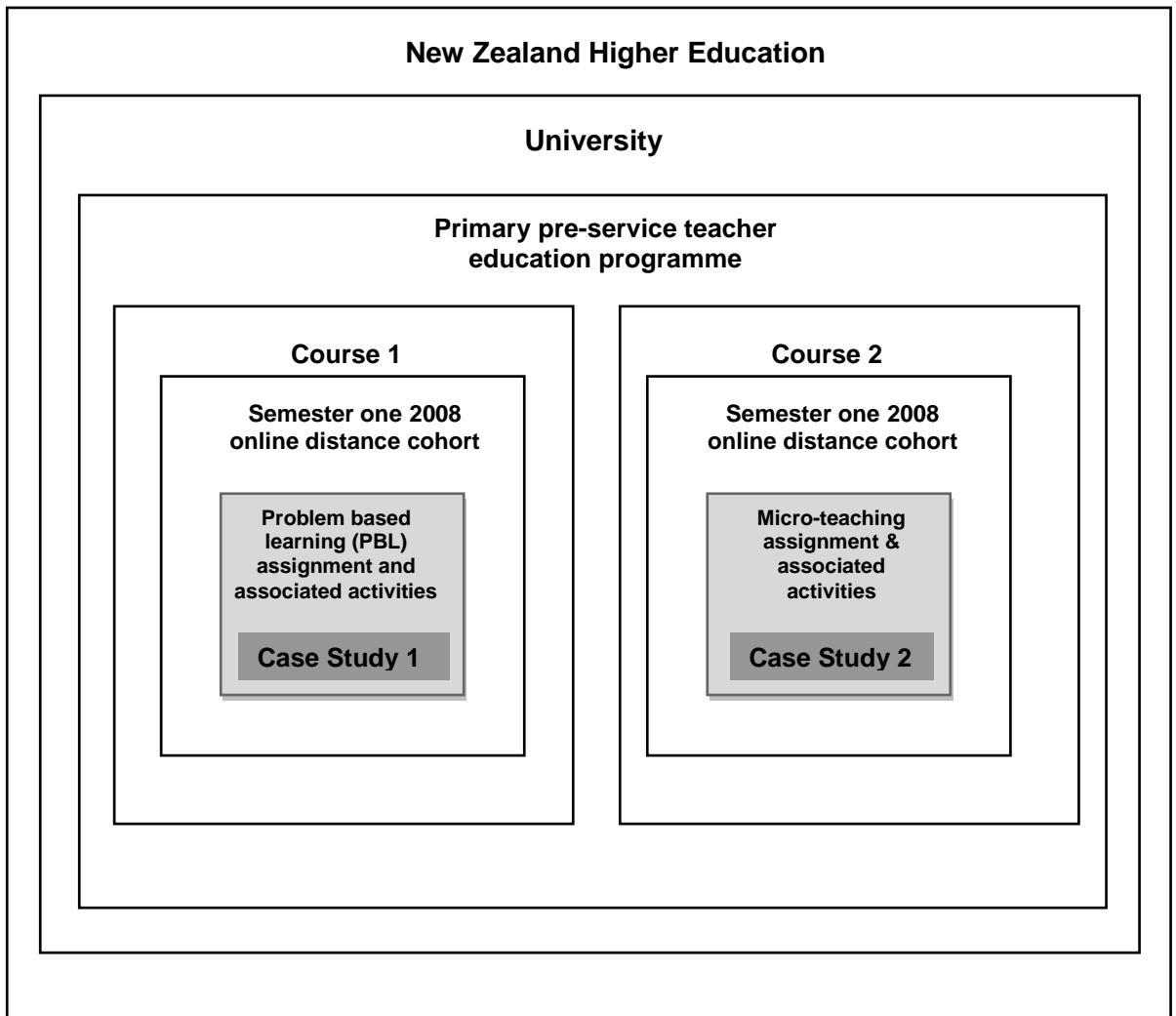


Figure 3.1: The context of the study

3.6.1 Informed consent

Informed consent is a fundamental tenet of ethical research because it relates to an individual's right to voluntarily choose to participate (Berg, 2004). Informed consent was ensured in this investigation by adherence to the underlying principles of the provision of full information, comprehension, and voluntarism (Frankfort-Nachmias & Nachmias, 1996).

The decision to participate must be one of free choice (Berg, 2004). In order to make an informed decision, it is the researcher's responsibility to ensure potential participants

are provided with full information about the study in a form that can be easily understood. An information sheet, explaining the investigation and the participants' role, along with opportunities to discuss the project with the researcher, were provided. In this instance it was important to clarify to potential student participants that their choice about whether or not to participate would not affect their academic results in any way.

3.6.2 Privacy, anonymity and confidentiality

Alongside informed consent, other ethical issues that needed to be addressed to ensure minimisation of harm included the rights to privacy, anonymity and confidentiality of both the individuals and groups involved.

Frankfort-Nachmias and Nachmias (1996) identify three different dimensions of privacy: the sensitivity of the information, the setting being investigated, and the dissemination of information. The sensitivity of the information refers to how personal the information is that the researcher wants to collect. The research setting may range from private to public. In terms of this research investigation, the learning management system (WebCT) is a secure environment which only authorised individuals can access. However, because archived online data, containing potentially sensitive discussions among research participants and non-participants, was collected and downloaded, it was important to ensure that the sources of such information remained private. From an ethical standpoint it was also essential to ensure that the privacy rights of all individuals were respected regardless of whether they were involved in the research project or not. This meant that only data associated with research participants, relevant to the investigation, were included for analysis purposes.

When disseminating information, privacy issues related to the need to ensure that personal information was not linked to the identity of research participants (Berg, 2004). Participants' confidentiality was maintained by restricting access to the data to the researcher. Pseudonyms were used so that the identity of individual participants could not be determined. Once assigned, information linking pseudonyms to participants were stored separately from the data and all identifying material removed and deleted from the data.

Assurances of anonymity with regard to the institution in which the cases are situated are problematic in this investigation. Even though it is not named, it may be possible to identify the institution given the small number of similar institutions within New Zealand.

3.6.3 Right to withdraw

Research participants have the right to withdraw from a research investigation at any time without penalty (Berg, 2004; Glesne, 2006). While the demands of this project in terms of time and input for student participants were not excessive, questionnaires and interviews occurred over a period of time when students were managing the completion of multiple study requirements. In addition, although clearly stated that the investigation focused on the complex relationship of personal, social and contextual factors, lecturer participants may have viewed the research as a judgement of their teaching practices. Therefore, the right to withdraw was important in ensuring that the overarching principle of minimising harm was maintained. While the participants' right to withdraw was clearly stated by the researcher throughout, no participants withdrew from the investigation.

Having explored the methodology and ethical principles underpinning this study, the remainder of this chapter outlines the methodology in practice. It presents an account of the procedures used to select the cases, the ethical processes which guided the collection of data, and the sequence of data generation. Finally, procedures used for coding and analysing the data are explained in full.

3.7 Research procedure

Prior to selecting specific cases, an ethics application outlining the research proposal was submitted to the university ethics committee. The proposal was reviewed and approved by the Massey University Human Ethics Committee: Southern B, Application 08/04.

Once ethics approval was gained, potential case studies were identified, in consultation with the researcher's supervisors, which fitted the predefined criteria (i.e. courses in an

undergraduate pre-service teacher education programme that were predominantly web-based and required student participation in the online community). Permission was then sought from the relevant Heads of Department in which two of the possible courses were taught (see Appendix A). Following approval, the researcher approached the teaching staff of the identified courses, via email, inviting them to take part in the research (see Appendix B). At the subsequent meetings, the purpose of the research was discussed; an information sheet, explaining the participant's involvement, was provided (see Appendix C); and any questions were answered. All teaching staff involved signed and returned the relevant consent forms (see Appendix D) signalling their agreement to take part in the study.

Potential student participants were contacted once the assignment and associated online activities on which the research was based had been completed and submitted for marking (i.e. early April 2008). After an initial introduction by the lecturer in the online course environment, the researcher posted an introductory message and invited potential student participants to take part in the study (see Appendix E). Following the initial invitation, the researcher responded, via email (see Appendix F), to interested students and sent out an information sheet (see Appendix G) and consent form (see Appendix H). Two further follow-up messages, requesting additional participants were sent to the remaining students in each course (see Appendices I and J). Twelve students in Case Study One and nine in Case Study Two agreed to take part.

On receipt of signed consent forms, the researcher sent a personal email (see Appendix K) to each student participant containing a hyperlink (specific to the relevant case study) to the online questionnaire (see Appendix L). The questionnaire asked students to provide demographic information, complete a motivation scale, and answer open-ended questions about the learning environment. This occurred after all coursework relevant to the case study was finalised but prior to the end of the course itself. When all participants in each case study had completed the online questionnaire, results were downloaded from the website and online responses deleted.

Student participants were again contacted by email (see Appendix M) to arrange suitable interview times and places. Student interviews (see Appendix N for interview schedule) were conducted after all relevant coursework was complete. Teaching staff

were then contacted and suitable interview times were arranged. Staff interviews occurred (see Appendix O for interview schedule) after all coursework, for the cohort in question, had been graded and results finalised. Both student and lecturer participant interviews were recorded using a digital voice recorder (DVR). Directly after these interviews, the researcher requested a copy of the course materials. This included a study guide for each course and an additional CD-ROM for Case Study One. At the same time, online asynchronous discussion data was downloaded from the relevant course websites by the researcher. Non-participant data, contained within the asynchronous discussion transcripts, were then removed. Student usage statistics data (for the entire cohort of each course) were also provided at this time by the course coordinators as this was not directly accessible to the researcher.

With the completion of the interview phase, interview transcription was undertaken. Approximately half of the interviews were transcribed by a professional transcriber. This occurred on receipt of a signed transcriber's confidentiality agreement (see Appendix P). When all interview transcripts were complete, a digital copy of the relevant transcript, and, where requested, a copy of the interview recording were then sent to all study participants (students and lecturers) for review and editing to ensure they were an accurate representation of what was said. An authority to release the transcript was also included (see Appendices Q and R). Signed release authorities were received from all study participants. No requests were made, by any of the participants, to amend or edit the interview transcripts.

Additional data in the form of aggregated achievement data for all students (research participants and non-participants), in both courses, were also collected so comparisons could be made. This required an amendment to the original ethics application. When approved, letter and permission forms were sent to each course coordinator requesting access to achievement data (see Appendix S). Following the receipt of signed permission forms, aggregated data was provided to the researcher. This completed the data collection phase of the investigation. A summary of the research procedure is outlined in Table 3.2.

Table 3.2: Summary of the research procedure

Timeframe	Stage	Procedure
Early to mid-April, 2008	Assignment work and associated activities finalised	<ol style="list-style-type: none"> 1. Ethics approval (Application 08/04). 2. Identified several potential courses that would make suitable case studies. 3. Request letter sent to relevant Heads of Department for 2 of the identified courses (see Appendix A). 4. Permission granted by Head of Department. 5. Contacted potential lecturer participants with invitation to participate in the research project (see Appendix B). 6. Information sheet and consent form sent to potential lecturer participants (see Appendices C & D). 7. Signed consent forms received from lecturer participants.
Mid-April to late May, 2008	Assignment work and associated activities complete	<ol style="list-style-type: none"> 8. Researcher given Teaching Assistant (TA) access to WebCT course site. 9. After introduction by lecturer, researcher posted initial invitation to potential student participants in the WebCT course site (see Appendix E). 10. Researcher responded, via email, to interested potential student participants (see Appendix F). 11. Information sheet and consent form sent to interested potential student participants (see Appendices G & H). 12. Follow-up invitation letter sent to remaining potential participants (see Appendix I). 13. Final follow-up invitation email message sent via WebCT to remaining potential participants (see Appendix J). 14. Signed consent forms received from student participants.
Late May to late June 2008	Assignment work and associated activities complete and marked	<ol style="list-style-type: none"> 15. Student participants contacted, via email (see Appendix K) providing a link to the online questionnaire (see Appendix L). 16. On completion of online questionnaire, student participants contacted to arrange suitable interview time and place (see Appendix M). 17. Interviews conducted with student participants (see Appendix N).
Late July to early October 2008	All coursework complete, graded and results submitted	<ol style="list-style-type: none"> 18. Interviews conducted with lecturers (see Appendix O). 19. Received hard copy course resources (study guide) and CD-ROM (Case Study One) from lecturers. 20. Downloaded asynchronous discussion data from WebCT course websites. 21. Received usage statistics data from lecturers. 22. Researcher's TA access to WebCT course websites removed. 23. Signed confidentiality agreement received from interview transcriber (see Appendix P). 24. Completed interview transcripts sent to student and lecturer participants with authority to release transcript form (see Appendices Q & R respectively). 25. Received signed authorities to release interview transcripts. 26. Letter and permission forms sent to course coordinators requesting cohort achievement data (see Appendix S). 27. Signed permission forms received. 28. Aggregated achievement data received.
May 2010	Data collection completed.	<ol style="list-style-type: none"> 29. Summary of main findings from each case study sent to relevant participants.

3.8 Data collection

As this study is concerned with the exploration of student motivation to learn in online contexts, it primarily seeks to use the contributions, experiences and interpretations of the participants themselves to inform understanding. Therefore, multiple data were collected using a variety of data collection methods. A summary of data collection methods used to address the research questions are shown in Table 3.3.

The data collection methods are described in the sections that follow. These procedures included: data generated *after* the completion of the assignment in each case study, namely questionnaires, interviews, and aggregated data; and data generated *during* the assignment period as part of normal online course administration processes (i.e. online asynchronous discussions and student usage statistics) but collected *after* all coursework was completed, graded and results submitted.

Table 3.3: Research questions and data collection methods

	Research Question	Data Collection Methods
1.	<i>What is the nature of motivation to learn of pre-service teachers in online-distance learning environments?</i>	Student questionnaires Student interviews Lecturer interviews Archived online data Aggregated data
2.	<i>How does the motivation to learn of pre-service teachers relate to their participation in online distance learning environments?</i>	Student questionnaires Student interviews Archived online data Aggregated data
3.	<i>In what ways do social and contextual factors relate to pre-service teachers' motivation to learn in online distance learning environments?</i>	Student questionnaires Student interviews Lecturer interviews Archived online data Course resources

A questionnaire was created for each case study. Prior to making the questionnaire available to participants, the questionnaire was independently tested to ensure the instructions were clear and the questionnaire worked as intended (see Appendix L). The questionnaire took approximately 20 minutes to complete.

The questionnaire contained three sections. Part one consisted of fixed response questions designed to collect demographic information, including name, email address, gender, age group and ethnicity, that helped to situate the respondents in relation to others. As achievement can be an important indicator of motivation (Schunk et al., 2008), respondents were also asked to supply their assignment mark.

Part two measured learner motivation using the self-report situational motivational scale (SIMS) developed by Guay, Vallerand, and Blanchard (2000) that operationalises the self-determination continuum (Ryan & Deci, 2000a) described in Chapter Two. It measures situational intrinsic motivation, extrinsic forms of motivation (identified regulation, external regulation) and amotivation using 16 seven-point Likert scales with four questions for each motivation subscale (see Appendix L). The questionnaire was administered after the completion of the assignment and associated activities. Therefore, the SIMS data can be considered retrospective and cross-sectional in nature.

Part three consisted of nine open-ended questions, developed with reference to current motivation literature (Brophy, 2010; Reeve, 2002), exploring possible relationships between social and contextual influences and learners' motivation. These were designed to gain some initial understanding of the interplay between the environment and student motivation. Questions covered the structure of the assignment, support and feedback received, the online course environment, interactions with peers, and available learning resources. Questions asked participants to reflect on their experiences *throughout the duration of the assignment*. Therefore, this data can be considered semi-longitudinal in nature.

3.8.2 Interviews

Following the questionnaires, individual semi-structured interviews were undertaken to “gather descriptive data in the subjects' own words so that the researcher ... [could] develop insights on how subjects interpret some piece of the world” (Bogdan & Biklen, 2007, p. 103). Interviews with student participants provided an opportunity to gain insight into their experiences, how the context influenced their thinking, feeling and behaviour, and perspectives of learning in an online environment *over the duration of the assignment*. The interviews represented a central source of data because of the richness and depth of material (Gillham, 2000b). They also afforded the opportunity to

explore open-ended questionnaire responses in greater depth (Glesne, 2006), and check for consistencies or anomalies in responses. Interviews were also conducted with the lecturers responsible for online teaching and management within the two cases studies. The purpose of these interviews were to explore teaching approaches, methods and interactions with students, which are known to influence learner motivation (Brophy, 2010), and for data triangulation purposes (Glesne, 2006).

Student interviews

A semi-structured interview schedule was designed to investigate students' motivation to learn within the context of the online learning environment during the period students worked on the assignment and associated activities in each case study. It also included several questions that explored learner perceptions of the whole course (see Appendix N). Interview questions were developed after reviewing the literature on motivation (see Chapter Two) and were designed to tease out factors that influenced motivation as the assignment progressed. Topics covered included: assignment workload; areas of interest and enjoyment; clarity of understanding of assignment requirements; choices available (if any); challenges, problems and frustrations experienced (if any); perceptions of the online learning environment; perceptions of what had been learnt; and impressions of the course as a whole.

Although student participants were located throughout New Zealand, face-to-face interviews were conducted where possible. Meeting participants in person was seen as an opportunity to further develop rapport, trust and build relationships (Bogdan & Biklen, 2007) initiated online. All student participants, with one exception, were located in the North Island of New Zealand. This enabled the researcher to conduct face-to-face interviews in all but one instance, which was conducted by telephone. Interviews took place in a neutral location to provide a comfortable, informal setting where both parties could feel free to 'chat'.

At the outset of each interview, the researcher encouraged participants to express their opinions freely as their identity would remain confidential in the reporting of any research findings. Given the semi-structured nature of the interviews, the interview schedule acted as a guide and provided the researcher with the flexibility to elaborate

where necessary, as well as to explore participant responses in more depth when appropriate. Interviews were approximately 45 minutes to one hour in duration.

Lecturer interviews

A further semi-structured interview schedule was designed to explore the teaching approaches and methods of the lecturers involved in teaching the courses under investigation (see Appendix O). Interview questions were developed after reviewing the literature on motivation (see Chapter Two) and covered topics including: overall impressions of the student cohort taking the course; structure of the course curriculum and the specific assignment of interest, learning objectives and resources provided; expectations of student participation; methods used to develop learner interest; choices and feedback/support given to learners; challenges, problems and frustrations experienced (if any); and impressions of teaching in an online learning environment.

Lecturer interviews were conducted in the lecturer's office on each occasion and were approximately of one hour duration.

3.8.3 Archived online data

Usage statistics and asynchronous online transcripts, collected *throughout* the course, represented an important source of data that served to supplement interview and questionnaire data which encompassed participants' perceptions collected *after* the courses were finished. These data were longitudinal in nature (i.e. covered the duration of the assignment) and were not affected by the presence of the researcher (Berg, 2004).

Online asynchronous discussion transcripts

By collecting online asynchronous discussion transcripts, perceptions of both lecturers and student participants could be confirmed, or anomalies highlighted. Furthermore, online discussion transcripts provided a source of data that enabled the quality of online participation to be explored.

Asynchronous discussion data was accessed and downloaded once all student course work had been completed, graded and results finalised. This was done using the *compile* feature in WebCT that allows selected messages be aggregated into one transcript and

downloaded from the website as a text file. Downloaded transcripts included contributions from all students in each course. This was done so that all messages could be read within the context in which they were originally posted. Transcripts were refined by removing any messages posted outside the assignment timeframe and only those messages posted by study participants were included for analysis purposes.

Online usage statistics

WebCT automatically maintains internal usage logs via the *Track Student* function. This keeps a record of the number of times a student accesses the various course features (WebCT Inc., 2003). Three measures of WebCT use were obtained as quantitative indicators of online participation:

1. *WebCT hits*: The number of times each student accessed the homepage (first page following sign on), any tool (from the options available), or a content module page.
2. *Messages read*: The number of messages each student opened in the discussions tool. This included messages read across all discussion topics.
3. *Messages posted*: The number of messages each student posted in the discussions tool across all discussion topics (Johnson, 2005).

Automatic collection of WebCT usage statistics is cumulative. However, as part of normal course protocol, the course coordinator for Case Study One captured this data on a weekly basis. This meant that the researcher was able to access and analyse week by week usage statistics over the six-week duration of the assignment. This allowed participation rates of students and lecturers, over the period of the assignment, to be explored to determine whether any patterns existed.

Case Study Two student online usage statistics were collected over the duration of the whole course, therefore no week by week comparison could be undertaken. This meant that only a general impression of online attendance could be obtained for student participants over the whole course rather than statistics specific to the assignment of interest. Although crude, this was sufficient given the limitations of approaches that use quantity as a measure of online participation (Gunawardena et al., 1997).

3.8.4 Course resources

Resources provided to students at the beginning of each course were also collected as part of the data generation process. This ensured that any references made by participants to the course structure, objectives and resources, during questionnaires and interviews, could be cross-referenced and explored further.

Case Study One course resources included a study guide and a CD-ROM. The study guide included an outline of learning intentions, a summary of assessment components, success criteria, course calendar, expected course workload, and online class and group discussion expectations. Next, the assignment tasks were explained in detail. In particular, the problem based learning (PBL) assignment (the focus of Case Study One) was outlined. This covered 23 pages and incorporated several assessment matrices used to assess the different components of the assignment. This was supported by a series of appendices designed to be used at different points within the PBL assignment.

The CD-ROM contained a range of resources, exemplars and software organised in a series of folders. The majority of these were designed for use during the PBL assignment. In a few instances, students were directed to specific resources on the CD-ROM at certain points in the course. However, the majority were not referred to directly by teaching staff and it was left to the students themselves to explore these independently. Some students also chose to access and use additional online resources throughout the PBL process that were relevant to their particular investigation. Given that these resources were unique to the problem being investigated within each small group, they were not included as a data source in this study.

Case Study Two students also received a study guide at the commencement of their course. This included an administration guide that encompassed an outline of learning outcomes, the content of the course, online participation expectations, required texts, and recommended readings. This was followed by more detailed information on each assignment that incorporated marking schedules. This included the micro-teaching and reflection assignment (the focus of Case Study Two). The remainder of the study guide was then divided into modules and concluded with a booklet covering a wide range of resources and approaches to social studies. In addition to the above, the lecturer

provided additional online resources in the form of useful websites, social studies exemplars and examples of student work from previous cohorts.

3.8.5 Aggregated data

One final source of data in the form of aggregated achievement and online usage statistics data for all course participants were collected so that comparisons could be made between the two groups (i.e. research participants and non-participants for each case study). This was to determine whether the research participants' achievement and online participation were typical of the cohort when compared with non-participants in terms of the assignment of interest and the overall course.

Relevant achievement data from each case study included: the name, final course grade, and assignment mark for all students. This information was provided to a third party (the researcher's supervisor) so that the privacy of both research participants and non-participants was preserved. A final list of grades and marks for two groups: participants and non-participants, with all names removed, was then forwarded to the researcher for the purposes of data aggregation.

Comparisons were also made between aggregated online attendance data of research participants and non-participants for each case study. An additional request for this data was not necessary as the usage statistic data originally provided by both course coordinators included information for all course participants.

A summary of the data generation methods used in this research investigation, their purpose and how they are identified is presented in Table 3.4.

3.9 Data analysis

Yin (2009) identifies four general principles that underlie high quality case study analysis. They are: 1) that all the evidence has been attended to; 2) all major rival interpretations have been addressed; 3) the most significant aspects of the case study are identified; and 4) the researcher's expert knowledge of the subject matter is evident. By adopting these guiding principles to data analysis for both individual cases and for cross-case analysis, the trustworthiness of findings can be demonstrated.

With this in mind, this section describes the techniques used to analyse the collected data. While questionnaire data was briefly reviewed prior to the undertaking of interviews with student participants, more formal data analysis occurred once the data generation phase was complete. Analysis of qualitative data, central to this investigation, is described first, followed by an explanation of the quantitative data analyses undertaken.

3.9.1 Qualitative analysis

“Qualitative analysis transforms data into findings” (Patton, 2002, p. 432). Both inductive and deductive analysis occurred within this research investigation. While self-determination theory (SDT) (Ryan & Deci, 2000a), described in the previous chapter, provided sensitising concepts with which to explore the qualitative data (Blumer, 2006), an inductive approach geared to allowing additional patterns, themes and categories to emerge from the data, occurred concurrently (Bogdan & Biklen, 2007). The qualitative analysis software package *NVivo* (www.qsrinternational.com) was used during this research investigation to facilitate and manage the complex, iterative process of analysing large amounts of qualitative data.

A separate *NVivo* project was set up for each case study and a profile for each participant was established within the relevant project. Once established, open-ended questionnaire responses, interview transcripts (students and lecturers), and online asynchronous discussion transcripts were imported into *NVivo*. Interview responses to individual questions from all student participants were then collated using the “auto code” feature (see Appendix T for an example). This was also done as a separate process for open-ended questionnaire responses. Data analyses began with student interviews as these represented rich sources of data and were likely to incorporate the broadest range of themes and ideas among all the data sources. Analysis of all qualitative data for Case Study One was undertaken first.

Table 3.4: Summary of the data generation methods

Data Collection Method	Details	Rationale	Identifier
Student questionnaires	Online student questionnaire tailored to each case study	<ul style="list-style-type: none"> ▪ Collect demographic information about student research participants. ▪ Measure students' motivation to learn using the SIMS scale (Guay et al., 2000). ▪ Gain an initial understanding of students' perceptions of their experiences in the identified online distance environments. 	<p>Pseudonym – Questionnaire CSxSyqz</p> <p>(where x is the (C)ase (S)tudy number, y is the (S)tudent number and z is the (q)uestion number)</p> <p>Example: <i>Elizabeth – Questionnaire CS1S8q27</i></p>
Student interviews	Semi-structured interviews with students in the identified case studies	To investigate, in-depth, students' experiences and their motivation to learn within the context of an online distance learning environment and social and contextual factors that may influence this.	<p>Pseudonym – Interview CSxSyqz</p> <p>Example: <i>Adele – Interview CS2S3q3</i></p>
Lecturer interviews	Semi-structured interviews with teaching staff in the identified case studies.	To explore the teaching approaches and methods used by the lecturers (social and contextual factors) responsible for developing and teaching the identified courses.	<p>Pseudonym – Interview CSxLyqz</p> <p>(where x is the (C)ase (S)tudy number, y is the (L)ecturer number and z is the (q)uestion number)</p> <p>Example: <i>Owen – Interview CS1L2q7</i></p>

Data Collection Method	Details	Rationale	Identifier
Asynchronous discussion data	Relevant asynchronous messages posted, via the discussion board feature within the relevant WebCT course websites, throughout the assignment and associated activities.	Longitudinal data used to confirm ideas or highlight anomalies within the data collected during questionnaires and interviews.	Asydisc (Topic)CSx(S or L)y (where x is the (C)ase (S)tudy number and y is the (S)tudent or (L)ecturer number) Examples: <i>Asydisc PBLGpB CS1S1</i> <i>Asydisc SID CS2L1</i>
Online usage statistics	Student usage statistics automatically recorded via the Track Student function in WebCT.	Used as indicators of online participation.	hits messages read (or reads) messages posted (or posts)
Course resources	<ul style="list-style-type: none"> ▪ Hard copy study guide including administration guide, assignment details, articles and course resources (1 per course). ▪ CD-ROM containing additional course resources (Case Study One only). 	<ul style="list-style-type: none"> ▪ To investigate contextual features of each course that relate to students' motivation to learn. ▪ To enable references to course structure, objectives and resources made in questionnaire and interview data to be cross-referenced and explored further. 	(S)tudy (G)uide (C)ase (S)tudy (p)age number Example: <i>SGCS2 pp. 7-10</i> <i>CD-ROM Case Study One</i>
Aggregated data	<ul style="list-style-type: none"> ▪ Achievement data of research participants and non-participants. ▪ Online usage statistics data (see above) of student research participants and non-participants. 	<ul style="list-style-type: none"> ▪ To compare the achievement of the research participant group with the non-participant group on an aggregated basis. ▪ To compare online participation of the student participant group with the non-participant group on an aggregated basis. 	

As Bogdan and Biklen (2007) indicate, this process involved reading and re-reading all student answers to an interview question to get a sense of the breadth of responses and the possible range of codes needed to identify initial themes. Using the “coding” feature, each theme was assigned a code and each coded piece of text was placed at a “node” named in such a way that it described the essence of the idea identified (see Appendix U for sample coding). In this way, chunks of text with similar ideas were able to be stored together. These pieces of text varied in length and were coded at all relevant nodes. This meant that one chunk of text could be coded at one or more nodes depending on whether single or multiple themes were identified.

As the coding process continued, text coded at established nodes were repeatedly reviewed to ensure coding consistency. In some cases this resulted in the further refinement of codes and re-coding of some data. For example, chunks of text originally coded at the node *self-efficacy*, were later re-coded to one of two sub-nodes, *lack of self-efficacy* or *sense of self-efficacy*. Consistent with Patton (2002), this iterative process served to clarify and deepen the researcher’s emerging understanding of the key themes within the data.

Each node was also assigned a description so that it could be referred to throughout the coding process. As this first coding phase continued, code descriptions were developed and a coding structure began to emerge, where ‘free nodes’ relating to similar themes were organised into hierarchical structures through the use of ‘tree nodes’ in manner similar to that described by Bogdan and Biklen (2007). An example was the types of challenges students experienced while doing the assignment. Nodes were able to be moved within the branching tree structure as key themes were further clarified.

The “memos” feature within *NVivo* was used to capture growing understandings, ideas, possible patterns in the data, and references to useful literature, at the level of nodes, participants, groups of participants and the case study itself. When combined, they became early drafts of writing about identified themes and served to emphasise possibilities, false leads and illuminate patterns that needed more in-depth analysis.

While *NVivo* provided the tools that enabled the systematic coding of data to occur, the fundamental premises of self-determination theory (Ryan & Deci, 2000a), namely

autonomy, competence and relatedness and the motivation continuum furnished the conceptual lenses to explore the data. This motivation theory acted as an organising framework for themes identified throughout the coding process, thereby revealing the social and contextual influences within each case study. For example, the theme *personal relevance* emerged as an instance of identified regulation (a type of extrinsic motivation).

Using the initial coding structure, motivation frameworks and the *NVivo* functions described above as aids, the remainder of the qualitative dataset was analysed. While questionnaire responses, student interviews and lecturer interviews were comprehensively coded and analysed, messages posted by study participants within the relevant asynchronous discussions were used as secondary data sources. Asynchronous discussions served to confirm themes or patterns highlighted in interview and questionnaire data or, alternatively, identify discrepancies thereby ensuring data triangulation. Methodological and contextual problems associated with the rigorous, in-depth analysis of online discussions, particularly with the removal of postings from non-research participants, have been highlighted previously (Cook & Ralston, 2003; De Wever et al., 2006; Garrison et al., 2006). Therefore, this type of detailed analysis was not undertaken in this investigation.

Administration guides for both cases and the CD-ROM for Case Study One were not analysed in detail. Again they were used as a method of triangulating emerging themes within interview and questionnaire data. For example, a key theme identified within the interview and questionnaire data relating to *assignment structure* was able to be explored further by reviewing the assignment information provided in each study guide.

On completion of the first phase of analysis for Case Study One, the created coding structure was imported into the Case Study Two project. This was then further developed and refined as part of the coding and analysis process. This was expected given the different context for Case Study Two. For example, student participants worked individually on the assignment in Case Study Two, whereas small group work was required in Case Study One. Therefore, codes associated with “group processes” were not applicable.

This iterative process resulted in ongoing refinement of the coding structure and demonstrated disciplined subjectivity (Erickson, 1973) on the part of the researcher. A common coding structure across both case studies emerged. While not all “nodes” were applicable in each case, the number of “nodes” not common to both cases due to differing contextual features was relatively small. This constant review and reflection also highlighted key commonalities and differences in the data across the case studies. Qualitative findings, specifically social and contextual influences, are presented in terms of their relative salience within and across case studies (see Chapters Four, Five and Six). Themes with the highest number of coded instances within the dataset are considered most salient. A summary of the main findings from each case study were sent to the relevant study participants.

3.9.2 Quantitative analysis

While qualitative methods and data are central to the exploratory nature of case study research, quantitative analysis can be used to complement and extend the range of evidence on the topic under investigation (Gillham, 2000a). Cross-referencing quantitative results with qualitative findings constitutes a form of comparative analysis and strengthens the internal consistency of the case study (Yin, 2009).

Quantitative data collected to support qualitative findings included: student questionnaire responses to the situational motivation scale (SIMS), achievement results and online usage statistics for each respondent. Additionally, aggregated achievement and online participation data were analysed so that the research participant group could be compared with the non-participant group in each case study. All calculations were performed using the SPSS statistical software package.

Situational motivation scale (SIMS) and self-determination index (SDI) scores

Situational motivation subscale (SIMS) scores were calculated for each student participant by adding the responses to the four questions associated with that motivation type (see Appendix L for complete SIMS scale questionnaire). Responses to each question statement ranged from a minimum of 1 (corresponds not at all) to a maximum of 7 (corresponds exactly). Therefore, subscale scores ranged from a low of 4 to a high of 28. Subscale scores for each participant were then used to calculate a single

motivation score called the self-determination index (SDI). This follows the weighted calculation described and used in previous research (Ntoumanis & Blaymires, 2003; Ratelle, Baldwin, & Vallerand, 2005; Vallerand & Bissonnette, 1992; Vallerand & Ratelle, 2002). This calculation gives greater weight to the motivation types at each end of the scale (i.e. amotivation and intrinsic motivation). Scores can range from a minimum of -72 to a maximum of $+72$. While the calculation of SDI is a useful indicator of motivation, subscale scores were also retained for analysis purposes as SDI may not account for participants' endorsement of more than one type of motivation for engaging in the assignment (Vallerand et al., 2008).

Descriptive statistics, calculated for motivation subscale and SDI data for each case study, comprised medians (Mdn) and interquartile ranges (IQR). Nonparametric statistical calculations were performed because of the small sample size within each case study, the inclusion of ordinal scores in the SIMS motivation scale (Guay et al., 2000), and because normality could not be assumed in the underlying population (Siegel & Castellan, 1988).

Correlations and tests of significance

Nonparametric Spearman rho correlation coefficients (Siegel & Castellan, 1988) were calculated to determine whether any significant relationships existed between student motivation, achievement and participation. This was done using participant SDI scores (a measure of motivation), student achievement data (at both the assignment and course level) and various measures of online participation that included active (messages posted) and passive (WebCT hits and messages read) participation measures.

Mann-Whitney U two-tailed tests of significance (Cohen & Lea, 2003) were carried out, as part of the cross-case analysis, to explore whether the participant motivation subscales scores were significantly different between the two case study contexts. Finally, to determine how representative the participant group were of the entire cohort in each case study, Mann-Whitney U tests were also calculated using the achievement and online usage data (WebCT hits, messages posted and messages read) of research participant and non-participant groups.

3.10 Chapter summary

This chapter has explored both the methodology underpinning the present study and the methods used to generate and analyse the data. Research questions were outlined and a predominantly interpretive research paradigm, on which this study is premised, was discussed. Subsequently, case study methodology was examined and the context of the study explained. Consideration was also given to ethical issues associated with the current investigation. Then attention was turned to the methods used to select the cases, the research procedure and the data collection techniques. The methods used to analyse the data were also outlined.

Having described the methodology underpinning the investigation, research findings and some initial discussion are presented, for each of the case studies, in Chapters Four and Five. Presentation of results is guided by the three research questions. Detailed discussion occurs in Chapters Six and Seven.

CHAPTER FOUR

CASE STUDY ONE

Students are likely to experience intrinsic motivation in classrooms that support satisfaction of these autonomy, competence, and relatedness needs. Where such support is lacking, students will feel controlled rather than self-determined, so their motivation will be primarily extrinsic rather than intrinsic. (Brophy, 2010, p. 7)

4.1 Introduction

In this chapter, the results for Case Study One are presented. The chapter begins with a detailed description of the case. This is followed by the presentation of results separated into two parts. Part One directly addresses the first two research questions, namely the nature of motivation and its relationship with online participation. Comparisons between the research participants and non-participants, in terms of achievement and online participation, are then presented to determine whether the study participants are representative of the wider cohort. Recognising the mutually constitutive relationship of the learner and the learning environment (Hickey & Granade, 2004), Part Two focuses on the salient social and contextual factors that influenced pre-service teachers' motivation to learn in this online environment.

Throughout the chapter, the continuum of human motivation (Ryan & Deci, 2000a) and the fundamental premises of self-determination theory (SDT), namely autonomy, competence and relatedness (Deci & Ryan, 1985) are used as organising concepts for the presentation of results. While some initial discussion of findings will be presented, detailed discussion of results in terms of similarities and differences across cases occurs in Chapter Six.

4.2 Description of Case Study One

Case Study One centred on an integrated science and technology course that represented a compulsory component of the teacher education programme described in Chapter Three. This course could only be undertaken once the prerequisite science and technology courses had been successfully completed. Full-time students usually undertook this course in the third and final year of their degree. By this time, they had

some experience of distance online learning. They were also familiar with working with other distance online students on group assignments. Satellite campus students also came to this course with previous online study and small group learning experiences.

The course had been delivered online for several years and was well established. The teaching staff consisted of a course coordinator with science expertise (Dan) and a tutor with technology expertise (Owen). The tutor undertook the majority of the online teaching and management throughout the duration of the investigation described here. They both considered themselves experienced online teachers and were comfortable with the use of technology in the context of this course. Both the teaching staff and the nature of the course were known to the researcher as she had been involved in teaching an on-campus version of the course in the latter half of 2007, prior to this investigation.

Assessment comprised three assignments. One particular assignment, the Problem-Based Learning (PBL) assignment, was the centre piece and focus for this case study. It included a group and an individual component which was undertaken over a six-week period and constituted 60% of a student's final mark. Students were required to work in small groups of three of their choice and submit a collaborative piece of work worth 45 marks out of a total of 60. The workload was designed in such a way that undertaking it individually was not feasible. The remaining 15 marks were allocated to the part of the assignment students submitted individually. Of this, 10 marks were allocated for a reflective piece of work and 5 were allocated for a formative assessment activity completed during the third week.

Student participants for Case Study One were recruited from the semester one (February – June) 2008 online distance offering of this course³. A total of 48 students were enrolled in the course, of which seven were male and 41 female. The higher number of females is typical of enrolments in pre-service teacher programmes (Scott, 2009). Twelve students agreed to participate in the research project. The group of respondents was comprised of one male and 11 females. A summary of demographic information is provided in Table 4.1.

³ An on-campus version of this course ran concurrently with the online distance offering. However, no students were recruited from the on-campus cohort. The course coordinator was responsible for teaching the internal students.

Table 4.1: Case Study One participants' demographic details of

Gender	Age				Ethnicity*		
	Total	24-30	31-40	41-50	Maori	NZ European	Other
Female	11	1	7	3	3	7	2
Male	1	0	0	1	0	1	0

*One female participant identified with more than one ethnic group

One male and two of the female participants were located at the satellite campus. They worked together on the assignment and met frequently throughout the process. The remaining study participants were located throughout the North Island of New Zealand, with one exception, who was located in the South Island. Research participant pseudonyms, their role in the research investigation, their location and collaborative group identifier are listed in Table 4.2.

Table 4.2: Description of Case Study One participants

Research Participants				
Identifier	Pseudonym	Type	Location	PBL group
S1	Valerie	Student	Distance	B
S2	Irene	Student	Distance	G
S3	Madison	Student	Distance	F
S4	Penny	Student	Distance	E
S5	Nadia	Student	Satellite campus	D
S6	Ursula	Student	Satellite campus	D
S7	Tim	Student	Satellite campus	D
S8	Elizabeth	Student	Distance	G
S9	Wendy	Student	Distance	G
S10	Giselle	Student	Distance	C
S11	Zoe	Student	Distance	A
S12	Hazel	Student	Distance	H
L1	Dan	Course coordinator	Main campus	N/A
L2	Owen	Tutor	Main campus	N/A

4.2.1 The context – Problem based learning (PBL)

PBL has its origins in the medical field and is a developmental and instructional approach built around authentic, ill-structured problems, which are complex in nature,

require inquiry, information-gathering, reflection and have no simple, 'right' solution (Bridges, 1992; Sonmez & Lee, 2003).

Although PBL has been applied in different ways in various contexts, there are a number of common features. These include: its interdisciplinary nature; its predominantly student-centred focus where the role of the teacher becomes one of facilitator or coach; the encouragement of collaborative group work; and an emphasis on analysis, evaluation and reflection (Grow & Plucker, 2003; Putnam, 2001; Williams & Williams, 1997).

Proponents argue that PBL methodology encourages the development of a range of skills including: problem-solving, critical thinking and decision-making; cognitive flexibility; self-directed learning skills; collaboration skills; initiative; and self-reflection (Putnam, 2001). Key to problem based learning is the provision of choice which, it is argued, fosters intrinsic motivation within learners as they are free to pursue what is interesting and relevant to them (Grow & Plucker, 2003; Hmelo-Silver, Nagarajan, & Derry, 2006). A PBL approach involves learners participating in a socially situated, meaning-generating process consistent with the principles of social constructivism (Martens et al., 2004; Sonmez & Lee, 2003). Some (Savery & Duffy, 1995) even argue that PBL is one of the best examples of a constructivist learning environment. However, opponents (see Kirschner et al., 2006) argue that learner-centred approaches, such as PBL, are only effective when students have the necessary prerequisite knowledge and some prior structured experience. Distributed problem-based learning (T. Cameron, Barrows, & Crooks, 1999) is an adaptation of the face-to-face PBL teaching approach that has been used successfully in online learning contexts (Lo, 2009).

The lecturers responsible for online teaching and management were intimately involved in the original development of the course and were instrumental in PBL being adopted as the primary approach for teaching curriculum integration. The structure of the course saw students being initially introduced to different integrated curriculum approaches to teaching. From there, they undertook their own integrated curriculum learning experience in the form of a PBL assignment. Coursework concluded with students applying what they had learned to plan a small integrated science and technology unit of their choice, aimed at an age level of their choosing.

For Dan, the course coordinator whose expertise lies in the field of science teaching, the benefits of adopting a PBL approach lay in the authentic nature of learners investigating ill-structured problems:

... so when we were looking at this course in its development, one of the things we did not want to lose in the science and technology was the practical aspect, the investigating, the hands on thing. We did not want to lose that as part of it and so when we were talking about it we thought, how can we ensure that the students maintain at least, has some experience, exposure to it? And so that's where [this] assignment ... came through. We were deciding well, what if we do [this] assignment ... how can we incorporate the practical nature as well as the theoretical nature, understanding and provide the experience of engaging in integrated curriculum? And so when we looked at that and we were looking around ... in the back of my mind when we were searching ... there was the problem based learning. (Dan – Interview CSIL1q2)

Owen, the online tutor, was responsible for the majority of day to day teaching and administration for this cohort of students. As a teacher with a technology background, he too was keen to highlight the value of adopting PBL as a curriculum integration approach:

[It's] more or less at the higher end order of the curriculum continuum ... where the issue or problem takes centre stage and this intrinsic motivation is informed by their own enquiry, rather than just processing information. So it sits nicely in that sort of concept of student ownership, authenticity to the learner etcetera. To me that's, you know, the guiding principles that we should not dictate. (Owen – Interview CSIL2q8)

While each lecturer has their own area of expertise, they adopted a team approach to teaching PBL. In practice this meant Owen was the primary person engaging with learners, providing guidance across curriculum areas in consultation with Dan when greater depth of science knowledge was required. Dan and Owen highlighted that the approach taken was based on the model developed by Torp and Sage (2002). In this model, the role of the teacher is one of facilitator rather than director of the learning process. Teacher input starts off high and is then gradually reduced and becomes one of coaching from the sidelines as students take responsibility for their learning. Students were made aware of this change of role in the study guide that formed part of the course resources.

At the time that the participants in this study undertook the PBL assignment, the new curriculum for New Zealand primary schools was out for consultation and due for implementation at the beginning of 2010. One of the foundations on which the new curriculum is based is inquiry learning. Problem based learning is one example of an inquiry approach to learning and students were made aware of its relevance by the lecturers as they undertook the assignment.

Having described the background and context of Case Study One, attention turns to a detailed presentation of the findings. The findings are divided into two parts. Part One presents findings that address the first two research questions – the nature of motivation to learn of pre-service teachers and their participation in this online distance learning environment. Part Two focuses on the social and contextual influences that served to facilitate or undermine student motivation.

Part One: Motivation and participation

4.3 The nature of motivation

This section begins by exploring the situational motivation scale (SIMS; Guay et al., 2000) questionnaire responses. Initially, overall situational motivation is investigated using the self-determination index calculated from the subscale SIMS scores. Second, the different types of motivation measured by the SIMS subscales, namely amotivation, extrinsic forms of motivation (external regulation and integrated regulation), and intrinsic motivation, are explored. This includes the exploration of the results of several individual participants. Third, student achievement results (PBL assignment mark and overall course results) are compared to SIMS data to highlight whether any patterns exist between participant achievement and their motivation to learn. Finally, research participants' achievement results are then compared to non-participants' results to determine whether any differences in achievement exist between the two groups. The research question being addressed throughout this section is:

What is the nature of motivation to learn of pre-service teachers in online distance learning environments?

4.3.1 SIMS and SDI scores as a measure of motivation

Case Study One situational motivation scale (SIMS) responses and self-determination index (SDI) scores for each student participant are summarised in Table 4.3. A positive SDI score indicates that, overall, more self-determined forms of motivation outweigh more externally regulated types of motivation. A negative SDI indicates an overall experience of less self-determined motivational types (Vallerand et al., 2008; Vallerand & Ratelle, 2002).

Table 4.3: Case Study One participants' SIMS and SDI scores

ID	Pseudonym	Sum of Subscale Scores				Weighted sum
		Amotivation (AM)	External Regulation (ER)	Identified Regulation (IR)	Intrinsic Motivation (IM)	SDI score
S1	Valerie	21*	18	13	13	-21
S2	Irene	5	8	22	19	42
S3	Madison	4	27	20	22	29
S4	Penny	4	15	26	18	39
S5	Nadia	27	28	4	4	-70
S6	Ursula	13	28	19	14	-7
S7	Tim	24	24	14	16	-26
S8	Elizabeth	4	16	22	22	42
S9	Wendy	8	16	22	20	30
S10	Giselle	4	8	20	15	34
S11	Zoe	20	28	23	19	-7
S12	Hazel	16	28	9	10	-31
MEDIAN (Mdn)		10.5	21	20	17	11
INTERQUARTILE RANGE (IQR)**		16.25	12.25	8.25	5.5	57.5

* Participant subscale scores can range from a **minimum** of 4 to a **maximum** of 28.

** A measure of the spread of the middle 50% of the scores

Looking first at the SDI interquartile range, what is immediately apparent is that the nature of motivation to learn is diverse among the group of research participants. Half had positive SDI scores (an indicator of overall motivation) and half had negative scores. For those with a positive SDI, in general, more internalised forms of motivation, namely identified regulation (IR) and intrinsic motivation (IM) were prominent. For example, Elizabeth's SDI score of 42 was comprised of higher subscale scores for

identified regulation (IR 22), indicating she valued the activity, and intrinsic motivation (IM 22), indicating she found the activity interesting and/or enjoyable. Learners with negative SDI scores generally reported experiencing more externalised forms of motivation. This included: external regulation (ER), signifying they were complying with external demands, and amotivation (AM), indicating they lacked motivation. The most extreme example of this was Nadia with an SDI of -70, resulting from very high subscale scores for both external regulation (ER 28) and amotivation (AM 27).

Further supporting evidence for the differences in motivation, as measured by the SDI, were found in the interview data. For example, Elizabeth summed up her experiences of the PBL assignment in the following way:

*Just felt I learnt a lot from it personally. As ... an individual, you know. ... 'cause it was lovely to do it right at the end of my [programme].
(Elizabeth – Interview CS1S8q20)*

Nadia described her very different experience in the following way:

... no there was nothing in the course that I would say that motivated me, you know. I never got to the stage where “ooo this is interesting, I want to know more”. (Nadia – Interview CS1S5q20)

While the calculation of the self-determination index (SDI) is a useful indicator of overall motivation, subscale scores show that SDI, on its own, does not account for participants' endorsement of more than one type of motivation.

Returning to Elizabeth, her subscale scores indicate that her high positive SDI score was the result of the most autonomous (i.e. self-determined) form of motivation, namely intrinsic motivation, **and** the more autonomous form of extrinsic motivation, identified regulation. Elizabeth's strong sense of personal interest (an indicator of intrinsic motivation) is clear in her comment, “*science and technology are my favourite things*” (Elizabeth – Interview CS1S8q10). This was supported by her perception of the relevance of the task (an indicator of identified regulation) to her future role as a teacher:

I sort of felt it was a real practice run for being in school in a syndicate type situation. ... So I think it was a really good practice run for what actually happens in school. (Elizabeth – Interview CS1S8q18)

Elizabeth also reported a moderate external regulation subscale score of 16, indicating that she was also motivated by external factors to some degree. This was reflected in her awareness of the high assessment weighting for the PBL assignment. Based on this, she took action to change groups because the outcome of the assignment was important to her and her original group members were unresponsive:

I tried to email them and [got] no reply at all to anything. ... I need to get proactive ... I've only rung lecturers three times in five years ever, I'm just gonna ring because I need to get on to it. It's worth too much and I'm too close to the end now to suffer. (Elizabeth – Interview CS1S8q14)

What this highlights is that while a student such as Elizabeth may appear highly intrinsically motivated, this view is too simplistic. She was also simultaneously aware of the importance of assessment and wanting to achieve. Viewing motivation as a complex construct is supported by other research (Schunk et al., 2008) that has found that in any given context, at any given time, an individual can be simultaneously intrinsically and extrinsically motivated to greater or lesser degrees.

In contrast, Nadia reported that she was lacking in motivation (AM) and felt highly externally regulated (ER). Nadia's lack of belief in her ability to succeed at the PBL task gives some insight into her high amotivation score:

... I felt that, because my group members had a better grasp on what they were doing I was happy to take a back seat and I was happy to cruise along with what they were doing. (Nadia – Interview CS1S5q5)

Stated course expectations required all students to engage with each other online in their PBL groups. These were perceived by Nadia and her group (located at the satellite campus) as contrived and therefore externally regulated because of their different circumstances (being co-located):

So sometimes we would have meetings and then we would say we'll just go home and whatever we'd discussed we would just pop online so they can see what we'd been doing. ... We did do that and that was purely so they can see we are doing something. (Nadia – Interview CS1S5q2)

To this point the discussion has explored the most extreme motivation profiles of the student group. The remainder of the participants sat somewhere between these two extremes and provide examples of how an individual can express significant levels of more self-determined forms of motivation (i.e. identified regulation and intrinsic motivation) *as well as* considerable levels of externally regulated extrinsic motivation (ER) resulting in an overall positive SDI.

For example, Madison had a positive SDI score of 29. What is interesting about Madison is that she reported moderate to high scores on three motivation subscales. Given her overall SDI score, it was not unexpected that she reported a high level of intrinsic motivation (IM 22), resulting from the autonomy and satisfaction she felt while working within her PBL group that enabled each member to *“be experts in those roles and share our knowledge as a group”* (Madison – Interview CS1S3q3). She also recorded a moderate identified regulation (IR 20) score, the more self-determined type of extrinsic motivation. Support for this was evident in the amount of effort she put into the assignment because she *“had a goal and that goal was to be able to link it all together”* (Madison – Interview CS1S3q8). However, Madison also reported a very high level of the less self-determined type of extrinsic motivation, external regulation (ER 27). This suggests that while she found the PBL assignment interesting and considered it important, she was also very aware of the marks associated with the assignment. She expressed this as disappointment at the marks achieved for the assignment, which she felt showed that she had *“personally failed on [the PBL task] and as a group we failed on [the PBL task]”* (Madison – Interview CS1S3q17).

One further participant, Zoe, highlights the complexity of simultaneously held multiple motivations. Zoe had a SDI score of -7, indicating an overall experience of more externally regulated forms of motivation. However, when looking at her subscale scores, her motivation profile was multifaceted. She reported high to very high levels of less self-determined types of motivation, namely amotivation (AM 20) and external regulation (ER 28). These scores were supported by comments made during the

interview where she questioned her self-efficacy development (an indicator of amotivation) “*I still haven’t got a grasp on it [PBL]*” (Zoe – Interview CS1S11q6), and was aware of the expectations of her group (an indicator of external regulation), “*I had my other two peers saying, we need to get this together, we need to do that*” (Zoe – Interview CS1S11q2).

Despite this, she also expressed moderate to high levels of more self-determined types of motivation, namely identified regulation (IR 23) and intrinsic motivation (IM 19). The importance of the task to Zoe (identified regulation) is evidenced in the following comment that points to the utility value of the task, “*I felt it was very important. I think the experience was valuable*” (Zoe – Interview CS1S11q19). At the same time, it is clear from this statement, “*our problem was interesting, about graffiti*” (Zoe – Interview CS1S11q3), that the topic chosen by her PBL group was appealing to Zoe (intrinsic motivation).

Having explored the endorsement of different motivation types by individual participants, several notable points emerge for the group as a whole (see Table 4.3). Overall, participants reported being more motivated 1) *towards complying with requirements and/ or reacting to external demands* (ER Mdn=21), and 2) *by the utility value of the task* (IR Mdn=20), than by the interest or enjoyment (IM Mdn=17) experienced while undertaking the PBL assignment. Furthermore, several of the research participants reported a high degree of amotivation. The *salience of extrinsic types of motivation, that includes both identified regulation and external regulation*, is somewhat different to the literature which describes PBL as highly intrinsically motivating to students (Schmidt & Moust, 2000). These findings also differ from those of recent studies exploring motivation to learn online that have reported high levels of intrinsic motivation among students (Rovai et al., 2007; Wighting et al., 2008).

4.3.2 Comparison of positive and negative SDI scores

To gain further insight into the noticeable split among participants, the medians for each motivation sub-type for the participants with positive SDI scores and those with negative SDI scores were examined (see Table 4.4).

From this it is evident that the participants with positive SDI scores reported higher levels of more self-determined forms of motivation, namely identified regulation (IR *Mdn*=22) and intrinsic motivation (IM *Mdn*=20). While these participants perceived themselves as self-determining, they also reported moderate levels of the less self-determined motivation – external regulation (ER *Mdn*=16). However, they also reported the lowest possible median score for amotivation (AM *Mdn*=4).

Table 4.4: Comparison of median SIMS scores for Case Study One participants with positive and negative SDI scores

	Motivation Type					SDI score
	N	Amotivation (AM)	External Regulation (ER)	Identified Regulation (IR)	Intrinsic Motivation (IM)	
Participants with +SDI (<i>Mdn</i>)	6	4	16	22	20	37
Participants with -SDI (<i>Mdn</i>)	6	20.5	28	13.5	13.5	-23.5

Turning to the participants with negative SDI scores (see Table 4.4), it is evident that more extrinsic forms of motivation, in particular external regulation (ER *Mdn*=28) and to a lesser extent amotivation (AM *Mdn*=20.5), were salient. The maximum external regulation score indicates that these participants perceived their actions as being directed by forces outside of their control. In addition, the high amotivation score suggests that they did not value the task or felt they lacked the competence to complete it (Ryan & Deci, 2000a). A further, noteworthy point is they also reported some degree of more self-determined motivation – identified regulation (IR *Mdn*=13.5) and intrinsic motivation (IM *Mdn*=13.5).

The results for both the whole group (see Section 4.3.1) and the high and low SDI groups demonstrate that for students in this context, *their motivation to learn was a complex mix of multiple types of motivation*. This was because students had numerous, different reasons for engaging in the PBL activity and situational factors such as questions about self-efficacy, group experiences, and choice of topic (foreshadowed above), also influenced their experiences. This translated to the simultaneous endorsement of several motivation types. These findings also reveal that this complexity

can be overlooked if a composite scale, such as the self-determination index (SDI), is the only measure used to assess motivation.

Self-determination theory (Deci & Ryan, 1985) states that the degree to which an individual expresses self-determined forms of motivation depends on the degree to which their psychological needs of autonomy, competence and relatedness are met by factors within the learning environment. This would suggest, then, that for participants expressing higher levels of identified regulation and intrinsic motivation, their needs were being met. For those who reported high levels of amotivation and external regulation, the influence of certain social and contextual factors thwarted one or more of these needs (see Part Two of this chapter).

In the section that follows, achievement of the student participant group is presented and possible relationships between student motivation to learn (assessed using SDI scores) and achievement are explored.

4.3.3 Achievement as an indicator of motivation

“Students who choose to engage in a task, expend effort, and persist are likely to achieve at higher levels” (Schunk et al., 2008, p. 13). With this in mind, achievement data for the PBL assignment and the course as a whole were collected. Spearman rho correlations were calculated to explore the relationships between achievement and motivation. Results indicate there were no significant relationships between the PBL assignment grades of research participants and their self-determined motivation during the activity (see Table 4.5). This was also true at the course level.

Table 4.5: Case Study One Spearman rho correlation coefficients (r_s) between SDI and achievement

		N	Assignment mark	Course mark
All participants	SDI	12	.38	.41
Fully distance students	SDI	9 ^t	.82**	.86**

* $p < .05$ ** $p < .01$

^t Co-located participant data removed

Inspection of the data suggested that the three students co-located at the satellite campus were outliers and a linear correlation may be present when they were *removed*. The correlation between *fully distance students*' PBL assignment marks and SDI scores were found to be statistically significant (see Table 4.5), indicating there was a positive relationship between achievement and motivation. In other words, the higher the motivation (SDI score) of the learner, the higher the mark achieved for the PBL assignment. A similar relationship was also evident between the motivation of *fully distance students* and the mark achieved for the overall course. This means that for the *fully distance students*, how well they achieved was a good indicator of how self-determined they felt, a finding that is supported by the literature (Guay et al., 2008).

Nadia, Tim and Ursula (co-located students) also achieved high assignment marks. In fact, Tim achieved the highest mark of the participant group. While the SDI scores for all three indicate they felt varying degrees of non-self-determination while undertaking the PBL task, other factors appeared to support their achievement related behaviours.

The reasons for their high achievement despite feeling externally regulated, and in Nadia and Tim's cases highly amotivated, can be found in the comments from each group member about their commitment to the group. For Nadia, it was very important that she was viewed as trustworthy and reliable:

I think you have to look at the bigger picture. You don't just look at yourself and say "oh I hate this course I'm not doing well in it". ... but that didn't mean that I could leave them in the lurch and not pull my weight and I think that, that's the main thing that concerned me ... I need to be involved because I'm also part of the group. But I think that's the main thing. I wasn't, you know, I wasn't just tagging along with what they were doing. I was actually adding value. For me that's important. (Nadia – Interview CS1S5q20)

Tim's comment highlights their collectively held outcome expectation of achieving high marks and ensuring each did their part so that the group, as a whole, experienced success:

I think all of us have been doing reasonably well in our courses ... and didn't see any need to let each other down on something like this. (Tim – Interview CS1S7q9)

Ursula’s observation highlights her respect for her fellow group members:

... they’re both amazing people to work with. We had a really good group. We were called the super group or something. (Ursula – Interview CS1S6q5)

Ultimately this respect, trust and reliability resulted in the development of supportive relationships between the group members, a finding that has been noted elsewhere (Kehrwald, 2008). It is clear throughout their experience that while their autonomy and competence needs were not always met (see Part Two of this chapter), their relationship needs were clearly being met within the group. What is also apparent is that achieving high marks was personally important to each group member (see Tim’s statement above) in the broader context of their overall studies (Vallerand & Ratelle, 2002). This, in turn, influenced their approach at the situational level (PBL assignment).

4.3.4 Achievement of participants compared to non-participants

Mann-Whitney U tests were conducted comparing the achievement of research participants and non-participants to determine whether any significant differences existed between the two groups. Achievement on the PBL assignment and achievement for the course as a whole were compared. The results are presented in Table 4.6.

Table 4.6: Case Study One Mann-Whitney U results comparing achievement of participants and non-participants

	PBL assignment mark	Whole course mark
Mann-Whitney <i>U</i> (2-tailed)	190	179.5
Effect size (<i>r</i>)	-.09	-.13

All coefficients are statistically non-significant

Results indicate there was no difference in the PBL assignment and overall achievement scores between the two groups. This indicates that, in terms of achievement for the PBL assignment and the course as a whole, the research participants were a typical representation of the course cohort.

Having explored the nature of motivation to learn, attention is now turned to the exploration of relationships between the motivation of learners and their participation in the online PBL environment.

4.4 Online participation

This section explores student rates of participation throughout the PBL assignment and possible relationships with their motivation to learn. The relationship between participation and achievement is also explored. Rates of participation are also examined on a weekly basis by comparing the more self-determined research participants with those who expressed less self-determination. Research participants' rates of participation are then compared to non-participants' results to determine whether the research participants were a typical representation of the whole cohort. The research question being addressed throughout this discussion is:

How does the motivation to learn of pre-service teachers relate to their participation in online distance learning environments?

4.4.1 Relationships between participation, motivation and achievement

Three measures of WebCT usage statistics data are used as indicators of online participation or engagement. These are WebCT hits, messages read and messages posted (see Section 3.8.3 for definitions). Hits and messages read were included in the analysis as a measure of passive participation. However, messages posted were used as the key indicator of participation as this was a visible demonstration that, in the PBL assignment, a student was actively making online contributions (a requirement of the course).

Several correlations were calculated to explore relationships between online participation (active and passive) during the six-week period of the PBL assignment and the self-determination index (SDI) score as a measure of overall situational motivation. Similar relationships were also explored at the course level.

When all participant data were included (N=12), statistically significant relationships found were between the number of messages posted and SDI scores during the PBL assignment ($r_s=.76, p<.01$) and over the course as a whole ($r_s=.77, p<.01$). This means

that the higher the degree of self-determination reported by a student, the more active she/he was, in terms of the number of messages posted, within the discussion topics. No such relationships existed between passive online participation indicators (i.e. messages read or hits) and motivation over the duration of the PBL activity or the course as a whole.

Possible relationships between online participation and achievement, for the PBL assignment and the course as a whole, were also explored (see Table 4.7). This was important because of the perception of a link between student activity online and achievement, as the remark from Owen, the main online tutor, indicates:

So it's that to me, that presence online is absolutely critical and gets reflected in some of the numbers of ... postings. That, I think if we took some of the higher numbers that would reflect probably in their final grades whereas, some of the lower numbers tended to perhaps not achieve as well. (Owen – Interview CS1L2q3)

Only the relationship between the number of messages posted during the PBL activity and the assignment mark was found to be moderately statistically significant. This suggests that the higher the number of messages posted – that is, the more visibly active online a participant was during the six-week assignment – the higher the mark achieved for the PBL assignment. In terms of passive participation, no significant relationships were found. Furthermore, no significant relationships were found between participation, active or passive, and achievement over the duration of the whole course.

Table 4.7: Case Study One Spearman rho correlation coefficients (r_s) between participation, SDI, and achievement at assignment and course levels

		N	Messages Posted (PBL)	Messages Read (PBL)	Hits (PBL)	Messages Posted (course)	Messages Read (course)	Hits (course)
All participants	PBL assignment mark	12	.58*	.53	.39	-	-	-
	Course mark	12	-	-	-	.49	.51	.42
Fully distance students	PBL assignment mark	9 ^t	.93**	.78*	.53	-	-	-
	Course mark	9 ^t	-	-	-	.89**	.74*	.51

* $p < .05$ ** $p < .01$ ^t Co-located participant data removed

Reasons for these differences may be because the nature of the PBL activity (e.g., collaborative and high stakes) needed greater active online participation to achieve good marks, in comparison to the course as a whole. In other words, the nature of the task has influenced the motivated behaviour of participants.

Further correlations were then performed with the co-located students' data removed. The reason for this was because the co-located participants were regularly meeting face-to-face, “*after class or before class or between classes*” (Ursala – Interview CS1S6q2). Therefore, the online activity by these participants does not accurately reflect their actual participation within their PBL group.

A highly statistically significant relationship between the number of messages posted by *fully distance students* and achievement on the PBL assignment was evident (see Table 4.7). A significant relationship between the number of messages read by *fully distance students* and their achievement on the assignment was also evident. Similar relationships were also evident for the entire course. The stronger relationships between online participation (active and passive) and achievement, for *fully distance students*, is understandable as this was the main way in which they participated and communicated with each other. In comparison, the co-located students talked to each other, in person, on a daily basis and posted messages online primarily to satisfy the lecturers' expectations (see Section 4.5.2).

4.4.2 Limitations of using messages posted as a measure of participation

Using the number of messages posted is, however, only a rudimentary measure of participation as the quantity of messages does not necessarily equate to quality of engagement (Gunawardena et al., 1997). For example, many of the messages posted throughout the PBL discussion topics fall into the category of using the discussion board as a repository, where a piece of work was attached to a message making it available for others in the group to access. While this indicates offline activity in the form of the development of an artefact, the message itself suggested nothing about the quality of that contribution (analysis of message attachments was not included in this investigation). The following message is an example of this:

Posted by **Giselle** on Tuesday, March 4, 2008

Subject: [REDACTED]

includes attachment

Notes attached. (Asydisc PBLGpC CS1S10)

In her interview, Giselle mentioned this as a benefit of using WebCT:

But in the end we found it easier to go in and just create a thread that you would place things. And people would just, we'd put it in a file format and I would download the file and go into the file and make changes and put it back on. (Giselle – Interview CS1S10q8)

In addition, using the number of messages posted as a measure of engagement does not reflect the amount of time and effort individuals spent working on the assignment using alternative, synchronous means of communication. These included: phone, MSN Messenger (Windows Live Messenger), Skype, or meeting face-to-face. For example, Zoe and her group used Skype to ask questions of each other and discuss ideas:

Using Skype was an invaluable ... as we didn't have to spend endless hours typing questions if we could answer it immediately. (Zoe – Questionnaire CS1S11q30)

Wendy's group talked to each other via phone to aid their understanding:

We got on the phone quite a bit to suss things out. (Wendy – Interview CS1S9q10)

For the co-located students, meeting face-to-face was a regular occurrence:

I was lucky in that my group members all live close by and we all attend the same campus, so we were able to meet in between classes, after classes, and outside uni hours as well. (Nadia – Questionnaire CS1S5q30)

Using the number of messages posted also neglects the, often significant, amount of time spent working offline. Although offline time was not measured specifically (a limitation of this research), a common theme that emerged was the considerable amount of time and effort expended during the PBL task (see Section 4.5.2). This was explored further to see if any differences existed between participants with positive SDI scores

and participants with negative scores. However, regardless of their motivation score, all participants expressed feelings of having invested a lot of time and energy in the assignment.

For example, both Giselle and Elizabeth, who reported high levels of self-determination (SDI 34 and 42 respectively), mention that the task “*consumed us*” (*Giselle – Interview CS1S10q2*) and “*was all consuming*” (*Elizabeth – Interview CS1S8q1*). In a similar vein, Hazel and Valerie also talked about expending a great deal of effort during the PBL task, even though they reported feeling little self-determination (SDI -31 and -21 respectively):

... there was a lot of investigative work, there was a lot of other stuff that we did behind the scenes that didn't actually get into the assignment.
(*Hazel – Interview CS1S12q2*)

It was a lot more labour intensive than we thought and even though they said a hundred and fifty hours, I think it was more than that. I'm actually convinced it was more than that. (*Valerie – Interview CS1S1q12*)

To determine whether any differences existed in the nature of online engagement within PBL groups whose participants reported high levels of self-determined motivation compared with those who reported low levels, online transcripts were explored. Given the focus of this investigation, existing online transcript content analysis models were not used. Instead, themes that emerged from the online transcripts and interview data and were also supported by the literature (Dillenbourg, 1999) were used as indicators of the quality of engagement. These themes were negotiation of understanding, collaboration, and contribution to meaningful dialogue

4.4.3 Quality of online participation and motivation

High quality participation among group members in terms of input, negotiation of meaning and development of understanding were apparent in PBL groups with members that had positive SDI scores. In groups where participants had negative SDI scores, individual approaches were more evident. The former approach was consistently evident in PBL group G (a pseudonym) whose participants all had positive SDI scores. Here, Irene, Elizabeth and Wendy discuss the results of the science experiment carried

out by Elizabeth. Irene and Wendy are unclear as to what the results mean, so continue to seek clarification from Elizabeth:

*Posted by **Irene** on Wednesday, March 19, 2008*

Subject: [REDACTED]

Hi everyone

...

If you could just clarify the impact results Elizabeth so that we have all got it around the right way!! (i.e. was it bark that absorbed the most impact?)

Irene. (Asydisc PBLGpG CS1S2)

Elizabeth responds:

*Posted by **Elizabeth** on Wednesday, March 19, 2008 2:50pm*

Subject: [REDACTED]

Hi Irene,

Under the investigation of a 1 metre drop where all four samples were placed on the same foundation, bark absorbed the most impact and wet-pour rubber the least.

Elizabeth. (Asydisc PBLGpG CS1S8)

Still unclear about what the results mean, Wendy seeks additional information.

*Posted by **Wendy** on Wednesday, March 19, 2008*

Subject: [REDACTED]

Hi Elizabeth,

I was just wondering if you could clarify what type of bark you used for the test. ... Can you also please clarify the results of the impact test as to which is the best as I think we are a bit muddled in that department. The sooner we can get our head round that the sooner we can make a decision as to which is the best product.

Thanks

Wendy. (Asydisc PBLGpG CS1S9)

Again Elizabeth provides additional information to aid in the development of the group's understanding of the experimental results:

Posted by **Elizabeth** on Wednesday, March 19, 2008 2:47pm

Subject: [REDACTED]

Hi Wendy,

The bark was straight from the playground and was three months old. It had been sold as certified playground bark which means no piece is larger than 30mm diameter and there is little dust.

As for the impact testing. We dropped a cricket ball from 1 metre and measured the bounce. The wet-pour rubber produced the highest bounce, followed by prepour rubber matting, followed by artificial turf then bark. I believe this means that rubber absorbs the least impact and bark the most. I believe this makes bark the recommended material. However all samples were trialled on top of a wooden deck and possibly in situ the ground under the material may play a large factor.

reading the brochures I think that there is an accepted level of absorption and different surfaces have differing drop heights that can still reach this absorption level. This is called the drop height.

Hope this is helpful

Elizabeth. (Asydisc PBLGpG CS1S8)

Wendy's reply shows she is willing to continue questioning and negotiating the meaning of the results based on her current knowledge:

Posted by **Wendy** on Wednesday, March 19, 2008 4:11pm

Subject: [REDACTED]

Thanks Elizabeth,

I really thought that the rubber matting would be best. The school my children go to has rubber matting which has holes though it and is really spongy to walk on. I wonder how this would compare to the rubber matting you have? ...

Thanks for clearing that up

Wendy. (Asydisc PBLGpG CS1S9)

Ultimately, Wendy sought assistance from Owen, the tutor, on behalf of the group in order to fully understand and be able to explain to the group what their results meant. In contrast, Hazel's (SDI -31) comment below highlights a more individual and isolated approach in her group. Review of the asynchronous transcript confirmed periods where little online activity occurred:

After [developing] the initial [problem]... statement full online activity rarely occurred due to the varying demands of our commitments. So the

assignment tended to be done by the other two members ... with me adding my bits as and when completed. (Hazel – Questionnaire CS1S12q30)

Group D (the co-located group) also demonstrated quality online collaboration and negotiation, even though the group members all reported low levels of self-determined motivation. This is demonstrated by the following example where Tim, Nadia and Ursula are discussing, clarifying and refining the ‘problem’ that will form the basis of their investigation:

*Posted by **Tim** on Saturday, March 1, 2008*
Subject: [REDACTED]
includes attachment

...
Scenario:
When opening a car door, or just touching a car, some of us are zapped. It feels like a small electric shock. This zap can be uncomfortable and surprising for the recipient.

Problem:
We need to find out what is actually happening when the person gets zapped and develop⁴ a way to prevent it occurring?

Suggest we discuss and amend them via this thread and update the chart when we have settled on the final version. ...

Tim. (Asydisc PBLGpD CS1S7)

Ursula responds with a personalised version of the scenario.

*Posted by **Ursula** on Monday, March 3, 2008*
Subject: [REDACTED]
Scenario

Everytime I open the car door I get zapped. It has got to the stage that I make every excuse not to drive anywhere.
Problem:

Stop the static discharge problem that is causing me to get zapped.

I think the scenerio has to be more personal.
Ursula. (Asydisc PBLGpD CS1S6)

⁴ Throughout the thesis, excerpts are quoted verbatim from participants’ questionnaire responses and asynchronous discussion postings and therefore may contain spelling and grammatical errors.

Tim acknowledges Ursula's contribution and then seeks clarification about their current knowledge of static electricity:

*Posted by **Tim** on Monday, March 3, 2008*

Subject: [REDACTED]

Hi.

fair point about personalising it further Ursula.

I have a concern about the first entry. The statement "we know about static electricity" is not clear to me. If we now what static electricity is, we should state it in this column as "static electricity is ". It would appear from some of the what do we need to know statements that we may not fully understand what static electricity is, thus some reserahor experiments required.

I think we also need to note if our entries are science or technology.

Anyway, I'll get some entries in as well.

Tim. (Asydisc PBLGpD CS1S7)

This time, Nadia replies by explaining her reasoning for adding additional information:

*Posted by **Nadia** on Monday, March 3, 2008*

Subject: [REDACTED]

Tim, the first entry refers to the fact that sometimes when we 'zap' each other, or we touch something after dragging our feet on the carpet and we get zapped, we know it is static electricity that causes it but we don't know why. We know the name but we don't know what it is or what causes it (not yet anyway). Maybe we need to rephrase to make it clearer. (Asydisc PBLGpD CS1S5)

What is noteworthy about this interaction, and others demonstrated by this group, is that based on the quality of discussion it is very difficult for teaching staff to distinguish any differences in motivation between highly motivated groups, such as Group G described earlier, and this one. However, the relatively low number of postings by the co-located group may act as an additional indicator for lecturers that further investigation into the reasons for low online participation is needed.

4.4.4 Weekly participation during PBL task

The number of messages posted by each research participant, for the six-week duration of the PBL assignment, was also explored to see if any differences existed for students who experienced greater self-determination (i.e. positive SDI) compared to those who expressed less self-determination (i.e. negative SDI, see Figure 4.1).

On average, there was a noticeable increase in the number of messages posted from week 1 to week 2 for participants with a positive SDI (i.e. high self-determination). The level of postings was then maintained until week 4 when it gradually tapered off as the assignment moved toward completion. In contrast, participants with negative SDI scores (i.e. less self-determined) posted a more consistent number of messages throughout the first four weeks of the assignment. This then dropped dramatically in week 5 and jumped in week 6, in a final flurry to get the assignment completed. This type of dramatic drop off in online postings may be an indicator to lecturers that additional support is required.

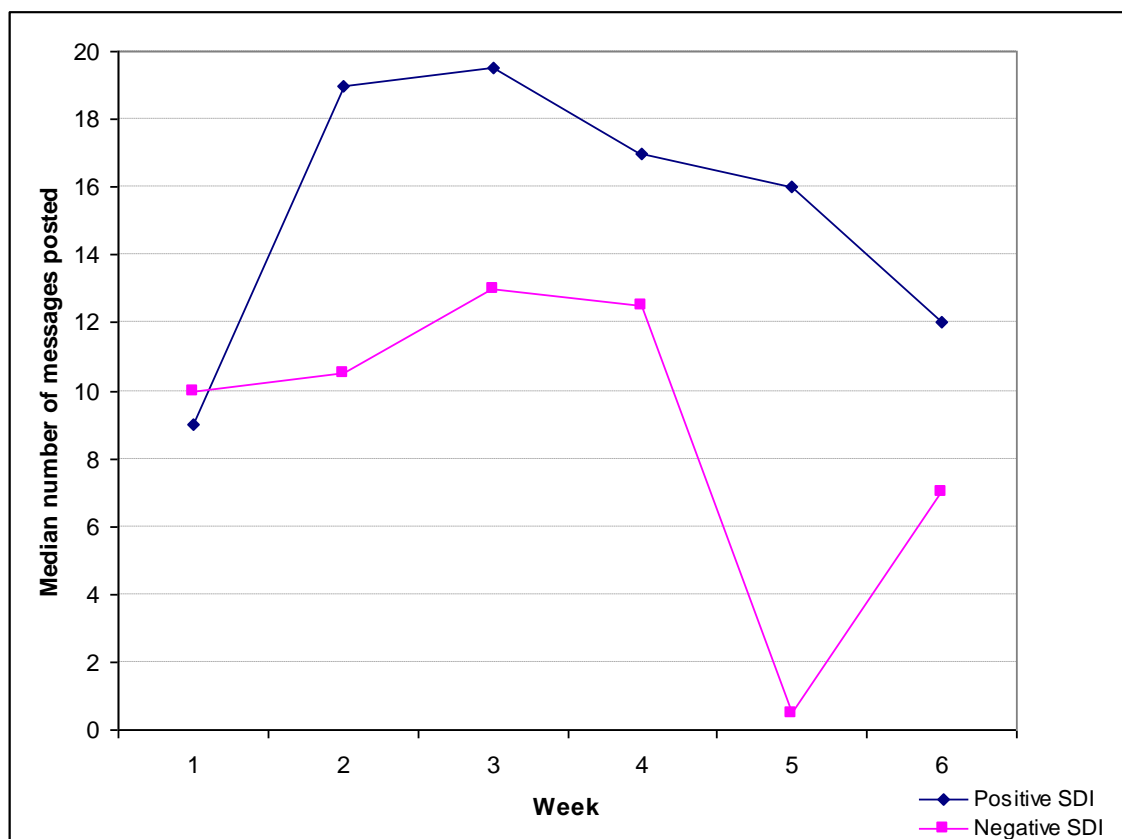


Figure 4.1: Comparison of median number of weekly messages posted by more and less self-determined participants

As well as clear differences in the behaviour of students based on their motivation, there was a noticeable difference in students' perceptions of the value of participation in the online environment. More self-determined students saw online discussion as an opportunity to get their ideas and opinions across rather than an externally imposed requirement, as Madison and Elizabeth attest:

I believe that being able to discuss things online enabled me to share my ideas more openly without the pressure of eyes peering at me, which would often become a stumbling block in developing my ideas well. (Madison – Questionnaire CS1S3q30)

Without the group discussing things which lead to questioning and then a need to change and redo a section, we would not have been as successful and our learning would not have been as good. (Elizabeth – Questionnaire CS1S8q30)

Students who felt less self-determined throughout the PBL assignment saw the process of working in groups in an online context as constraining them in some way. This resulted in feelings of a lack of autonomy and of having to comply with an externally imposed requirement. This can be seen clearly in the comments from Hazel and Valerie:

I found the WebCT requirements too frustrating – I'm a ... [distance] student because of other commitments and can't always 'communicate' when others can, but I still continue to do the work within my study timetable created around those commitments. (Hazel – Questionnaire CS1S12q25)

Working in the WebCT environment is difficult enough without adding collaborative assignments into the mix. Collaborative assignments can be harmful. (Valerie – Questionnaire CS1S1q25)

It is also clear from the above remarks that various social and contextual factors within the PBL environment dynamically affected an individual's motivation and, in turn, their perception of their online experience. Factors such as time constraints and communication difficulties with other PBL group members were found to undermine quality (i.e. more self-determined) motivation. These are explored in detail later in Part Two of this chapter.

4.4.5 Participation of research participants compared to non-participants

Mann-Whitney U tests were conducted comparing online participation (hits, messages read and messages posted) of research participants and non-participants. This was to determine whether any significant differences existed between the two groups both throughout the PBL assignment and the overall course. Results are presented in Table 4.8.

Results indicate a statistically significant difference between the number of messages read by the participant ($Mdn=531$) and non-participant groups ($Mdn=400$) during the PBL assignment. Similarly, a statistically significant difference was found between the number of WebCT hits made by the participant group ($Mdn=952$) compared with the non-participant group ($Mdn=721$) during the PBL assignment. However, no statistically significant difference existed between the messages posted by the two groups. Similar differences were also evident at the whole course level.

Table 4.8: Case Study One Mann-Whitney U results comparing online participation of participants and non-participants at assignment and course level

	Messages Posted (PBL)	Messages Read (PBL)	Hits (PBL)	Messages Posted (Course)	Messages Read (Course)	Hits (Course)
Mann-Whitney U (2-tailed)	187.0	126.5*	131.0*	148.5	104.5**	93.0**
Effect size (r)	-.10	-.31	-.29	-.42	-.38	-.23

* $p < .05$ ** $p < .01$

This indicates that the research participant group was significantly more active in accessing the WebCT environment and reading messages posted (i.e. passive participation) during the PBL assignment and the course as a whole, but were not statistically different from the non-participant group when it came to posting messages (i.e. active participation). In other words, even though the participant group's passive online behaviour was different from the wider cohort the important measure of active online participation was not.

As mentioned previously, while WebCT hits and messages read were included in this discussion, messages posted were used as the key indicator of participation as this was a

visible demonstration, to lecturers and peers, that a student was actually making contributions and participating in the PBL assignment. In terms of this key indicator, the research groups' active participation was not significantly different to that of the non-participant group.

Part Two: Social and contextual influences on motivation

Motivation is a consequence of cognitive evaluations which individuals make in a given situation. These cognitive evaluations are 1) *constructed*, as each person may interpret the same events differently; 2) *contextualised*, because people make unique interpretations in different situations; and 3) given its constructed and contextualised nature, necessarily *unstable* (Paris & Turner, 1994). Recognising the mutually constitutive relationship of the learner and the learning environment (Hickey & Granade, 2004), a range of social and contextual factors were investigated in order to explore their relationship with pre-service teachers' motivation to learn in Case Study One.

In order to untangle the multiple influences on motivation that combine in complex ways in different contexts, self-determination theory (SDT) is used as an organising framework. The fundamental premise of SDT is that perceptions of autonomy, competence and relatedness (Deci & Ryan, 1985) contribute to self-determined forms of motivation. These three concepts are used to organise the findings and subsequent discussion. Self-efficacy theory (Bandura, 1997) and the associated concept of collective efficacy (Bandura, 2000) are also used as an aid in understanding students' motivation to learn, particularly in relation to the development (or lack of development) of competence throughout the PBL assignment. Interest theory (Hidi & Renninger, 2006) is also drawn on to identify factors that facilitate autonomy. Within each organising concept, key social and contextual factors are identified and explored to determine how they foster or thwart feelings of autonomy, competence and a sense of relatedness. It is important to note though, that no one factor enabled or thwarted all the psychological needs of learners. Throughout the remainder of the chapter, research question three is addressed. Conceptual models are presented that summarise the complex factors influencing learners' motivation in this environment.

In what ways do social and contextual factors relate to pre-service teachers' motivation to learn in online distance learning environments?

4.5 Perceptions of autonomy

Cognitive evaluation theory, a sub-theory of SDT (Ryan & Deci, 2000a), posits that if the conditions are such that they support an individual's autonomy (along with competence and relatedness) then a learner's inherent intrinsic motivation will be maintained or enhanced (Deci & Ryan, 1985). Moreover, organismic integration theory tells us that while not all learners will find a particular activity interesting or enjoyable (and therefore intrinsically motivating), if the environment supports a person's sense of personal agency via activities that are meaningful and relevant to them, then more internalised forms of extrinsic motivation will be fostered (Ryan & Deci, 2002). But if social or environmental factors exist such that a learner's perception of self-determination is undermined, then more autonomous forms of motivation will be detrimentally affected and externally regulated forms of extrinsic motivation will be evident (Reeve et al., 2004).

4.5.1 Factors that supported perceptions of autonomy

When autonomous, students attribute their actions to an internal perceived locus of causality, feel volitional and experience a sense of choice over their actions (Reeve et al., 2008). Madison was one participant who clearly articulated a sense of personal agency and autonomy during the PBL process, describing how it allowed her to be creative, a connection that has also been noted in the literature (Amabile, 1985):

*It was just open. I was able ... to be creative. I was able to ... do whatever I wanted to do as long ... as it had everything it needed.
(Madison – Interview CS1S3q8)*

Madison's comment is one example of those made by participants with positive self-determination index (SDI) scores (see Table 4.3). Learners who perceived their locus of causality as more internal and therefore more autonomous, tended also to display self-monitoring and self-regulating type behaviour. Wendy described the processes that went on in her group:

We always set ourselves ... timelines. Right, can everyone have this done by such and such? And so we always knew. We kept on doing that so that we kept on track of things and we always knew exactly where we were at. (Wendy – Interview CS1S9q5)

In the discussion that follows, important themes and sub-themes that facilitated the expression of autonomy among participants are identified and explored. They include: relevance and meaning; active learning; interest and enjoyment; the role played in group decisions and tasks; autonomy support from lecturers; and perceptions of choice. The order in which they are presented indicates their relative salience (i.e. the frequency with which they featured in the qualitative data).

1. Relevance and meaning

The relevance, meaning and/or importance of the PBL activity emerged as the most salient theme that supported the autonomy of Case Study One participants. This indicates that several learners found the PBL assignment a worthwhile and valuable learning activity to engage in. Within this major theme, two key sub-themes emerged. These were: 1) *relevance to their future role as a teacher* and 2) *personal relevance*.

Of the two sub-themes, the most salient was the *relevance of the PBL learning experience to future teaching practice*. Participants who saw a clear link between their own experience of PBL and its relevance to their future teaching practice, scored highly on the identified regulation subscale. For these participants, the relevance of the activity lay in its utility value (Ryan & Deci, 2000a) as a future teaching and learning tool. For example Penny, who reported the highest identified regulation score (IR 26), clearly articulated the link between the theory of curriculum integration and her own experience of PBL:

This assignment approached learning through open-ended problem solving which is a firm base from which to begin curriculum integration within any classroom environment. (Penny – Questionnaire CS1S4q27)

Wendy, who also reported a high identified regulation score (IR 22), clearly saw the potential application of the PBL teaching approach in her future professional role as a teacher:

I like full stop doing practical courses anyway because I can actually see that I can use it in the classroom. A lot of the other theory courses that we've done and it's like why are we doing these courses? This is not going to help me be a teacher. So for me personally, I prefer to do these types of courses anyway because they mean something. You can see that you can walk into the classroom and you can actually do that. (Wendy – Interview CS1S9q20)

The ability to transfer the PBL learning experience into future, professional teaching practice was an important consideration that influenced the development and inclusion of this assignment, as Dan's comment (the course coordinator) indicates:

They should be able to engage in that type of thinking and then be able to transfer their own experiences into a classroom. (Dan – Interview CS1L1q2)

Following on from this, the second sub-theme was *personal relevance*. Here, participants highlighted the importance of being able to investigate a personally meaningful problem that had immediate relevance to them within the broader context of their life experience. For example, comments from Zoe (IR 23) and Irene (IR 22) highlight the importance of being able to focus on a problem connected to their family or local community:

An authentic problem that was happening in our community that was good ... and meaningful knowing [there were] other people that we could talk to, that we already knew. That was good ... that was motivating. (Zoe – Interview CS1S11q3)

I think a bit of relevancy 'cause like we've all got children that play on playgrounds. So it was something that was interesting. And my school had just put out a large sum of money to get the proper playground matting. So it was quite interesting to find out just why they went to that expense. (Irene – Interview CS1S2q8)

The lecturers were aware of the value of encouraging learners to adopt a problem that had personal relevance, as Owen's comment shows:

I mean often these [are] issues and concerns which are right on their very ... doorstep. We don't have to think globally ... and to me the more localised they are ... the more meaningful it becomes. Then they can

access the knowledge and understanding behind it more readily. (Owen – Interview CS1L2q6)

2. Active learning

The next most prominent theme highlighted the value of the practical hands-on approach to science and technology embedded within the PBL activity. Being able to use the knowledge they were learning in practice was seen as important and valuable by several participants, including Wendy and Penny. Specifically, students were learning about a problem-based approach to learning while having an *experience* of a PBL process for themselves. This required them to understand and apply science and technology knowledge, relevant to their problem, in ways that explicated the problem and offered potential technological solutions:

It was a very hands on/practical assignment which not only put the theory into practice but it also replicated exactly what would happen within the classroom situation if this was to take place. (Wendy – Questionnaire CS1S9q29)

The discovery, yeah that would pretty much sum it up. I'm the kind of person that likes to get out and do it rather than sit and type it. That would be a good way of putting it. But once I've done it, I can put it all together. The actual, active involvement so that's it. I liked it 'cause you're involved. That affected my involvement a lot. Saying what I was going to be doing and doing it. (Penny – Interview CS1S4q15)

This was again something that was planned for during the development of this assignment. As Dan says, one of the “*key features [of the PBL assignment is] that it embeds a doing [of science and technology] as well as a theoretical understanding*” (Dan – Interview CS1L1q19).

Together, perceptions of the PBL task being *relevant and meaningful*, both professionally and personally, and opportunities for *active learning* contributed to the moderate to high levels of the more self-determined extrinsic motivation type – identified regulation – reported by three quarters of participants (IR *Mdn*=20, see Table 4.3).

3. Interest and enjoyment

In terms of what participants found interesting or enjoyable about the assignment and therefore promoting intrinsic motivation, two clear sub-themes emerged. By far the most important sub-theme was *situational interest*. This relates to features of the learning activity itself that participants found interesting or enjoyable and encouraged personal involvement (Hidi & Harackiewicz, 2000; Hidi & Renninger, 2006). Participants identified several aspects of the PBL activity that were interesting, including 1) the topic they chose as the focus of the PBL process (this could be anything as long as it had investigable science and technology components); 2) the requirement to problem-solve; and 3) the collaborative nature of the assignment. The different reasons for situational interest are highlighted in the following comments from participants.

Wendy's comment below is an example of interest in the chosen topic. It also highlights that her group adopted a negotiated approach to decision making by focusing on a common area in their lives:

... we picked a topic that we were all interested in and we all had kids. We did playground matting, safety of playground matting, and it was all a topic that interested us 'cause we've all got young children. (Wendy – Interview CS1S9q5)

Tim's remark expressed the enjoyment he experienced when trying to solve problems that were part of the learning process:

It's ... just the fun of actually trying to create some experiments that would actually do it, yeah. ... I thought we were relatively creative with what we came up with. (Tim – Interview CS1S7q3)

The opportunity to work with peers in PBL groups was the third situational factor that participants identified as interesting or enjoyable and therefore encouraged intrinsic motivation. Zoe's observation clearly shows that interacting with her peers was a factor in her enjoyment (at least in part) of the PBL experience:

But I did enjoy getting online discussing with the other two. So that was really enjoyable and something that was authentic. (Zoe – Interview CSIS11q3)

The above remark also foreshadows the importance of peer relationships in supporting an individual's relatedness needs (in addition to their autonomy needs), which was also important in facilitating the expression of autonomous (i.e. more self-determined) types of motivation. Factors that support relatedness needs are discussed later in this chapter (see Section 4.7.1).

The second sub-theme that promoted intrinsic motivation was *individual/personal interest*. Hidi and Renninger (2006, p. 111) describe individual interest as “a relatively enduring predisposition to reengage particular contents over time”. Several participants identified science and/or technology as well-developed areas of individual interest, characterised by positive feelings and value for the content being learned.

For example, both Penny's and Elizabeth's interest went further than just the topic chosen. They both expressed a broader interest in the subject areas they was studying:

I really like science and I really like technology. It's ... my two favourite subjects. (Penny – Interview CSIS4q20)

Science and technology are my favourite things. (Elizabeth – Interview CSIS8q10)

4. Significant role in group decisions and tasks

Perceptions of having played a significant role in group tasks and decisions also contributed towards learners' autonomy. In others words, the contributions of the individual learner were perceived by him/her as being endorsed by the group and influenced the actions taken. Perceptions tended to fall into two distinct categories: 1) those whose need for autonomy was supported within the group via collective negotiation and decision-making processes; and 2) those who took a leading role in their group thereby supporting their own autonomy needs.

Collective decision-making was an important factor in Elizabeth, Irene and Wendy's group. Elizabeth felt “*you had your say on everything*” (Elizabeth – Interview CSIS8q9)

while Wendy commented that “*we made decisions the whole way through*” (Wendy – Interview CS1S9q9). The negotiated approach is clearly evident in the following example from the group’s asynchronous discussion transcript. Here they are in the early stages of the PBL process and are discussing what they think needs to be done. What is interesting about this excerpt, is Elizabeth’s qualification of her ideas with the term ‘bossy’ in order to circumvent any potential misunderstandings about who is in control (they all are). This, in turn, elicits support from Wendy and Irene who, at different times throughout the PBL process, also take their turn at being ‘bossy’.

Posted by **Elizabeth** on Sunday, March 2, 2008

Subject: [REDACTED]

Hi Irene and Gail,

...

For our next step, (see the bossy (organising, controlling) side of me coming out?) then, we need to decide on our problem, write a problem statement, develop a NTK chart for this and contribute to a thinking log. In addition look over the exemplars etc on the CD and continue all that reading in the manual.

Is that all?

Elizabeth. (Asydisc PBLGpG CS1S8)

Posted by **Wendy** on Sunday, March 2, 2008

Subject: [REDACTED]

Hi everyone,

Dont worry about being bossy Elizabeth, I luv that, its the only way to get things done!!!! I think we all have a bit of that somewhere in each of us which will make for a great team assignment.

Sounds like we are all slowing heading on the same track – all a bit confusing to start with. I guess with the thinking log we don’t wont to race in there and try and beat each other at putting up our thoughts, so maybe, as a suggestion, every couple of days we could have turns to put up the thoughts and ideas for those few days and then the next person will do the next couple of days etc so that we all get to have a turn. Let me know what you think.

I’m off to have a look at the power points.

Catch you later

Wendy. (Asydisc PBLGpG CS1S9)

Posted by **Irene** on Sunday, March 2, 2008

Subject: Re: [REDACTED]

Hi guys

...

Being bossy is definitely fine in this group Elizabeth – the bossier the better!

...

So really – our next steps will be – we need to decide on our problem statement and then put together our need to know chart.

Irene. (Asydisc PBLGpG CS1S2)

It is evident from this that these group members encourage each other to freely express their opinions and ideas and be involved in group decision-making processes. It also provides further evidence for the higher levels of more autonomous forms of motivation reported by all three group members.

Other participants didn't experience the same levels of negotiated decision-making evident above. However, those who found themselves in a position of leadership acceptable to their group, by default or design, also expressed a sense of autonomy. This was the case for Madison. When she talked about the pivotal role she played within her group, her sense of autonomy was clear:

Madison: *Oh I felt like I knew everything [laugh]. I was called camp mother (laugh).*

Interviewer: *Why was that?*

Madison: *Because I was the organiser ... I reiterated everything. ... If someone was in trouble, it was like Madison what do we do? ... and especially with the presentation side and working with the computer and stuff like that. (Madison – Interview CS1S3q6)*

Penny took on the role of coordinator to ensure her group was making sufficient progress, and in doing so, fulfilled her need to be self-initiating, self-regulating and autonomous:

I think I had quite a lot of input actually. ... what I found was that we seemed to talk a lot but not actually make the decisions really quickly. So ... throughout ... I'm trying to collate what we'd done and where we're

at all the time. So we all know that this is what we're doing now and summarise what we'd been talking about and that we're all on the same page. (Penny – Interview CS1S4q9)

The perception of playing a significant role in the decision-making processes of the group was important to an individual's feelings of autonomy. This was not the only theme to emerge that highlighted the importance of interactions with others.

5. *Autonomy supportive lecturers*

Autonomy support is defined as the active support of an individual's capacity to be self-initiating and autonomous (Vallerand et al., 2008). Research shows that autonomy support leads to more self-determined forms of motivation (Guay et al., 2008; Reeve, 2006, 2009; Reeve et al., 2008; Ryan & Deci, 2000a; Vallerand et al., 2008). The following comments from the lecturers, Owen and Dan, indicate that their reasons for adopting a PBL approach to curriculum integration include the support of learner autonomy. They believe there is a clear link between learner control (which they refer to as ownership), engagement and autonomous motivation:

I think the key word is intrinsic motivation. Students identifying their own, their own opportunities, you know issues. So they get that sense of ... ownership right from the start, it's not imposed upon them. So that's sort of the driving force behind the whole maintaining that enquiry over the five weeks. I think if we were to specify you had to do this topic, or that topic, they would lose interest a lot quicker and be, you know, unsustainable. (Owen – Interview CS1L2q5)

So again we give them options that they can decide and I think it's healthy when they decide because the ownership is on them and they're not being pushed and pushed and pushed into doing something that they really don't want to do. (Dan – Interview CS1L2q8)

These are just two examples of many similar expressions of autonomy support from the lecturers. Both lecturers saw offering choice around the problem to be investigated, the approach taken and the final presentation provided students with opportunities to take control and follow their own interests. They believed this was a key contributor to students' sense of personal volition during the learning process.

Madison's comment below is one example that providing choice was also seen by participants as supportive of autonomy. She saw her sense of control originating from the freedom to choose what to learn (within given guidelines):

Having choice allowed me to take control of my own learning, which was meaningful to me. (Madison – Questionnaire CS1S3q22)

6. Perceptions of considerable choice

Other participants also perceived themselves as having considerable choice and a resulting sense of control. For example Wendy, one of the more self-determined participants, expressed a sense of freedom in being able to make choices not only about the topic that her group focused on but also the approach they took:

Oh we got to choose the whole topic. We could pick anything we liked, anything we liked. Then once you picked the topic then you could test anything you liked. So it wasn't as if once you'd picked safety matting you had to test it for safety. You could have tested it for anything else we wanted to so huge choice. We could pick whatever we wanted. (Wendy – Interview CS1S9q7)

Elizabeth also described experiencing a range of choices that included, like Wendy, the choice of topic and the approach taken, but also identified choices in the way in which the group worked together and how they presented their work:

I guess on the topic. Right from the start of what to do we had a very healthy debate on how we were going to present it. Choices on how many, like I wanted to do loads of samples but really it wasn't a good idea; choices whether to do the science or technology or keep it all together, whether to split it. Presenting and how much, how to do it ... yeah lots. (Elizabeth – Interview CS1S8q7)

Participants also highlighted what the effect of choice meant, often linking choice of topic to relevance, meaning and/or interest:

I think choice allowed me to choose what was of personal importance to me, to my life. So because it had relevance I was engaged and motivated. (Giselle – Questionnaire CS1S10q22)

The choice was good as it gave our group some options to choose something of interest for us. (Zoe – Questionnaire CS1S11q22)

In other words, by supporting student autonomy via the provision of choice, more self-determined forms of motivation, namely identified regulation (relevance and meaning) and intrinsic motivation (interest and enjoyment), were encouraged. This view is further supported by the significance of the emergent themes of relevance and interest discussed earlier in this section.

To this point, a range of salient environmental influences that were supportive of learner autonomy have been identified and explored within the context of the PBL assignment. However, not all participants experienced having their autonomy needs met within the context of Case Study One. The following section describes social and contextual factors that contributed to the *undermining* of students' perceptions of autonomy.

4.5.2 Factors that undermined perceptions of autonomy

When learners' autonomy needs are unfulfilled, the perception that one's actions are initiated and regulated by outside forces are prominent (Reeve et al., 2008). A number of important themes emerged from the data that contributed to the undermining of some learners' needs for autonomy and provide further insight into the high external regulation score (ER *Mdn*=21) reported by the group as a whole (see Table 4.3). The main themes are divided into two distinct groups. The first group highlights several factors within the PBL context that were salient to the entire research participant group as contributing to perceptions of an external locus of causality. The second group of themes emerged from research participants who reported high amotivation and external regulation scores. In the discussion that follows, the themes identified by the participant group as a whole are explored first. They are: high workload; salience of marks; time constraints; and the mismatch between the technology used and the learning activity. The order in which they are presented indicates their relative frequency in the data.

Factors salient to all participants

As a group, research participants perceived that the PBL assignment involved a high workload with high stakes (worth 60% of the whole course mark). This resulted in perceptions of time constraints within the context, which were further exacerbated by the perceived time-consuming nature of the WebCT asynchronous medium (i.e. the

technology used was not a good fit with the required task). This is consistent with other research studies that have shown that external events that do not fit the needs of learners can have a detrimental effect on perceived autonomy and therefore self-determined types of motivation (Reeve et al., 2004).

1. High workload

Perceptions of a high workload emerged as the most salient theme that undermined the autonomy of Case Study One participants. Perceptions that the size and corresponding time and effort required to complete the task were significant, and had the effect of students feeling ‘consumed’ by the PBL process. Nadia’s and Giselle’s comments that it “took a lot of time and effort to complete, and became all-consuming” (Nadia – Questionnaire CS1S5q29) and “...it was a heavy workload compared to other assignments. I’ll be honest it was one of the heavier loads” (Giselle – Interview CS1S10q1) were echoed throughout interviews with research participants.

2. Salience of marks

Coupled with perceptions of high workload, the pressure of assessment was highly salient during the PBL task because the assignment was worth 60% of the entire course mark. This not only had a detrimental effect on perceptions of enjoyment of the experience, thereby undermining intrinsic motivation, it also promoted anxiety leading to high reported amotivation scores:

... the fact that 60% of the mark came from ... one assignment and if you missed the mark on that then you are you’re lost, you failed ... and to me that’s really tough. ... and that worried me. (Ursula – Interview CS1S6q20)

Even students such as Giselle who reported the lowest external regulation score (ER 8) were aware of the high stakes nature of the PBL assessment and commented on the external pressure and feeling of lack of control this created: “I mean this one was 60%. It is a huge amount of marks that you can either lose or get” (Giselle – Interview CS1S10q4).

Nadia summed up how high stakes assessment and the resulting pressure had a detrimental effect on her enjoyment of the experience, thereby contributing to her high external regulation (ER 28) and amotivation (AM 27) scores:

I did not enjoy the fact that [the PBL] assignment ... counted for 60% of the total course mark. Throughout this assignment, our group always had to consider the fact that if we got it wrong, we'd have to repeat the course!! (Nadia – Questionnaire CS1S5q6)

3. Time constraints

The combination of perceptions of high workload and the salience of assessment contributed to the emergence of the third salient theme, perceptions of time constraints. The common observation “*that the timeframe was very short and we were scrambling to get the project completed to our satisfaction*” (Zoe – Questionnaire CS1S11q26) left many participants feeling that much of the learning process was beyond their control, that is, externally regulated. One consequence of the perceived high workload, high stakes nature of the activity and limited time available to complete it, was the limiting of time spent on other study commitments to free up more time for the PBL task. The all-consuming nature of the task in Giselle’s words “*made you neglect other courses. Which if you’re ... not as strong academically might be to your detriment*” (Giselle – Interview CS1S10q2). While Giselle was able to keep up with her other study commitments, Penny did feel the amount of effort required “*was to the detriment of ... a couple of other subjects*” (Penny – Interview CS1S4q1).

4. Mismatch of technology and learning activity

Perceptions of being time poor, in turn, resulted in the time-consuming nature of asynchronous communication medium becoming more prominent. The act of communicating via the WebCT discussion board was perceived as “*very time consuming*” (Tim – Questionnaire CS1S7q25) and “*slowed down the communication*” (Ursula – Interview CS1S6q2) particularly in terms of the “*endless hours [spent] typing questions*” (Zoe – Questionnaire CS1S11q30). Delays were also experienced in the communication process “*when it came time to having to make a group decision on things. Sometimes this ended up taking several days just to decide*” (Wendy – Questionnaire CS1S9q25). The net result of these multiple external pressures saw

learners turning to synchronous forms of communication in an attempt to autonomously regulate their own learning process. Synchronous types of communication included meeting face-to-face, as in the case of the co-located group who were meeting “*after class or before class or between classes*” (Ursula – Interview CS1S6q2). The group viewed this as a positive thing: “*I think we had the advantage here that at least we can do some stuff face-to-face*” (Tim – Interview CS1S7q3).

For those who were not able to meet face-to-face, other synchronous forms of communication were employed such as phone, Skype or MSN messenger (Windows Live Messenger). Learners adopted a synchronous medium that better suited the communication and management requirements of the PBL task (i.e. frequent, ongoing collaborative decision-making processes):

I found it hard to express myself on the internet when a phone call or SKYPE can help clarify and discuss the issue faster. (Zoe – Questionnaire CS1S11q28)

I much prefer the phone. ... We discovered that that worked really, really well for us. (Valerie – Interview CS1S1q11)

Even though synchronous technologies were helpful, there remained a common perception among the participants that the chosen technology did not provide a suitable environment in which to undertake the PBL activity. In particular, the requirement to collaborate via the WebCT asynchronous discussion board contributed greatly to the perception that the technology did not fit the required activity (i.e. technology/task mismatch). This perception was evident among all participants, especially the co-located group:

WebCT does NOT compliment this course. I strongly believe that this type of 'hands on' practical course should be taught face-to-face. (Nadia – Questionnaire CS1S5q25)

Factors salient to participants with high external regulation and amotivation scores

As well as the contextual factors described above undermining perceptions of autonomy, several additional themes emerged from the group of research participants who reported high amotivation and external regulation scores. They are: lack of

relevance; course expectations and communications perceived as controlling; perceptions of limited choice; limited input into group decisions and tasks; and workload inequity. The order in which they are presented indicates their relative importance.

1. Lack of relevance

The most significant theme that emerged as undermining participants' sense of autonomy while undertaking the PBL activity, related to the relevance of the task. In particular, learners questioned the relevance of PBL in terms of the overall course focus on curriculum integration, how it related to classroom practice, how it connected to their previous experience and knowledge of science and technology, and whether it had any personal relevance.

The weighting of the PBL assignment (60% of the course mark) meant that learners spent the majority of their time doing the PBL activity and had limited opportunity to explore other approaches to curriculum integration. Tim's comment highlights how the dominance of the PBL task in the course resulted in the view that "*integrated science and technology IS problem based learning*" (Tim – Interview CS1S7q19), rather than just one approach. This caused him to question the relevance of the PBL activity in the context of the overall course:

The course was about science and technology integration, yet the weighting on [this] assignment ... meant the course could be better described as Problem Based Learning. However, I question how much we have even learnt about PBL. Sure we have experienced the process and this is a good thing, but we have had no opportunity to critique PBL and understand it [at] a deeper level. I feel that this has occurred because [this] assignment ... is just so focussed on getting the task completed. While PBL is related to the course curriculum, it is not the only approach and it is this over weighted focus that in the end detracts from its relevance to the overall course curriculum. (Tim – Questionnaire CS1S7q27)

When asked what she had learned by doing this assignment, Nadia's response conveyed a lack of value in the experience because she did not believe she had acquired any knowledge or skills directly transferable to the classroom.

Nothing that I can practically use in a primary school classroom. (Nadia – Questionnaire CS1S5q28)

In other words, the utility value of the activity to meet her future goal of being a classroom teacher was not evident to her. This helps to explain her very low identified regulation (IR 4) and very high amotivation (AM 28) scores:

Valerie expressed reluctance to use the PBL approach because of what she perceived as a lack of connection between this type of learning approach and her previous practical experiences in schools:

I doubt I will use this model in school anytime soon. It does not look like any integrated subjects I've seen in schools. (Valerie – Questionnaire CS1S1q27)

Hazel also struggled to make connections with her previous learning experiences with science and technology and PBL as an approach to curriculum integration:

Well, to be quite honest, I don't think I've learnt anything. Apart from the fact that I now know about playgrounds and structure and about the areas around our actual topic, I wouldn't say that I'm any clearer on integrated science and technology. ... I had hoped it would build my science and technology skills and to be quite honest, I don't think it's done that. (Hazel – Interview CS1S12q18)

Ursula had difficulty in seeing any personal relevance in the activity because it was “aimed at intermediate kids or year 5 and 6 and most of us, most of us here at the moment aren't aiming to teach at that level. So it is a waste of time in some aspects” (Ursula – Interview CS1S6q16).

Those participants who questioned the relevance of the PBL assignment typically reported low identified regulation scores as well as high amotivation scores. This is consistent with self-determination theory (Ryan & Deci, 2000a), which defines identified regulation as a conscious valuing of an activity (which these participants did not) and amotivation as the non-relevance of an activity.

2. Course expectations and communication perceived as controlling

Course expectations required students to interact with each other online within their collaborative groups, assisted by the lecturers, irrespective of their circumstances. These expectations were clearly stated in the course study guide and reaffirmed in the comments made by both lecturers during their interviews:

I do expect to see them actively engaged so I can engage with them. So that teacher directed role initially. Sort of setting the scene, where to and allowing that ... to develop and sort of tending to take a back seat but they must, to me, they must remain visible on the site otherwise I can't see what's going on, I can't probe. (Owen – Interview CS1L2q3)

But basically what we were trying to do was to keep them online so that they would see the effect of the mentor, you know, the tutor in there as a mentor, facilitator, coaching questions. (Dan – Interview CS1L1q3)

For the co-located group, the immediacy of face-to-face communication allowed them to autonomously regulate the ongoing group decision-making processes characteristic of PBL. Consequently, the expectation that required them to be visible online discussing their ideas, without regard to their situation, engendered a sense of compulsion that undermined their autonomy needs. This contributed further to the feelings of external regulation expressed by these learners:

When you're doing an online course and you're doing it with people that you talk to every day, WebCT is a handicap. Well not a handicap, it's a nuisance because you have to be seen to be using WebCT. There doesn't seem to be a ... understanding of the fact that we were working, we had to be seen to be working ... we were expected to be putting something on, on a regular basis which was a nuisance from our point of view. (Ursula – Interview CS1S6q10)

The only useful purpose communicating online did serve was that it provided opportunities to interact with teaching staff. “*We started using it ... as much in my opinion, part of my motivation, was that we were displaying our thinking and our ideas to the lecturers*” (Tim – Interview CS1S7q10). But “*when we became aware of the limited involvement and feedback from lecturers, we migrated toward what we felt were more efficient forms of communication*” (Tim – Questionnaire CS1S7q25).

Not having a genuine need to enter into online discussions with each other coupled with feedback from teaching staff that decreased over time (a feature of the PBL approach), meant that the requirement to interact online to ‘show’ progress contributed to their high reported external regulation scores:

We just put it online for the sake of the lecturers so they knew what was going on because ... they expected to see what was happening. (Nadia – Interview CS1S5q2)

Once again, the lack of alignment between the learning activity and technology used, mentioned previously, is apparent here. Furthermore, the lack of accommodation of their unique circumstances (i.e. their ability to meet in-person) made this mismatch even more salient.

While the perception that course expectations were controlling was highly salient for the co-located group, some fully distance students also expressed similar feelings. Zoe was one of the fully distance students who only used the asynchronous discussion because she was expected to:

The only time we used it is when we thought our lecturer was gonna come on and check to see whether we’d actually gone through the process correctly. (Zoe – Interview CS1S11q10)

Furthermore, several participants who reported high levels of amotivation and external regulation scores perceived the communications from lecturers as controlling. The following message, received by several participants early in the PBL process regarding the lack of engagement by some groups, seeks compliance:

*Posted by **Owen** on Wednesday, February 27, 2008*
Subject: [REDACTED]
Kia ora⁵,

A review of the PBL groups reveals that no/or little interactions relating to the set tasks (phases) have occurred on line. While you may indeed be meeting face-to-face please note it is our expectation that the phases that ask you to provide comment on must be posted on line.

...

⁵ A Māori greeting

We note many groups up to date or exceeding the requirements.

...

Kindest regards

Owen (Asydisc PBLGpH CS1L2)

The effect of external pressure, applied through the use of controlling language for the purposes of seeking compliance, is evident in the response from Valerie who reported moderate to high levels of external regulation (ER 18) and amotivation (AM 21):

Posted by Valerie on Wednesday, February 27, 2008

Subject: [REDACTED]

*After that little reminder from Owen I felt a little pressured to have a go.
(Asydisc PBLGpB CS1S1)*

As well as messages containing directives, commands or indicating the right way to do the task (as in the case of mentioning groups who were up-to-date in the above message), other communications couched as suggestions but perceived as directives were evident in several of the PBL discussion transcripts. For example, Zoe's group received the following message relating to technical innovations associated with their chosen problem of graffiti:

Posted by Owen on Friday, March 7, 2008

Subject: [REDACTED]

Greetings,

I had indicated earlier the concept of a waterfall type defense system as a possible line of investigation (as a prompt to perhaps an innovative solution) that could be carried out.

Many homes and business are being targeted not only by graffiti but now by etching. Question for your consideration. If water is steaming down a wall would it discourage folk as they may get soaked?

Consider the possibilities here. (Asydisc PBLGpA CS1L2)

Although couched as a suggestion, the wording and reiteration (i.e. the idea was first discussed in a previous message) resulted in the learners *perceiving* it as a directive (and therefore limiting choice), as Zoe's comment indicates:

Like I felt it was, the answer came from our lecturer and I didn't like that 'cause I thought we should be coming up with the answer. ... Like he did give us direction but basically he told Pauline we should be looking at how to solve this through water investigation and I said to them that is not what problem based learning is. We needed to come up with the problem not our lecturer. So they didn't like it [but] that's what he's telling us so that's what we're gonna do. I mean if we diverted off that, it would have been even worse for us, I think. But I was a bit annoyed with that, with that concept that he had come up with. But you know I want to please the lecturer so we probably weren't gonna divert off that idea.
(Zoe – Interview CS1S11q18)

This comment from Zoe indicates she had a conflict between wanting to autonomously regulate the PBL process while simultaneously attending to the perceived external demands of the lecturer. This conflict was evident in her situational motivation subscale (SIMS) scores where she scored highly on all subtypes. However, her external regulation (ER 28) score was the highest of all the subtypes, suggesting compliance with external requirements was most important to her.

What these perceptions of controlling course expectations and communications indicate is that the expressions of autonomy support from the lecturers, discussed earlier in this chapter (see Section 4.5.1), did not consistently translate to perceptions of autonomy supportive language and behaviour by participants. In other words, learners' sense of 'ownership' of their problem and process was undermined by the perceived need to meet external expectations (e.g., collaborative online communication). The differentiated nature of the relationship between lecturers and students (i.e. lecturers have the power of assessment), also affected some learners' perceptions of autonomy. These factors, in turn, contributed to the high external regulation and amotivation scores reported by several participants. This was because the expectations and requirements stipulated by the lecturers were perceived as not being sensitive to participants' needs or situations.

3. Perceptions of limited choice

The third theme to emerge for participants who scored highly on less self-determined types of motivation related to perceptions of limited choice. When asked about the choices available to them during the PBL activity, those who expressed a lack of choice

focused on the compulsory nature of the programme/course/assignment or the requirement to work in small groups:

We didn't have any choice about doing the course it's compulsory. (Ursula – Interview CS1S6q8)

Overall, there was no choice we had to do the assignment. (Tim – Questionnaire CS1S7q22)

So there were no choices about do you have skills in this area, can you do this, do you want to do this etcetera, etcetera. It was just a case of find a group and get into a group and get on with it. (Hazel – Interview CS1S12q7)

Rather than being an indication of the actual choices available to them, the focus on compulsion is an expression of the lack of freedom and an external locus of control experienced by these participants during the PBL assignment. This is further supported by their high external regulation scores. This finding reflects the literature that states it is the perception of choice or lack of it, rather than actual choice, that is critical in terms of self-determination (Reeve et al., 2003). External factors that contributed to these perceptions of limited or no choice encompassed the requirement to work collaboratively, no choice around the curriculum integration approach taken (PBL was mandated), and the need to meet assessment requirements.

When it came to working collaboratively, while some participants were in a position to “choose who you wanted to work with” (Nadia – Interview CS1S5q7), Hazel felt she had little choice because of decisions made by other students early on in the course:

Although the suggestion I think was to choose someone that or partners that you were in tune with, realistically in a classroom you probably could do that because you knew everybody and you knew who worked well at this, that and the other and who had certain skills. But over the website, it's a case of I know some of the people had already chosen their partners for the second assignment long before we'd even done the first one. (Hazel – Interview CS1S12q7)

This left her with no sense of control over her own learning process:

I didn't have a choice. ... the choice was made for me. (Hazel – Interview CS1S12q6)

Having to adopt a PBL approach to curriculum integration was seen as “*quite prescriptive*” (Tim – Interview CS1S7q20) and therefore limited perceptions of choice for several participants. When asked about possible ways to broaden perceptions of choice, Nadia identified the lack of choice around the curriculum integration approach used (PBL) as the constraining factor:

... maybe looking at those integrated approaches and then giving us the choice, which one would you like to go and research and look at further and then base your assignment around that approach that you've decided on. So in that way we are given more choice and we can actually do something that we think is relevant. (Nadia – Interview CS1S5q3)

Meeting prescribed assignment outcomes (a comprehensive rubric was provided covering 11 separate requirements) was also seen as a factor that constrained choice, shifting the regulatory style away from autonomous types of motivation (i.e. interest and relevance) toward less autonomous forms of motivation (i.e. meeting external expectations):

I also feel that topic choice was limited because of the constraints that become apparent when trying to select a topic that will provide appropriate outcomes for the assignment. Really, the influence of choice related to selecting a topic that would assist the completion of the assignment, it was not choice from the personal interest and motivation perspective. (Tim – Questionnaire CS1S7q22)

4. Limited input into group decisions and tasks

A further theme that was apparent among participants who expressed less self-determined forms of motivation was perceptions of having limited input into the tasks and decisions processes of their group or not being consulted at all. In other words, these participants perceived their contributions as having little or no influence in the overall actions of the group. This resulted in feelings of limited control over the process and outcome. For example, lack of consultation was a common theme for Zoe that contributed to her perception that she had little personal control:

So I kind of put my argument forward. But it got knocked out straight away without any further discussion and I thought it was actually a quite valid science and technology investigation. (Zoe – Interview CS1S11q7)

Unlike Zoe, Valerie did have input into decision-making processes throughout the assignment. However, a member of her group failed to consult her over a critical decision (submission of the assignment) which left her feeling that the product of the learning process was out of her control. This, in turn, undermined her sense of autonomy and contributed to her moderate amotivation score:

However, when it came to putting the assignment together Olivia did the presentation, she put it in. I didn't think she would and we didn't get to see the assignment before it was submitted. So there wasn't any editing there. There wasn't any opportunity 'cause I couldn't see it. ... and that's a really tough one. (Valerie – Interview CS1S1q4)

In other words, the actions of others, in this case their peers, contributed to the undermining of several participants' autonomy needs through lack of consultation or contributions being ignored. This not only had a detrimental effect on an individual's autonomy needs, it also undermined their relatedness needs. This is discussed later in the chapter (see Section 4.7.2). A final related theme that had the effect of undermining learners' autonomy needs was the perception of unequal workloads among PBL group members.

5. Workload inequity

Several participants, for example Valerie and Zoe, described how some group members contributed more than others and the difficulties this presented:

I learnt that group members may be unreliable, non-collaborative or have little integrity which is a huge downfall of this type of assignment. Equity issues are huge when it comes to collaborative assignments. (Valerie – Questionnaire CS1S1q28)

Students in our group did more work than others and some have different or higher/lower expectations than others. (Zoe – Interview CS1S11q28)

Given that 75% of the final assignment mark was allocated to the group presentation, group members who were perceived as not doing their share were an intense source of

frustration and, in one case, resentment for their peers. This undermined the autonomy needs of participants (as well as relatedness needs, see Section 4.7.2) and contributed to the reporting of less self-determined forms of motivation:

I think what was frustrating ... that we couldn't move on and that we were going round in circles with our decision making and we needed, I really needed to be more forceful I guess and say hey move on. We've discussed that enough. I think that ... process we've fully done and that was really frustrating for me. (Zoe – Interview CS1S11q14)

I did get a bit resentful when people didn't do what they were supposed to do. (Valerie – Interview CS1S1q13)

Collectively, these influences undermined the autonomy needs of half of the Case Study One participant group and contributed to the negative self-determination scores reported by them.

4.5.3 Summary of influences on perceptions of autonomy

Self-determination theory (Deci & Ryan, 1985) tells us that learners whose autonomy needs are met within the learning context are likely to experience more self-determined forms of motivation (identified regulation and intrinsic motivation). This was the case for approximately half of the research participant group. In line with this, a range of environmental influences were identified as supporting the autonomy needs of learners.

However, not all participants experienced having their autonomy needs met within the context of the PBL assignment. This resulted in high levels of reported external regulation and amotivation scores. Several factors were salient to the entire research participant group while others were only significant to students with negative self-determination scores.

Figure 4.2 summarises the social and contextual factors that facilitated and undermined perceptions of autonomy as a conceptual model. It is interesting that, despite the features of the learning activity being the same, some factors were identified as supportive or undermining of learners' autonomy needs depending on an individual's perception. This was the case for perceptions of relevance, choice, and support from lecturers.

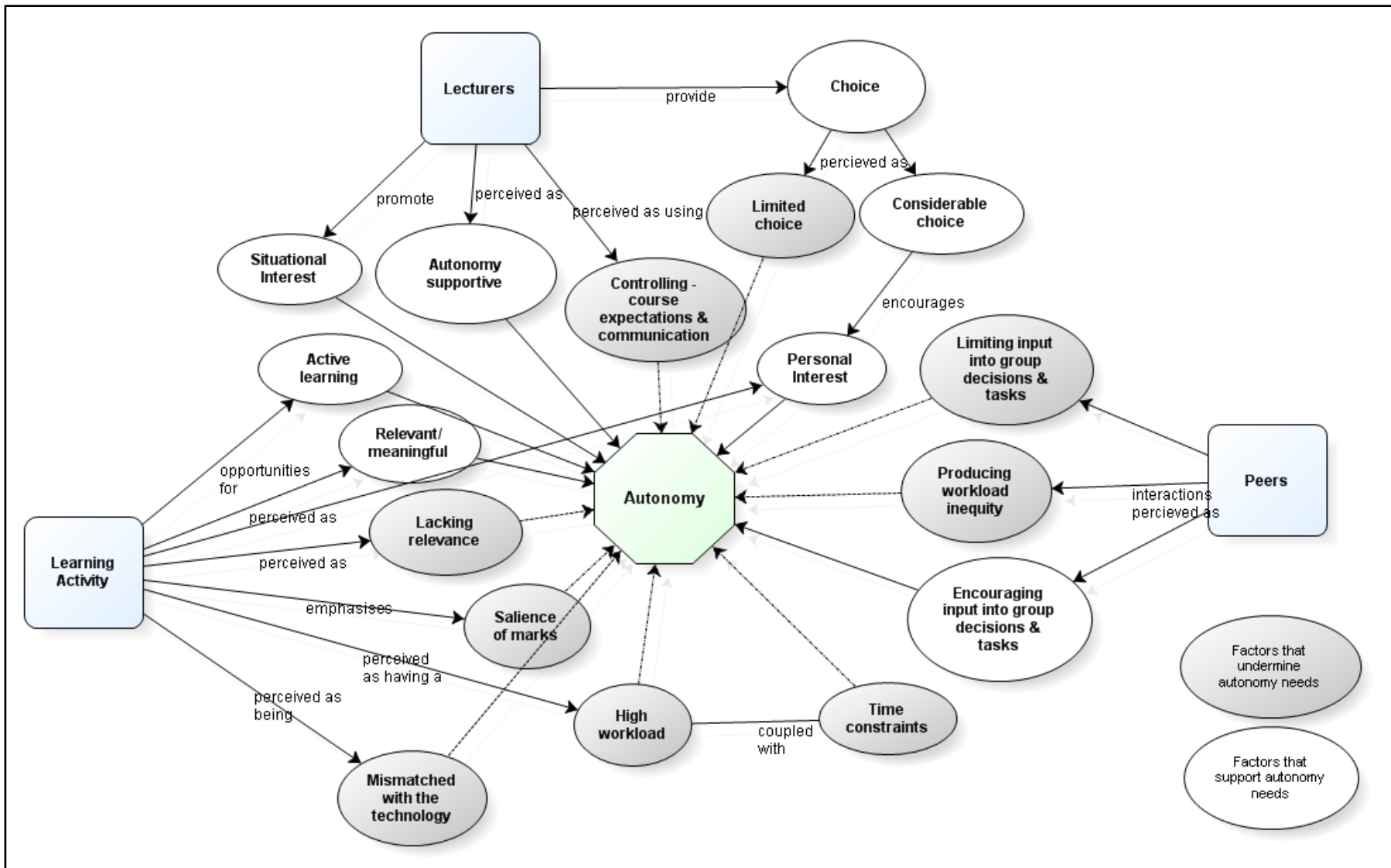


Figure 4.2: Case Study One – Social and contextual factors that supported and undermined autonomy needs

4.6 Perceptions of competence

According to self-determination theory, support for competence facilitates motivation (Deci et al., 1991). External events can convey information about a person's competence or skill level if they are perceived in an informational, non-controlling way. When they are linked to progress or performance actually achieved, then they can increase perceived competence and therefore support self-determined forms of motivation. One example of this is feedback. When positive feedback is received this has the effect of increasing perceived competence (Reeve et al., 2004). Negative or insufficient feedback, on the other hand, has been found to reduce perceived competence and can result in amotivation and feelings of helplessness (Deci et al., 1991).

In general, those students who expressed more autonomous forms of motivation also described having had their competence needs met during the PBL process. The following comments from Elizabeth and Giselle provide clear examples of this:

I found that I could contribute and have grown in confidence that I do know things and my ideas are ok. (Elizabeth – Questionnaire CS1S8q29)

I think as well maybe realising you can actually achieve a lot more than you thought ... when you set out. (Giselle – Interview CS1S10q6)

4.6.1 Factors that supported perceptions of competence

Seven main themes emerged as facilitating learners' perceptions of competence while engaged in the PBL activity. They are: ongoing guidance and supportive feedback from lecturers; responsiveness of lecturers; perceptions of clear guidelines and expectations; helpful and supportive peers; perceptions of useful course resources; high group efficacy; and perceptions of the activity as optimally challenging. In the discussion that follows, the order in which they are presented indicates their relative importance.

1. Guidance and supportive feedback from the lecturers

The most salient theme to emerge in supporting learners' competence needs was the perceived type and quality of feedback provided. Participants who received feedback from the lecturers that guided, facilitated and clarified the learning process, perceived

the lecturers as supporting their need to feel effective within the context of the PBL activity. The following message, posted by Owen to Giselle's group early on in the PBL assignment, clearly demonstrates support for the development of the group's competence. Owen does this by endorsing their work to-date, clarifying a potential issue and providing encouragement that they are 'on the right track':

Posted by Owen on Wednesday, March 5, 2008

Subject: [REDACTED]

...

Absolutely endorse the suggested scenario 'old houses'; a meaningful, manageable and motivating scenario.

I assume from within the group there is access to both old and newer housing which creates an opportunity to conduct science investigations relating to temperature (as noted in your template) and perhaps moisture.

The need to know template is thorough and it appears that the questions can be divided out for investigating and reporting back.

Do not get mixed up between the Need to Know Template and the thinking log. The thinking log is related to metacognition (thinking about thinking) See appendix 9 for coaching questions that stimulate metacognition. It's about asking key questions that califies a persons thinking/understanding that needs to be embedded throughout the preentation or perhaps hperlinked to the need to know template.

Folks proceed with confidence, enjoy the journey and remain in touch as you have demonstrated so well here.

Cheers

O. (Asydisc PBLGpC CS1L2)

This type of positive feedback prompted Giselle to talk about Owen as a supportive lecturer. In the following remark, she also mentions how Owen encouraged them to develop their own solutions rather than looking to him for answers, highlighting that this not only supported her developing competence but was also perceived as autonomy supportive:

We found him a really supportive lecturer although he did not spoon feed you at all. ... He would come and give you an idea but the idea would not give you a solution. It always just prompted your thinking a little bit but it never solved that, how would we call that? That cognitive unrest ...

and I think that maybe prompted you to solve it. (Giselle – Interview CS1S10q11)

Irene points to quality guidance when starting out on the PBL journey being a factor in the promotion of competence within her group:

Without the guidance from the tutor at the beginning I think we may have not got off to such a good start. (Irene – Questionnaire CS1S2q26)

An example of the type of guidance Irene is referring to appears in the message from Owen below:

Posted by Owen on Monday, March 3, 2008

Subject: [REDACTED]

Greetings,

Great to see the collaborative nature of the group coming through.

Problem Statement : note the word 'problem', is there a problem with bark in playgrounds? How can we make a statement of this nature: perhaps through observations and recording evidence.

Question: what are we going to observe?

Opportunity to develop the scenario to be specific is also achievable.

With regards to the problem statement I don't have to give the okay but as indicated here will provide guidance or ask questions.

...

Keep up the great work team

Kindest regards

Owen. (Asydisc PBLGpG CS1L2)

Here, Owen was supportive of the group's collaborative process while guiding them to further clarify their problem statement and consider links to possible science and technology processes they could undertake. Like the previous message posted to Giselle's group, Owen was supportive of the group's autonomy by reiterating that ownership lies with them.

2. Responsiveness of the lecturers

Following on from the importance of ongoing guidance and supportive feedback, being available, approachable and answering queries promptly were viewed by the participants as important ways in which the lecturers provided support for their competence needs. For example, Wendy and Madison's remarks point out the importance of the timeliness of responses by the lecturers and their continuing presence online:

...he [Owen] was always online and always giving us feedback and if you asked a question he was very prompt at replying. (Wendy – Interview CS1S9q11)

Oh man, they were awesome yeah. It was really good. When we were having our meetings in the chat rooms he [Owen] was there. Whenever we had ... a problem or a query in the WebCT discussion site, they were there. You know they, they were like ... something was wrong if they didn't answer by the next day. (Madison – Interview CS1S3q11)

This was viewed as an important part of the facilitation process, particularly by Owen who made mention of the critical nature of online teaching presence several times throughout his interview:

I think ... it's that humanistic approach to it. If I'm offline for 48 hours and ... you're seeking an answer ... if you're waiting for your lecturer or somebody to come online you just lost 48 hours ... you become more uncertain. To me it's that sort of ongoing feedback is critical. (Owen – Interview CS1L2q14)

The participants, as a group, commented on the responsiveness of the lecturers indicating that the importance lecturers placed on providing timely support to learners actually translated to teaching practice.

3. Clear assignment guidelines

Learners who perceived the structure and guidelines of the assignment as clear and explicit knew what was expected of them. This, in turn, supported their need for competence because it assisted them in making accurate judgements about what was required to achieve success. For example, Irene and Ursula point to the process, the

criteria for success and the timetable of weekly tasks as contributing to their understanding of assignment expectations:

It was clear the process we had to go through and the criteria we had to reach was laid out specifically. (Irene – Questionnaire CS1S2q26)

Very clear, it was all very well set out ... and we just walked through it point by point by point. Each week we've done this, we've done this, we've done that and every week we'd tick it off. (Ursula – Interview CS1S6q4)

Penny not only highlighted assignment structure, but also the information provided as supportive of her learning process and developing competence:

The assignment was well-structured with lots of additional information to support learning. (Penny – Questionnaire CS1S4q26)

This corresponds with the lecturers' intentions when developing the assignment structure that ensured learners 1) could make their own decisions about what needed to be done, and 2) assess their own progress. As Dan says “*they go to the assessment criteria and can reflect on that about the learning and what needs to be done and then move forward*” (Dan – Interview CS1L1q18).

4. Helpful and supportive peers

A further theme that worked in conjunction with responsive, supportive lecturers to meet participants' competence needs was the support and help received from peers. Being able to rely on each person's expertise within the group, in addition to the support and help provided when needed, served to facilitate learners' needs to feel proficient. The examples below highlight that Madison and Nadia relied on and were appreciative of the help and support they received from their fellow group members:

It was good that I had my group members 'cause they were the ones who would test it [the presentation] for me ... 'cause it worked on my computer and wouldn't work on someone else's. ... So they would test those links and ... when it flowed from all the places right to the end, then we had accomplished ... what we had set out to do. (Madison – Interview CS1S2q8)

Personally I received a lot of support from my group, and would not have been able to complete this assignment successfully without them. My peers were very important in helping me understand what needed to be done. (Nadia – Questionnaire CS1S5q24)

Wendy and Elizabeth's comments highlight the ongoing supportive feedback processes that went on within their group throughout the PBL process that contributed to successful task completion:

... whenever someone had finished something they'd put the info in and we'd all look at it and we'd give feedback. And there were times it was like "well no I'm not sure that that's quite right" and so we'd just say and no one was ever offended 'cause at the end of the day it's a group assignment and we'd get the marks. So no, we all worked well. (Wendy – Interview CS1S9q5)

Without the group discussing things which led to questioning and then a need to change and redo a section, we would not have been as successful and our learning would not have been as good. (Elizabeth – Questionnaire CS1S8q30)

5. Useful course resources

Participants who perceived the resources (primarily the CD-ROM and study guide) as useful in terms of 1) providing guidance that assisted learners in navigating their way through the PBL process; 2) offering templates that could be used during the assignment; and 3) supplying exemplars that clarified expectations in terms of quality of work, expressed confidence in their capabilities to complete the assignment successfully. Madison clearly felt that the resources allowed her to clarify what she and her group were required to do:

These templates and readings were very useful in providing us with guidance in how to work collaborately, i.e. roles, and how to fulfil our tasks within each role, i.e. science investigation questions and more, like presentation examples and NTK templates, etc. (Madison – Questionnaire CS1S3q23)

Elizabeth also found the resources helpful in terms of elucidating the standard of work required. It was also apparent that by supporting her competence needs through the provision of quality information, this encouraged her to feel more self-determined as the assignment progressed:

The CD was fantastic, that was really great. Had everything on it, had some exemplars and things and so you then knew what other people had done and this is the standard we're hitting, the length, the size, the detail. So that was great. I found, we actually used one of the pages out of the admin guide in our PowerPoint because it was the one, the one that talked about full control going down to, with you know full control down to full guidance for the group 'cause that's what we felt we had actually done and we actually used that in our PowerPoint. (Elizabeth – Interview CS1S8q4)

6. Group efficacy

Perceived collective efficacy refers to group members' beliefs in their collective capabilities to successfully undertake the actions required to achieve a desired outcome (Bandura, 2000). This emerged as the next most important theme in support of research participants' perceived competence. Perceptions of high collective efficacy supported participants' competence needs even when individual self-efficacy for the PBL task was, at times, called into question. For example, Giselle points to the collective abilities of her group as central to her and her peers' beliefs that they could succeed:

... but sometimes one felt unsure what you really should be doing for each phase. The information was minimal as we had to take responsibility for our own learning. The collaborative nature of the assignment however aided in this respect as we soon became aware of strengths and weaknesses and responded to them. (Giselle – Questionnaire CS1S10q26)

Strategically choosing group members enabled several participants to compose a high collective efficacy group, thereby supporting their own competence needs. Irene and Wendy, members of the same PBL group, both talked about the importance of choosing group members to ensure the success of the group:

... we sort of picked our group early on 'cause we'd been talking and said we don't want to be left in the lurch. So we set up our group quite early apart from Elizabeth ... and then when Elizabeth entered 'cause she'd been in one of my other groups during science, so at least I knew who she was and that was fine. She just fitted in really well. (Irene – Interview CS1S2q7)

... it's a big assignment and if you've got one person who's not pulling their weight then it lets the whole team down. So we, we were quite picky

[laugh] *but we got in there quickly and decided at the beginning of the year pretty much who our groupies were gonna be. (Wendy – Interview CS1S9q8)*

Creating a high collective efficacy through peer choice was also a strategy the co-located group adopted. This appears to have mitigated, to some degree, some of the undermining influences for these participants. The following comment demonstrates the importance placed on choosing peers as well as belief in the group's capability to succeed:

Well it was wise. I mean we'd all had bad experiences ... and to start off before we even started back here this year I said to Nadia "if there's any group work I'm working with you" ... although we'd been in class with Tim for two years, we didn't really know him very well because we hadn't worked with him. We hadn't got to know him. So that was good we got to know him a lot better. So I mean that was a positive thing too. I knew he was a hard worker. I knew he was a high achiever. (Ursula – Interview CS1S6q15)

A further example of the importance of collective efficacy to an individual's self-efficacy comes from Elizabeth, who moved groups after the assignment had commenced. Elizabeth started off in one group but quickly realised that the collective efficacy of her first group was low. Her own sense of self-efficacy saw her seek assistance from Owen and was instrumental in getting herself moved to a different group, thereby fulfilling her own competence needs:

I had no group and then I got given a group and they weren't interested in having me or weren't interested in getting started. They wanted to leave it for several weeks and I needed to get on with it. ... so fairly early on I realised these people weren't actually coming online and they weren't talking. ... but he [Owen] was great and managed to find me someone else and they just emailed me straight back and got in and said yes we also want to get on with this. (Elizabeth – Interview CS1S8q5)

7. Optimal challenge

The final theme that emerged in support of learners' competence needs related to how challenging the PBL activity was perceived to be. The majority of participants mentioned the challenging nature of the PBL assignment. But those who experienced it as an achievable challenge, where skill level and challenge were high and reasonably

well-matched (Csikszentmihalyi, 1985), also talked about a sense of enjoyment and satisfaction in their achievements. This is an indication that their competence needs had been met. Ursula and Giselle's comments provide good examples of this. Even though the experience may have been stressful or difficult, it did not exceed their capabilities:

So it was really stressful that the presentation of the whole assignment was sort of hinging on my shoulders. So that was, that was stressful but it was a challenge to get it up, get it running and get it working and getting it going and I enjoyed that. (Ursula – Interview CS1S6q3)

It was a challenge and this pushed one forward, one step at a time and by the end it was quite surprising what we had achieved. (Giselle – Questionnaire CS1S10q29)

Self-determination theory (Deci & Ryan, 1985) proposes that both the competence and autonomy needs of learners must be satisfied in order for more self-determined forms of motivation to be encouraged and maintained. Significant factors supporting learners' needs to feel capable and competent have been identified and explored above. However, not all participants experienced having their competence needs met within the context of the PBL assignment. The following section describes social and contextual factors that contributed to the undermining of students' perceptions of competence.

4.6.2 Factors that undermined perceptions of competence

In general, lack of provision of support for learners' competence needs during the PBL assignment contributed to the high stated levels of amotivation and external regulation of several participants. The sense of not having grasped the assignment, which in turn led to questions about their own capabilities, was clearly articulated by Valerie and Nadia (even though Nadia was part of a high collective efficacy group):

I don't know why, you know. I don't think I'm completely thick because if I have something explained to me I can ... generally get the gist of it. So why does it [PBL], why is it that I feel it's very ethereal instead of specific? (Valerie – Interview CS1S1q19)

I don't think I'm capable in PBL. I don't think ... that this assignment has made me capable in that regard. (Nadia – Interview CS1S5q6)

A number of important themes emerged from the data that contributed to the undermining of learners' needs to feel capable and effective. In order of significance they are: perceptions of unclear and complicated guidelines; insufficient guidance and feedback; judgements of low self-efficacy; a learning design that gradually reduced lecturer input; perceptions that resources were not useful; and perceptions of being overly challenged.

1. Perceptions of unclear and complicated assignment guidelines

While perceptions of clear guidelines and expectations were identified previously as supportive of learners' competence needs, perceptions of unclear and complicated guidelines also emerged as the most important theme that undermined the competence needs of several other participants. For learners who perceived the assignment guidelines as inadequate, the complexity and quantity of the information provided in the study guide (CS1SG pp. 11-33) was a primary reason for this.

In providing “*probably one of the most extensive ... outlines there is*” (Owen – Interview CS1L2q20), the intention of the lecturers was to offer support for learners in developing their understanding of PBL (CS1SG pp. 11-16). The outline offered practical guidelines that clarified the steps involved in the PBL process as well as expected timeframes for completion (CS1SG pp. 16-21). In addition, example problem scenarios (CS1SG pp. 26) were provided and the criteria used to assess completed work (CS1SG pp. 27-33) were listed. By offering detailed success criteria in particular, the objective was to support learners' autonomy by providing the appropriate information necessary to make self-judgements about progress:

But each of those aspects of the assignment have indicator statements, what we call success criteria statements, and they're generic enough but specific enough that as they ... work through and march along they are able to take a look at those assessment criteria and say we're doing this right. ... when they look at them they can self-assess and say look we are not demonstrating this, we've got to do something about it. And so they get stuck in. (Dan – Interview CS1L1q11)

However, by offering such extensive information an unintentional consequence was feelings of confusion and being overwhelmed for several students:

I was feeling as though I was floundering to start off with and I like things very clear and very structured so I know what I was doing and found that was too confusing. (Hazel – Interview CS1S12q1)

But because they had the learning right throughout it was probably about six pages, the process was about six pages it was too much for me. ... if they'd broken it down a little bit I think that would have been helpful and it was all a bit mucky. Like you had to go from here to here and then flip over here and then go back here and turn the pages here and it just it was too muddy. (Zoe – Interview CS1S11q4)

This perception of the learning environment as overwhelming led to these learners making statements about the structure of the assignment being inappropriate to meet their competence needs. Hazel's comment places a spotlight on the perceived lack of structure having a direct influence on her lack of confidence:

Whilst I recognise that the purpose was to change the learning from lecturer-driven to student-driven, there wasn't enough structure for me to feel confident about the direction to take and I seemed to drift in my own direction. (Hazel – Questionnaire CS1S12q24)

Zoe also struggled to grasp what was required of her and her group:

... we didn't understand the learning out[comes], the goals that were set 'cause there were too many yeah. ... [It was] too big, too wide. (Zoe – Interview CS1S11q4)

The perception of complicated assignment guidelines and expectations undermining Zoe's competence was further supported by her high amotivation (AM 20) score.

2. Insufficient guidance and feedback

In addition to a complex assignment structure, perceptions of insufficient guidance and feedback from the lecturers emerged as a second highly salient theme that undermined several participants' need to feel capable. Perceptions of insufficient guidance meant individuals and groups had difficulty in making accurate judgements about the group's ability and progress. This state of uncertainty was summed up by the unanswered question raised by several participants “*are we on the right track?*” (Ursula – Interview CS1S6q20).

When asked about how they communicated progress to learners, the lecturers' responses were:

I tend to acknowledge progress in week by week communications of what's been good and sharing stuff, that sort of thing. (Owen – Interview CS1L2q18)

Well it's a constant feedback you know of popping in and saying look that's an interesting thought. If that is being said how does it link to such and such? (Dan – Interview CS1L1q18)

This impression of constant, ongoing feedback is different to the perceptions of several participants. For example, Zoe and Hazel's comments below indicate uncertainty due to perceptions of insufficient support and guidance:

However, sometimes we just lacked direction because we didn't get it from the lecturer. (Zoe – Questionnaire CS1S11q25)

But it just it seemed like we were left to our own devices and if we failed we failed and that was our own fault 'cause we didn't do what we were told to do. Yeah we weren't doing what we were told to do but I just felt that we weren't being watched and guided. (Hazel – Interview CS1S12q3)

Comparing the number of lecturer postings, represented by a cumulative total for the two teaching staff per PBL group, showed that over the six week period they ranged from a minimum of 5 (Penny's group) to a maximum of 24 (Madison's group) with an overall median of 15 per group. However, it is not simply the number of postings that determined whether a participant perceived the guidance and support given as sufficient or not. If that were the case, Penny, with the lowest input, would have been the most dissatisfied. However, as she said in her own words “*I've actually really enjoyed working with Owen*” (Penny – Interview CS1S4q11).

The total number of messages posted by the lecturers to groups containing participants with positive SDI scores and those with negative SDI scores were then compared. No significant differences were found over the duration of the assignment. However, when the lecturer postings were compared based on the content of messages received some notable distinctions emerged.

Posted messages were coded into five categories. One posting could be coded into several categories if it exhibited the characteristics of each. The five categories included: 1) directives – messages that typically told learners what they needed to do; 2) ICT related – postings that typically offered specific information relating to the different software programmes learners were using; 3) informative – a relatively small category that sought to keep students informed about the lecturer’s whereabouts or commitments that may impact on response times to students; 4) procedural – messages that contained information to do with some practical aspect of the PBL activity (for example booking a synchronous chat room); and 5) scaffolding/guidance – messages that contained specific feedback on the quality of the work undertaken within groups and guidance on next steps that enabled groups to move forward with the assignment.

Three categories showed similar results for participants based on SDI score, namely ICT related, informative and procedural messages posted (see Figure 4.3). However, the less self-determined participants (negative SDI scores) received almost three times more messages containing directives than the more self-determined participants (positive SDI scores). In addition to receiving more postings telling them what they needed to do, they received on average approximately 20% less scaffolding/guidance type messages than the more self-determined participant groups. In other words, the less self-determined participants were more often being told *what to do* and less often *how to do it*, a finding that has been noted elsewhere (Deci et al., 1991). This had the effect of undermining their need to feel capable and effective within the PBL learning environment.

It appears that the content of the messages influenced participants’ perceptions of receiving insufficient guidance and feedback. Hazel’s comment below is a clear example that she was aware of the type of feedback her group did receive (i.e. being told what to do) as well as the type of feedback she perceived they needed more of (i.e. how to do it):

We got a fairly stern comment to start with saying that we weren't engaging because we hadn't done our need to know statement. (Hazel – Interview CS1S12q3)

I think there probably should have been a lot more scaffolding at the beginning. Really getting us on to track and targeting us to make some decisions and get on with it. ... but I think we needed that push at the beginning. Otherwise we just sort of drifted along. (Hazel – Interview CS1S12q3)

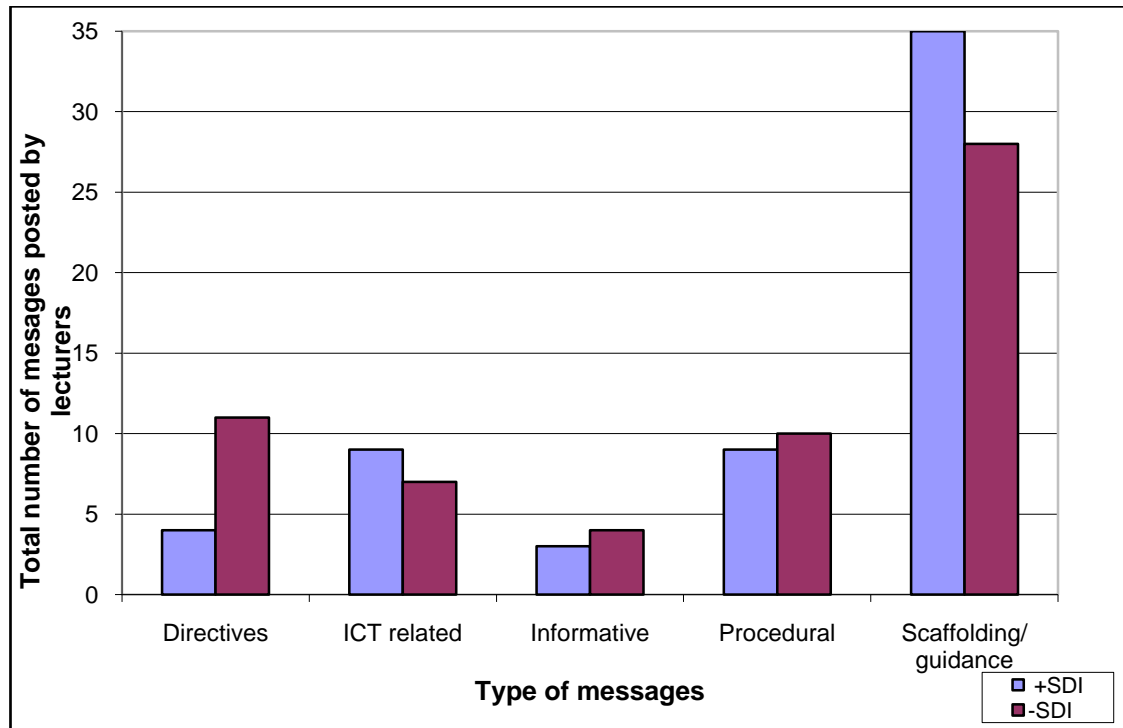


Figure 4.3: Total number of lecturer postings to groups containing participants with positive and negative SDI scores

Hazel’s perception of the support her group received is different to Owen’s, as the following comment highlights:

I won’t just leave them. ... I’ll be in there to make sure it’s sort of developing and maybe even, you know, do another prompt type thing. ... Perhaps setting different goals for them and timeframes ‘cause some, some can view the whole five weeks and divide it up themselves. Others will need sort of, you know, by the end this week I’d like to see you have this done. ... So a more structured process is very important and that just comes through from ... observation. (Owen – Interview CS1L2q10)

3. Judgements of low self-efficacy

Participants who questioned their ability to complete the task successfully on commencing the PBL assignment continued to struggle with conceptions of their capabilities as the activity continued. Judgements of low self-efficacy resulted from

participants questioning their ability to demonstrate science and technology understanding within the context of a PBL activity. Learners used information from a number of sources to judge their self-efficacy. This included actual experiences, verbal persuasion and physiological symptoms (Bandura, 1997). The lack of related prior experience and early failure in this course had the effect of lowering self-efficacy. Receiving feedback from the lecturer that called into question learners' progress and ability to succeed was a further important source of information that undermined student efficacy. Finally, anxiety and worry interpreted as a lack of skills or ability also contributed to these participants' judgements of low self-efficacy.

A perception of a tenuous link between her previous learning experiences and the PBL assignment: "*we did technology in year one ... and I can't say I could link what I did then with what I did now. ... It was just it was like two different ... courses almost*" (Nadia – Interview CS1S5q6); led Nadia to doubt her ability to succeed. This was exacerbated by feelings of apprehension over her lack of achievement for the assessed piece of work just prior to the PBL activity: "*I was very worried. I was very, very worried. ... It really bothered me knowing that obviously I'm on the wrong track here. I'm not giving them what they want but I don't know what, I don't know how to fix it*" (Nadia – Interview CS5q15).

Hazel's procrastination, when commencing the required activities, was due to that fact she was struggling to understand what she needed to do and deal with the feelings of anxiety this engendered:

I was slow getting underway I think because when I looked at it and thought oh my goodness what do I do here? I was, I was feeling as though I was floundering to start off with. (Hazel – Interview CS1S12q1)

Hazel's low efficacy judgements were compounded by Owen's response. The slow start by Hazel's group, rather than being seen as a sign of low self-efficacy, was interpreted by Owen as a lack of willingness to engage in the PBL process, as indicated in the message below:

Posted by **Owen** on Friday, February 29, 2008

Subject: [REDACTED]

Greetings,

Folks, it is extremely dissapointing to note that no on-line interactions have ocured this week. This week is an important week in considering apsects of PBL and sharing your understanding through directed 'MUST DO' on line phases.

You should be at/or nearing the stage where you are considering and sharing your ideas for the PBL inquiry.

I do not intend to post messages of this nature in this site in the future. You all need to take personal ownership of the requirements working in the [online] environment that includes active engagement. PBL does require your focused attention over a sustained period of time.

PBL does not absolve the teaching responsibilities, we wish to actively engage in your learning journey particularly at the front end of the journey. Your presence on-line is required for this to occur.

Failure to respond will no doubt impact on your ability to pass this course.

Kindest regards

Owen. (Asydisc PBLGpH CS1L2)

The language (i.e. seeking compliance) used in this posting does have the required effect of prompting a response from Hazel. But it has the additional consequence of further undermining Hazel's self-efficacy and contributed to her unwillingness to seek help when she needed it, a finding noted elsewhere in the literature (Stipek, 2002):

I felt we were warned about our level of participation and then left floating. ... We could have/should have asked for more assistance, but I felt that rather than be given that assistance we would have been criticised. (Hazel – Questionnaire CS1S12q24)

A reminder posted by Owen to Valerie's group, highlighting her group's lack of progress in comparison to other groups, had the effect of undermining her sense of competence:

Posted by **Owen** on Wednesday, February 27, 2008

Subject: [REDACTED]

Kia ora,

A review of the PBL groups reveals that no/or little interactions relating to the set tasks (phases) have occurred on line. While you may indeed be meeting face-to-face please note it is our expectation that the phases that ask you to provide comment on must be posted on line.

...

We note many groups up to date or exceeding the requirements.

...

Kindest regards

Owen. (Asydisc PBLGpH CS1L2)

Posted by Valerie on Wednesday, February 27, 2008

Subject: [REDACTED]

Thanks for the reminder. I'm sure we will do what we can to balance the requirements.

...

I'm sure there are groups who are up to date or exceeding requirements!! We would love to have been included ... but somehow it makes it even worse that we've not got there yet.

V. (Asydisc PBLGpH CS1S1)

Valerie's high amotivation (AM 21) score supports the perception that unfavourable comparison with other groups undermined her sense of personal efficacy.

4. Learning design that gradually decreased lecturer input

Students were made aware of the gradual reduction of guidance and feedback, inherent in the design of the PBL activity, prior to commencement of the task. This was done in the study guide (SGCS1 p. 13) via the incorporation of the Torp and Sage (2002, p. 70) model. Students were also reminded of it during the first three weeks of the assignment:

... so in that particular course admin guide we have the students, what the students should be doing but we also have the teachers' role along side of it so that marries up, and say hey look if you want the expectation we'll be in there with you for the first 2-3 weeks but we'll slowly remove ourselves once we have got you on track and let you continue to take the bull by the horns and direct it in whatever way you want to. (Dan – Interview CS1L1q10)

This type of approach to learning in some cases proved to be in direct opposition to the competence needs of the participants. This was particularly true for students who were already questioning their ability to complete the task successfully (i.e. judgements of low self-efficacy). For example, Zoe and Hazel

felt that the reduction of lecturer initiated feedback and guidance left them struggling without a clear sense of direction or understanding:

And then when you get a gap [in knowledge] or when you don't understand then where do we go to for support? I know they're saying they're trying to drop off their support but that does not mean they can't give us the guidelines to work through. I really feel that was under, under-utilised there. (Zoe – Interview CS1S11q16)

We need some guidance. We need, although you know their support obviously disappears and we are guiding the process ourselves, I probably would have gone back and said this is not working for me. I need some more support here. I need some direction as to which way I should be going. This is what I think. But I need some more support and I just felt that that support wasn't there. (Hazel – Interview CS1S12q17)

The adoption of this course design also had a particularly striking effect on the co-located participants. The unique situation of the co-located group meant that the only useful purpose communicating online did serve was that it provided opportunities to interact with teaching staff in order to accurately appraise their level of competency and progress. But because the level of lecturer initiated feedback dropped off as time went on, they saw little point in continuing with what was viewed as an ineffective form of communication and shifted toward face-to-face meetings. This drop off in asynchronous discussion is clearly demonstrated in Figure 4.4 that shows how the group members' decrease in postings mirrored that of the lecturers.

The feeling that communicating via WebCT served no useful purpose as it was not meeting their competence or autonomy needs, comes through strongly in statements from these group members:

We did feel that WebCT would be a useful tool to allow lecturers to observe our process and thinking, but when we became aware of the limited involvement and feedback from lecturers, we migrated toward what we felt were more efficient forms of communication. (Tim – Questionnaire CS1S7q25)

I mean we had no contact from Owen or Dan from about the second week into it. So if we were off track, we didn't really have any way of knowing. So that was the hard part too. (Ursula – Interview CS1S6q20)

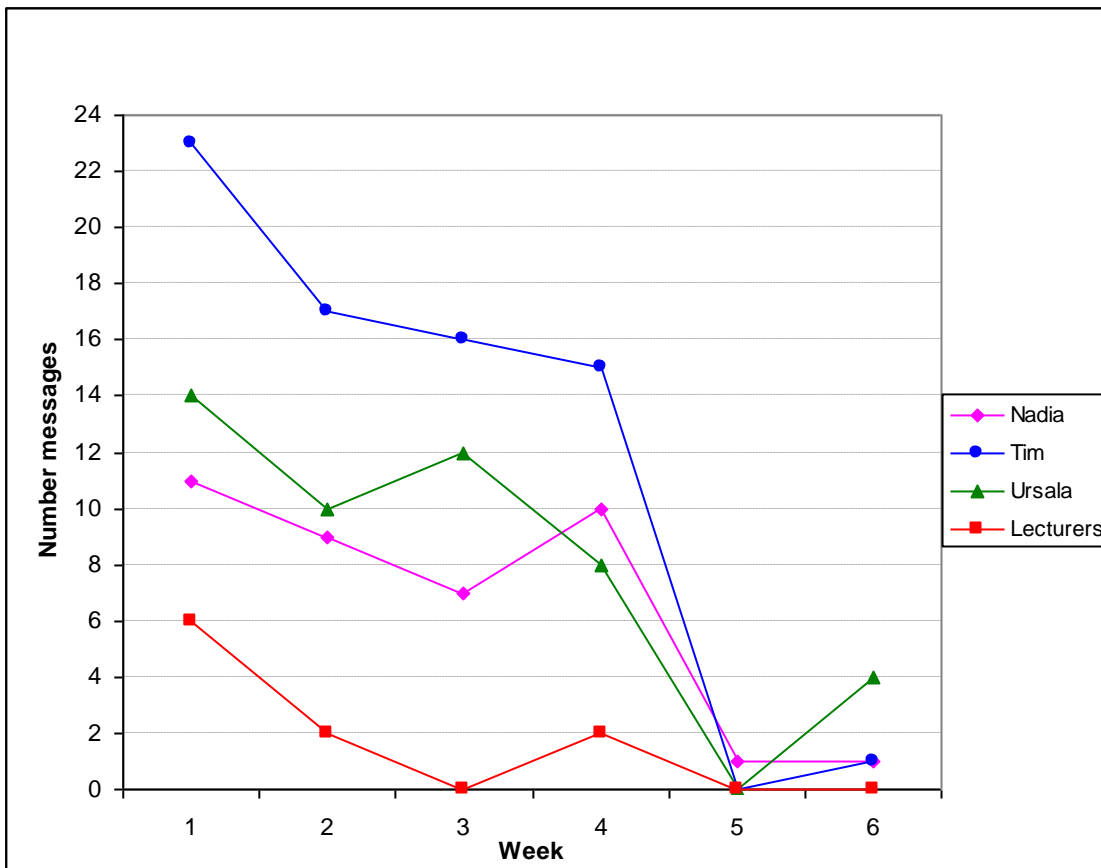


Figure 4.4: Comparison of number of messages posted by co-located group and lecturers

Figure 4.4 shows that 80% of the messages posted by the lecturers, to this group, occurred within the first two weeks of the PBL activity, further supporting the perceptions of the group members that lecturer initiated contact dropped off after the first two weeks of the activity.

5. Resources not seen as useful

Participants who perceived the resources as unhelpful did so primarily because they failed to provide sufficient information or information in a way that enabled them to develop their understanding of curriculum integration and PBL.

For example, Nadia found the lack of additional recommended resources a problem as this was something she was used to from past study experiences. As she says, “[if] you want to go read more, there’s all these recommended sources that are there for a reason. This course didn’t have any of that” (Nadia – Interview CS1S5q14). This led

her to try to access further information from the library in an attempt to improve her understanding, but again this led to frustration:

And everything that I could find in the library was either technology or either science. ... So I, I found that frustrating. That there was no ... material really telling more about what ... this integration thing was all about. So I think that's why I struggled with understanding the whole thing as well because there was nothing I could refer to, to help me, help me understand how it's going. (Nadia – Interview CS1S5q14)

Zoe, on the other hand, found the CD-ROM lacked a clarity that would have enabled her to make sense of the PBL process:

Oh we had a ... CD and it had all the information on there and it had exemplars that we could follow. Some of them I found weren't, weren't clear enough. ... There are still gaps in there that we think well how did you get from that stage to that stage? ... trying to follow what they think ... was not clear to me. ... I still didn't think that they were quite adequate. (Zoe – Interview CS1S11q4)

While several participants generally found the resources helpful, the lack of a clear idea of the necessary format of the final presentation, in the form of an exemplar, was identified as missing from the resources:

There were a couple of small examples of parts of the assignment on CD which were good to look at. There was very little in our study guides to guide us as to exactly what our finished assignment should be like. (Wendy – Questionnaire CS1S9q23)

6. Perceptions of being overly challenged

Finally, participants who experienced the PBL assignment as challenging beyond their perceived capabilities (Csikszentmihalyi, 1985) expressed feelings of apathy or a lack of control consistent with less self-determined motivation types. Feeling effective within the learning context was not something that Hazel experienced during the PBL assignment because she perceived the task as challenging beyond her capabilities. This in turn led to expressions of helplessness:

And I just felt the challenge was too great for me and I tended towards the end to just not bother whatever will be will be and we'll just have to live with it. (Hazel – Interview CS1S12q5)

The overly-challenging nature of the assignment led Nadia to question her own abilities which consequently affected her input into group discussions:

I was really struggling with this course and Ursula often said to me that I was really quiet whenever we had group discussions. I was the quiet one and I hardly ever contributed but it felt to me that I was under all this pressure to do all this work and some of it was you know [signal indicating over her head] ... over my head. (Nadia – Interview CS1S5q2)

The challenging nature of the assignment and the perception of her skills being inadequate to meet it undermined Nadia's competence, leading to less self-determined motivation types. Nadia reported the highest amotivation (AM 27) and external regulation (ER 28) scores in the entire participant group. This was demonstrated by her willingness to allow her group members to take the lead, because they “*had a better grasp on what they were doing I was happy to take a back seat and I was happy to cruise along with what they were doing*” (Nadia – Interview CS1S5q5).

4.6.3 Summary of influences on perceptions of competence

This section has identified and explored a variety of social and contextual factors that either facilitated or undermined the competence needs of learners in a PBL online distance learning environment (see Figure 4.5). It is interesting that, similar to autonomy influences, some factors were identified as either supportive or undermining of learners' competence needs depending on an individual's perception. This was the case for guidance, resources, assignment guidelines and challenge.

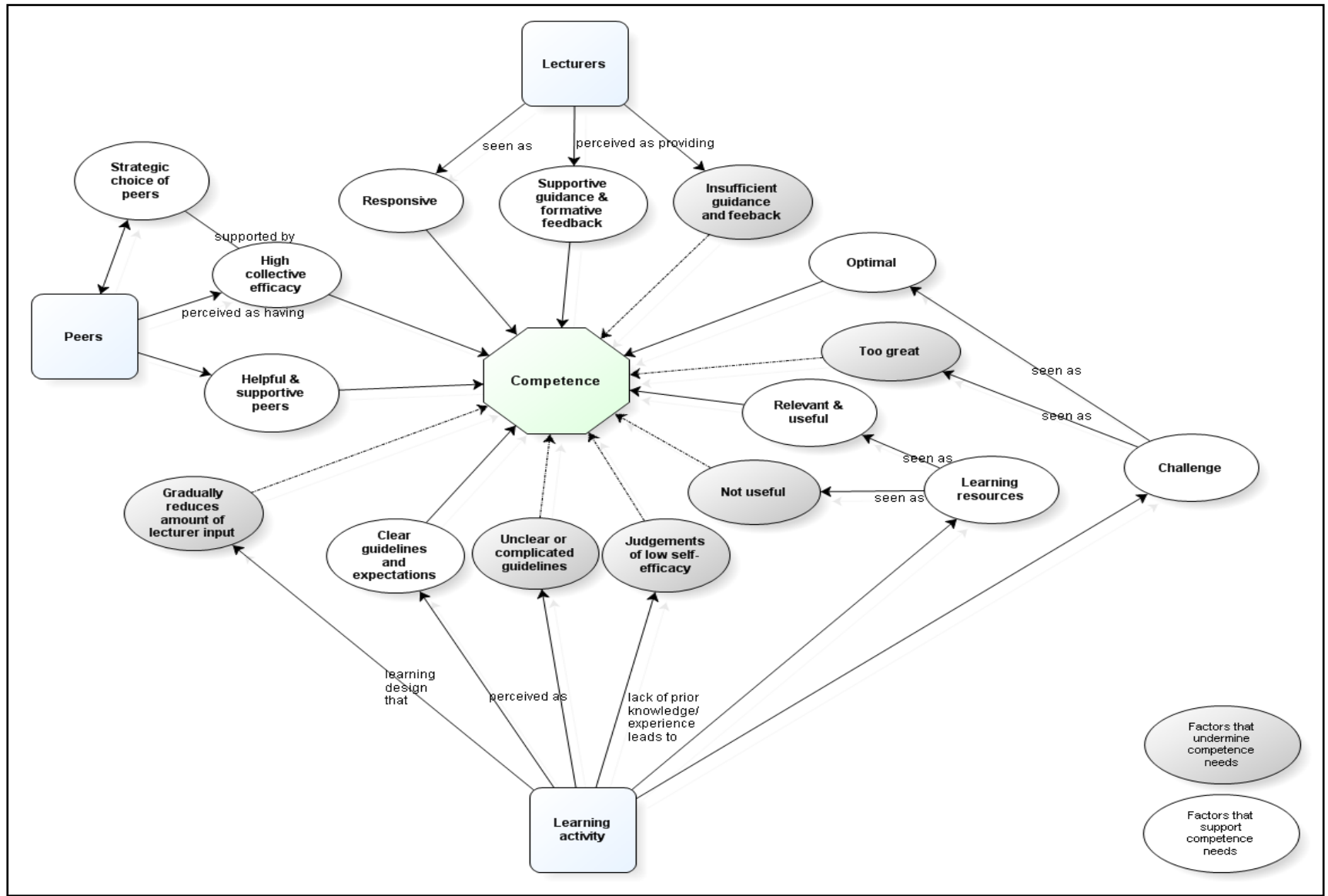


Figure 4.5: Case Study One – Social and contextual factors that supported and undermined competence needs

4.7 Perceptions of relatedness

According to self-determination theory, relatedness support facilitates motivation in autonomy supportive contexts (Deci et al., 1991). McCombs (1994) argues that supporting relatedness needs within a social context can be achieved “by creating a climate or culture of trust, respect, caring, concern, and a sense of community with others” (p. 54).

In general, participants who expressed more self-determined forms of motivation had their need to feel connected to others met within the social setting. These needs were met primarily by their peers within their PBL groups and to a lesser extent by the lecturers. Students who reported less self-determined forms of motivation described ineffective group practices that undermined both their relationship and autonomy needs. The notable exception was the co-located group whose respect and support for each other appeared to mitigate, to a certain degree, the factors that contributed to the undermining of their autonomy and competence needs to the extent that it enabled them to successfully complete the assignment.

4.7.1 Factors that supported perceptions of relatedness

Three themes emerged as contributing to learners’ perceptions of their relatedness needs being met, while engaged in the PBL activity. The two most prominent themes were associated with practices within PBL groups that fostered relationships between group members. They encompassed perceptions of friendly and caring peers, and perceptions that their contributions to the group activity were valued. A perception of friendly, caring lecturers was the third theme identified as supporting the relatedness needs of participants.

Examples of participants’ needs to feel involved and connected with others having been met can be seen in the following comments from Elizabeth about her group and Giselle regarding her experience of Owen:

Such a sense of belonging to the group really from the beginning and I was trying really hard to do as much as I could ‘cause I felt like a bit of an outsider. Like I offered to do everything ‘cause you know I’m so grateful to be in. But they just they were just lovely. They really were. ...

Ownership and belonging to the group it was just great. (Elizabeth – Interview CS1S8q15)

We found him a really supportive lecturer. (Giselle – Interview CS1S10q11)

1. Friendly, caring peers

In general, those students who expressed more self-determined types of motivation throughout the PBL process also described relationships with their peers as friendly, caring and respectful. This emerged as the most salient theme that supported participants' needs to belong and feel connected to others.

For example, the following comments from Elizabeth and Wendy point to the level of support they gave each other that consequently made them feel they were cared for and connected to the group. This was particularly significant to Elizabeth, who joined the group after it had been established and was still welcomed and included:

I guess the thing how friendly the other people were and they really included me. ... Owen emailed me to say "look, I've emailed another group to say whether they're prepared to take you. Just hold fire and, and we'll see what happens over the next couple of days" and almost you know 10 minutes later I get an email from Irene saying "oh Owen says we can have you. We can go to four and, and so welcome on board." And, and you know and the other two also emailed within that morning straight away. ... So it was really quick and very friendly and went from there you know very chatty and they were very supportive. You know, when F died they were very, you know. If you need time out or whatever or you need help, they were very quick to offer support which was great. (Elizabeth – Interview CS1S8q15)

Wendy highlights the importance of a supportive, well functioning group in overcoming her anxiety about the assignment. This, in turn, was perceived as crucial to the successful completion of the PBL assignment:

Especially over the last two years, there have been so many negative things about the course that you do actually go in thinking oh, oh my god I don't want to do this course. I don't want to do it. But for me I didn't. I guess we had a good group. If you didn't have a good group it would be completely different situation so. ... it would just probably ruin you really. You wouldn't work well. It would just be an awful process and

probably not a very good mark at the end. (Wendy – Interview CS1S9q20)

2. Valuing contributions from peers

Valuing the contributions made by each group member and respecting them for the skills and abilities they brought to the activity was a second theme that emerged as encouraging the development of effective relationships. This was certainly the case for the co-located group. In the following comment, Nadia articulates the contributions made by each member of the group (including herself) in such a way that the connection and respect she holds for Ursula and Tim is clear:

I think because we each had our strengths ... it sort of just fell into place. Ursula being the technical whiz she's fine. Tim being the wordy person and being the guru on ... [science] he just sort of ... knew what to do. He could actually use the multimeter too which was really cool yeah. I kept checking what we did could link to the curriculum. So that worked out really well in the end. I did the final check to make sure that the t's are crossed and the i's are dotted that sort of thing. (Nadia – Interview CS1S5q5)

This view that each made a valuable contribution to the group effort that was respected and acknowledged by the other group members is seen in the following comments posted in the online discussion:

*Posted by **Tim** on Thursday, March 20, 2008*

Subject: [REDACTED]

That's a great piece of work Nadia. It will really help us focus on covering our aims and understandings of the links. (Asydisc PBLGpD CS1S7)

*Posted by **Nadia** on Friday, April 4, 2008*

Subject: [REDACTED]

Ursula,

Thanks again for all your hard work in making Frap a successful experience. IT is a definite strength for you. Tim, thanks for keeping us on track and sharing your immense knowledge with us. I really enjoyed working with you guys!!

:) (Asydisc PBLGpD CS1S5)

Even though all three members of this group reported negative self-determination index scores overall, the bonds established within the group served to mitigate, in terms of their effort and achievement, the social and contextual factors perceived as undermining their autonomy and competence needs (see Sections 4.5.2 and 4.6.2). The interdependent nature of their relationships and the sense of shared purpose were evident in the remarks from Nadia (SDI -70) and Tim (SDI -26):

I had a commitment to my group. I knew I had to follow through with them and I knew ... there was a big expectation because 60 percent of the mark. We had to make that otherwise, not only would I fail but my group would fail as well and I think that's a big responsibility. (Nadia – Interview CS1S5q20)

... this was a real positive of it I think, is the group work. ... I think we had a good group, having the confidence that others can do the job. ... So you can't do them all by yourself. So you do by default become reliant on working with your team members. So it's building that sort of group work, that faith, that yep somebody will do that. Also they might do it in a different way than you thought but in actual fact that's, that's quite alright as well [smile]. (Tim – Interview CS1S7q6)

This sense of commitment to the group that was engendered from having individual relatedness needs met was also evident in comments from participants who expressed more self-determined types of motivation. Giselle and Penny's comments, for example, highlight how being part of an effectively functioning group influenced their effort and persistence during the activity:

... and at the end I think it was perhaps that we had a well functioning group. So that motivated you to go on because you didn't want to let your group members down. (Giselle – Interview CS1S10q15)

I think it's because I had, I didn't want to let the other two members of my team down. That had a lot to do with it for me. I wanted to make sure that they knew I was putting the work in and that I was doing as good a job as I possibly could for them. (Penny – Interview CS1S4q2)

3. Perception of friendly, caring lecturers

While not as salient as the relationships with their group peers, perceptions of friendly, caring lecturers also emerged as an important theme in meeting the relatedness needs of the participants.

Both Owen and Dan viewed their role in the PBL process as one of a mentor alongside students rather than a traditional student-teacher power relationship. They expressed this in terms of being part of a community of learners and seeing teaching and learning as a two-way dynamic process. Developing relationships with students was intentional:

So I would like to think I become part of that group rather than sort of a facilitator or lecturer per se, but a member. And they're free to discuss and sort of welcome my presence into their group and we're on an equal sort of basis. (Owen – Interview CS1L2q9)

You know I want them to be able to engage. ... That it's a two way street, that we're listening to one another and that we will change and modify. And that's the thing that I've tried to get across to them that we do listen, you know. We do really want to understand what they're saying and we respond. (Dan – Interview Cs1L1q9)

This is reflected in what Giselle and Madison have to say about their lecturers:

To a certain degree Owen does motivate you to complete the assignment in a certain sense because you kind of know he'll walk the extra mile for you, so you've got to walk that mile for him. So I think that was, did push you a little bit. (Giselle – Interview CS1S10q15)

... the support was just amazing. ... they [were] just welcoming. Like if it was just a little small silly thing, they'd still value our, what we were thinking and stuff like that. And there was nothing too small, nothing too big that they weren't willing to help us with. Yeah it was really supportive. (Madison – Interview CS1S3q11)

Even though the interaction with lecturers was very low in her group, Penny also felt very positive about Owen. When asked about Owen, she replied “*I've actually really enjoyed working with Owen, brilliant. ... So [he's] one of the lecturer's that I can't wait to meet*” (Penny – Interview CS1S4q11). This suggests it was the quality of the interaction with the lecturer, rather than necessarily the quantity, that determined whether a learner's relationships needs were met.

However, not all participants experienced having their relationship needs met within the context of the PBL assignment. In the section that follows, the social factors that contributed to the undermining of students' perceptions of relatedness are explored.

4.7.2 Factors that undermined perceptions of relatedness

Generally, participants whose relationship needs were not met during the PBL assignment described communication issues and disagreements with their peers. Limited interaction with the wider class exacerbated this situation as the nature of the assignment necessitated that learners work within their small groups, almost exclusively, during this period of time.

1. Communication issues and disagreements

With the exception of the co-located group, those students who expressed less self-determined forms of motivation throughout the PBL process also described relationships with their peers characterised by communication issues and disagreements.

Lack of communication within a group as well as misunderstandings of what was being discussed were the main issues identified. Lack of communication was a problem identified by Hazel. The absence of the central nature of relationships with her peers is evident in the next remark where the focus was on messages from the lecturers:

I mean, we did check in each night but because each of us wasn't communicating within our group so much, we were just looking to see if there was any announcements or anything we needed to know. Which the lecturers were obviously providing on a group by group basis. Which was why we wouldn't have found anything in the announcements section, so ended up just drifting along from there. (Hazel – Interview CS1S12q11)

Lack of communication with her group members led to feelings of disconnection for Hazel:

You know they were meeting face-to-face so they basically did a lot of ... the two areas they were assigned to, they did a lot of that together and then started doing some of my area. ... and I felt that they were doing the whole thing and leaving me out. (Hazel – Interview CS1S12q9)

For Valerie, a misunderstanding led to problems among the members of her group:

And what actually happened is because Olivia hadn't been in the conversation she missed the fact that when we were doing our science experiment we were testing things that are in the home. ... Well she missed the fact that we'd actually been doing that because she's going well where's the science in this? ... And when you're not in the conversation when you're not present ... and you're just skimming over the top, then it messes things up. (Valerie – Interview CSIS1q4)

This misunderstanding, in turn, led to disagreements and consequences for the relationships between group members that were not resolved satisfactorily:

... we lost a week from that whole breakdown and a little bit of ill-feeling because she thought we had dismissed her. (Valerie – Interview CSIS1q4)

Zoe wanted to work collaboratively on the final presentation, but communication problems within her group saw another group member take full responsibility for the task:

But I just let it go and she went on with designing the PowerPoint 'cause I said that's a huge amount of work and we need to work together on that. But she took it on herself to do it. (Zoe – Interview CSIS11q9)

This led to frustration on Zoe's part as she tried to contribute to the final presentation (by offering feedback) but felt her ideas weren't listened to. This, in turn, had consequences for their relationship:

I had it clear in my head but I couldn't quite get her to understand what I was trying to say and I didn't want to knock her confidence or anything. And I'm not very good at doing that. ... But later on she kind of said that she felt ... that we didn't work very well together. (Zoe – Interview CSIS11q9)

2. Limited interaction with the wider class

The second theme that undermined learners' needs for connectedness, and in some cases accentuated issues within the small groups, was the limited amount of interaction among the wider class. The PBL assignment was perceived primarily as a small group activity that offered little opportunity to interact with students in the wider class. Giselle and Irene's comments reflect those of the research participant group as a whole when

they talk about being on their own within their small group and having little opportunity to see what other groups had produced:

... as a class, we didn't have a lot of interaction. ... we didn't have it. It was a very isolated course in that sense that you were basically working with individuals you chose as your group. (Giselle – Interview CS1S10q20)

And that's a bit frustrating too cause you haven't seen what the other groups have done. I know there is a part in WebCT where you can put your presentation up but I don't think any groups have. (Irene – Interview CS1S2q14)

The view of the participants was in direct contrast to the one held by the lecturers who included a formative assessment point, early on in the process, as an opportunity for learners to engage with each other by asking critical questions about their projects, as well as a mechanism for creating a learning community:

... the formative assessment they did in week three, was actually quite successful. They were able to look at other people's work and ... question their directions as well. Some key questions in there and it gave that sense of a community of learners rather than just a lecturer-student. (Owen – Interview CS1L2q11)

While the intention was to encourage the development of a learning community within the wider class, the practicalities of the assignment and time constraints required learners to focus their attention on the task at hand. The perceptions of participants indicate that the formative assessment process was not successful in fostering a class-wide supportive learning community. This meant that learners were reliant on their peers within their PBL group to meet their relatedness needs. If, as was the case for the participants described above, the group they were part of did not function effectively, these needs went unmet because relationships within the wider class context had not been sufficiently developed.

4.7.3 Summary of influences on perceptions of relatedness

This section has highlighted and examined a variety of social and contextual factors that were found to either support or undermine the relatedness needs of learners in an online distance learning environment undertaking a group PBL activity (see Figure 4.6).

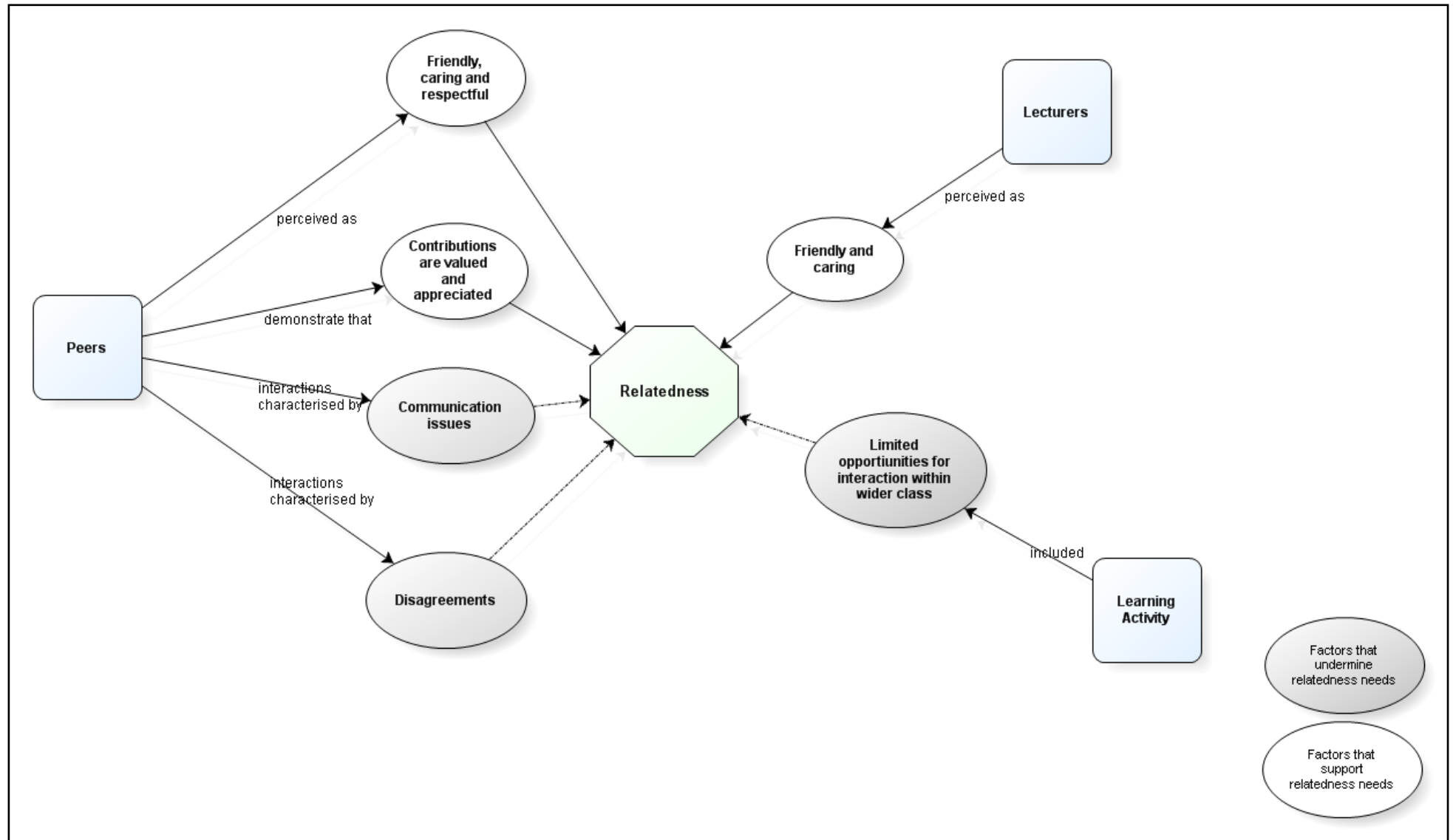


Figure 4.6: Case Study One – Social and contextual influences that supported and undermined relatedness needs

4.8 Chapter summary

This chapter has presented and discussed the findings of Case Study One. Specifically, results were presented that explicated the nature of learners' motivation and their online participation in an online PBL distance learning context. In addition, using the conceptual lenses of autonomy, competence and relatedness from self-determination theory (Deci & Ryan, 1985), significant social and contextual factors were identified and explored to determine how they supported or undermined pre-service teachers' motivation to learn.

The nature of motivation

Evidence presented here clearly demonstrates that students' motivation, when undertaking a collaborative PBL assignment in an online distance learning environment, is *multifaceted* (i.e. students endorsed multiple motivation types concurrently) and *complex* (i.e. certain environmental factors supported learner motivation in some cases and undermined it in others). Situational motivation for the PBL task, reported by participants, comprised various combinations of amotivation, extrinsic motivations (external regulation and identified regulation) and intrinsic motivation to greater or lesser degrees. In other words, no participant scored highly on only one motivation subscale. Overall, Case Study One participants *registered higher levels of external regulation and identified regulation than other types of motivation*. However, self-determination index (SDI) scores, an overall measure of the degree to which a learner feels self-determined or autonomous during the learning process, ranged widely from perceptions of high self-determination to extremely non-self-determined.

Participants with positive SDI scores tended to report higher levels of more self-determined forms of motivation, namely identified regulation and intrinsic motivation. Notwithstanding this, some of these participants also recorded moderate levels of external regulation, suggesting that certain social and contextual factors, salient in the learning situation, were dynamically interacting with learner motivation such that they perceived their behaviour to be externally regulated to a certain degree. This is not surprising in a tertiary education context where individuals generally want or need to pass or do well and assignment requirements and grades are an inherent part of the context. Nonetheless, all participants with a positive SDI score consistently reported

very low levels of amotivation, indicating that they perceived that the learning experience had value and they felt self-efficacious while undertaking it.

Students with negative SDI scores, in general, reported high to very high levels of non-self-determined types of motivation, namely amotivation and external regulation. This suggests a perception of an external locus of causality, a lack of volition or freedom, low task value, and/or low self-efficacy (Reeve et al., 2008). Nevertheless, several participants simultaneously reported moderate levels of more self-determined forms of motivation, indicating that some influences within the environment encouraged interest and enjoyment or held some value for participants. Collectively, these findings demonstrate that motivation is not just a continuum of self-determination, but that different types can exist concurrently.

Relationships between motivation and achievement were explored for both the PBL assignment and overall course. No statistically significant relationships were found for the participant group as a whole. But when the data for the co-located group were removed, significant positive relationships were evident at both assignment and course levels. This suggests that for the fully distance participants, their level of self-determined motivation was related to their achievement, at both assignment and course level.

Online participation

The SDI score reported by all participants and the number of messages posted to the online discussion board over the duration of the PBL assignment were also found to be significantly positively related. In other words, those who reported more self-determined types of motivations demonstrated greater levels of online activity. However, if the quality of the discussion is taken as a measure of participation as well as the quantity of messages posted, a different picture emerges. Even though the co-located group posted fewer messages (in line with their negative SDI scores), the quality of their discussion – which was preceded by face-to-face discussions – was similar to participants who reported high levels of motivation, in terms of demonstrated critical thinking, metacognitive and negotiation skills.

A moderate positive relationship was also evident between the number of messages posted by a student and the mark achieved for the PBL assignment. When co-located data were removed, this relationship became highly significant for *fully distance students*. Furthermore, a statistically significant relationship between the number of messages read by fully distance students and their achievement on the assignment was also evident. Similar relationships between online participation and achievement were also evident at the course level. In other words, fully distance students who achieved high marks also posted and read more online messages at both assignment and course levels.

What emerges from these explorations is that for the fully online distance students positive relationships exist between their level of self-determined motivation, achievement and participation. Students who felt autonomous while undertaking the PBL assignment also experienced higher levels of achievement and participated online (both actively and passively) to a greater degree. This was not the case for the co-located students who reported low to very low levels of self-determined motivation while still achieving highly. They also posted lower numbers of messages to the online environment but of a consistently high quality. This indicates their differing situation had an important influence on their motivation to learn.

Finally, comparisons between participant and non-participant groups showed no differences (both at the PBL assignment and overall course level) in terms of achievement and active online participation (i.e. number of messages posted). In other words, the participant group were typical of the cohort as a whole. However, a significant difference was found between the two groups on the number of WebCT hits and the number of messages read (at assignment and course levels), suggesting that the participant group's 'behind the scenes' activity was different from the rest of the cohort.

Social and contextual influences on motivation

Using self-determination theory as a conceptual framework, significant social and contextual factors were identified and explored to understand how they facilitated or undermined motivation to learn.

1. Autonomy

Six significant themes emerged as **facilitating perceptions of autonomy** while engaged in the PBL activity. They were, in order of significance: 1) *the relevance and meaningfulness of the activity*; 2) *opportunities for active engagement*; 3) *the interest and enjoyment of the activity*; 4) *perceptions of significant input into group decisions and tasks*; 5) *perceptions of autonomy supportive lecturers*; and 6) *perceptions of considerable choice*.

In addition to environmental factors that were autonomy supportive, **nine important themes** emerged that contributed to the **undermining of learners' needs for autonomy**, leading to high external regulation and amotivation scores reported by several learners. **Two distinct groups of influences** were identified. The first group incorporated four factors within the context that were **salient to the entire participant group** and contributed to feelings of an external perceived locus of causality and the high median external regulation score for the whole group. These were, in order of prominence: 1) *perceptions of high workload*; 2) *salience of assessment*; 3) *time constraints*; and 4) *the mismatch of technology and learning activity*. A second group of five themes emerged from **participants who reported high amotivation and external regulation scores**. They included: 1) *perceptions of lack of relevance* of the PBL task; 2) *course expectations and communications were perceived as controlling*; 3) *perceptions of limited choice*; 4) *limited input into group decisions and tasks*; and 5) *perceptions of workload inequity*.

Several factors (i.e. relevance, choice and lecturers' support) were perceived as supportive of autonomy needs by some participants and undermining by others.

2. Competence

Pre-service teachers' motivation to learn was also explored using the conceptual lens of competence, supported by self-efficacy and collective efficacy, in order to understand the variety of social and contextual factors that either supported or undermined the competence needs of learners. **Seven key influences** emerged as **facilitating learners' perceptions of competence**, thereby contributing to the higher identified regulation and

intrinsic motivation scores reported by learners. These were, in order of significance: 1) *perceptions of supportive guidance and feedback from the lecturers*; 2) *the responsiveness of lecturers to requests for assistance*; 3) *perceptions of clear assignment guidelines*; 4) *perceptions of helpful and supportive peers*; 5) *perceptions that the courses resources were useful*; 6) *perceptions of high group efficacy*; and 7) *perceptions that the PBL activity was optimally challenging*.

Not all participants, however, experienced having their need to feel capable and effective within the PBL context met. **Six important environmental influences** emerged that contributed to the **undermining of learners' needs for competence**, evidenced by high reported external regulation and amotivation scores. In order of significance, these were: 1) *perceptions of unclear and complicated assignment guidelines*; 2) *perceptions of insufficient guidance and feedback*; 3) *judgements of low self-efficacy*; 4) *a learning approach that reduced the amount of lecturer input as the assignment progressed*; 5) *resources that were not perceived as helpful*; and 6) *perceptions of being overly challenged*. These all played a role in undermining learners' competence needs.

Several factors (i.e. guidance, resources, assignment guidelines and challenge) were perceived as supportive of competence needs by some participants and undermining by others.

3. Relatedness

The need for relatedness was the third conceptual lens used to examine how various social and contextual factors either supported or undermined these needs. **Three primary influences** emerged as **facilitating learners' perceptions of relatedness**, thereby supporting more self-determined types of motivation. These were: 1) *perceptions of peers as supportive, caring and respectful*; 2) *perceptions that contributions to the group activities were valued and appreciated*; and 3) *perceptions of friendly, caring lecturers*.

However, **two main factors** contributed in **thwarting a learner's need to feel connected to and respected** by their fellow learners within the PBL context. These

were: 1) *relationships with their peers characterised by communication issues and disagreements*; and 2) *limited class-wide interaction* during the assignment.

Overall, participants with positive SDI scores, indicating experiences of more self-determined forms of motivation, had their needs for autonomy, competence and relatedness met within the context of an online collaborative PBL assignment. This appeared to mitigate, to some degree, the social and contextual influences that undermined autonomy, identified by the participant group as a whole. In other words, while aware of the high stakes nature of the assignment, time constraints and the constraints of the technology being used, these were counter-balanced by factors perceived as supporting their personal agency, growing capabilities and need to feel connected and respected. In contrast, participants with negative SDI scores, indicating experiences of less autonomous types of motivation, described having one or more of their needs undermined to some degree. This was particularly evident for the co-located group where the ability to meet face-to-face was not considered.

Throughout this discussion, evidence has been presented that has enabled the exploration of the nature of pre-service teachers' motivation to learn, online participation, and salient environmental influences within the Case Study One context. In the following chapter, attention is turned toward findings for Case Study Two.

CHAPTER FIVE

CASE STUDY TWO

... teachers most engage students when they offer high levels of both autonomy support and structure; and an autonomy-supportive motivating style is an important element to a high-quality teacher-student relationship. (Reeve, 2006, p. 225)

5.1 Introduction

Having detailed the results for Case Study One, Case Study Two findings are presented in this chapter. The chapter begins with a detailed description of the case. This is followed by the presentation of results. Initially, attention focuses on the nature of motivation and relationships with online participation. Comparisons between the research participants and non-participants, in terms of achievement and online participation, are then presented to determine whether the study participants are representative of the wider cohort. Then, salient social and contextual factors that influenced pre-service teachers' motivation to learn in this online environment are highlighted. As with Case Study One, self-determination theory is used as an organisational framework to make sense of the multiple influences on motivation that combine in complex ways and for the presentation of results.

5.2 Description of Case Study Two

Case Study Two focuses on an introductory social studies curriculum course that forms a compulsory component of the primary pre-service teacher programme. Full-time students typically undertake this course in the second year of their degree. By the time distance students undertake this course they have some experience of distance online learning using the WebCT course environment. They are also familiar with working with other online students on group tasks. Like Case Study One, students located at the satellite campus were required to undertake this course in the same way as the fully distance students. They also had previous online study experience.

The course had been delivered online for several years prior to this research investigation and was well established. The course coordinator was responsible for all

online teaching throughout the duration of the project described here. She considered herself an experienced online teacher at ease with the use of technology in the context of this course. In addition, an on-campus version of this course had been taught previously by the course coordinator, although not concurrently. The researcher had not met the course coordinator prior to conducting the research investigation.

Assessment for this course was comprised of three assignments. One of these, a micro-teaching and reflection assignment with associated online activities, was the focus for this research investigation. The chosen assignment and activities were completed over a four-week period and constituted 40% of a student's final mark. Students were required to individually plan and teach two consecutive lessons focusing on an area of *The New Zealand Social Studies Curriculum* (Ministry of Education, 1997) at a school of their choice. Students were responsible for identifying and approaching a school as well as organising the details of the micro-teaching process. The course coordinator provided students with an introductory letter to give to the school explaining what was required. Students had previous micro-teaching experience, having undertaken a similar process in their first year of study. The course coordinator was also aware of the organisational problems that students could experience and provided additional assistance where necessary.

In conjunction with the individual planning, organising, teaching and writing up of their micro-teaching experience, students were also required to engage with peers in the wider class and contribute to weekly online activities designed to support this process. The lecturer posted details in online weekly messages that were designed primarily to scaffold the learning process, as well as provide details of what students were required to do. The timing of these postings varied, although they tended to occur early in the week which allowed students to organise their study week.

Student participants for Case Study Two were recruited from the semester one (February – June) 2008 online distance cohort and were a distinct and separate group from Case Study One participants. A total of 47 students were enrolled in this course, of which four were male and 43 were female. From this, nine students responded to the request to participate. This was comprised of one male and eight females. A summary of demographic information is contained in Table 5.1.

Table 5.1: Case Study Two participants' demographic details of

Gender	Age					Ethnicity*		
	Total	18-23	31-40	41-50	51 and over	Maori	NZ European	Other
Female	8	2	4	2	0	2	6	1
Male	1	0	0	0	1	0	1	0

*One female participant identified with more than one ethnic group

Two female participants were co-located at the satellite campus. The remainder were fully distance students located throughout the North Island of New Zealand. Research participant pseudonyms, their role in the research investigation, and location are listed in Table 5.2.

Table 5.2: Description of Case Study Two participants

Research Participants			
Identifier	Name (pseudonym)	Type	Location
S1	May	Student	Distance
S2	Jillian	Student	Distance
S3	Adele	Student	Distance
S4	Bailee	Student	Satellite campus
S5	Danica	Student	Satellite campus
S6	Daphne	Student	Distance
S7	Sean	Student	Distance
S8	Marcella	Student	Distance
S9	Tracey	Student	Distance
L1	Anne	Course coordinator	Main campus

5.2.1 The context – Constructivist and sociocultural learning theories

Constructivist and sociocultural theories (Vygotsky, 1978) underpinned the design and development of this course. These theories conceptualise learning as participation in shared activities where the context and the situated nature of learning are integral considerations (Cullen, 2001). From this perspective, learners are seen as active participants in the shared activities of the learning community and knowledge is distributed among its members (Wenger, 1998). The adoption of this approach is clearly articulated to the students in the study guide introduction to this course.

The lecturer, responsible for teaching and management of the online distance cohort on which Case Study Two is based, was instrumental in the original development of the course. The structure of the course sees students initially undertaking a collaborative social studies inquiry and developing a presentation in an area of their choice. This is followed by the micro-teaching and reflection assignment which forms the boundaries for this case study and whose purpose is “*to develop your skills in planning for, teaching, assessing and reflecting on children’s learning in social studies*” (SGCS2 p. 11). Coursework concludes with students writing a personal response to social studies.

For Anne, the course coordinator, the reason for inclusion of the micro-teaching assignment related to the practicality and relevance of the activity:

Okay, so the assignments are micro-teaching ones, so it’s very practical. You’re in a classroom ... you get in there and you’re doing it. ... So there was that face-to-face contact with the reality of teaching and motivating students and answering questions and being the teacher in an authentic a situation as we can. (Anne – Interview CS2L1q2)

Having described the background and context of Case Study Two, attention turns to a detailed discussion of the findings. The findings are divided into two parts. Part One presents findings that address the first two research questions – the nature of motivation and learner participation in this online distance learning environment. Part Two then focuses on the social and contextual influences that served to facilitate or undermine student motivation.

Part One: Motivation and participation

5.3 The nature of motivation

This section explores the questionnaire responses of Case Study Two participants to the Situational Motivational Scale (SIMS; Guay et al., 2000). Overall situational motivation is initially investigated using the self-determination index (SDI) scores. Next, the different types of motivation measured by the SIMS scale, namely amotivation, extrinsic forms of motivation (external regulation and integrated regulation), and intrinsic motivation, are explored. This includes the exploration of the results of several individual participants. Student achievement results are then compared to SDI scores to determine whether any patterns existed between achievement and motivation in this

context. Case Study Two participants' achievement results are then compared to non-participants' results to determine whether the research participant group were representative of the wider cohort. Research question one is being addressed throughout this section:

What is the nature of motivation to learn of pre-service teachers in online distance learning environments?

5.3.1 SDI and SIMS subscale scores as a measure of motivation

SIMS scale questionnaire responses for each student participant are summarised in Table 5.3. All participants reported positive self-determination index (SDI) scores ranging from 16 to 54. This indicates that, overall, more autonomous forms of motivation outweighed more externally regulated types of motivation (Vallerand et al., 2008) during the micro-teaching experience.

Evidence for the differences in overall motivation, as measured by the SDI, can be found in the interview data. For example, Danica reported the lowest score (SDI 16) of the participants. She described her experience, at least in part, as something that had to be done:

It was a little bit like I was really busy and I sort of just wanted to do it and get it out of the way. (Danica – Interview CS1S5q15)

Tracey, with a SDI score of 47, had a more profound experience:

I found it in a lot of ways I think, I found it empowering. It sort of gave you a sense of confidence to be able to make that choice and then create it from there. (Tracey – Interview CS2S9q16)

While all student participants reported positive SDI scores (see Table 5.3), there was still a considerable range among the group. Those participants with the highest SDI scores tended to report higher levels of identified regulation (IR) and intrinsic motivation (IM) and lower external regulation (ER) scores. Turning to the subscale scores themselves, all participants reported low amotivation scores (resulting in the lowest possible group median), indicating that participants found value in the task and

felt reasonably competent to undertake it. The value, relevance and importance of the task (i.e. the opportunity to practise teaching social studies within an authentic context) to participants was further reflected in their identified regulation scores. They range from moderate to high for the majority of participants within the group, resulting in a high overall identified regulation score (IR *Mdn*=23) and a narrow interquartile range (IQR=2).

Table 5.3: Case Study Two participants' SIMS and SDI scores

Pseudonym	Sum of Subscale Scores				Weighted sum
	Amotivation (AM)	External Regulation (ER)	Identified Regulation (IR)	Intrinsic Motivation (IM)	SDI score
Adele	4*	15	24	23	47
Bailee	4	26	23	16	21
Danica	4	18	16	13	16
Daphne	5	28	23	18	21
Jillian	4	15	27	25	54
Marcella	14**	22	27	25	27
May	8	28	21	20	17
Sean	4	28	25	22	33
Tracey	8	12	23	26	47
MEDIAN (<i>Mdn</i>)	4	22	23	22	27
INTERQUARTILE RANGE (<i>IQR</i>)	4	13	2	7	26

* Participant subscale scores can range from a minimum of 4 to a maximum of 28.

**Marcella's amotivation score is not supported by her interview, open-ended questionnaire responses and asynchronous discussion data. This may be due to a misunderstanding as English is her second language.

There is, however, a greater range among external regulation and to a lesser degree intrinsic motivation scores that points to the multifaceted nature of participants' motivation to learn within this context. In other words, participants endorsed several motivation subtypes concurrently and to varying degrees. The diverse and complex nature of motivation can be found within individual participants' reported experiences. May (SDI 17) is an example of a participant who reported one of the lowest self-determination index scores of the group. Looking more closely, her subscale scores highlight the salience of external regulation (ER 28) as well as moderately high levels of identified regulation (IR 21) and intrinsic motivation (IM 20). This indicates that she

valued and enjoyed the micro-teaching task while simultaneously being aware of external constraints. Questionnaire and interview data provide further insight into May reporting intrinsic and extrinsic types (identified and external regulation) of motivation concurrently. Feelings of external regulation stem primarily from time constraints:

... as a really busy mum, as well as mature student, I'm just focused on getting the job done without getting unnecessarily involved in the concerns of others. (May – Questionnaire CS2S1q30)

Viewing academic achievement as something that was personally important to her and therefore of high attainment value (Eccles & Wigfield, 2002) was one reason for her high identified regulation score:

Passing an assignment, not that it's easy, but it's sort of the easiest part of the process. Satisfying yourself would be the hardest part. (May – Interview CS2S1q5)

Being personally interested in the subject matter as well as enjoying the activities and discussions that occurred during the micro-teaching assignment timeframe (situational interest), provide support for May's reported intrinsic motivation score:

social studies, it's just a subject that I really enjoy. (May – Interview CS2S1q10)

I really enjoyed when I went on and got into the discussions and activities. (May – Interview CS2S1q15)

Sean is another participant who reported high scores for several types of motivation, resulting in a high overall self-determination index score (SDI 33). Like May, Sean expressed feelings of constraint with some aspects of the assignment, hence his high external regulation score (ER 28). But rather than lack of time being the most significant aspect, Sean found working within the social studies curriculum framework constraining:

... well it's like everything else in these courses you have to make it fit with the curriculum, the gospel of the curriculum. So it was like okay well this is what I want to do now how do I make that fit with the brief? And I think that is probably what teachers have to do all the time

because the other thing has to fit within those guidelines. ... within that prescription. (Sean – Interview CS2S7q5)

While Sean found the curriculum framework ‘prescriptive’, this did not prevent him from viewing the assignment and associated activities as highly relevant, as evidenced by his high identified regulation score (IR 25). In the message below, Sean explains how the online activity has broader personal relevance that goes beyond the relevance to his future teaching practice:

Posted by Sean on Tuesday, March 4, 2008

Subject: [REDACTED]

...

What will this view mean to the way I teach social studies in a classroom? It's a good question, although I'm not sure it's one that I am yet ready to answer. I would hope that my perspective on this matter informs a lot more than “just” (apologies to Anne) my social studies teaching, since it is, in many ways, at the heart of what made me choose to take this particular path at this time of my life. (Asydisc SID CS2S7)

A personal interest in what he was learning was one reason why Sean also reported relatively high levels of intrinsic motivation (IM 22):

I think it's generally when it is something personally engaging. ... Something which touches a nerve or you know explore something they feel strongly about or are very interested in, then you will get more involved in it. (Sean – Interview CS2S7q10)

A further example, that highlights the complexity of participants’ motivation to learn and how the same aspects within the environment affected different students in different ways, is Jillian. She had the highest self-determination index score (SDI 54) within the participant group. Her identified regulation (IR 27) and intrinsic motivation (IM 25) scores were the highest (along with Marcella), indicating she found the micro-teaching assignment both meaningful and interesting. The next statement encapsulates both:

I guess because it's relevant, it's relevant to [the] everyday world. It's not you know, when I think about what I learnt in school and we're mostly talking about in the past, I don't recall doing anything about the future or the present or you know that sort of thing. But it makes it more exciting, more interesting. (Jillian – Interview CS2S2q20)

The main difference in Jillian’s subscale scores when compared to May and Sean, is her lower external regulation score (ER 15). Like May, Jillian is aware of external factors such as time constraints. But it seems that she accepts them as part of life rather than viewing them as restrictive:

... but I mean you’ve got all these time constraints and that’s just, that’s just life at times. (Jillian – Interview CS2S2q13)

These results demonstrate that for students in this context, *their motivation to learn was a complex mix of multiple types of motivation*. This was because students had numerous, different reasons for engaging in the micro-teaching assignment and situational factors such as the relevance of the assignment, how interesting it was and perceptions of time constraints, (foreshadowed above), also influenced their experiences. This translated to the simultaneous endorsement of extrinsic (i.e. identified regulation and external regulation) and intrinsic types of motivation.

5.3.2 Achievement as an indicator of motivation

Many studies have demonstrated positive relationships between achievement and motivation (Schunk et al., 2008). Based on this, achievement data for the micro-teaching assignment and the course as a whole were collected and Spearman rho correlations calculated between them and the overall level of self-determined motivation (as measured by SDI). Results presented in Table 5.4 show no significant relationships at the assignment or course level.

Table 5.4: Case Study Two Spearman rho correlation coefficients (r_s) between SDI and achievement

	N	Assignment mark	Course mark
SDI	9	.02	-.41

All coefficients are statistically non-significant

This can also be seen from individual participant results. For example, May received the highest assignment mark (36/40) while reporting one of the lower SDI scores (17). In contrast, Adele achieved the next highest mark (35/40) and reported one of the highest SDI scores (47). It is also important to remember that even though May expressed one of the lower SDI scores, her identified regulation (IR 21) and intrinsic motivation (IM

20) subscale scores were moderately high. This indicates she experienced more self-determined forms of motivation during the assignment *in conjunction with* high levels of less self-determined extrinsic motivation (ER 28). While the calculation of SDI is a useful indicator of overall self-determined motivation, subscale scores presented here show that using a composite scale, such as SDI, can mask a learner's simultaneous endorsement of multiple types of motivation for engaging in an activity. This finding suggests that expressions of less self-determined forms of motivation are not always detrimental to achievement if experienced in conjunction with autonomous types of motivation. It also reflects other research (Ratelle et al., 2007) that found that college students reporting high autonomous types of motivation (i.e. identified regulation and intrinsic motivation) in conjunction with high controlled motivations (i.e. external regulation) achieved at a similar level to students reporting high autonomous and low controlled motivation.

5.3.3 Achievement of participants compared to non-participants

Mann-Whitney U tests were conducted comparing the achievement of Case Study Two research participants and non-participants to determine whether any significant differences existed between the two groups. Achievement on the micro-teaching assignment and the course as a whole, were compared for both groups. Results are presented in Table 5.5.

Table 5.5: Case Study Two Mann-Whitney U results comparing achievement for participants and non-participants

	PBL assignment mark	Whole course mark
Mann-Whitney <i>U</i> (2-tailed)	121	115.5
Effect size (<i>r</i>)	-.20	-.22

All coefficients are statistically non-significant

Results indicate there was no significant difference in terms of achievement at the assignment or course level between the two groups. This indicates that, in terms of achievement, the research respondents were a typical representation of the course cohort.

Having explored the nature of motivation to learn, attention is now turned to the exploration of relationships between the motivation of Case Study Two students and their participation in this online distance learning environment.

5.4 Online participation

This section begins by exploring student rates of participation throughout the course (as usage statistics were not captured for the micro-teaching assignment – see Section 3.8.3) and possible relationships with motivation and achievement. Next, participation of learners is explored from the perspective of the quality of contributions. Rates of participation are then compared between participants and non-participants to determine whether there are any significant statistical differences between the two groups. Research question two is addressed throughout this discussion:

How does the motivation to learn of pre-service teachers relate to their participation in online distance learning environments?

5.4.1 Relationships between participation, motivation, and achievement

As with Case Study One, three measures of WebCT usage statistics data were used as indicators of online participation or engagement. These were WebCT hits, messages read and messages posted (see Section 3.8.3 for definitions). While hits and messages read are included in this discussion, messages posted were used as the main indicator of active participation throughout the course. Whilst the micro-teaching assignment was undertaken individually, online class-wide activities occurred concurrently in which students were expected to participate. As normal course administration involved the collection of usage statistics data over the entire course duration and not specifically for the micro-teaching assignment period, this data provides only a general indication of learner participation rates.

Spearman rho correlation coefficients were calculated to explore the relationships between online participation and motivation (SDI score), as well as online participation and achievement (micro-teaching assignment and final course mark). These are presented in Table 5.6. No significant relationships were found. Therefore, in the

context of Case Study Two, no relationships exist between a participant's online activity (active or passive), level of self-determined motivation or their achievement.

While caution must be taken when interpreting these results, they are not unexpected given that online participation was not critical to doing the assignment. It is interesting though, that correlations between online participation (messages posted and read) and motivation (SDI scores) are higher than those between participation and achievement (assignment mark) although not significant. This maybe because the nature of the online interaction helped support participants' autonomy and relatedness needs (see Sections 5.5.1 and 5.7.1).

Table 5.6: Case Study Two Spearman rho correlation coefficients (r_s) between SDI, achievement and participation

	N	Messages Posted (course)	Messages Read (course)	Hits (course)
SDI	9	.64	.55	.46
Assignment mark	9	-.24	-.40	-.13
Course mark	9	.02	-.43	-.05

All coefficients are statistically non-significant

5.4.2 Quality of online participation

In order to gauge the level of participation of learners, it was also important to explore the online discussion itself as a measure of the quality of cognitive engagement. Furthermore, participants perceptions' of their own and others involvement in the online environment were also investigated. For example, May reported one of the lower SDI scores (17) as well as a low number of messages posted (22). This information alone could suggest that she may not have felt particularly engaged with the micro-teaching assignment and the social studies curriculum course as a whole. However, her achievement (36/40) on this assignment, insights from interview data and contributions to online discussions tell another story. May perceived her peers within the class as demonstrating a high level of online participation:

... if you go into social studies there is always, every time I looked at it, there was thousands and thousands of new messages because people

were into it. Whereas, other courses might not show a new posting for weeks at a time. So it felt like it was active if you like. (May – Interview CS2S1q20)

This view was also supported by other participants such as Sean:

Let's put it this way, I would say compared to the other courses it was probably one of the two most active in that sense. (Sean – Interview CS2S7q11)

The level of participation in the online class had the effect of encouraging May to engage:

Interviewer: *And you wanted to engage in that activity? Does it make you feel you want to be part of it?*

May: *Yeah it does. The more people that chip in the more yeah. You're not going to post if no-one is active in a course. You're not going to put anything out there because either you're not going to get a response or you realise that no-one else actually cares and they are just trying to survive the course rather than participate in it. (May – Interview CS2S1q20)*

In terms of the amount of her involvement, May made personal judgements about what she perceived as relevant and interesting to her based on time constraints:

May: *Purely personal organisation, that's really the only thing that affected my participation ... I really enjoyed when I went on and got into the discussions and activities. So any lack of participation was purely just not having the hours in the day to do it. But yeah that was all really.*

Interviewer: *It wasn't lack of interest or?*

May: *No definitely not lack of interest. I did, I do recall just sort of not getting into some of the discussions anymore because I could see there really wasn't anything to be gained. (May – Interview CS2S1q15)*

Jillian also posted relatively few messages (27) throughout the duration of the course as well as achieving well on the assignment (34/40). However, unlike May, she recorded the highest SDI score (54) of the participant group, indicating a high degree of autonomous self-regulation and engagement with the tasks. Possible reasons for this can be found in her questionnaire and interview responses and the high number of messages

read (1154) throughout the course. This indicates that while she may not have posted a large number of messages, she was attending to what her peers had to say and making judgements about the value of these contributions in relation to her own approach:

It is great to hear/read other people's points of view and their experiences. (Jillian – Questionnaire CS2S2q30)

There are some people where you think “oh, actually I wonder what you’re going to say this time or I wonder what you’re going to post”. ... It’s like ... there are some that you yeah, that you actually learn quite a lot off yeah and others that ... have some good ideas and you think “oh, you know that’s a good idea but I wouldn’t have done it like that”. (Jillian – Interview CS2S2q11)

Quality participation, in terms of meaningful dialogue (Dillenbourg, 1999), was also evident in the online activities that occurred concurrently with the micro-teaching assignment. The following example demonstrates the engagement of several of the research participants in a discussion about a relevant social issue (the changing of New Zealand legislation relating to parental control – dubbed the ‘anti-smacking’ legislation). This activity was designed to provide students with personal experience of engaging in a values exploration process in a meaningful way and to assist the transfer of this understanding to their own classroom practice. What the following extract shows, is the willingness of these participants to engage in meaningful dialogue, sharing their own values while respecting and engaging with those put forward by their peers. This is clearly shown in Adele’s posting:

Posted by Adele on Friday, March 21, 2008

Subject: [REDACTED]

Ohhhhh. This is an interesting topic.

...

As you could guess I don’t agree with the law. It will not prevent child abuse!! I also don’t agree with indiscriminate smacking – Use other forms of teaching your children appropriate behaviour before resorting to a light smack – the shock is often enough (as others have said). People who abuse children do not have any regard for the law and do what they please anyway. Unfortunately some children are just a product of an action between two individuals; the child was not planned and often these children are not wanted. I realise this is a very generalised comment.

Raising children is one of the most important jobs a parent could have and there is no training provided. A better way for the government could help protect the lives of your young citizens would be to provide a better service from the likes of PLUNKET. This could include parenting classes, coffee groups, and ongoing in home visits for at risk children, counselling for parent/s. It not only helps keep track of the health of the child but the parents too.

...
Adele. (Asydisc SID CS2S3)

Sean was also active in the ongoing discussion:

Posted by Sean on Friday, March 21, 2008

Subject: [REDACTED]

Ahhh yes, the verbal and psychological abuse. Good point. It might not leave visible scars, but it can cut deep indeed and, I agree, the damage can be very deep and long-lasting indeed. Not exactly easy to regulate against either.

The other thing about such abuse is that it's something that we are all capable of carrying out without even being aware that we're doing it quite often. As prospective teachers, this is something I feel we should always be aware of. Even a casual comment made without a hint of malice, made to the wrong person at the wrong time, can have far reaching effects. I tend to think of it as something akin to the proverbial butterfly effect.

I also have a certain sympathy for the idea of the odd tap or smack that you and Adele speak of. After all, anyone who has observed other animals with their young will attest to the fact that the odd cuff here and there seems quite a normal aspect of the nurturing process in many parts of the animal kingdom. As with many things in life, perhaps it is less about the act itself than it is about the intent behind it. ;) (Asydisc SID CS2S7)

May's response shows evidence of thought and research – she was one of only two students who actually read the planned amendment to the piece of legislation under discussion:

Posted by May on Tuesday, March 25, 2008

Subject: [REDACTED]

In the case you refer to L, witnesses say the man hit the child several times around the head. It will no doubt be an interesting court case.

I'm one of the minority completely in favour of the amendment of s59. I agree that it won't stop child abuse overnight, but I think it will have a big impact on future generations and their attitudes to smacking. The argument that "it won't stop child abusers anyway" seems pretty weak to me – on that basis we shouldn't bother having laws for anything, because the baddies never pay attention to them.

I'm pretty surprised at how few people have actually read the amendment for themselves – I know facts get in the way of a good argument :) but I can't help thinking that a lot of parents would be quite reassured to know that restraining their child from harm is not illegal (contrary to popular belief).

I thought Sean's US gun-control analogy was right on the money – people aren't really signing petitions in great numbers because they WANT to smack their kids, they are indignant because they perceive the amendment as infringing on their personal rights. (Asydisc SID CS2S1)

These examples demonstrate the quality and depth of contributions posted by these participants, indicating a high level of engagement. This would remain hidden if the number of postings was the only measure of participation. Social and contextual influences that encouraged and supported quality engagement and participation are discussed later in this chapter (see Part Two).

5.4.3 Participation of research participants compared to non-participants

Mann-Whitney U tests were conducted comparing the usage statistics (WebCT hits, messages posted, messages read) of Case Study Two participants and non-participants to determine whether any significant differences existed in terms of online participation throughout the social studies course. Results are presented in Table 5.7

Table 5.7: Case Study Two Mann-Whitney U results comparing online participation of participants and non-participants at course level

	Messages Posted (Course)	Messages Read (Course)	Hits (Course)
Mann-Whitney <i>U</i> (2-tailed)	138	161	168.5
Effect size (<i>r</i>)	-.13	-.04	-.01

All coefficients are statistically non-significant

Results indicate no difference in online participation (i.e. messages posted, messages read and hits) between the two groups. This indicates that the research participant group were typical of the wider cohort when it came to their online activity.

Part Two: Social and contextual influences on motivation

Having explored the nature of motivation and its relationship to online participation and achievement in the Case Study Two context, attention is now turned to social and contextual features that were salient to participants. As with Case Study One, self-determination theory is used as an organisational framework to identify key environmental influences and to explain how they predominantly fostered feelings of autonomy, competence and a sense of relatedness in this context. Throughout this section, research question three is addressed and conceptual models are presented that identify the complex factors influencing learners' motivation in this environment.

In what ways do social and contextual factors relate to pre-service teachers' motivation to learn in online distance learning environments?

5.5 Perceptions of autonomy

Research has shown that a number of aspects of the social context, such as providing rationales, non-controlling language, provision of choice and relevant and meaningful instructional activities, that align with students' personal interests, support the autonomy needs of learners (Guay et al., 2008; Reeve, 2006, 2009; Reeve et al., 2008; Ryan & Deci, 2000a; Vallerand et al., 2008). Conversely, external regulators such as deadlines, directives and compliance requests serve to undermine self-determined types of motivation (Reeve et al., 2004). Within Case Study Two, social and contextual factors were perceived by learners to be predominantly supportive of their autonomy.

5.5.1 Factors that supported perceptions of autonomy

Overall, participants perceived themselves as autonomous while engaged in the micro-teaching assignment and associated online activities, as indicated by the high identified regulation and intrinsic motivation scores reported by the group. The following comments demonstrate that this was the case even for Danica and May, who had the lowest self-determination index scores (see Table 5.3):

I just did whatever I wanted. (Danica – Interview CS2S5q9)

... it was really valuable because so much of what we do in other courses is prescribed that, you know, you need to have the experience of making your own choices and making your own mistakes or your own successes. (May – Interview CS2S1q7)

Expressions of personal volition were also evident in remarks from learners with high self-determination index scores (see Table 5.3):

I do like having the freedom. (Sean – Interview CS2S7q9)

I liked the freedom, yeah the freedom of that ... we could choose our own strand, our own levels, our own school. (Jillian – Interview CS2S2q16)

Several significant themes and sub-themes emerged as facilitating learners' perceptions of autonomy. In the discussion that follows, the order in which they are presented indicates their importance within the Case Study Two context (i.e. the frequency with which they featured in the qualitative data). They include: relevance and meaning; interest and enjoyment; active learning; an autonomy supportive environment that included the lecturer; and perceptions of choice.

1. Relevance and meaning

The relevance and meaning of the task was the most important theme to emerge as supporting the autonomy needs of learners. This indicates that learners found the micro-teaching assignment to be a worthwhile and valuable learning activity. Within this major theme, two key *sub-themes* emerged relating to the relevance and value of the activity to participants. These were: 1) *relevance to their future role as a teacher*, and 2) *personal relevance*.

Of the two sub-themes, the most significant was the *relevance of the micro-teaching experience to future teaching practice*. The majority of participants saw a clear link between the micro-teaching experience and its importance to their future teaching practice. This perception is summed up by Marcella's comment, "*It was very pertinent, relevant and useful*" (Marcella – Questionnaire CS2S8q29). For participants, the

importance of the activity lay in its utility value (Ryan & Deci, 2000a). That is, the task was seen as an opportunity to practice for their future roles as teachers. The link between the value of the task and their future chosen profession is clear in the following comments from Jillian and Daphne who both reported high identified regulation scores (IR 27 and 23 respectively):

This assignment was exactly what the course is about and indeed what we are studying to be is all about – teaching. (Jillian – Questionnaire CS2S2q22)

It related to ... things that you could really use in the class. You'd just imagine how useful it is and how well it works. (Daphne – Interview CS2S6q20)

The link between the micro-teaching assignment and students' future professional practice was intentional by the lecturer, Anne. She was aware of the importance of adequately preparing students to teach social studies in the future, as the following comment indicates:

Because for some this is all they get in their teacher education. So I have to be aware that ... after this 40 hours they need to be able to feel that they could begin to teach social studies. It's an ongoing journey but they've got some pretty solid stuff to build on. (Anne – Interview CS2L1q19)

Anne also ensured that learners understood the value and importance of the micro-teaching task, by clearly articulating the rationale for each part of the activity. For example, the micro-teaching assignment required students to plan two consecutive lessons. In the messages posted below, Anne acknowledged that planning can be difficult but also articulated the reasons why it was important and necessary and how it could be done effectively:

*Posted by **Anne** on Thursday, March 6, 2008*

Subject: [REDACTED]

...

Many teachers abhor planning. However, it is an important aspect of teaching and you are accountable to your syndicate leader, Principal and Board of Trustees, via these plans. I read on the notice board at the campus here ... today that "if you are prepared then you can be confident" and that is about being planned ... just be flexible with your

planning – so that you can be responsive to children. When you are teaching you might want to plan WITH children and share some of these decisions with them but this is a little difficult to do in a micro-teaching exercise – just be mindful that that is a good direction to move in as an experienced teacher. (I sound like a broken record). (Anne – Asydisc CourseDisc CS2L1)

The second sub-theme was associated with the relevance of the assignment in terms of the *personal relevance and meaning* the activity engendered for participants. Being able to make connections from the course content to their everyday lives, in terms of existing interests and prior experiences, enhanced the meaningfulness of the assignment for several participants. Adele and Jillian's remarks demonstrate how incorporating personally relevant aspects into their micro-teaching lessons made the task more meaningful:

It actually was really quite interesting because it was based on, the school had just had a jubilee and I thought well, I'll focus it around that and doing other celebrations. And it was just before ANZAC Day and my husband has got medals. So I could take those. (Adele – Interview CS2S3q3)

I took in some a couple of things that were personal to me. ... I guess I sort of had to think about what that was going to be because I also wanted it to kind of appeal to the children. So I mean I didn't really think that my embroidered tablecloth that my grandmother did was going to be something that'd completely fascinate them, so instead I've got a boat in a bottle that my uncle actually made. (Jillian – Interview CS2S2q8)

Marcella and Daphne's comments below highlight the relevance of the course content to broader aspects of their lives that were personally important and valuable. Their remarks also indicate that their conceptual understanding of social studies changed to the extent that they were able to make connections between what they were learning and its importance to the wider community and society in which they were situated:

I think social studies [is] very relevant. Because we are people, are part of society and they have to learn about it especially young children. If the social studies curriculum says they want the children to grow up as responsible citizens I think they have to know that they are part of society or the wider community. ... Yes I think it's very important, it's very relevant yes. (Marcella – Interview CS2S8q20)

Social studies is part of our everyday lives. It doesn't have to be boring. Kids can learn in so many way and forms that can be fun and teach life skills. Social studies helps children grow into rounded individuals that know how to work within a community full of different cultures, views and beliefs. (Daphne – Questionnaire CS2S5q28)

The importance of the learning activity being relevant and meaningful to learners contributed to the high identified regulation scores reported by the participant group as a whole (IR *Mdn*=23).

2. Interest and enjoyment

The next most prominent theme that supported the expression of more self-determined types of motivation was interest. Two clear sub-themes emerged around what participants found intrinsically interesting or enjoyable about the assignment. Of the two, *situational interest* – interest generated by certain conditions in the learning environment that focused attention (Hidi & Harackiewicz, 2000) – emerged as the most salient. *Personal interest* – an individual's preference to return to a particular area of content over time (Hidi & Renninger, 2006) – was the second sub-theme identified. Both situational and personal interest contributed to the high overall intrinsic motivation scores reported by the Case Study Two participant group (IM *Mdn*=22, see Table 5.3).

There are two different types of situational interest, namely *triggered* and *maintained* situational interest (Hidi & Renninger, 2006). Triggered situational interest tends to be short-lived, whereas maintained situational interest follows on from the triggered state and tends to be sustained over a longer period of time. Overwhelmingly, the type of situational interest described by participants throughout the micro-teaching assignment and the broader social studies course was maintained situational interest. Evidence for this can be found in the following comments:

Very good, enjoyable and thought-provoking. (Sean – Questionnaire CS2S7q29)

Posted by **Tracey** on Friday, March 14, 2008

Subject: [REDACTED]

WOW

Enjoying social studies. It's a little sad to think we won't have it for long really. (Asydisc Announcements CS2S9)

Learning environments that provide opportunities to pursue activities that have personal relevance in meaningful ways, in addition to promoting more self-determined types of motivation, promote maintained situational interest (Hidi & Renninger, 2006). Students identified the lecturer's approach to teaching, in combination with the course content, as sources of maintained situational interest:

I mean, you could tell that she loves social studies by the amount of information that she gives you, you know, all her lecture notes are 2 or 3 pages or 4 pages long. You know, so she's got lots to share with you, she's not withholding anything, she just wants social studies out there. (Jillian – Interview CS2S2q20)

Like it was a really easy ... course, not easy as in ... easy workload, it was the same as every other course, but it was enjoyable and the learning was made easier. ... The reading was enjoyable, very, very enjoyable. ... The readings were really interesting and that was another part that you got to know Anne a little bit more because you got to read some of the research that she's done as well and the impact that she is having on social studies and it's like right here and now. And a lot of the stuff was like what's going on in schools now, it wasn't dated, it was a really up-to-date course. (Daphne – Interview CS2S6q20)

In line with other research (Krapp, 2002), participants also linked situational interest with levels of heightened engagement:

... with social studies we have very good responses, many people respond because I think that it's very interesting, very interesting and we didn't know it was part of social studies. (Marcella – Interview CS2S8q11)

... a discussion topic might be put up by the lecturer and it would just, they were quite hot topics and I think that was the other thing too. They weren't safe subjects so they did generate a lot of discussion. ... It got us talking and I think probably all, I got the impression that people were participating quite regularly on WebCT in that course because it's just interesting. (May – Interview CS2S1q10)

Personal or individual interest was the second sub-theme identified as supportive of self-determination. Several participants identified social studies as a well-developed

area of individual interest characterised by positive feelings and value for the content being learned (Hidi & Renninger, 2006). Bailee was one participant who repeatedly affirmed her personal interest in the subject area:

I love social studies. ... when I was in primary school I was really encouraged to do social studies when I got to high school. So I got to high school, because I'm a real people's person and I really like people and can talk to them and just start up a conversation or whatever. So I really love social studies. (Bailee – Interview CS2S4q15)

Her next comment again affirms her enjoyment of social studies but also highlights the role of situational interest in supporting her individual interest:

I definitely enjoyed social studies more than any other course just because I love social studies and how the lecturer brought it across. (Bailee – Interview CS2S4q20)

Sean highlighted the opportunity to follow a personal interest in metacognition, originally triggered by situational interest (a resource in the study guide), as supporting his self-determination:

Posted by Sean on Thursday, March 6, 2008 6:05pm
Subject: [REDACTED]

*...
Wait... an idea is forming..... hmmm.... I just noticed "Fact VS Opinion" exercise at the back of the SG. That could be fun! (Asydisc SID CS2S7)*

But I decided to take it into the fact or opinion kind of evaluation or you know inquiry aspect of that. So it was, that intrigues me I mean anything to do with getting kids to think about why they are thinking, fascinates me. (Sean – Interview CS2S7q3)

3. Active Learning

Being able to apply the knowledge learned in an authentic context was also seen as important and valuable by the majority of participants. Specifically, students were learning about the social studies curriculum while having an *experience* of teaching one aspect of the curriculum of their choosing. This, in turn, reinforced the importance and relevance of the micro-teaching assignment, further contributing to the high identified

regulation scores reported by participants. The importance of having the opportunity to put learning into practice in an authentic context comes through in the following statements from Adele and Jillian:

I think it was really important because we got to get out there and practice. Which we don't get a lot of chances to do that, only on TE [Teaching Experience], but that's only if the teacher's long term plan fits in with it. (Adele – Interview CS2S3q19)

I think it related completely. I think it was probably the best thing that you could do ... maybe other courses should do the same thing because it is so, you know, you learn all about social studies and you know it's a huge range. You know, we could be talking about the past, present or the future in it. ... and then you are faced with the problem well, how am I going to teach that? You know, it's like, oh wow okay, I've just read all about it, so now I have to actually work out for myself how that's going to go. (Jillian – Interview CS2S2q19)

Providing opportunities to apply knowledge in practice was an underlying reason that influenced the original inclusion of the micro-teaching assignment in the social studies course, as the following comment from Anne indicates:

Part of the requirement is to work in another space and engage with the everyday complexities of a classroom with children that they might not, that they don't know. All the bigger things of the classroom are coming in. ... It's demanding. (Anne – Interview CS2L1q3)

4. *Autonomy supportive environment*

A fourth theme to emerge that supported participant autonomy was the perception that the lecturer, the course content and the task itself were supportive of learners' autonomy. As a group, participants perceived the learning environment as fostering learner self-determination. While perceptions of an *autonomy supportive lecturer* was the most significant sub-theme, the *course content* and *the task* itself were also seen as contributing to learners' experiences of internal control and volition.

The following comment from Anne shows that her underlying teaching philosophy is *autonomy supportive*. That is, one that endorsed learner self-determination, which she enacted through the sharing of power with students:

For me it's a sharing of power, acknowledging I do have power, I'm marking their work that gives me power but I'm acknowledging it and ... I'm trying to reach out and build them up. (Anne – Interview CS2L1q20)

It is clear from this that Anne perceived herself as a non-controlling teacher who viewed learning as a process of negotiation, rather than a way of pressuring students to get them to do what was required. One of the primary ways in which Anne supported learners in their efforts to be self-determining, was by using informational rather than controlling language. The following message was received by several participants in relation to their lack of discussion about their ideas for the upcoming micro-teaching activity. While she reiterated her expectations, she worded it in a way that emphasised her willingness to support them through the planning and development of their micro-teaching lessons:

Posted by Anne on Friday, March 14, 2008

Subject: [REDACTED]

Hi there

Just come in to support your thinking about your microteaching ... all other groups have been talking on line ... I know you might meet but you also need to participate here so I can see/hear and add to your thoughts.

Hope there's something up by Monday.

Anne. (Asydisc GpR2A CS2L1)

Learners, in turn, perceived Anne's teaching approach as autonomy supportive:

Because in a lot of them I'd sort of feel that the lecturer was here and we're down here, and there is no meeting in the middle you know. It's sort of my way or highway and you are learning you, you don't know anything, so you do what you're told. Whereas, this ... course we were able to discuss it and we were able to talk about it and come to some sort of meeting in the middle which makes quite a big difference. (Tracey – Interview CS2S9q20)

I loved how she brought it across because she wasn't serious and this is how it is and this is how it's going to be and she gave us the freedom to explore and go down this road and that road and if it didn't work out, come back and revise what went wrong or what you could have done better, what you can do better next time. (Bailee – Interview CS2S4q20)

Throughout these statements, there is a clear sense of personal control and freedom to explore, question and discuss issues that arise during the learning process. This was particularly salient for these participants when contrasted with previous learning experiences.

The *course content* – social studies – also emerged as contributing to the satisfaction of the autonomy needs of these learners. The remarks that follow reveal the sense of openness they experienced when engaging with the social studies curriculum (in combination with an autonomy supportive teaching approach):

... I guess compared to perhaps other subjects it's not black and white you know. There are lots of grey areas in social studies and therefore it's quite wide and there's no right or wrong way necessarily because it's all opinion and things. ... As maybe compared to science where you know it is quite black and white. (Jillian – Interview CS2S2q20)

Social studies it was such a free ... course if you get my idea ... Anne's way of talking was that social studies is just such an open thing. That was just what we've been taught about it. (Adele – Interview CS2S3q8)

Finally, *the activity* itself was seen as autonomy supportive by several participants. Lack of observation, the perception of having control, and choice over the activity were cited as underlying reasons for this:

It was good not to be observed because so often we are and it really does affect how you truly react. So it's nice to have that experience of just being yourself and do it the way you're going to do it and you know finding out by trial and error what works rather than having, sometimes it's nice not having feedback. ... so that was, that probably helps because you come out of it being your own judge. (May – Interview CS2S1q6)

... there are situations that I've had before where a teacher said, you sort of say what you want and then they'll steer you in the direction that they would like to see it shaped and I didn't have that this time and I think it was good for me. I got to try what I wanted to do. (Daphne – Interview CS2S6q9)

5. Perceptions of considerable choice

A final significant theme to emerge that supported participant autonomy, was the perception of many choices being available to them. The provision of choice was seen as freeing and having no limits, as the following remarks attest:

I liked that we had a choice because there were no limits on what we could do, or think of as long as it came in line with the strands. (Bailee – Questionnaire CS2S4q22)

I'd say it was limitless, there were just so many things that you could have done. (Daphne – Interview CS2S6q7)

Sean identified the importance of being given choice and its connection with motivation:

Choice is very important to me in a motivational sense, so long as I am clear about the parameters within which I am to be working. (Sean – Questionnaire CS2S7q22)

Participants also talked about the effect of choice, often linking it to relevance and/or interest. Several participants described having choice as enabling them to pursue topics that were relevant and meaningful to the micro-teaching context and beyond:

I think because it was so open that made it really easy to find something that was in context in the children's eyes. (Tracey – Interview CS2S9q16)

... choice in the micro-teaching subject gave me practice at identifying authentic and engaging learning contexts for the children (critical to social studies) so it was a good learning experience for me. (May – Questionnaire CS2S1q22)

Perceptions of considerable choice also encouraged the selection of topics that were interesting:

But I think it's worth it in the end because you get to make your own decisions and choose the things that are interesting. (May – Interview CS2S1q7)

... some assignments you are told it's on this and you've got to write around that. But when you've got a choice ... a variety of topics you can base your assignment on, it just makes it more interesting. (Adele – Interview CS2S3q15)

By supporting student autonomy in this way, more self-determined forms of motivation, intrinsic motivation and identified regulation were encouraged. This finding is further supported by the significance of the emergent themes of relevance and interest discussed previously. Offering choice to learners was intentional on Anne's part because she saw choice as one way to support learner autonomy:

So we're talking about choice ... and choice was one way that I can enable them. (Anne – Interview CS2L1q8)

In terms of the types of choices available, the topic and the approach taken were the predominant themes identified by participants:

... choose how you were going to go about it and which strand you were going to fit it into and how you were going to do it because if you're given a topic, it's more or less giving you the strand as well in a lot of ways. So yeah it was good. (Tracey – Interview CS2S9q8)

In this case there was a wide scope for choice of approach and subject that was only really limited by the constraints of the social studies matrix it was to be related back to. (Sean – Questionnaire CS2S7q22)

Self-determination theory (Deci & Ryan, 1985) posits that learners whose autonomy needs are met within the learning context are likely to experience more self-determined forms of motivation. This was the case for the Case Study Two research participant group as a whole who reported high identified regulation (IR *Mdn*=23) and intrinsic motivation (IM *Mdn*=22) scores. However, over half of the learners also reported high levels of *external regulation* in addition to the above. This suggests that certain factors within this context were not supportive of their individual autonomy needs. The following section describes salient environmental conditions that contributed to the undermining of students' perceptions of autonomy.

5.5.2 Factors that undermined perceptions of autonomy

Given the strong themes supporting self-determined motivation described in the previous section, it might be expected that less self-determined motivation types – amotivation and external regulation – would be less salient in this context. While this is true of amotivation, with the participant group reporting very low scores (AM *Mdn*=4), the same cannot be said for external regulation. In fact, the majority of the respondents reported moderate to high levels of external regulation (ER *Mdn*=22, see Table 5.3) in conjunction with moderate to high levels of identified regulation and intrinsic motivation. A small but important group of themes emerged from the data that contributed to perceptions of external control. In order of significance, they were: perceptions of time constraints; perceptions of technology constraints; and perceptions of limited choice.

1. Time constraints

All participants considered that the workload associated with the micro-teaching assignment was manageable and comparable to other assignments in this and other courses. As Daphne says, “*the workload was set at the right level and it wasn’t too much*” (Daphne – Interview CS2S6q11). However, several students described constraints on their time being a significant factor contributing to high external regulation scores. Often these participants described factors outside the immediate learning context, such as other study commitments, impacting on the time available to focus on their assignment work. For example, Danica talked about other commitments affecting her available time. This saw her regulating her involvement with peers:

... some of them I just didn’t read because I just didn’t have the time. I would have liked to have read the discussion because there was often quite a good debate going on but I just ran out of time basically. I had to prioritise some things. (Danica – Interview CS2S5q11)

Outside work and other study commitments were a fact of life for Marcella that limited not only the amount of time she could spend on her assignment but when she focused on it:

... because in a week I would have a schedule of each course I do, which day. I do the longest one, those with most readings, during the days I’m

off work because I have like the whole day for myself. (Marcella – Interview CS2S8q1)

Other commitments also limited the amount of time spent reading and participating in the online asynchronous discussion, as was the case for Daphne:

... they'll put a question up there and then they'll get 20 responses and I just don't have time to read them all. (Daphne – Interview CS2S6q10)

Commitments such as work, family and other lifestyle factors and the resultant time constraints on study have been noted previously in the literature (Kuh, 2003).

2. Technology constraints

The second important theme that contributed to several learners' perceptions of external control was the perceived constraining nature of the asynchronous online environment. A number of participants who reported higher external regulation scores commented on the limitations of the text-based asynchronous medium. In particular, they highlighted the reduced cues nature of the medium (Kehrwald, 2010) and lack of immediacy, especially when compared to previous face-to-face learning experiences:

*Posted by **May** on Saturday, February 16, 2008*

Subject: [REDACTED]

...

While I agree that discussion with peers/colleagues is an excellent way to enhance learning in a classroom setting, when artificially forced in a clunky on-line environment such as WebCT it loses much of its benefit. I would rather spend time discussing my learning and ideas in real-life conversations with friends, local school teachers etc, than using twice as much time holding protracted, technically frustrating and (as a result) often superficial "discussions" on WebCT. I would love to meet and discuss ideas with fellow ... [distance students] if possible, but as we can't, it seems silly to pretend that using a bulletin board achieves the same level of discussion as face-to-face contact. (May – Asydisc SID CS2S1)

Participants also highlighted time delays associated with asynchronous communication. This resulted in the time-consuming nature of the medium becoming more salient:

Which when you are online that can be so utterly frustrating and dispiriting if you spend, it's not an environment where you know if you

are in a lecture room and the lecturer says oh blah, blah, blah you can put your hand up “excuse me can you just clarify that?” or “by that did you mean...?” You know, we don’t have that luxury. (Sean – Interview CS2S7q20)

*Posted by **Daphne** on Thursday, February 14, 2008*

Subject: [REDACTED]

...

I do believe that ... [distance] students are at a disadvantage when it comes to interpretation of task, material and activities. If we are unsure we have to go online and pose a question to the group ... or lecturer and wait. Sometime a response can be days. I would imagine in a classroom situation questions around tasks, material, texts, activates, etc could be addressed there and then.

...

Daphne (Asydisc SID CS2S6)

3. Perceptions of limited choice

The third and final theme identified by participants who reported high external regulation scores related to perceptions of being limited or constrained for choice. When asked about the choices available to them during the micro-teaching activity, the majority of Case Study Two participants expressed perceptions of extensive choice (see Section 5.5.1). However, some participants perceived their choices to be limited to some degree. Those who expressed a lack of choice focused on the compulsory nature of the assignment. For example, when asked about what choices were available, Danica responded by highlighting the external requirement to complete the assignment:

I felt there was not much choice in this assignment. I needed to do it for this course. (Danica – Questionnaire CS2S5q22)

Working within the constraints of the social studies curriculum was seen by some participants as another factor constraining choice, resulting in a perception of external regulation. This sense of constraint was particularly salient to Sean, who made reference to it on a number of occasions:

*Posted by **Sean** on Thursday, March 6, 2008 6:05pm*

Subject: [REDACTED]

...

Now, can I pack it neatly into the framework of the assignment and align it with the gospel.. sorry, curriculum. Yes... I think there is a way....

... (Sean – Asydisc SID CS2S7)

Sean also made his feelings of being constrained for choice clear when he talked about the upcoming replacement of the existing primary school social studies curriculum that learners were required to use to undertake the micro-teaching assignment:

... let's put it this way I'm just glad they are phasing that out. I know there still have to be some kind of guidelines but I think they have to be treated as guidelines. I mean I look at it a lot like the way it's treated is almost like it's some kind of a religious gospel and you can't go outside of that and I think that's wrong. You know it should be a guideline just as anything, any set of rules are guidelines ultimately. (Sean – Interview CS2S7q6)

The importance of choice to Sean and its connection with his experience of quality types of motivation (identified regulation and intrinsic motivation) was identified earlier in Section 5.5.1. However, feeling constrained to work within the social studies curriculum contributed to the high external regulation score reported by him. Together, these factors help to explain how different types of motivation can be *simultaneously* endorsed and highlight how multiple environmental factors can and do influence learner motivation.

5.5.3 Summary of autonomy influences

In this section, a range of social and contextual factors were identified as predominantly supporting the autonomy of pre-service teachers undertaking a social studies micro-teaching assignment in an online distance learning environment. Consistent with self-determination theory (Deci & Ryan, 1985), the majority of Case Study Two participants reported high levels of more self-determined forms of motivation (identified regulation and intrinsic motivation). Figure 5.1 presents a summary of the factors that facilitated and undermined perceptions of autonomy within this context.

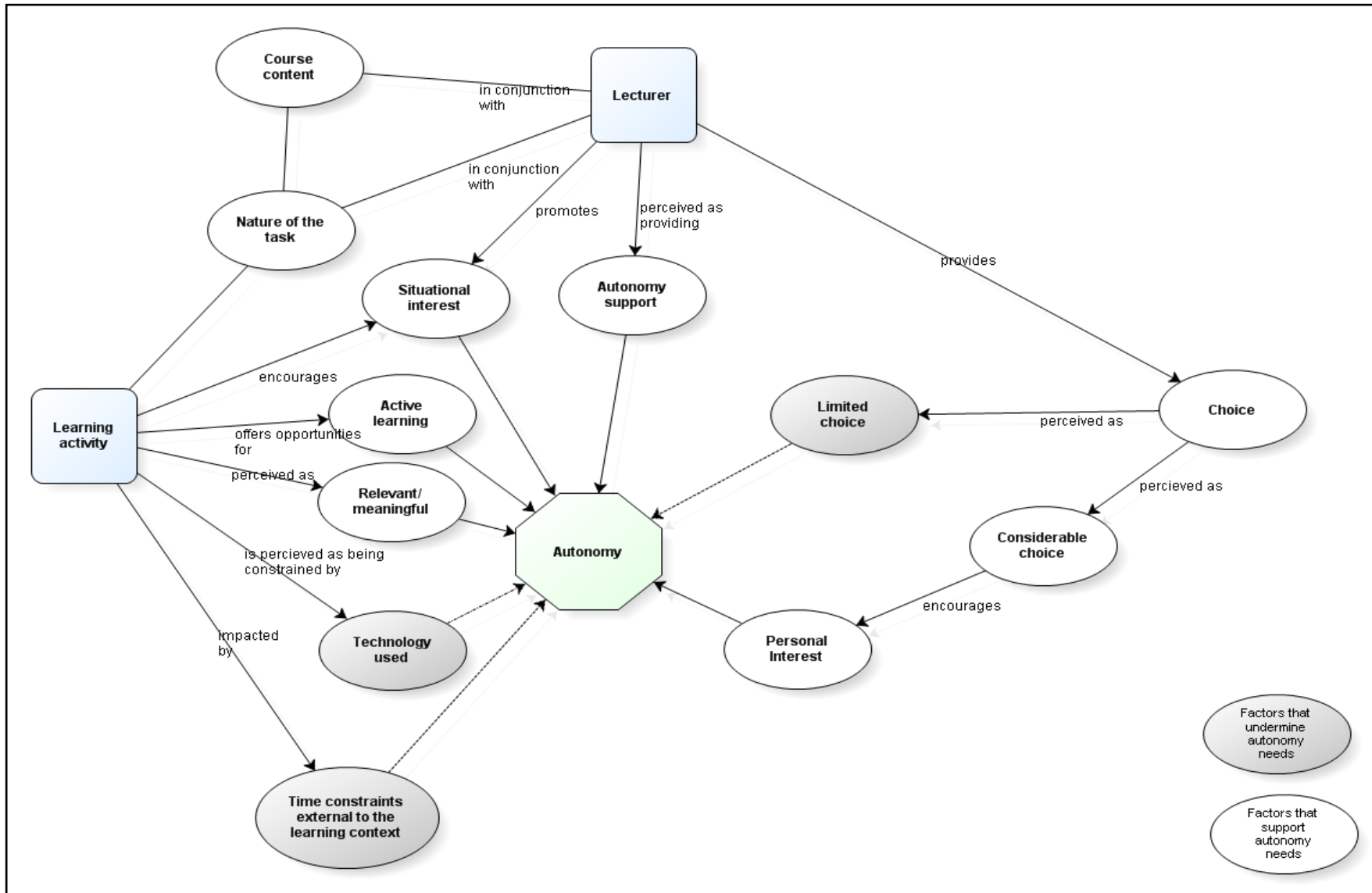


Figure 5.1: Case Study Two – Social and contextual factors that supported and undermined autonomy needs

5.6 Perceptions of competence

“Students who feel efficacious about learning generally expend more effort and persist longer than those who doubt their capabilities” (Schunk & Zimmerman, 2006, p. 356) and these perceptions are responsive to environmental influences. Given that the entire research participant group expressed more self-determined forms of motivation, it is not unexpected that the learning environment was found to predominantly support learners’ competence needs within the micro-teaching context. The following comments from Danica and Daphne provide clear examples of this:

I guess it was comforting in the fact that I knew I could teach a social studies lesson and I knew how to plan it and I knew that if for my next placement, if I had to do social studies lessons then I knew what to do and what things to consider. And so I guess if we didn’t have that assignment I would probably be disappointed because you want to know that you’re planning and the ideas that you have and the way that you look at the curriculum is right. So I think it was definitely significant as well. It’s great that we did it. (Danica – Interview CS2S5q19)

... when I first started the course I thought social studies and I didn’t really have a clear picture of what it was going to actually, what teaching social studies would actually mean. What would I actually be teaching? But I do now. ... I’m sure I’ve got a lot more to learn but it’s a lot clearer and a lot more confident. (Daphne – Interview CS2S6q20)

5.6.1 Factors that supported perceptions of competence

Seven main themes emerged as facilitating learners’ perceptions of competence while engaged in the micro-teaching assignment and associated activities. In the discussion that follows, these themes are identified and explored. They are: perceptions of clear guidelines and expectations; ongoing guidance and supportive feedback from the lecturer; responsiveness of the lecturer; judgements of high self-efficacy; helpful and supportive peers; perceptions of useful course resources; and optimal challenge. The order in which they are presented indicates their prominence within the Case Study Two context.

1. Clear guidelines and expectations

Overwhelmingly, the participant group perceived the micro-teaching assignment as clear and explicit, providing a framework to accurately judge the requirements for

success. This, in turn, supported students' ongoing self-efficacy judgements. That is, beliefs about one's capabilities to organise and carry out courses of action in order to reach particular goals (Bandura, 1997). Students expressed feelings of their competence needs being supported, without feeling constrained by the guidelines. This comes through clearly in the comments from May and Sean:

The assignment structure and information provided were both very complete and useful. In terms of my approach, this meant I was free to simply "get on with it" and didn't need to seek clarification. I felt clear about what was required. (May – Questionnaire CS2S1q26)

The overall structure was clearly defined and followed a logical progression. The fact that little time needed to be spent on interpreting the requirements (as, sadly, can so often be the case with academic courses) made for a more efficient and effective approach to planning. (Sean – Questionnaire CS2S7q26)

As well as meeting the competence needs of participants, information that was clear, straightforward and unambiguous also supported autonomy needs, thereby promoting self-regulatory practices. The importance of this in a distance learning context was something Sean elaborated on in relation to other online experiences:

Posted by Sean on Thursday, February 14, 2008

Subject: [REDACTED]

...

Clarity of Instructions/Expectations

In this area, Anne, I would have to say that I think you have been one of the exceptions. I have found both your online communications and those in the study guide to be pretty clear and easy to follow. Your efforts in providing us with some kinds of examples or models of what you are after, as mentioned in another thread, go a long way towards easing the problems in this area. As Daphne says, we're not in a position to simply put up our hands and ask "excuse me, can you please clarify what you mean by....?". I spent well over half an hour earlier today, going back and forth through the course materials of one particular course, just trying to make sense of exactly what was required from a series of exercises. Others have been doing the same – which is obvious from the online discussions. It's frustration, time-wasting and unnecessary. Clear, concise and unambiguous instructions, along with a good example or two, would save an awful lot of hair-pulling and despair out in ... [distance student] land. Not to mention that it would also model good teaching practice. ;-). (Sean – Asydisc SID CS2S7)

This was intentional by Anne who, in addition to clarifying the assignment in the study guide, gave details in online weekly postings designed to scaffold the learning process throughout the assignment and online activities:

There are four pages of my notes to support them as well as what is in the admin[istration] guide and the study guide but this is me guiding them through those aspects of it. (Anne – Interview CS2L1q3)

In conjunction with an assignment that was comprehensible and straightforward, the expectations of the lecturer, particularly around online participation, were perceived by the participants as clear and worded in a way that was non-controlling. For example, Daphne and Jillian both described the way in which Anne reminded non-contributors to the online activities (of which Jillian was one) of her expectations regarding participation:

One thing I thought was good too, was Anne was right from the word go, you knew what the expectation was. Like she would say “okay I’m still waiting for so many people to respond to this and I expect everybody”, it’s just the way she worded it. Every other course there is that expectation but I think it was just her approach to work or wording that just let you know yeah, she is keeping an eye on it and she is expecting everybody to ... contribute something and I thought that was good. (Daphne – Interview CS2S6q11)

... she picked up on those who hadn’t or reminded them ... well you know 10 people still haven’t replied to this ... that was just Anne. Also to let us know that she reads these too and keeps on top of what is going on and things which is really good. Because sometimes you do wonder, you know what I mean? It’s just like, how much they actually read? (Jillian – Interview CS2S2q10)

The communication to which Daphne and Jillian refer appears below. Anne made her expectations very clear and on the surface they could be construed as controlling. But her inclusive and caring approach (see Section 5.7.1) counter-acted any possible perceptions of control. The following quote shows not just an exhortation to contribute (because she says so), but a direction to participate because their voice is important and valued and the course community (including Anne) wanted to hear it:

Posted by Anne on Thursday, February 28, 2008

Subject: [REDACTED]

.....come on those of you who have not yet contributed – I'm watching. I do know a few of you have had 'issues' with SGs, late enrolments ... and life but that only accounts for about 5 of you.

We want to hear YOUR voice

Anne. (Asydisc SID CS2L1)

The following message, relating to the preparation for the micro-teaching activity, also provided clear, direct instructions and expectations. It was also apparent that the reason for this was to support students as they prepared to undertake the assignment:

Posted by Anne on Thursday, March 6, 2008

Subject: [REDACTED]

...

There are no tasks added to today's class ... but I do want a response by next Tuesday to the task set in last Tuesdays class – to the NZEDGE website. You can see a few that have been posted up in the SID [Student Initiated Discussion] site.

I've decided that before venturing into Module 3 today that I will take the time to confirm microteaching arrangements and support your thinking about this. I've started to get some emails about these and so detect your need to get moving.

You need to arrange to do your microteaching any time in week 7 (March 17 – 20). Note there this is the Easter Week so it is a short week. There will be no formal classes on that week either but I will be on line to read how things have gone for you. So as a start ... please read

Page 11 of the Admin Guide to make sure you understand the requirements of the microteaching exercise. Page 12 shows the criteria for marking so be sure you have followed these criteria. Page 16 also provides more detail and this page also appears in your microteaching folder. You will find your own school and use the letter sent to you in your ... materials. (Anne – Asydisc CourseDisc CS2L1)

2. Guidance and supportive feedback from the lecturer

The second salient theme that further supported learners' needs to feel capable was perceptions of quality ongoing guidance and supportive feedback from the lecturer. Collectively, participants felt effective and capable within the micro-teaching context because of ongoing guidance and feedback from Anne throughout the learning process.

The lecturer provided guidance primarily through the provision of detailed postings which she referred to as ‘lectures’. These were posted on a regular (usually weekly) basis and served to guide and scaffold the learning process in which students were engaged. The following example was a part of the weekly ‘lecture’ posted by Anne to prepare students for the planning phase of the micro-teaching activity. This excerpt demonstrates support for the development of learner competence through the clarification and scaffolding of the planning process:

Posted by Anne on Thursday, March 6, 2008

Subject: [REDACTED]

...

Whatever you plan to use it is important that you focus on the big concept embedded in the AO [Achievement Objective]. This alignment is important as you can see on page 12 of the Admin Guide in your criteria for marking.

Once you’ve decided on your focus you will need to break the AO down into a few learning intentions/outcomes (LO/LI). Page 8 has examples for you to challenge you to move beyond lower levels of outcomes and to support children to clarify, apply, generalise, illustrate, extend, infer, distinguish etc etc.

I suggest that as we have yet to learn about values exploration that you focus only on using an inquiry. You are well versed in that given your current assignment focus. The heart of inquiry is asking questions. Next week’s class will focus on this ... (pages 1 – 18 of module 3) and this will support your planning. I also suggest that you only plan ONE lesson now – and then wait to see how the children respond to it and then plan for the second lesson. That way you can pick up on their interests and needs have ‘diagnosed’ them.

Go back to Module 2 and look at the lesson example on pages 12 and 13 – the one about people ‘view and use a place’ (Place and Environment Level 3 concept) – in this case the Taranaki beaches follows the viewpoints of a surfer, a local resident, an environmentalist and a physicist being explored.

When you plan choose your AO THEN look at the Matrices (in the exemplars online) that link to it, to see how it has been “unpacked”. This unpacking will suggest possible direction for planning. Remember when you are annotating the child’s work (criteria 4) – you can use these matrices as criteria to annotate against. For instance, if the AO is “Why do people belong to groups” and the concept is “belonging to groups”: you would need to plan for some learning (and check for children’s understanding) using one, two OR Three points taken from the Matrix.

- *The REASONS people belong to groups*
- *The many different WAYS in which people CONTRIBUTE TO GROUPS to which they belong*
- *How this group participation BENEFITS THEM.*

As you plan ... think about these three aspects of quality social studies

- *ideas about society (your concept);*
- *some form of social participation and*
- *personal and social significance.*

Keep reading through the Exemplars to get inspired, especially the “Learning Contexts” where the background to the piece of work that is exemplified is given. By looking at the actual work you can get ideas for the types of activities you can plan.

...

OK now you need to think about your resources ... will you use a newspaper article, pictures, journal story, artifacts, a poem, a short DVD??? whatever the resource it needs to provide some NEW learning. Again be inspired by the Exemplars.

Be sure too to “hook” your students in with something that grabs them at the beginning of the lesson at an emotional level. Some teachers ask provocative questions to challenge thinking AND creativity.

...

Anne. (Asydisc CourseDisc CS2L1)

In addition to the provision of scaffolding and guidance being important to competence needs, ongoing feedback was highlighted as important by participants. The following example demonstrates how Anne provided specific, informational feedback to students regarding their micro-teaching ideas:

*Posted by **Anne** on Friday, March 14, 2008*

Subject: [REDACTED]

Hi

I've read through your thread of ideas ... and lots of good SS [social studies] being planned for.

A few thoughts

... plan one lesson at this stage and then the second one after you've taught the first (have a vague idea maybe about the 2nd but be prepared to change it).

The friendship idea is good ... relate it back to how people contribute to community or being part of a group ... 'no man is an island' we need each other to succeed. Perhaps get some inspiration quotes from google to lead a discussion that can relate to their lives.

The crisis one will work with earthquakes ... but remember it is the RESPONSE to the earthquake ... the social and people services that come into play and how we can help others as well as ourselves to survive ... see TV adds about this ... they air them regularly.

Myths and legends – lots of resources to get inspired there.

Anything focused on community will be very people focused.

Well done

Anne. (Asydisc GroupX CS2L1)

The effect of the combination of ongoing guidance, support and feedback on learners' perceptions of competence and motivation is summed up in the following comments from Tracey and Marcella:

This course has been fabulous. We have all got lots of support and positive feedback which encourages us to keep trying, it also keeps our motivation up. (Tracey – Questionnaire CS2S9q25)

We depend so much for us, for online, we depend so much on what the lecturer would say about things we don't understand and not only posting lectures and explaining more because sometimes we have to read texts or other reading materials and if we don't quite understand and just depend on the lecturers it still will be not clear. And if you could ask questions about the readings we had and the lecturer is responding to it or explain[ed] a bit more it will be very, very good. Make it clearer to us. (Marcella – Interview CS2S8q20)

3. Responsiveness of the lecturer

Following on from this, being available, approachable and answering queries promptly were viewed by the research participants as important ways in which the lecturer provided support for their competence needs. The importance of responding to requests for assistance from learners is evident in the following statement from Anne:

But it's made me more aware of what I do and how I do it and the importance of students feeling listened to and responded to and that there is someone here. It's very easy to – they're not physically in my face, in my room. I could ignore them quite easily. But I can't and I think that's the teacher part coming out in me. (Anne – Interview CS2L1q20)

Anne's responsive approach to students was appreciated by the participants. For example, Marcella and Tracey's comments below highlight the importance of the timeliness of responses from Anne and her constant presence online:

She is very helpful. Actually she is one of the most helpful I've encountered since I started the ... [degree], always giving us notes and tips and always there and when you ask her something she replies. Even if you put it on student initiated discussion or private email, she would always reply. Because that's very important for us that lecturers reply to us even if it's just some trivial questions. Because they told us that if you have questions, no matter how simple or how complex, we have to ask it. (Marcella – Interview CS2S8q11)

My personal belief is a lot of that is to do with our lecturer. She's encouraged it, she's got involved, you know. She's obviously a very busy woman but she's always been there. She has always made herself available and there has always been lots of positive interaction and I think that that has made a big difference. (Tracey – Interview CS2S9q10)

Anne also ensured that she kept students informed about any responsibilities outside of the course that would impact on her availability. By doing so she further accentuated perceptions of responsiveness. Outlined below is just one example of many that Anne posted to learners informing them of her other commitments:

*Posted by **Anne** on Sunday, March 9, 2008*

Subject: [REDACTED]

Hi everyone

Just reminding you that I am doing jury service this week, so Tuesday's and Thursday's classes might come to you a bit earlier or later than the usual times.....but I'll add a legal flavour to them!

Anne. (Asydisc Announcements CS2L1)

Collectively, clear guidelines and expectations as well as lecturer support, feedback and responsiveness served to support participants' ongoing judgements of competence as the micro-teaching activity progressed.

4. Judgements of high self-efficacy

Overall, participants expressed belief in their ability to complete the task successfully on *commencing* the micro-teaching assignment. Learners primarily used information

from actual experiences (Bandura, 1997) to make judgements of efficacy. Previous related experience, both in terms of micro-teaching and lesson planning, and prior subject knowledge were the key factors in participants' high efficacy judgements on commencing the micro-teaching assignment:

... but also just from the lessons that I had taught in the past. I just sort of used the ideas from that and the planning and things like that from PIP [Professional Inquiry and Practice]. (Danica – Interview CS2S5q4)

Yeah and I found that it was a challenge but it wasn't as challenging as the other courses only because I knew a lot about social studies and I was confident in it. (Bailee – Interview CS2S4q20)

Being able to successfully put into practice planned lessons in an authentic context saw learners' sense of competence continue to grow throughout the activity.

It allowed me to actually teach it and have that. I mean that was huge and had I not had that I probably wouldn't have done what I did on TE [Teaching Experience]. I wouldn't have had the courage or the ideas. So actually going into a school and doing those two micro-sessions has given me a lot more confidence and just more knowledge of how to use the curriculum. (Daphne – Interview CS2S6q19)

I probably wouldn't have improved my experience/knowledge as much if I hadn't tested out my plan in a real classroom. (May – Questionnaire CS2S1q29)

Verbal persuasion from the lecturer (Bandura, 1997) in the form of ongoing encouragement, feedback and support mentioned previously, was a further important source of information that facilitated student judgements of efficacy. The following remark indicates that the lecturer was aware of the importance of her role in the development of learner efficacy:

... just whenever there is success, mastery, I'm straight there to say "wow that was a really well considered response online, for these reasons". I'm also highlighting vicarious success, so they are seeing someone else like them succeed online too. So I think that is fairly powerful. So and so did that and I see myself as similar to that person so therefore I can succeed. And that emotional response for self-efficacy making themselves believe in themselves. When you're feeling nervous, you're tummy has kind of got butterflies in it, you're body is giving you a

message. So when you're encouraged and praised and believed in, those physical feelings can disappear a little bit. When students are feeling more confident, they will put an idea out there even though they're not sure if they should they'll take the risk and do it. Yeah ... I think it's also the verbal persuasion, so I'm always doing that. (Anne – Interview CS2L1q18)

Tracey's message below indicates that Anne was successful in her attempts to develop learners' efficacy beliefs:

Posted by Tracey on Wednesday, April 9, 2008

Subject: [REDACTED]

A 3rd HIP HIP HOORAY!! Isn't it lovely to feel worthwhile & capable & valued.

Tracey. (Asydisc Announcements CS2S9)

5. Helpful and supportive peers

Being able to ask questions and make comments or suggestions, either within the class forum or to specific peers, was seen as a further source of support and encouragement. The following examples were indicative of the comments expressed by the participant group as a whole:

... and if you had a problem you just go to someone else and say "hey look can you clarify that, you seem to have a really clear understanding" and yeah that help is always there. (Adele – Interview CS2S3q12)

There have been lots and lots of feedback in just general discussions and also in the private mail area, where someone has wanted to ask a question but not in the open forum, we've been quite comfortable to do that for each other. Which has been really, really supportive; really wonderful because it can be quite isolating. (Tracey – Interview CS2S9q10)

This willingness to help and support each other was also evident in the discussions that took place online. For example, in the process of deciding on his micro-teaching topic, Sean sought assistance from his fellow class members, which then developed into an interesting, ongoing discussion that he later described as "*motivating and positive*" (Sean – Questionnaire CS2S7q30):

Posted by **Sean** on Friday, March 7, 2008

Subject: [REDACTED]

Hey folks

I'm messing around with a few ideas for my micro-teaching and I wonder if you'd be able to help me out with something. All you need to do is click on the link below and answer a brief poll question.

Cheers

Sean

click here: http://homepages.paradise.net.nz/simon_w/index.htm

(Asydisc SID CS2S7)

Posted by **Jillian** on Friday, March 7, 2008

Subject: [REDACTED]

Completed

I'm intrigued, hope you're going to enlighten us, Sean. (Asydisc SID CS2S2)

Posted by **Sean** on Friday, March 7, 2008

Subject: [REDACTED]

It's no big deal really. I am just thinking about using the question of "fact or opinion" as the basic process of my social studies micro-teaching (with thanks to Anne for the idea) and this particular question arose. I thought it was an interesting one as I don't think the answer is all that obvious. In fact, given the mix of votes (currently 59% say opinion and 41% say fact) I'd be really interested if people would like to share the rationale for their answers here.

I think that this is the kind of question that will pop up from time to time in teaching, so it's a probably worth examining a bit. :). (Asydisc SID CS2S7)

Posted by **Daphne** on Friday, March 7, 2008

Subject: [REDACTED]

Hi Sean,

My reasons for voting 'opinion' was because, in my view (excuse the pun), the sky is not always blue. Daphne. (Asydisc SID CS2S6)

Posted by **May** on Friday, March 7, 2008

Subject: [REDACTED]

I voted fact – although I can't really justify my answer except to say that I'm not aware of any significant proportion of people who claim to perceive the sky as a different colour! (Asydisc SID CS2S1)

Posted by **Sean** on Friday, March 7, 2008

Subject: [REDACTED]

...
I have to confess, my “opinion” in this matter has changed since I first started playing around with this exercise. Having given it more thought, I would vote differently today than I would have yesterday.

Isn't it funny, though, how something as seemingly obvious “to anyone” isn't actually all that obvious at all when you start looking at it. (Asydisc SID CS2S7)

This willingness to provide support to each other also contributed to the development of supportive relationships among learners (see Section 5.7.1).

6. Useful resources

A further theme to emerge from the data in support of students' competence needs was the perceived usefulness and completeness of the course resources. Participants viewed the resources, primarily the study guide but also exemplars and online resources, as valuable. This contributed to expressions of confidence from learners about their capabilities to complete the assignment successfully. May's comment below indicates that she felt the relevance and breadth of resources available met her need to master the required task:

The study guide, lectures and readings were very useful – providing a lot of information about planning for social studies, and strategies for inquiry, values exploration and social decision making in the classroom. I did not require any additional resources (other than on-line exemplars) – the study guide, lecture notes etc for this course were very complete. The example assignment posted by the lecturer on WebCT was the MOST useful resource in terms of providing a guide as to what was expected. (May – Questionnaire CS2S1q23)

Daphne commented on the value of the resources provided, both within the micro-teaching context and beyond:

... it was good and I would have to say the folder is one folder that I will probably even have in my classroom because there are so many resources in it that you could just use in so many different ways and just have them all on hand. I've put little tags on the back of my folder now for just different things. (Daphne – Interview CS2S6q15)

The lecturer continued to offer additional, online resources to students throughout the assignment (and course). These were also perceived as interesting and useful by participants:

... there was always something. She would post you a website to have a look at, that was really interesting, put it there to find bits of information or ideas which is always good. (Adele – Interview CS2S3q11)

Continual reference to supplied resources throughout the micro-teaching assignment helped to highlight their usefulness and relevance to students, a deliberate strategy on Anne's part:

I'm often pulling stuff off the Internet ... to look at social issues so they know that's a place. So I do talk about resources from that point of view for their teaching. ... There is a whole module – one of the modules is looking at planning for a quality social studies programme and so this is full of ideas, planning styles, approaches to teaching and learning and there's readings and things that they are also able to pull on. Academic readings or readings that I've written myself about planning and teaching ... and also I use the exemplars ... I was involved in developing the exemplars in 2004. So over the last three years of this course I've been able to say "here is a quality piece of students' work and this is why" and linking it to the curriculum and to the matrices that were developed as part of that has, I think, really supported students to teach and to know the kinds of learning experiences that they are wanting to engage children in. (Anne – Interview CS2L1q6)

7. Optimal challenge

The final theme that emerged in support of learners' competence needs related to how challenging the micro-teaching activity was perceived to be. Without exception participants experienced it as an achievable challenge, that is where skill level and challenge are high and reasonably well-matched (Csikszentmihalyi, 1985). Learners talked about a sense of achievement and confidence in their ability to take on more difficult challenges in the future, indicating that their competence needs had been met. Jillian and Marcella's comments provide good examples of this:

I felt this assignment was fantastic for bringing together all of my skills and what I have learnt in this paper. (Jillian – Questionnaire CS2S2q29)

... it was very good I think I can do it again. ... I think I'm more able now. ... So I think yes, I've grown a lot from doing that micro-teaching just organising it and encountering people. (Marcella – Interview CS2S8q6)

The evidence presented so far clearly supports the notion that learners felt capable within the micro-teaching environment and gained a sense of satisfaction and enjoyment from succeeding. However, there was one theme that emerged from students at the satellite campus that mitigated this to some degree.

5.6.2 Judgement of low self-efficacy undermined perceptions of competence

The co-located students questioned their ability to successfully complete the assignment (to some degree) because of the requirement to learn within a distance online environment. While the co-located students did have some previous experience with online distance learning, being located at the satellite campus meant that the majority of their courses were offered in a face-to-face mode. This meant they had less prior experience with online distance learning than *fully distance* students. For Danica, this translated to some anxiety about whether she had really understood what she was required to do:

I felt slightly more anxious than i usually would for classes that i attend face-to-face with my lecturer. This is because i worried that i hadn't understood the assignment right or not. Even though i knew it was probably fine, i always had this idea in the back of my head making me think that i may have forgotten to look at something online than would contribute to my assignment. (Danica – Questionnaire CS2S5q25)

Bailee also questioned her ability to succeed in this type of learning context:

... [it's] a big one for me especially with the online learning because I just feel that I'm not at times I don't feel that I was capable enough to do it. (Bailee – Interview CS2S4q13)

While anxiety and the experience of failure with a previous online course (in Bailee's case) prompted both to question their ability to succeed, their lack of confidence (i.e. low online self-efficacy) centred on their uncertainty around regulating their own learning rather than their ability to use the technology. The requirement to be self-

regulating, and the challenge this entailed, is evident in the following remarks from Danica and Bailee:

Well for me I mean obviously being in a small campus you have to accept doing the [distance] courses. But I found that the [distance] courses were much harder than actually coming into classes and I think it's just because I really, I like to have a routine and I like to have a system. (Danica – Interview CS2S5q)

I've never had distance learning before. I've never been in that kind of environment before and because I've always had things handed to me or things are right in front of me and I could just run with it. But because it was online learning and I had to take full responsibility of it. (Bailee – Interview CS2S4q13)

This was particularly salient to the satellite students because of their blended learning situation (i.e. other courses were being undertaken on-campus at the same time as this one). The sense of unsureness, expressed by these learners, was mitigated to a degree by their familiarity with the requirements of the micro-teaching assignment, the clarity of expectations, the support and guidance they received from the lecturer and the relevance of the activity. As a result, this factor alone did not result in experiences of amotivation as indicated by the low amotivation scores reported.

5.6.3 Summary of influences on perceptions of competence

Throughout this section, social and contextual factors that influenced the competence needs of learners undertaking a micro-teaching assignment have been identified and explored. Salient environmental factors predominantly facilitated students' capability needs and contributed to the high identified regulation and intrinsic motivation scores reported by learners. It also helps to explain the low amotivation scores reported by all participants. Figure 5.2 summarises the factors that influenced learners' perceptions of competence.

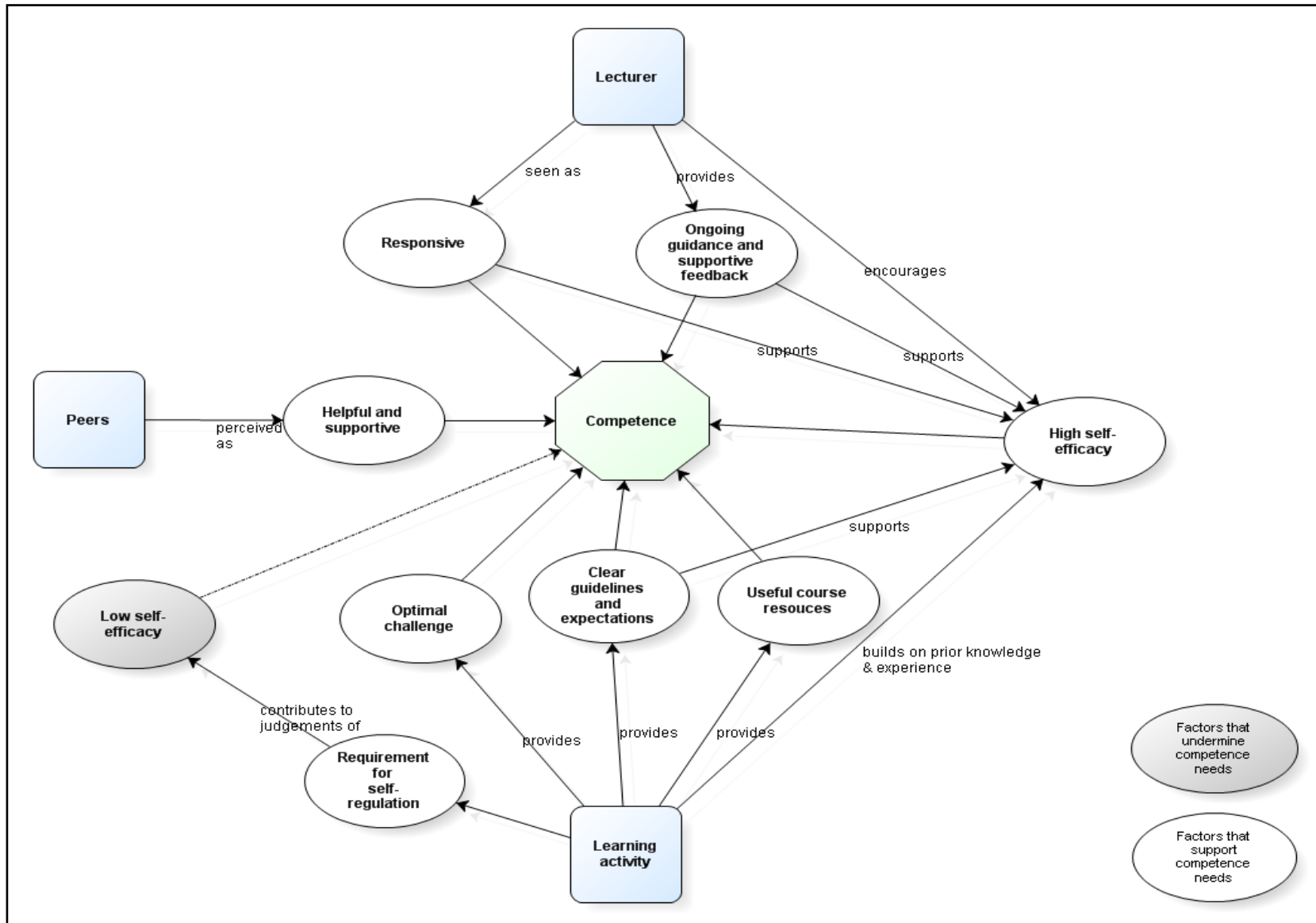


Figure 5.2: Case Study Two – Social and contextual factors that supported and undermined competence needs

5.7 Perceptions of relatedness

According to Hodgins et al. (1996, pp. 228-229) “the ability to function autonomously does not negate the innate human need for relatedness” and “more autonomous people may have an interpersonal stance characterised by positivity, warmth, and openness”. Given that the majority of participants recorded moderate to high scores for more autonomous forms of motivation, it is not unexpected that overwhelmingly they reported that their need for connectedness to others were met within this social setting.

5.7.1 Factors that supported perceptions of relatedness

Two themes emerged as supportive of learners’ relatedness needs. These were: the relationship with the lecturer; and relationships with peers. The most salient of the two was associated with the sense of connectedness with the lecturer. Within this main theme, three sub-themes emerged. In order of significance, participants perceived Anne as 1) as friendly, open and caring; 2) willing to share personal information; and 3) modelling inclusivity and respect. This, in turn, encouraged learners to respond in a similar manner. The following comments from Sean and Adele were indicative of those expressed by all participants:

*...but I mean, I think you get a kind of gestalt happening which one person generates, you know, and I think that really did come from Anne.
(Sean – Interview CS2S7q20)*

She is just so easy to talk to which because she is easy to talk to, you find everyone else is a lot freer to talk about things. ... She sets the tone or the theme. (Adele – Interview CS2S3q11)

1. Relationship with the lecturer

Student perceptions of Anne as *caring and friendly* emerged as the most important sub-theme that supported learners’ relationship needs. Tracey and May’s comments below clearly articulate their sense that the relationship with Anne was important and their appreciation for her care and concern for them as individuals:

Posted by Tracey on Friday, March 14, 2008

Subject: [REDACTED]

...

*So nice to have such an interactive tutor, who cares where we're at too.
Tracey. (Asydisc Announcements CS2S9)*

... her enthusiasm for her students which is a separate thing. A lot of the lecturers are really keen on their topic but just don't relate well to people so that was probably another stand out feature with this course. ... and it's because we are at a distance it makes it even harder to even communicate. You just have to be that much more skilled and I think Anne really managed that in the course. (May – Interview CS2S1q20)

Anne worked hard to make connections with students as she saw this not only as a cornerstone of effective teaching practice but who she was as a person:

I suppose that's the bottom line but it's a lot more work for me, it would be much easier to just say "oh well, there's the work". But I can't do it, I just can't. Yeah, so it's to my own detriment sometimes but then that's my passion in life and I have to live it out and as I say sometimes it's in humour, sometimes it's just in an email to someone who I know who is going through a difficult patch and I'll just say "how's it going this week?" ... I'm connecting to people. That's a humanness thing and damn it, the technology connects us I can't physically be with them but I can be with them in the way that I string my words together and the little pictures I might send out on the way. (Anne – Interview CS2L1q9)

Her understanding of the multiple pressures that learners faced was another way in which Anne showed that she cared, thereby meeting participants' relationships needs. Daphne's remark below indicates that she genuinely felt that the pressures she faced were understood by the lecturer and that this encouraged a sense of connectedness with Anne:

She'd often say "look I know you guys are busy doing this" and that you got the idea that she really did know. Like you sometimes think with some lecturers do they actually get where we are at with other stuff at the moment because it can be a bit overwhelming. But she certainly seemed to have her finger on the pulse. (Daphne – Interview CS2S6q11)

The second sub-theme to emerge, that enhanced relationships between Anne and students, was her willingness to *share personal information*. For example, she began many of her online messages with a small story about something that she was doing in her non-work life. In this way, students' felt like they got to know her as a person. The following message is an example of how being willing to share her own personal experiences in a friendly, humorous way, helped to build a sense of connectedness with learners and encouraged the development of a learning community:

Posted by *Anne* on Tuesday, March 4, 2008

Subject: [REDACTED]

Buenos dias mi academicos

Good morning my students

¿ Como esta?

How are you?

¿ Como es?

What are you like?

I've now had three Spanish lessons and a little bit of knowledge can make you feel very clever and show-offy! Last night we learned about adjectives to describe ourselves – interesante, sincero, academico, social, politico, importante, bonito, generoso, – that was so easy as the words look like English! But the pronunciation is so different. Take interesante..we might say inter-res-anty But no..the Spanish say inter-res-SARNTEY (spit out the last bit!). It is such a beautiful language to listen to but so hard to get the kiwi nasal twang round their vowels – (vocales) and consonants (consonantes) :)

OK off the Spanish – on to social studies. (Anne –Asydisc CourseDisc CS2L1)

This was appreciated by participants who saw it as a way of breaking down barriers and personalising the learning process. The proceeding comments from Bailee and Daphne are representative of those made by all Case Study Two participants:

Like she would always start off by greeting everybody in a different language and she would always let us know what she's been up to and her family life and stuff. So she, I really liked that because you could relate to her as a person and not a lecturer. Yeah just know her as she was from day to day. So I really liked that, how she did that and then after that was finished then she would get into the business of things. But she would always tie it up with being a person again. So she would go person, lecturer, person, halfway lecturer. So that's one thing I really loved about her. (Bailee – Interview CS2S4q11)

And I mean she spoke about how she's learning is it Spanish? And you know she'd be saying, I'm writing from home and its 10.30pm or something like that and it's just little personal things that you just get you know, you did, you'd just feel like it was a lot more personal. ... And it was awesome and you got to appreciate ... who she is and what she's doing and where she is at in her life and she knows. (Daphne – Interview CS2S6q11)

In the third sub-theme, learners highlighted the importance of feeling *respected and included within the learning community*. Participants recognised that Anne was primarily responsible for this because she modelled respect and inclusiveness throughout her interactions with learners. Bailee and Tracey both confirm that the lecturer was the key reason they felt included and linked to the online community:

Probably our lecturer. She is the one who definitely stands out for me just because like I said before, how she tries to make everybody included and she brings across through like her greetings and stuff. So she was definitely one who stood out for me. (Bailee – Interview CS2S4q20)

The lecturer ... because she was so embracing I guess is the best way to put it. And there are so many different personalities, so many different outlooks on life, be it through culture, visibly whatever. She embraced the whole lot of us as individuals but as a group we were all valid, everybody's point of view is valid. The fact that we could all be open and honest and feel safe to do that. (Tracey – Interview CS2S9q20)

Creating a respectful, inclusive community of which she was one member was a deliberate act on Anne's part. In this way Anne was able to develop quality relationships with learners:

I think I see the environment as ours. That I've written a study guide that they get sent and yes I've written the assignments that you have to do to get through. But ... I'm trying to create a community on there of which I am one member and they are in there as well. Some of them come into that far more willingly than others. ... But I believe it is important to develop a relationship, a learning relationship, a caring relationship, a respectful one online with these students even though I never see them. (Anne – Interview CS2L1q16)

The importance placed by Anne on the development of a respectful, inclusive online community created an environment where supportive relationships between learners could flourish. This emerged as the second main theme that further supported participants' needs to feel connected to the social surround, a finding noted elsewhere (Connell & Wellborn, 1991).

2. Relationships with peers

In general, those students who reported high levels of more self-determined forms of motivation throughout the micro-teaching activity also described relationships with their peers as friendly and caring. For example, the following comments from Sean and Adele highlight reasons why they felt cared for and connected to the group:

*In a word, friendliness I think that is the first word that comes to mind.
(Sean – Interview CS2S7q20)*

Every now and then you'll get an email come through that people say "oh sorry I haven't whatever, kid has been in hospital or, this one" and we'd say "oh we're thinking about you, just come back when you can, we'll help you out". The support is amazing from people. (Adele – Interview CS2S3q11)

Anne was also aware of the caring nature of relationships among students, which were visible to her through their online interactions:

... but the dialogue and the connection and the lovely things that you hear them say to each other. (Anne – Interview CS2L1q17)

The inclusiveness and respect modelled by Anne and experienced by participants contributed to the development of effective relationships. Participants believed that everyone had something of value to contribute and this was a view endorsed by the wider class:

I suppose it's so inclusive. Everyone has got an opinion; everyone is valued for their opinion. Yeah, just the inclusive and the acceptance of ideas and things. (Adele – Interview CS2S3q20)

Feeling valued and respected consequently encouraged learners to honestly share their opinions, experiences and beliefs about issues that, in some cases, were contentious:

So I think that because everybody felt comfortable to be open and honest and say what they really felt and what they really believed, we were all in there doing it, there was no holding back. (Tracey – Interview CS2S9q11)

Overall, participants clearly articulated their sense of belonging to the online community established during this course and felt connected and respected by other community members, including the lecturer.

5.7.2 Factors that undermined perceptions of relatedness

Based on the salience of social factors that supported participants' relationship needs described above and the moderate to high levels of intrinsic motivation and identified regulation experienced by respondents, it is not unexpected that no environmental influences were identified that undermined these needs.

5.7.3 Summary of influences on perceptions of relatedness

This section has highlighted and examined a variety of social and contextual factors that were found to support the relatedness needs of learners in an online distance learning environment undertaking a micro-teaching activity. No salient factors were identified that undermined participants' sense of relatedness with others in this learning context (see Figure 5.3 for a summary).

5.8 Chapter summary

This chapter has presented and discussed the findings of Case Study Two. Specifically, results were presented that teased out the nature of learners' motivation and their participation in an online distance learning context. In addition, by using the conceptual lenses of autonomy, competence and relatedness from self-determination theory (Deci & Ryan, 1985), important social and contextual factors were identified and explored to find out how they supported or undermined students' motivation to learn.

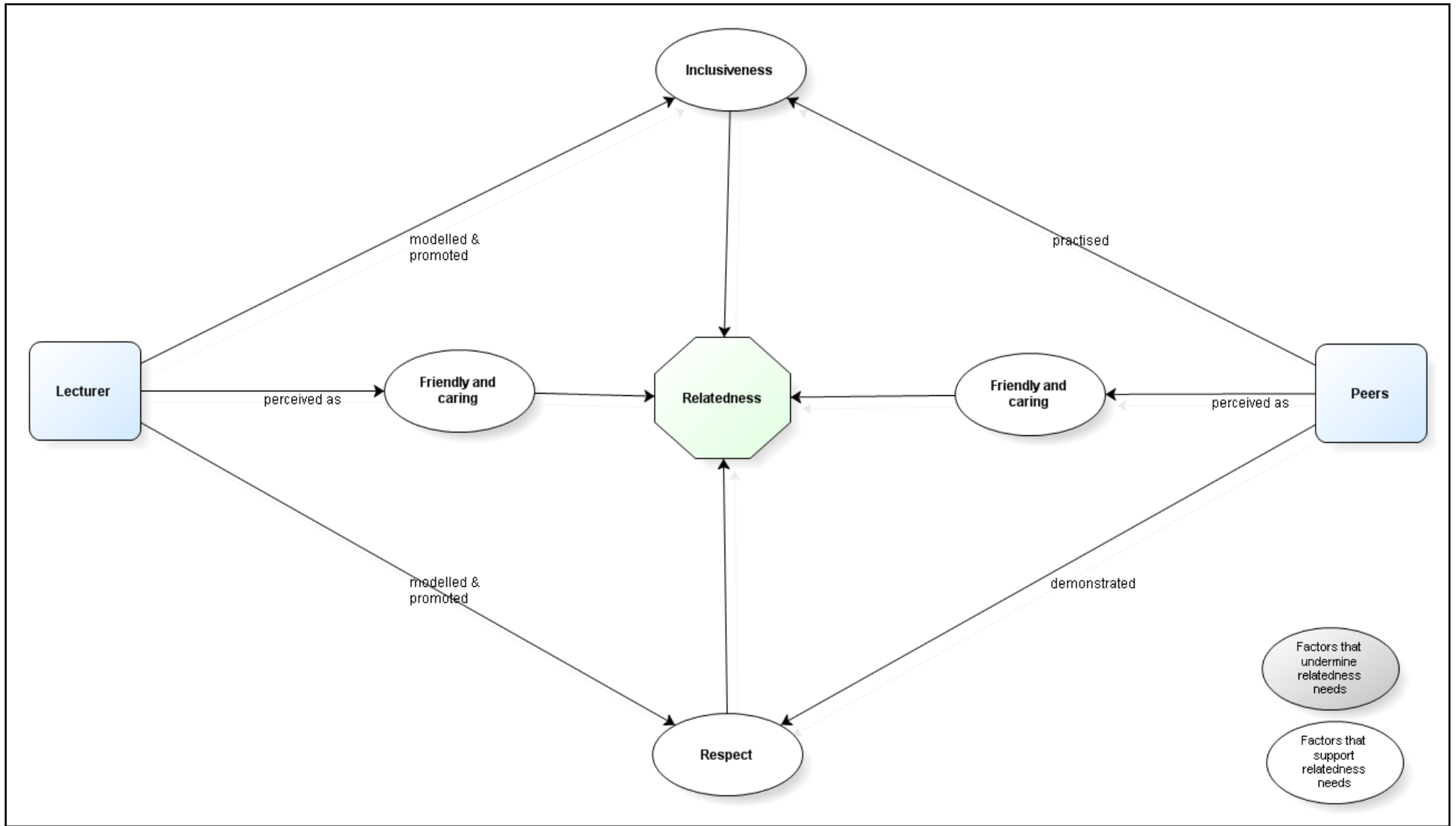


Figure 5.3: Case Study Two – Social and contextual factors that supported and undermined relatedness needs

The nature of motivation

Results presented here, for learners undertaking an individual micro-teaching assignment and associated online activities, illustrate that the *nature of motivation to learn is varied and complex*. Calculation of self-determination index (SDI) scores showed positive results for all participants. This indicates that they all experienced some level of self-determined motivation. On closer examination, motivation for the micro-teaching task comprised various combinations of extrinsic motivations (both external regulation and identified regulation), and intrinsic motivation to greater or lesser degrees. As a group, *participants reported high levels of external regulation (salience of external rewards and constraints), identified regulation (value and relevance of the activity,) and intrinsic motivation (inherent interest and enjoyment of the task)*.

The consistently high levels of identified regulation reported by participants and narrow range of scores suggest all found the micro-teaching assignment to be important, relevant and valuable. In addition, the participant group as a whole reported very low amotivation scores, further suggesting that they found value in the activity and felt efficacious undertaking it.

The participants also reported moderate to high levels of intrinsic motivation, the most self-determined motivation type, indicating learners were interested in and enjoyed doing the assignment. The primary difference between learners reporting moderate levels of self-determination and those who felt highly self-determined was the degree to which they simultaneously perceived some of their actions to be externally regulated. Participants with the highest SDI scores (a measure of self-determination) tended to report low levels of external regulation. However, the majority of participants reported moderate to high levels of external regulation, suggesting that certain contextual factors, salient in the learning situation, were dynamically interacting with learner motivation such that they perceived some of their behaviour to be externally regulated. This was somewhat concealed by the consistently positive SDI scores among the group and highlights the limitation of using a composite measure as an indicator of motivation.

No statistically significant relationships were found between achievement and motivation (as measured by SDI score) at assignment or course level. It was noted

however, that high achieving participants fitted into one of two categories. Either they reported high levels of self-determined types of motivation (i.e. identified regulation and intrinsic motivation) and low controlled motivation (i.e. external regulation); or they reported high levels of self-determined types of motivation in addition to high controlled motivation. This finding suggests that expressions of *less self-determined forms of motivation are not always detrimental to achievement if experienced in conjunction with autonomous types of motivation.*

Online participation

No statistically significant relationships were found between online participation (messages posted, messages read, or hits) and motivation (SDI score), or online participation and achievement (at assignment or course level). What emerges from these explorations is that, in the context of an individual micro-teaching assignment supported by online activities and discussion, there were no obvious relationships between a participant's activity online (active or passive), level of self-determined motivation or their achievement. It must be noted, however, that all participants in the case study reported feeling moderately to highly volitional, suggesting that the environment was supportive of learner autonomy. Additionally, the successful completion of the assignment was not dependent on online participation.

Online discussions were also explored to determine the quality of cognitive engagement among participants. Quality participation, in terms of engaging in meaningful dialogue and the depth of thought demonstrated in contributions from a variety of participants, was evident in the online activities. Moreover, participants perceived these discussions as dynamic, interesting and engaging and tended to regulate their participation based on their interests and needs. Based on this, it appears that while participation was expected there was sufficient flexibility within the course (i.e. no minimum contributions were specified) and the micro-teaching activity to allow participants to determine the level of engagement that met their own learning needs.

Finally, comparisons between participant and non-participant groups showed no significant differences in terms of achievement (both at the micro-teaching assignment and overall course level), active online participation (i.e. number of messages posted) or

passive participation (i.e. the number of WebCT hits and the number of messages read). In other words, the participant group's achievement and online activity were typical of the cohort as a whole.

Social and contextual influences on motivation

Using the conceptual framework of self-determination theory (Deci & Ryan, 1985), salient social and contextual factors that influenced the motivation of students in the Case Study Two environment were identified and explored. Within the context of the micro-teaching task and associated online activities investigated here, prominent aspects of the learning environment were found to principally support learners' autonomy, competence and relatedness needs. This explained the moderate to high identified regulation and intrinsic motivation scores reported by the participant group as a whole. Tracey, who reported one of the highest self-determination index scores, succinctly described how all of her psychological needs were met when she made the following comment:

It's like I said before about having that trust and wanting to do it yourself and you're validated. You feel important, you feel capable.
(Tracey – InterviewCS2S9q20)

1. Autonomy

Five significant themes emerged as **facilitating perceptions of autonomy** while engaged in the micro-teaching activity. They were, in order of significance: 1) *the relevance and meaningfulness of the activity*; 2) *participant interest (both situational and personal) in the activity*; 3) *opportunities for active engagement*; 4) *perceptions of an autonomy supportive environment (encompassing the lecturer, course content and the task)*; and 5) *perceptions of considerable choice*.

Though less prominent, **three themes** did emerge that contributed to the **undermining of learners' needs for autonomy** leading to the high external regulation scores reported by several learners. In order of salience, these were: 1) *perceptions of time constraints*; 2) *constraints of the online asynchronous environment*; and 3) *perceptions of limited choice*.

2. Competence

As well as learners' autonomy needs being supported throughout the micro-teaching assignment, evidence presented also demonstrated that students' capability needs were predominantly facilitated in this context. **Seven key influences** emerged as **facilitating learners' perceptions of competence** thereby contributing to more self-determined types of motivation reported by learners. These were, in order of importance: 1) *perceptions of clear guidelines and expectations*; 2) *ongoing guidance and feedback from the lecturer*; 3) *the responsiveness of the lecturer*; 4) *judgements of high self-efficacy*; 5) *helpful and supportive peers*; 6) *useful courses resources*; and 7) *optimal challenge*. Only **one theme** emerged that contributed to the **undermining of learners' needs for competence** to some degree. *Judgements of low self-efficacy* associated with the self-regulation skills needed to succeed in the online environment, contributed to the moderate to high external regulation scores reported by co-located students.

3. Relatedness

The need for relatedness was the third conceptual lens used to examine how various elements within the micro-teaching context supported learners' needs. **Two themes** emerged in **support of participants' relatedness needs**, thereby supporting more self-determined types of motivation. These were: 1) *the relationship with the lecturer (described as friendly, caring, respectful and inclusive)*; and 2) *perceptions of peers as friendly, caring and respectful*. **No salient factors were identified that undermined participants' sense of relatedness** with others in the learning context.

Throughout this chapter and the previous one (Chapter Four), evidence has been presented for the two case studies that has explored the nature of pre-service teachers' motivation to learn in online environments. Relationships between motivation and online participation, and salient social and contextual factors that influenced learner motivation were also investigated. In the following chapter, attention is turned to the comparative analysis and detailed discussion of these findings across the two cases.

CHAPTER SIX

DISCUSSION

... much motivation research to date has separated individuals and their contexts and has failed to capture the dynamic and situational nature of motivation. (Turner & Patrick, 2008, p. 121)

6.1 Introduction

This study is focused on the nature of motivation to learn of pre-service teachers situated within online environments, the connections between motivation and online participation, and the influence of contextual factors. A *person-in-context* approach, adopted for this study, represents an important step forward as it recognises the limitations of previous studies and seeks to go beyond them. These limitations include the tendency to conceptualise motivation in terms of 1) relatively stable characteristics of learners (Bures et al., 2000; Yukselturk & Bulut, 2007); or 2) influences within the learning environment (Keller, 2008; Zaharias & Poylymenakou, 2009). Neither approach acknowledges the increasing awareness of the complexity and dynamic interplay of factors underlying and influencing motivation to learn (Brophy, 2010).

To this point, self-determination theory (SDT, Ryan & Deci, 2000a) has provided a useful framework for the exploration of the nature of motivation, online participation and the interaction between participants and various salient environmental factors that resulted in their motivation being either fostered or thwarted. These findings were presented in the preceding two chapters. This chapter now synthesises the key findings, both *common* and *distinctive*, across the two cases. Attention is also drawn to how these findings fit within the body of existing literature.

6.2 The nature of motivation

This section begins by highlighting the nature of motivation from a cross-case perspective. Then, motivation comparisons across cases are explicated at a more detailed level to highlight key differences between the two. Finally, motivation and achievement results from each case are compared to foreground important differences between the two. Throughout, and across both cases, interview, questionnaire and

online participation data suggest that motivation in online distance learning contexts is *complex, multifaceted and situation-dependent*.

6.2.1 Situational motivation scale (SIMS) and SDI results

As documented in the preceding chapters, motivation was measured using the situational motivation scale (SIMS, Guay et al., 2000). This scale operationalises the self-determination continuum for a specific activity. The self-determination index (SDI) integrates all subscales scores into a single motivation index (Vallerand & Bissonnette, 1992; Vallerand & Ratelle, 2002). A positive SDI score indicates that, overall, more self-determined forms of motivation (i.e. identified regulation and intrinsic motivation) outweigh more externally regulated types of motivation (i.e. external regulation and amotivation) and vice versa (Vallerand et al., 2008).

SDI results

The relatively low median self-determination index score for the Case Study One participant group (see Table 6.1) indicates that higher quality, more self-determined types of motivation were only slightly more evident than the traditional type of extrinsic motivation – external regulation (Ryan & Deci, 2000a) and amotivation. However, a large interquartile range existed within the group. In comparison, the median SDI score for the Case Study Two participant group was noticeably higher, signifying that autonomous types of motivation were more prevalent. The midspread within the group was approximately half of that in Case Study One, indicating that self-determined types of motivation were experienced more consistently within the Case Study Two participant group.

Table 6.1: Cross case median and interquartile range for SIMS subscale and SDI data

		Amotivation (AM)	External Regulation (ER)	Identified Regulation (IR)	Intrinsic Motivation (IM)	SDI scores
Case Study One	<i>Mdn</i>	10.5	21	20	17	11
	<i>IQR</i>	16.25	12.25	8.25	5.5	57.5
Case Study Two	<i>Mdn</i>	4	22	23	22	27
	<i>IQR</i>	4	13	2	7	26

Case Study One findings are different to other research that asserts that online students possess more self-determined types of motivation, in particular intrinsic motivation (Styer, 2007; Xie et al., 2006). Case Study Two results, on the other hand, appear similar to previous research. What the results of this investigation indicate is that *motivation to learn is situation-dependent*, as other researchers have argued (Paris & Turner, 1994). That is, various factors within the immediate learning context, specific to each case study, had different effects on the motivation of participants. This was apparent in Case Study One, where the same factor (e.g., perceptions of relevance, choice and lecturer guidance and feedback) supported the motivation of some participants while undermining the motivation others. In comparison, Case Study Two participants perceived the environment to be predominantly supportive of their motivation to learn. But even in this situation several learners reported high external regulation scores due to perceived external constraints (e.g., time), while others did not because they did not see these same factors as restrictive.

The above results suggested noticeable differences in SDI scores between the two cases; however statistical comparison indicated they were not significant ($U=34.0$ (2-tailed), $p=.16$, Effect size (r)=-.62). While the calculation of SDI scores have been useful throughout this investigation, it is a composite indicator of motivation and therefore can hide individual endorsement of more than one type of motivation as Vallerand et al. (2008) have noted. Exploring the different types of motivation across the two cases provided a more multilayered picture of the nature of motivation.

SIMS results

A number of notable patterns emerged from comparisons of the SIMS subscale scores across the two case studies (see Table 6.2). While some similarities were evident, several important differences between the two contexts were observed. For example, median amotivation scores between the case studies appeared quite different (see Table 6.1). However, statistical comparisons indicated that the two groups' amotivation scores did not differ significantly (see Table 6.2). What was apparent, was the much wider variation in amotivation scores for Case Study One compared with a small variation in Case Study Two (see Table 6.1). This, in conjunction with the low median amotivation score, suggests that Case Study Two participants more consistently experienced the

micro-teaching activity as valuable to them and they believed in their capabilities to successfully complete the task. In contrast, factors such as perceptions of lack of relevance and judgements of low self-efficacy contributed to the higher amotivation scores reported in Case Study One (see Section 6.5 for detailed discussion).

Similarly, there was no significant difference in external regulation scores with both groups reporting moderately high levels (see Table 6.2). This indicates that, *in both contexts*, learners' perceived that some aspects within the environment were not within their control. This indicates that the differing nature of the activity, roles played by the lecturers and the support given by peers in the two cases didn't significantly affect the external regulation scores reported by each group. Therefore, it may be that features common to both tertiary online contexts were influential. For example, students in both case studies were aware of the importance of meeting assignment deadlines and gaining passing grades in order make progress toward attaining a degree.

Table 6.2: Mann-Whitney results U comparing SIMS subscale scores across the cases

	Amotivation (AM)	External Regulation (ER)	Identified Regulation (IR)	Intrinsic motivation (IM)
Mann-Whitney <i>U</i> (2-tailed)	32.5	52.5	19.5*	25.0*
Effect size (<i>r</i>)	-.35	-.02	-.54	-.45

* $p < .05$

While amotivation and external regulation scores were similar across the cases, results reported for more autonomous types of motivation (identified regulation and intrinsic motivation) were significantly different (see Table 6.2). Case Study One results for identified regulation were moderate with wide variation (see Table 6.1). In comparison, Case Study Two results were consistently high with little variation. These findings indicate that students situated within the context of Case Study Two experienced the micro-teaching activity as significantly more important and meaningful compared to Case Study One participants experiencing the PBL activity. Reasons for this included the relevance of the task. While all Case Study Two participants found the micro-teaching activity relevant (both professionally and personally), only half of the Case Study One participants saw the relevance of the PBL assignment. In fact, the remainder

actively questioned the purpose of completing the PBL activity (see Section 6.4.2 for a detailed discussion).

Similar situational differences were also apparent in relation to intrinsic motivation. While results indicate similar variation in both case studies (see Table 6.1), Case Study Two participants reported significantly higher intrinsic motivation than Case Study One (see Table 6.2). All Case Study Two participants highlighted situational interest (generated by certain factors within the learning environment) as influencing their intrinsic motivation. In contrast, approximately half of Case Study One participants experienced situational interest in the PBL context. For the rest, other factors within the environment undermined interest and therefore intrinsic motivation (see Section 6.5 for a detailed discussion). This finding is different to the literature which describes PBL as highly intrinsically motivating to students because learners are given choice to pursue what is interesting and relevant to them (Schmidt & Moust, 2000). As described in the findings for Case Study One (see Section 4.5.2), provision of choice does not always translate to perceptions of choice.

Collectively, SIMS results show that no one motivation sub-type was exclusively reported by research participants. Instead, the participants reported varying degrees of amotivation (AM), external regulation (ER), identified regulation (IR), and intrinsic motivation (IM). In other words, apart from amotivation, where several participants from both case studies reported the lowest possible score of 4, *no participant in either case study scored highly on only one motivation subscale*. Importantly, in both tertiary online learning contexts investigated, *perceptions of external regulation were present alongside more self-determined forms of motivation (identified regulation and intrinsic motivation)*. Notwithstanding this, Case Study Two participants reported significantly higher identified regulation and intrinsic motivation than those in Case Study One. In other words, the intrinsic motivation of Case Study Two participants was not lowered by the external constraints and demands (external regulation) salient in the environment. This was not the case for Case Study One participants.

An explanation for this can be found in the multiple influences Case Study One participants highlighted in the immediate learning environment, which undermined their motivation to learn. For example, perceptions of high workload, the high stakes nature

of the PBL task, time constraints, perceptions of the technology used not fitting the purpose of the task, perceived lack of relevance, and insufficient lecturer guidance were all identified as factors that combined in intricate ways to dynamically undermine participants' motivation (see Section 6.5 for a detailed discussion). In contrast, relatively few influences were identified in the Case Study Two context that undermined motivation. Instead, other considerations in the broader tertiary context (e.g., time constraints due to other responsibilities outside the immediate study situation) contributed to the high external regulation scores. Jointly, these findings demonstrate that motivation to learn is *complex, multifaceted and situation-dependent*.

6.2.2 Extrinsic and intrinsic types of motivation co-exist

From the above findings we can conclude that, across the cases, *both extrinsic (i.e. external regulation and identified regulation) and intrinsic types of motivation can and do co-exist*. This is somewhat different to previous research studies that propose that students studying in online contexts are primarily intrinsically motivated (Rovai et al., 2007; Styer, 2007; Wighting et al., 2008). But rather than choosing online study for intrinsic motives, participants in this study indicated that it was often external constraints, such as family commitments, that influenced their initial decision to study online, as has been noted previously (Rumble & Latchem, 2004). Even the co-located students at the satellite campus were required to undertake these courses online as there were no on-campus offerings. While taking a pragmatic approach doesn't preclude intrinsic reasons, it adds support to the findings reported here, that the motivation of online learners is complex and context dependent.

There are a number of possible reasons why the current study's results differ from previous research findings. First, research investigations to-date have tended to measure student motivation at a more global level, asking about their online study experiences in general, rather than at a situational (i.e. activity/task) level (Rovai et al., 2007). Previous studies have also reported intrinsic and extrinsic motivation as opposing concepts (Wighting et al., 2008), or measured the intrinsic motivation of students in online learning environments without reference to other types of motivation (Martens et al., 2004) in an attempt to identify factors that support it (Shroff & Vogel, 2009; Xie et al., 2006). In contrast, by retaining situational motivational subscale data in this

investigation and not limiting the analysis to a single composite measure of motivation (i.e. SDI scores), the multidimensional nature of learners' motivation has emerged. This corresponds with contemporary views of motivation (Brophy, 2010), other studies that have used the SIMS scale to measure motivation (e.g., Ntoumanis & Blaymires, 2003; Ratelle et al., 2005), and moves the discussion beyond the narrow focus on intrinsic motivation of learners that persists in some of the online literature (e.g., Shroff et al., 2007).

What is also apparent across both cases is that *identified regulation – a type of extrinsic motivation – was an important type of self-determined motivation* (i.e. as important as intrinsic motivation) reported by participants within the respective online learning contexts. What this means is students were often motivated to a greater degree by the value, meaning and relevance of the activity they were undertaking (identified regulation) than the inherent interest or enjoyment they derived from it (intrinsic motivation). This was particularly true in Case Study One. In support of this finding, personal relevance and task value have been linked to motivation and online success in previous studies (Artino, 2008; Bures et al., 2002; Park & Choi, 2009; Yukselturk & Bulut, 2007).

In conjunction with this, learners across the cases generally reported *simultaneously experiencing feelings of external regulation*. Both identified regulation and external regulation are types of extrinsic motivation. External regulation was highest in Case Study One because a range of social and contextual influences contributed to the undermining of learners' psychological needs (see Chapter Four). However, external regulation scores were also significant in Case Study Two where conditions were generally supportive of students' needs for autonomy, competence and relatedness. This finding suggests that while students may engage at the situational level for reasons of interest, meaning and importance, this does not preclude learners from concurrently attending to and being influenced by external contingencies and constraints inherent in tertiary online study (e.g., the importance of grades; juggling competing demands on time). This is consistent with research reported previously (Lepper et al., 2005; Schunk et al., 2008).

By adopting a situated approach, this study has shown that motivation to learn in online contexts is *not* a simple, dichotomous extrinsic-intrinsic construct. Results of this investigation also highlight the importance of exploring various types of extrinsic motivation because more self-determined students experience positive learning outcomes even when extrinsically motivated, as previous research has noted (Reeve et al., 2002). Results also highlight the limitations of a combined measure of motivation such as SDI score. Taken on its own, it may give the impression that motivation is a sliding scale from low to high self-determination. However, this study has demonstrated that even in a predominantly supportive environment, as in Case Study Two, multiple types of motivation are simultaneously endorsed by individuals.

6.2.3 Relationships between motivation and achievement

Achievement information can also provide insight into the motivation of a learner, albeit indirectly (Schunk et al., 2008). Comparisons of achievement data with motivation data, specifically self-determination index (SDI) scores, initially produced similar results across the case studies. That is, when all data were included no statistically significant relationships between achievement and motivation were found at either the assignment or course level. This finding is consistent with the research of Martens et al. (2004) that demonstrated that achievement of intrinsically motivated (i.e. more autonomous) students was no better than those who were less intrinsically motivated during an authentic computer task.

However in Case Study One, when co-located student data were removed the relationship between student achievement and motivation was statistically significant for the remaining fully distance students at both assignment and course level. This means that for the distance students, within the context of a group online activity, how well they achieved was a good indicator of how self-determined they felt. This finding is supported by previous motivation research (e.g., Guay et al., 2008) which has found a strong association between the degree of self-determination and achievement. Prior online research has also found important positive relationships between learning orientation, intrinsic goal orientation, task value (all motivation constructs) and achievement (Artino, 2007; Bekele, 2010; Bures et al., 2002; Waschull, 2005; Yukselturk & Bulut, 2007); and a negative correlation between an external locus of

control (i.e. extrinsic motivation) and achievement (Yukselturk & Bulut, 2007). No relationship existed between student achievement and motivation for the co-located students where opportunities for face-to-face interactions were not taken into consideration, thereby undermining the autonomy and competence needs of these learners (see Chapter Four).

Looking more closely at the various motivation types reported in Case Study Two showed that several high achieving students reported a combination of *high autonomous motivations (identified regulation and intrinsic motivation) in conjunction with high controlled motivation (external regulation)*. This finding suggests that *high levels of more self-determined types of motivation may act as a buffer against the more detrimental effects of external constraints on achievement*. In other words, being aware of external requirements such as grades and competing demands on time (i.e. external regulation type of extrinsic motivation), inherent within any academic environment, is not necessarily detrimental to achievement if it is accompanied by comparable levels of self-determined motivation. This finding is consistent with that of Sheldon and Krieger (2007) and Lin et al. (2003).

Research has also demonstrated that learners reporting this combination of multiple motivations achieved at similar levels to students reporting high autonomous and low controlled motivations (Ratelle et al., 2007) and that valuing learning while simultaneously pursuing high grades are not necessarily incompatible (Covington, 1999; Pintrich, 2000). As Lepper et al. (2005) note, intrinsic and extrinsic types of motivation can and do co-exist and it is the degree to which a student is intrinsically or extrinsically motivated that is important. They go on to say:

In fact, it may be quite adaptive for students to seek out activities that they find inherently pleasurable while simultaneously paying attention to the extrinsic consequences of those activities in any specific context. Seeking only immediate enjoyment with no attention to external contingencies and constraints may substantially reduce a student's future outcomes and opportunities. Conversely, attending only to extrinsic constraints and incentives can substantially undermine intrinsic interest and the enjoyment that can come from learning itself. (p. 191)

Moreover, this lack of significant relationship between self-determined motivation and achievement can also be explained by the high task value (identified regulation) reported by the Case Study Two group. Research has shown that, in general, value components (i.e. task value) do not directly influence achievement but are more closely tied to students' future choices about enrolling in similar courses (Eccles & Wigfield, 1995; Wigfield, 1994). Adele's comment confirms this: "*I know a lot of people are looking at it for next year for the advanced social studies course*" (Adele – Interview CS2S3q8). This finding also highlights that student perceptions play an important role when making decisions about what has been learnt or achieved (Weiner, 1986). For example, Marcella received one of the lowest marks among the participant group but was still satisfied with her achievement: "*I had a very good response from the marker who did it. So she was very impressed with the lesson plan I did, it was good*" (Marcella – Interview CS2S8q17).

Based on the cross-case results, the relationship between motivation and achievement in online distance learning environments is not a straightforward one. Case Study One results suggest that the self-determined motivation experienced by students studying within a fully distance environment was related to their achievement in that context, a finding supported by existing research (Bures et al., 2002; Sankaran & Bui, 2001). The collaborative nature of the assignment and other conditions within this context (e.g., perceived high workload, pressure of assessment and perceived time constraints) contributed to a wide range in the level of self-determined motivation reported by participants, from high autonomy to high amotivation (see Table 6.1). This wide spread in motivation scores, coupled with a similar range in academic results of participants, may have contributed to a high correlation between motivation and achievement, a finding noted previously (Gerber et al., 2008).

In contrast, the individual nature of the activity and numerous conditions within the Case Study Two context (e.g., perceptions of an autonomy supportive environment, perceptions that the activity was highly relevant, and perceptions of supportive feedback from the lecturer) supported the expression of more self-determined types of motivation (see Chapter Five). This resulted in a much smaller range in motivation scores (see Table 6.1). Coupled with this, the spread in achievement results of participants was

small, with all achieving moderate to high marks. As such, this may have contributed to the low correlation, as Rovai and Barnum (2003) have noted. This lack of significant relationship between achievement and motivation in Case Study Two is supported by the research of Martens et al. (2004).

6.3 Online participation

The second research question of this investigation focused on exploring relationships between the motivation of students in online contexts and actual participation within these environments. Possible associations between participation and achievement were also explored.

This part of the present study represents an important step forward as few previous studies have looked at the relationships between motivation, participation *and* achievement in online contexts. Exceptions include: Martens et al. (2004) and Morris et al. (2005). Several previous studies have explored links between learner activity and motivation in online environments (Bures et al., 2002; Dawson et al., 2009; Martens et al., 2004; Xie et al., 2006). More commonly, research studies have focused on investigating relationships between student participation and performance (Beer et al., 2009; Gerber et al., 2008; Picciano, 2002; Rovai & Barnum, 2003; Webb et al., 2004).

This section compares relationships between rates of participation and motivation to learn across the cases. Links between participation and achievement for each case are then compared and contrasted. While detailed weekly participation data was available for Case Study One, this was not so for Case Study Two. Therefore, only tentative conclusions can be drawn regarding possible relationships. Given this and the fact that usage statistics data do not indicate the quality of the interactions taking place online (see Gerber et al., 2008 for a discussion), contributions from learners are also briefly discussed from a quality perspective across the cases.

6.3.1 Relationships between motivation and amount of online participation

Relationships between motivation and the amount of online participation, both active (messages posted) and passive (messages read and hits), were explored across the two cases. The only significant relationship occurred between active online participation and

motivation (SDI score) in Case Study One at both assignment and course levels. In other words, participants reporting high levels of self-determined motivation were more active within discussion topics.

Partial support for the Case Study One finding can be found in previous research studies into motivation and participation in online environments. For example, Xie et al. (2006) found that active participation by learners in online discussions was related to their level of intrinsic motivation. Bures et al. (2002) also found a relationship between students' learning orientation and perceived participation in computer conferencing activities, although self-report measures were used to determine participation in their study. The motivation literature also highlights that autonomously motivated learners are more likely to be actively engaged in learning (see Brophy, 2010; Ryan & Deci, 2000b for reviews).

Support for the lack of any significant relationship between self-determined motivation and active participation, in Case Study Two, is also available. For example, Martens et al. (2004) found that more intrinsically motivated students do not necessarily do more. Rather, they do different things and specifically engage in more exploration. Similarly, the study by Dawson et al. (2009) showed no differences in learners' online participation based on their motivation.

The lack of any significant relationship between self-determined motivation and passive participation was consistent across the cases. This differs from findings from Dawson et al. (2009) who found that passive participation (measured by number of logins) was significantly positively related to student intrinsic motivation.

Possible reasons for the significant positive relationship between self-determined motivation and active online participation in Case Study One and no relationship in Case Study Two, may be found in the differing nature of the tasks within each case study. While no grade was assigned to online contributions in either context, a factor that some argue is necessary in order to provide learners with an incentive to participate in online discussions (Andresen, 2009; Rovai, 2007), expectations for online participation were made very clear to students at the commencement of each course.

Students who participated in this investigation were also experienced online learners and aware that contributing to online discussions was required.

The collaborative nature and high percentage of the final grade (60%) associated with the PBL assignment, in Case Study One, meant that students were not just expected to contribute; there was also a requirement to do so in order to successfully complete the assignment. This resulted in external regulation, as well as more autonomous types of motivation, being salient in this environment. Therefore, the number of messages posted in this context (or lack of them) may be an indication of a participant's motivation to learn. In contrast, some Case Study Two participants posted fewer messages over the duration of the entire course than were posted by Case Study One participants during the six week period of the PBL task. This is likely to be to do with the more independent nature of the micro-teaching task and associated activities that allowed learners more flexibility. In particular, the completion of the micro-teaching assignment was not dependent on participation in the online activities that accompanied the micro-teaching assignment, as it was for Case Study One.

In Case Study Two, therefore, learners experiencing less self-determined forms of motivation *and* those who reported greater autonomy, but preferred to exercise more independence and chose to regulate their online activity, could both potentially access and contribute to online discussions to a lesser degree. Furthermore, students may have felt that their relatedness and competence needs were met by reading student and lecturer postings without the requirement to respond. Differences in communication patterns (i.e. independent and interdependent) have been previously noted in the online literature (Rovai, 2001), as has interaction selectiveness (B. Anderson, 2006).

Similar to the cross-case results exploring motivation and achievement, it is difficult to draw definitive conclusions regarding the relationship between motivation and participation in online environments. This is particularly true for Case Study Two as only course-wide statistics for online participation were available. Notwithstanding this, results from both case studies are supported by prior research, although the extensive motivation literature provides strong support for Case Study One findings (e.g., Deci & Ryan, 2000). However, taken together the results indicate that the nature of the task (e.g., collaborative versus individual, task completion independent versus dependant on

participation) and individual differences (for autonomy, competence and relatedness support) are important factors that influence participation in a particular context in complex ways. This interaction between the person and the context, a finding supported by other research (Paris & Turner, 1994), is evident in the results presented here. It also highlights the limitations of using quantity as a measure of participation, as prior research has noted (Andresen, 2009).

6.3.2 Relationships between motivation and quality participation

While the literature associated with the analysis of asynchronous discussion fora is relatively limited and spread across a range of disciplines, there is general agreement that the quality of online contributions is just as important as the frequency of access or posting (Andresen, 2009). Previous studies have explored the quality of cognitive participation in online asynchronous discussions (Angeli et al., 2003; Garrison et al., 2001; Garrison & Cleveland-Innes, 2005; Zhu, 2006). However, Schallert and Reed (2003) note that few studies have specifically investigated links between the quality of engagement and the motivation of the participants engaged in them. More often, studies have explored the quality of engagement in relation to achievement (e.g., Gerber et al., 2008; Schellens & Valcke, 2006).

The quality of online participation, in terms of negotiation of understanding, collaboration, and contribution to meaningful dialogue (Dillenbourg, 1999), was investigated within both case studies. Quality online participation was evident across both case studies. Findings from Case Study One showed that in groups where participants expressed more self-determined types of motivation, the quality of engagement among group members showed more collaboration, negotiation of meaning, development of understanding, and mutual support. In groups where participants reported more external regulation (extrinsic type of motivation) and amotivation, collaboration and negotiation of understanding were less evident. This finding suggests that there is an association between the motivation of participants and the quality of engagement evident in the asynchronous online discussions. This finding is in line with research undertaken in traditional educational settings that has consistently shown a link between cognitive engagement and the quality of motivation (see Schunk et al., 2008 for a review).

The co-located group in Case Study One also demonstrated quality online participation (which was preceded by a significant amount of face-to-face discussion) even though these participants reported high levels of external regulation and amotivation. Therefore, it was difficult to distinguish any differences in the motivation of individual students, across the co-located and distance contexts, based solely on the quality of online discussions. When asynchronous discussions are the only gauge used to assess learners' motivation, lecturers are likely to make assumptions that students are autonomously motivated when in actual fact they view the activity as merely an external requirement to fulfil. This finding is supported by previous research (Schallert & Reed, 2003). It also highlights the need to be cautious about using online activity as the only gauge for assessing motivation, as some have suggested (A. Y. Wang & Newlin, 2002).

Quality participation, in terms of negotiation of meaning and contribution to meaningful dialogue, was also evident in the online activities in Case Study Two. Contributions from several participants clearly demonstrated engagement in meaningful dialogue as well as depth of understanding that had no clear link to the quality of motivation reported by these learners. In other words, cognitive engagement in online discussions was evident from learners who reported lower self-determination index scores as well as those who recorded higher scores. This finding is supported by other studies that have shown that the quality of online interaction is influenced by numerous factors within the learning context, such as the role of the instructor (Andresen, 2009; Rovai et al., 2007), a sense of connectedness with the instructor (Gerber et al., 2008), sense of community (T. Anderson, 2008b; Cheung et al., 2008; Rovai, 2000, 2002b, 2007; Zhu, 2006), prior knowledge and interest in discussion topics (Cheung et al., 2008; Xie et al., 2006; Zhu, 2006), time constraints (Cheung et al., 2008; Xie et al., 2006), differing communication patterns (Rovai, 2001), clarity of expectations (Rovai, 2007), requirements around contributions – mandatory or otherwise – and the awarding of grades (Bures et al., 2000; Cheung et al., 2008; Xie et al., 2006).

Once again, the conclusions that can be drawn from the cross-case findings are tentative and appear to be situation-dependent. Case Study One results suggest that within the context of a collaborative PBL assignment, a connection existed between the quality of online engagement and the motivation experienced by fully distance students. However,

this was not the case for the co-located participants who reported low levels of self-determination but demonstrated quality online discussion. The association between motivation and quality participation was also not apparent within the context of the individual micro-teaching assignment in Case Study Two. Here, quality participation (e.g., negotiation of understanding and engagement in meaningful dialogue) was evident from students reporting varying degrees of self-determination ranging from moderate to high. Together, these results highlight the complex relationships that exist between an individual's motivation and their behaviour in terms of their participation in an online learning context.

6.3.3 Relationships between online participation and achievement

Relationships between achievement and the amount of online participation, both active and passive, were also explored across the two cases. At first, the data suggested that the only significant relationship present was a moderately positive relationship between active online participation and achievement in Case Study One at the assignment level. However, when the co-located students' data were removed in Case Study One, the relationship between active participation and achievement for the fully distance students in this group was found to be *highly* significant at both assignment and course levels.

These findings are indicative of the available research in this area. For example, several prior studies have shown the existence of relationships between the numbers of messages posted (active participation) by learners and their subsequent achievement (Beer et al., 2009; Gerber et al., 2008; Hoskins & van Hooff, 2005; Rovai & Barnum, 2003; Webb et al., 2004). On the other hand, support for the lack of a relationship between active participation and grades achieved by learners in Case Study Two is also available (Johnson, 2005; Picciano, 2002).

The lack of any significant relationship between passive online participation and achievement data was consistent across both cases when all participant data was considered. However, when the co-located students' data were again removed in Case Study One, the relationship between passive participation (messages read) and achievement for the fully distance students in this group was found to be significant at both assignment and course level. This finding is supported by prior research by Webb

et al. (2004) who found a positive correlation between passive participation and achievement but contradicts research by Rovai and Barnum (2003).

These mixed results point to complex relationships between online participation and achievement that are sensitive to contextual influences. In Case Study One, the nature of the assignment task was a particularly important factor. Online participation was essential for fully distance students in order to do the assignment. This was not the case in the Case Study Two context, where assignment completion, and therefore achievement, was not directly linked to participation with others. Furthermore, online participation data was only available at the course level and not separately for the assignment duration in Case Study Two. It also highlights the limitations of only focusing on the quantities of activities and hence the need to also look at the actual quality of the activities themselves to gain a clearer picture of participant engagement, as others have argued (Rovai & Barnum, 2003).

Having discussed the findings addressing the nature of motivation and relationships with online participation and achievement, attention is now turned to the social and contextual influences that either supported or undermined the motivation of participants within the two case studies. In the section that follows, key findings, both common and distinctive, that served to facilitate or thwart student motivation are synthesised and discussed. In the cross-case analysis and discussion that follows, the conceptual lenses of SDT continue to remain central. However, environmental factors are further grouped into three main areas for the purposes of clarity. Influences associated with the *teacher*, the *learning activity* and *peers* are drawn together to illuminate the support (or lack of) they provided for the psychological needs of learners (see Figure 6.1).

6.4 Supportive social and contextual influences

The degree to which an individual expresses self-determined forms of motivation, including intrinsic motivation, depends on the degree to which their innate needs of autonomy, competence and relatedness are met by factors within the learning environment (Ryan & Deci, 2000b). When autonomous, students attribute their actions to an internal perceived locus of causality, feel volitional and experience a sense of choice over their actions (Reeve et al., 2008). Support for competence is also necessary

to facilitate motivation (Deci et al., 1991) and external events convey information about a person's competence or skill level. SDT also hypothesises that autonomous motivation is more likely to flourish in situations where learners experience a secure sense of belonging (Deci & Ryan, 2000).

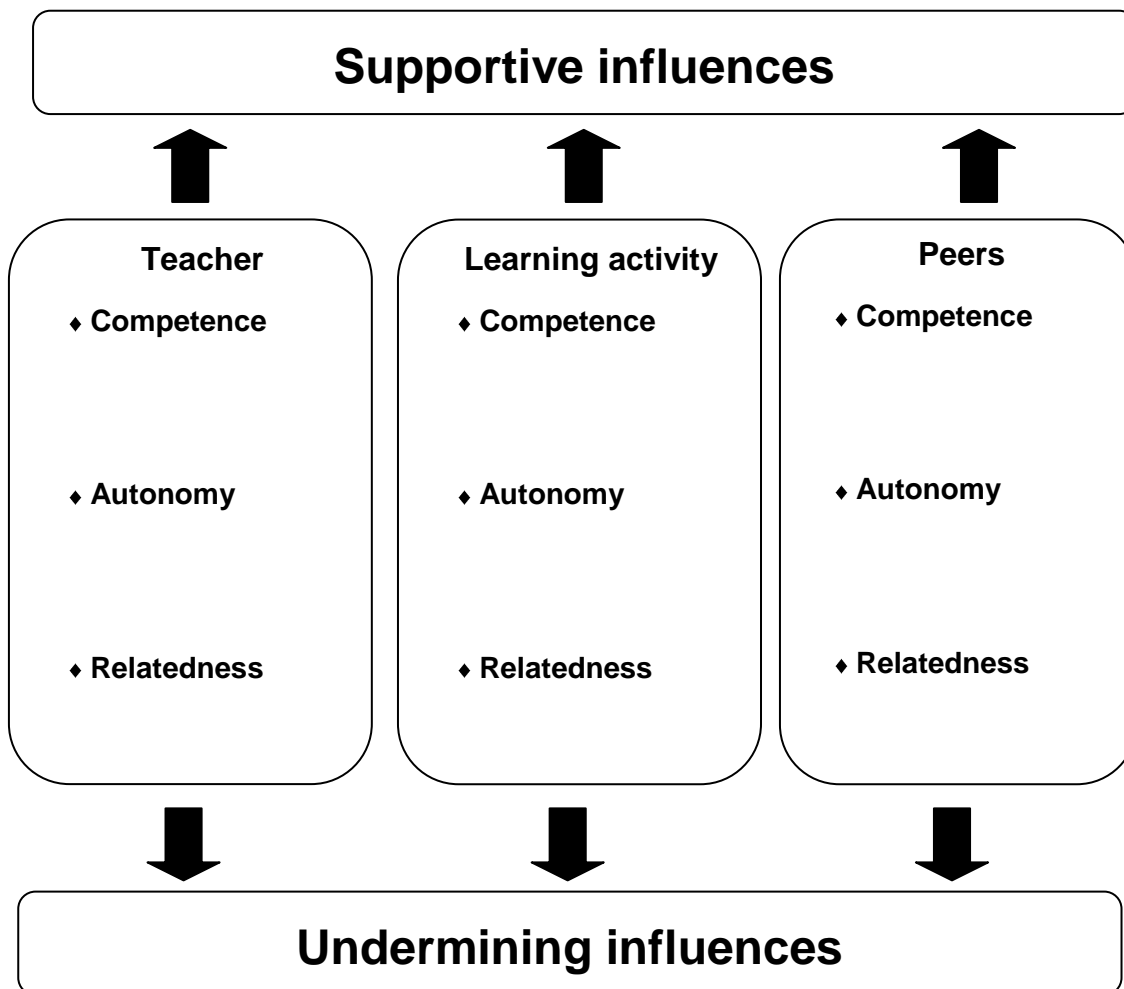


Figure 6.1: Organising framework for discussion of social and contextual influences that supported or undermined self-determined types of motivation

With this in mind, a range of important social and contextual features were found within each case study that served to support learners' autonomy, competence and relatedness needs, thereby supporting the expression of more self-determined types of motivation. Influences associated with the *teacher*, the *learning activity* and *peers* are categorised based on the psychological needs they support. Factors common to both case studies and others unique to one case are also highlighted. It is important to note that no one factor enabled all the psychological needs of learners. Rather, learners' *perceptions* of the extent to which their needs were met were formed from multiple influences that

combined in complex ways that were dependent on the learning environment in which they were situated.

6.4.1 Teachers

In this section, key themes from the two case studies, which relate to the influence of the teacher(s) within each context, are examined. Taken together, they demonstrate that teachers who provide ongoing guidance and feedback, are responsive, are supportive of students' autonomy, and develop caring and friendly relationships with students, foster the inner motivational resources of learners. In other words, what these teachers did and the approach they took, in part, influenced the quality of motivation experienced by learners. Here, teacher factors that supported learner autonomy, competence and relatedness are discussed in order of prominence (i.e. the frequency with which they featured in the qualitative data).

1. Teacher influences that supported competence needs

Considering all three conceptual lenses (see Figure 6.1), the most salient group of themes that emerged from both case studies, associated with supportive motivational influences of the teacher(s) in each context, related to the perceived **competence support** available to learners. Within this, the *provision of ongoing guidance and supportive feedback* were viewed as the most important actions that lecturers performed that supported participants' needs to feel capable and successful. This was followed by the *responsiveness of the lecturers*.

i) Ongoing guidance and supportive feedback

Approximately half of the participants in Case Study One and all of the participants in Case Study Two perceived that the information they received from the lecturers guided, clarified and facilitated the learning process, thereby supporting their need to feel effective. Consequently, they reported higher levels of self-determined types of motivation. Learner support was provided on a group by group basis throughout the PBL assignment in the Case Study One context, whereas the majority of communication from the lecturer occurred at the class level in Case Study Two.

The Case Study One asynchronous online transcripts showed there was a noticeable difference in the number of messages that contained scaffolding, guidance and ongoing support among the collaborative groups. Those students who perceived that the lecturers met their need to feel capable actually received more guidance and feedback, which enabled them to then make ongoing accurate judgements about their progress and the likelihood of success. Furthermore, it promoted feelings of self-determination by affecting their sense of accomplishment. This is consistent with findings from previous research (Deci & Moller, 2005) that also found that perceptions of competence were linked to the level of supportive feedback received.

The Case Study Two lecturer was a constant presence in the discussions. Anne primarily scaffolded and guided learners through the micro-teaching assignment and other online activities by providing the structure of a regular weekly, sometimes twice weekly, posting (referred to as a lecture). She also posted additional messages addressing questions and concerns raised, followed up ideas presented in online discussions, and in doing so, was able provide the guidance and information necessary to scaffold the development of learners' skills and capabilities. Again, this is consistent with prior research (Reeve, 2002).

From this, it was clear that the amount and quality of information, guidance and ongoing feedback was considered important by learners and was instrumental in them developing the knowledge necessary for successful task completion. This, in turn, had an effect on the type of motivation experienced by the participants. Similar to previous research (Rentroia-Bonito et al., 2006; Shroff et al., 2008; S.-L. Wang & Wu, 2008; Xie et al., 2006), the guidance and feedback of the instructor(s) formed a crucial part in supporting students' motivation to learn in the online contexts described here. The importance of positive, informational guidance and feedback from the teacher is also well-documented in the motivation (Brophy, 2010; Hidi & Renninger, 2006; Reeve, 2006; Stipek, 2002), online teaching (e.g., B. Anderson, 2006; T. Anderson, 2008a; Donaghy et al., 2003; Zhu, 2006), and higher education literature (Van Etten et al., 2008; Zepke et al., 2009).

ii) Responsiveness

While consistently offering quality guidance and feedback was important to supporting learners' competence needs, the *timeliness of that support* emerged as the second most salient theme across the cases. Being available, approachable and answering queries promptly were also viewed by the research participants as ways in which the lecturers provided support for their developing understanding.

Across both cases, participants perceived the lecturers to be responsive, available and approachable. When a participant posed a question or needed assistance, the lecturers always replied quickly, giving the impression that they were always present online.

This perception of responsiveness was further accentuated in Case Study Two by the instructor's informative approach. She regularly let students know what was happening. This included informing students of commitments that might have affected her ability to immediately address issues raised by them. This led to perceptions of the lecturer as proactive as opposed to simply reacting to questions and concerns initiated by participants. In contrast, the lecturer(s) in Case Study One were generally perceived as responsive but in a reactive way.

The importance of instructors being responsive in terms of availability, approachability, timeliness and online presence is supported by existing online studies (Artino, 2007; Bekele, 2010; Kehrwald, 2007; Rovai, 2004; Thorpe, 2003; Whipp & Chiarelli, 2004). Instructor availability, frequency of response and detailed feedback were found to be important influences on student self-regulation strategies and increased learner self-efficacy. Likewise, Xie et al. (2006) found that the frequency of instructor participation was a critical part of student motivation for participation in online discussions. In a related study that looked at teacher-student interactions in tertiary on-campus settings, Zepke et al. (2009) also found that teacher availability and provision of prompt, formative feedback were factors likely to enhance student engagement. Similarly, the motivation literature notes the importance of the provision of timely feedback (Brophy, 2010).

2. Teacher influences that supported autonomy needs

The second most important group of themes associated with teacher supportive motivational influences, related to **autonomy support**. Within this group, *the creation of situational interest, the provision of choice and the use of non-controlling language* were perceived as the most important ways in which lecturers supported pre-service teachers' needs to feel autonomous.

Across both cases, the lecturers were described by learners as autonomy supportive. This was a consistent view expressed by all participants in Case Study Two and by approximately half of the participants in Case Study One. The lecturers in Case Study One described their approach to teaching in the context of the PBL assignment in terms of not being imposed or forced on learners. Instead students were encouraged and supported to take responsibility and ownership of their learning process. In a similar vein, the lecturer in Case Study Two described working with learners as a process of negotiation in which she consciously shared power with learners. These approaches translated to expressions of autonomy by learners that included feelings of freedom or volition, personal control and lack of constraint during the learning activity similar to those previously reported in the literature (Reeve, 2002; Reeve et al., 2003; Reeve et al., 2008). Several participants also made connections between feelings of self-determination and their creative expression, a finding that has been noted previously (Amabile, 1985).

i) Promotion of situational interest

The primary way in which teachers supported learners' autonomy needs in both case studies was through the promotion of situational interest – interest generated by certain conditions in the learning environment (Hidi & Ainley, 2008). Although there was some evidence of triggered situational interest – parts of the learning process that sparked short-term interest in the participants (Hidi & Harackiewicz, 2000), overwhelmingly the type of situational interest described by participants across the case studies was maintained situational interest. Maintained situational interest tends to be more sustained and has the effect of focusing attention over an extended period of time (Hidi & Renninger, 2006).

Interest is always content specific (Krapp, 2002). Situational interest was promoted and sustained in Case Study One through the use of problem based learning as an instructional strategy which encouraged participants to engage with science and technology content. Seven out of the twelve participants expressed interest in at least one aspect of the PBL process – a new learning approach for the students. Examples included the collaborative nature of the activity and the potential for various approaches to solving the chosen problem. This interest was further supported by the lecturers who encouraged students to pick a topic that piqued their interest and/or was personally relevant to them. This finding corresponds with prior research that has linked situational interest with personal relevance (Hidi & Renninger, 2006) and enjoyment of small group collaborative work (Blumenfeld et al., 2006; Boekaerts & Minnaert, 2006).

All Case Study Two participants reported being engaged, at least in part, because of the interest generated within the learning situation. Similar to Case Study One, participants in Case Study Two were also encouraged to focus on a topic that was personally meaningful. Additionally, the lecturer created ongoing situational interest by the inclusion of regular online activities and resources that were topical, relevant and meaningful, both personally and professionally. This, in turn, highlighted the utility value of tasks to participants, a finding consistent with other research (Durik & Harackiewicz, 2007; Hidi, 2000). The lecturer's passion, enthusiasm and commitment to her subject, in terms of ongoing research, were other important factors that promoted learner interest as well feelings of connectedness with the lecturer and among participants. This finding corresponds to prior research that has shown situational interest and social relatedness to be significantly correlated (Boekaerts & Minnaert, 2006) and the importance of social presence of the teacher to learner motivation (Kehrwald, 2008).

The promotion of situational interest is an important finding. This is because it demonstrates that while the potential for interest lies within the individual (Hidi & Renninger, 2006), the environment – in this case the teaching approach – also has an important bearing on its development and therefore, by definition, intrinsic motivation. Maintained situation interest may also lead to more enduring individual interest (Hidi & Renninger, 2006). There is a clear overlap here between the influence of the teacher and

the learning activity, but as it is usually the teacher who determines the design, structure and approach of the learning activity, it is included here.

ii) Provision of choice

In conjunction with situational interest, the *provision of choice* emerged as a second, prominent theme that learners identified as supportive of their autonomy needs. The entire participant group (with one exception) expressed perceptions of considerable choice in Case Study Two, whereas approximately half of the group did so in Case Study One. Across the cases, participants who perceived themselves as having choice identified several areas where they were given opportunities to choose. These included: *the topic they focused on, how they went about it, and the presentation of their work*. In practical terms, the provision of choice and corresponding perceptions of choice enabled learners to make connections between what they were learning and their personal and future teaching goals. Case Study One learners also identified the opportunity to *choose their peers* as a further key area where they could make their own decisions. However, this tended to occur only for those students who approached other learners early on in the process and therefore had more potential group members from which to choose. In line with this finding, the study by Van Etten et al. (2008) showed that group work could undermine or promote learner motivation depending on group composition and the degree of choice students had in selecting their group members. The same study also found that students who believed they had choices were more motivated in their academic work.

Being given opportunities to choose how and when to act, in ways evident in these case studies, promoted perceptions of choice, an internal locus of causality, and greater volition similar to previous research results (Reeve, 2002; Van Etten et al., 2008). In other words, the choices offered were not seen by these participants as trivial or superficial as can sometimes be the case with, for example, option choices (Reeve et al., 2003). Here, the provision of choice was autonomy supportive because it provided opportunities to pursue topics and activities in ways that were interesting, relevant and meaningful. Understandably then, these learners reported higher levels of self-determined types of motivation, namely identified regulation and intrinsic motivation. Findings concur with those previously reported in the literature on motivation to learn in

both face-to-face (Cordova & Lepper, 1996; Katz & Assor, 2007) and online (Artino, 2007; Shroff & Vogel, 2009) contexts.

iii) Use of non-controlling language

The third and final theme that participants identified as supporting autonomy needs was evident in Case Study Two and related to the way in which expectations and feedback were communicated to learners. While less salient than the previous two themes, the provision of clear expectations and feedback using informational, non-controlling written language was identified by students as a feature of the lecturer's communication style that they considered autonomy supportive. This informational style revolved around information-rich messages that identified what was required, written in a way that conveyed flexibility and personal responsibility to the learner rather than seeking compliance through control or coercion. The use of explicit, detailed information that clarifies what is required without seeking to control behaviour has been identified previously as an important characteristic of autonomy supportive teachers (Reeve, 2002, 2006, 2009; Reeve et al., 2004).

The decision to use this type of approach was a conscious one by the lecturer who was philosophically committed to the sharing of power with learners. As such, she was aware of the potential undermining consequences of using controlling language, a finding noted previously in online research (B. Anderson, 2006). By responding in this way, the lecturer was able to encourage and support students to find ways of coordinating their own inner resources, a further feature of autonomy supportive teachers (Reeve et al., 2008). Although there was some suggestion of the use of an informational style of communication in Case Study One, it did not emerge as a strong theme. Among other reasons, this may be due to the collaborative nature of the PBL assignment in Case Study One which saw the focus of communication centred on peer to peer interactions (see Section 6.4.3). The PBL approach also saw the gradual reduction of lecturer input (see Section 6.5.2), which again tended to focus the attention of participants on the interactions among group members.

3. Teacher influences that supported relatedness needs

Following on from the ways in which the teacher(s) supported the competence and autonomy needs of participants, one theme emerged as important in terms of providing support for their relatedness needs. Though not as salient, the *relationships between teaching staff and learners* were significant in the promotion of self-determined types of motivation. The fact that relatedness support was perceived as less important than competence and autonomy support by learners is consistent with self-determination theory that posits relatedness as a more distal construct (Deci & Ryan, 2000). The relationship with the teacher contained *three sub-themes*, the most important of these being the perception that the lecturers were friendly and caring.

i) Friendly, caring teachers

Participants in both cases identified the friendly, caring approach of the lecturers as an important influence in meeting their relatedness needs and thereby encouraged greater levels of self-determined types of motivation. This was particularly evident in Case Study Two where the supportive, caring approach of the lecturer was viewed by all participants as a positive, key feature of their experience. The kind and friendly approach of the lecturers was also a salient theme identified by Case Study One participants but not to the same extent as Case Study Two. Approximately half the learners in Case Study One highlighted the caring approach of the teaching staff as an important factor in meeting their relatedness needs.

The considerate approach taken by the lecturer(s), being supportive of more self-determined types of motivation, mirrors other motivation research findings. Teacher involvement, in terms of the amount of time invested, care taken and attention given, has been shown to be a powerful motivator for learners (Brophy, 2010; Connell & Wellborn, 1991; Reeve, 2006) because it meets their relatedness needs. Online studies of motivation have also found that involvement of the instructor was critical in supporting students' intrinsic motivation (Xie et al., 2006) and that instructors interpersonal skills "strongly influence motivation to e-learn" (Rentroia-Bonito et al., 2006, p. 29). More broadly, the value of social bonds in the online learning process (Rovai & Lucking, 2003), the social role of the online tutor (A. Jones & Issroff, 2007), and the need for skilful online facilitation by the instructor in order to nurture social

presence and the development of an online community (Kehrwald, 2007; Rovai, 2007) are well-recognised in the online literature.

ii) Use of self-disclosure by teachers

In addition to being caring and friendly, the sharing of personal information through self-disclosure (by the lecturer) was highlighted by Case Study Two participants as a further way in which their need to experience personal connections (i.e. relatedness) was supported. The use of self-disclosure has been identified as a way of encouraging the development of relationships in online environments (Cutler, 1995) and is one of the affective indicators of social presence in asynchronous, text-based computer conferences (Kehrwald, 2008; Rourke et al., 1999).

iii) Inclusiveness and respect

Experiences of feeling included and respected by the lecturer was the final sub-theme identified by participants in Case Study Two that further supported the development of relationships and consequently the expression of more self-determined types of motivation. The adoption of a respectful and inclusive approach by the lecturer, where multiple perspectives were appreciated, encouraged the development of an inclusive and respectful attitude among learners within the learning community. The importance of inclusion in the development of online communities and feelings of connectedness and the social presence this can engender has been noted previously (Rourke et al., 1999; Rovai, 2002a, 2007).

Additional support for this finding can be found in the motivational framework for culturally responsive teaching (Ginsberg & Wlodkowski, 2000) that posits inclusion, which encompasses respect and connectedness, as one of the four basic conditions necessary for encouraging and supporting motivation across diverse groups of learners (Ginsberg, 2005). Furthermore, acceptance of the individual and respectful communication are two important ways in which students feel secure and supported in their relationships, a necessary precondition for motivational strategies to be effective (Brophy, 2010; Stipek, 2002).

While the themes of self-disclosure and the modelling of inclusive and respectful practices by the teacher were evident in participant responses in Case Study Two, they were not apparent in Case Study One. The nature of the learning activity in Case Study One is likely to play a role in this difference in findings. That is, the small group collaborative nature of the PBL assignment had a tendency to emphasise relationships with peers as most important in terms of affective support. This observation has been noted elsewhere (B. Anderson & Simpson, 2004). In contrast, the individual nature of the micro-teaching assignment called attention to support from both lecturer and peers equally.

This section concludes by bringing together the different influences of the teacher(s) in the present study that facilitated the emergence of self-determined types of motivation among learners in online distance learning contexts. In Figure 6.2, and others that follow, the order of importance is indicated by proximity of each group of influences to the top and front of the diagram. This part of the present study represents an important step forward as few previous studies (e.g., Xie et al., 2006) have explored teacher influences within online distance learning contexts that serve as affordances to student motivation. These findings are the most comprehensive to-date.

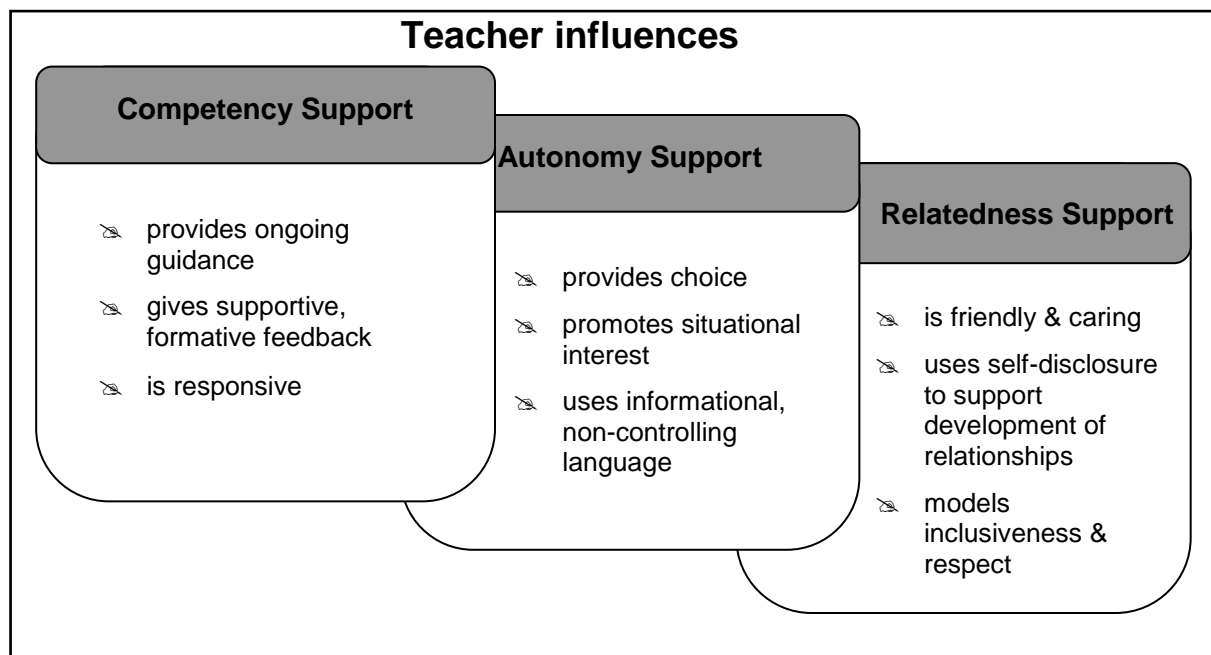


Figure 6.2: Teacher influences that supported self-determined types of motivation

6.4.2 Learning activity

Following on from the supportive influences of the teacher discussed above, key themes that relate to the *learning activity* within each context are compared and contrasted. Collectively, they demonstrated that learning activities that primarily supported autonomy and competence needs fostered learners' inner motivational resources.

Many of the characteristics of the learning activity, discussed below, also lie within the influence of the teacher(s) in the investigations described here. As such these could be considered as motivational influences associated not only with the tasks but the people who design and teach them. However, it is sometimes the case that the instructional design and the teaching of online courses are undertaken by separate individuals. Moreover, given these factors were experienced by participants as influences while actually doing the task and therefore associated with the activity, they are addressed here. It is acknowledged, though, that this delineation is not clear cut.

Considering the three conceptual lenses of self-determination theory and the factors within each environment that facilitated the expression of more self-determined motivation, the most prominent group of themes (in terms of frequency) related to the ways in which the learning activity met the autonomy needs of participants. This was closely followed by the competence support inherent within each activity. Meeting the relatedness needs of learners within the learning context was also important, but participants did not associate this with the learning activity itself. Instead, learners connected relatedness support with the *people* within the learning environment, namely the lecturer(s) and fellow students. Therefore, facilitating relatedness factors were discussed within teacher supportive influences (see Section 6.4.1) previously and peer influences (see Section 6.4.3).

1. Learning activity influences that supported competence needs

Contextual features of the task that served to meet the competence needs of learners featured strongly in both case studies. Collectively, these influences were only slightly less salient than the autonomy supportive characteristics of the learning activity in fostering self-determined types of motivation. For consistency, environmental factors associated with the learning activity that facilitated the development of competence

among learners are addressed first. Across the two cases, features of the learning activity including 1) *clear guidelines and expectations*, 2) *the usefulness and relevance of the resources provided* and 3) *optimal challenge* were consistently identified as important in meeting the competence needs of learners.

i) Clear guidelines and expectations

Learners who perceived the structure and guidelines of a learning activity as being clear and explicit knew what was expected of them. This, in turn, supported their need for competence because it assisted them in making accurate judgements about what was required to achieve success. The amount, clarity and quality of information relating to the goals, guidelines and expectations of the assignment were perceived as sufficient and appropriate for their needs by three quarters of the participants in Case Study One and all learners in Case Study Two. From the perspective of these participants, the *quality of information provided a framework* that assisted them in working towards the learning objectives of the activity with a measure of confidence *without necessarily feeling constrained by the guidelines*. It also enabled them to make connections between assignment requirements and course goals, something that has been highlighted as a factor in promoting positive patterns of motivation (Van Etten et al., 2008).

The fact that high structure within the learning activity can co-exist and be seen as mutually supportive, rather than conflicting with the autonomy needs of learners, is something that has been previously noted in the literature (Reeve, 2002). In fact, structure has been positively correlated with the provision of autonomy support (Reeve, 2009). This conceptualisation of structure and autonomy as two independent, mutually supportive contextual variables (Connell & Wellborn, 1991), is somewhat different to the notions of learner autonomy and structure in the distance education literature (Moore, 1993). In distance education, learner autonomy has frequently been equated with independence or individualism, and structure defined as the degree of rigidity or flexibility within an educational programme. Therefore, autonomous (independent) distance learners benefit from little structure while less autonomous (dependent) distance learners often prefer more structure. However, other researchers in the field have argued that the term autonomy has suffered from the lack of clear definition (Garrison & Baynton, 1987). Instead, they use the concept of control that incorporates

independence as one dimension along with competence and support (Baynton, 1992). In the latter conceptualisation, similar to self-determination theory, in order for learners to be independent and exercise personal control (autonomy) there is a requirement for the necessary supporting structures (i.e. competence support) to be in place (Dron, 2007a). This fits with the present research.

ii) Provision of useful resources

In conjunction with quality of information, the perceived usefulness and relevance of the resources was also identified by participants across both studies as important in supporting their competence needs. Participants who perceived the learning resources as useful in terms of 1) providing guidance that assisted them in navigating their way through the learning process, 2) offering templates that could be used during the assignment, and 3) supplying exemplars that clarified expectations in terms of quality of work, expressed confidence in their capabilities to successfully complete the assignment.

This view was endorsed by approximately half of the participants in Case Study One and all of the Case Study Two participants. Participants in Case Study One who endorsed the usefulness and relevance of the resources (i.e. primarily the study guide and CD-ROM), typically reported higher levels of self-determined types of motivation than participants who did not feel this was true. This is a similar finding to that of Martens and Kirschner (2004) who discovered that students with high intrinsic motivation also perceived the learning materials as being more useful. It also reflects previous studies that have demonstrated the importance of the availability of sufficient and appropriate resources to scaffold learners through the learning task in both traditional (Reeve et al., 2004; Stipek, 2002) and online (Rentroia-Bonito et al., 2006) educational settings.

iii) Optimal challenge

A further theme was identified by participants across both studies as important in supporting competence needs. Those participants who perceived the learning activity to be optimally challenging, that is where skill level and challenge were high and reasonably well-matched, experienced a sense of satisfaction and achievement that

contributed to expressions of higher self-determined motivation. Two thirds of Case Study One and all of Case Study Two participants perceived the task to be reasonably well-matched to their existing knowledge and skill levels and thus sufficiently challenging to allow them to further develop their competence in these areas. This was despite the fact that all Case Study One participants were experiencing problem-based learning for the first time. Previous social studies and micro-teaching knowledge and experience meant that skill and challenge levels were well matched in the Case Study Two context. This finding is consistent with prior research (Brophy, 2010; Csikszentmihalyi, 1985; Ginsberg & Wlodkowski, 2000; Reeve et al., 2004; Shroff et al., 2008) that emphasises the importance of moderate challenge in facilitating quality (i.e. more self-determined) motivation.

Closely related to the optimal nature of the challenge, one further factor associated with the learning activity was unique to Case Study Two.

iv) Judgements of high self-efficacy

The ways in which self-efficacy was fostered during the Case Study Two micro-teaching assignment was perceived as important by participants in meeting their competence needs. Primarily, the self-efficacy of participants was fostered because the micro-teaching assignment built on the prior knowledge and experience of learners. This included micro-teaching and lesson planning mastery experiences, as well as existing subject knowledge. These were key factors in high self-efficacy judgements made by participants on commencing the assignment. Moreover, opportunities to put knowledge learned into practice in an authentic context and verbal persuasion from the lecturer, in the form of feedback and support mentioned previously, saw learners' sense of competence continue to grow throughout the activity.

Actual experience plays a major role in assessing self-efficacy for a task, with success generally raising self-efficacy and failure lowering it. Having a trusted person tell you that you have the ability to succeed is a further important source of information (Bandura, 1997). Both of these conditions were present in Case Study Two. It is not unexpected then, that all participants expressed high academic self-efficacy with regard to the micro-teaching task. High self-efficacy for a given task has been linked to

willingness to engage and persist on tasks (see Stipek, 2002 for a review). This was the case here, with all research participants successfully completing the micro-teaching assignment.

Given the collaborative nature of the PBL assignment in Case Study One, collective (Bandura, 2000) rather than personal efficacy emerged as a salient theme in terms of meeting learners' competence needs. Group efficacy is considered a function of the relationship between an individual participant and their peers in this discussion, therefore high collective efficacy is discussed in the peer section (Section 6.4.3) that follows.

2. Learning activity influences that supported autonomy needs

Contextual influences of the learning activity that served to meet the autonomy needs of participants also featured strongly in each of the case studies. Collectively, they demonstrated that learning activities that 1) *were relevant and meaningful to learners*, 2) *enabled students to use course knowledge in practice*, and 3) *provided opportunities that allowed learners to pursue topics that were of interest to them*, represented important ways in which learners' autonomy needs were supported.

i) Relevance and meaning

Across the two case studies, the importance of the learning activity in terms of its relevance and meaning emerged as a central theme that fostered the expression of autonomous motivation among learners. Within this, *two clear sub-themes* were identified in terms of what participants found relevant and meaningful about their respective assignments. First, participants who saw a clear link between their own experience during the activity and its *relevance to their future teaching practice* experienced higher levels of self-determined motivation. This was true for half of the participants in Case Study One and all of the participants in Case Study Two. For these learners, the usefulness or utility value of the activity they were undertaking was clear and something they identified with. The value of the task was further emphasised by the lecturer in Case Study Two by the provision of rationales for each component of the activity, explaining why the learning was important and worth doing. Highlighting the relevance and applicability of an activity and the use of rationales have been identified

previously in the literature as important strategies for promoting self-determined types of motivation (Eccles & Wigfield, 2002; Jang, 2008; Reeve et al., 2002; Reeve et al., 2008; Ryan & Deci, 2000a). The relevance of the activity in terms of developing competence for a future goal – in this case becoming a teacher – has also been found to be a significant source of motivation in previous online studies (Rentroia-Bonito et al., 2006).

The *second* sub-theme was associated with the relevance of the activity in terms of the *personal relevance and meaning* the activity engendered for participants. Being able to make connections from the course content to their everyday lives, in terms of existing interests and prior experiences, enhanced the meaningfulness of the task and encouraged personal involvement for the majority of participants. This was the case for eight of the twelve participants for Case Study One and seven of the nine students in Case Study Two. The provision of learning activities that are relevant to personal goals, values and interests have previously been shown to be autonomy supportive (Blumenfeld et al., 2006; Reeve, 1996; Reeve et al., 2008).

The importance of the learning activities being relevant to learners was further underscored by the identified regulation scores reported in both studies. Across the cases, participants reported moderate to high identified regulation scores. Case Study One participants reported higher identified regulation scores rather than intrinsic motivation as the most salient self-determined type of motivation (see Table 6.1). Case Study Two participants reported similar levels of identified regulation and intrinsic motivation. This indicates that the importance and value of the task was at least as important to learners (and more so in Case Study One) as the enjoyment or interest experienced (i.e. intrinsic motivation) while engaging in the activity. This finding illustrates that, overall, the participants involved in the investigation described here found their respective tasks meaningful and relevant. Support for personal relevance and task value being important sources of motivation to learn in online contexts can be found in a number of previous studies (Artino, 2007, 2008; Bures et al., 2002; Park & Choi, 2009; Ratelle et al., 2007; Xie et al., 2006; Yukselturk & Bulut, 2007). Beyond affirming existing research, this finding has further significance because it demonstrates that the relevance and meaning of an activity was as important an influence on student motivation as the interest or enjoyment experienced during the activity.

ii) Opportunities to put learning into practice

While relevance was identified as a significant reason why participants willingly engaged in their respective learning activities, it was not the only one. Being given *opportunities to use subject knowledge in practice* was the second theme that emerged across both cases as supportive of self-determined types of motivation. Students preferred being active and being able to put into practice what they were learning in an authentic way. Approximately half of the participants from Case Study One and all the participants in Case Study Two highlighted having opportunities for action as a key feature that helped them to understand the importance, relevance and value of their respective tasks, particularly to their future teaching practice. Being able to undertake a PBL activity in Case Study One and a micro-teaching task in Case Study Two, rather than undertaking the more traditional-type essay assignment, was also seen as enjoyable by learners. Tasks that involve a high degree of participation and activity have been shown to promote motivation (Ginsberg & Wlodkowski, 2000; Reeve et al., 2004; Van Etten et al., 2008), learner engagement (Zepke et al., 2009), and encourage deeper understanding (see Brophy, 2010; Stipek, 2002).

iii) Opportunities to pursue personal interests

A final theme that emerged as promoting self-determined types of motivation among learners, across both case studies, was the provision of *opportunities to pursue personal interests*. When the choices available were perceived as appealing, this allowed learners to align learning activities with their individual interests. Participants identified the opportunity to choose the topic of the assignment, in particular, as key to this alignment process. This association between interest and choice further supports the finding that the provision of this choice by teachers, identified earlier (see Section 6.4.1), as an autonomy supportive factor. Eight out the twelve participants in Case Study One expressed interest in the topic they had chosen that, in part, encouraged more self-determined motivation. For four of the participants, being able to pursue science and technology subject knowledge in a way that encouraged autonomy enhanced an already well-developed personal interest in one or both content areas.

Consistent with this finding, Case Study Two participants also highlighted being able to explore topics of interest to them as an important autonomy supportive learning approach. The main difference between the two cases was the majority of students from Case Study Two (seven out of the nine) expressed a strong, well-developed individual interest in social studies content which was further enhanced by the autonomy supportive context of the micro-teaching task. Opportunities to link learning activities to areas of personal interest have been shown previously to promote quality motivation (Hidi & Renninger, 2006; Hidi et al., 2004; Reeve et al., 2003; Reeve et al., 2008; Ryan & Deci, 2006).

While relevance, active learning and interest were common autonomy supportive characteristics of the learning activity across the cases, one additional factor emerged as supportive of learner autonomy that was unique to Case Study Two.

iv) Course content and the nature of task

Within the context of Case Study Two, the *course content and nature of the task* itself were seen as contributing to learners' experiences of internal control and volition. First, the course content – social studies – emerged as contributing to the satisfaction of autonomy needs. Social studies content was viewed as conceptually broad and able to accommodate multiple perspectives. Subject knowledge was also seen as flexible, where there was no right way, but instead many ways of interpreting the content. This, in conjunction with the autonomy-supportive approach of the teacher, translated to feelings of openness and freedom. Differences in the nature of subject matter across disciplines and their effect on student motivation have been noted previously (Van Etten et al., 2008).

Second, the micro-teaching activity itself was viewed as autonomy supportive by several participants. This was due to the lack of direct evaluation during the delivery of their micro-teaching lessons, which led to perceptions of having greater control of the activity. For the most part, learners also felt they were able to make their own decisions about what and how they taught during the micro-teaching task. This was contrasted with previous teaching experiences, where there was often a requirement to fit in with the needs of the classroom teacher. By being able to make decisions and try different

approaches, student self-determination was fostered as has been noted previously (Reeve et al., 2004).

Figure 6.3 brings together the different influences associated with the learning activity that facilitated the expression of more self-determined types of motivation via support for learners' psychological needs. Once again these findings represent an important contribution to existing knowledge. While many of these factors have been identified previously as supportive of the development of online communities and online discussions (e.g., Rovai, 2007; Thach & Murphy, 1995), this study highlights their significance to student motivation within online distance learning contexts.

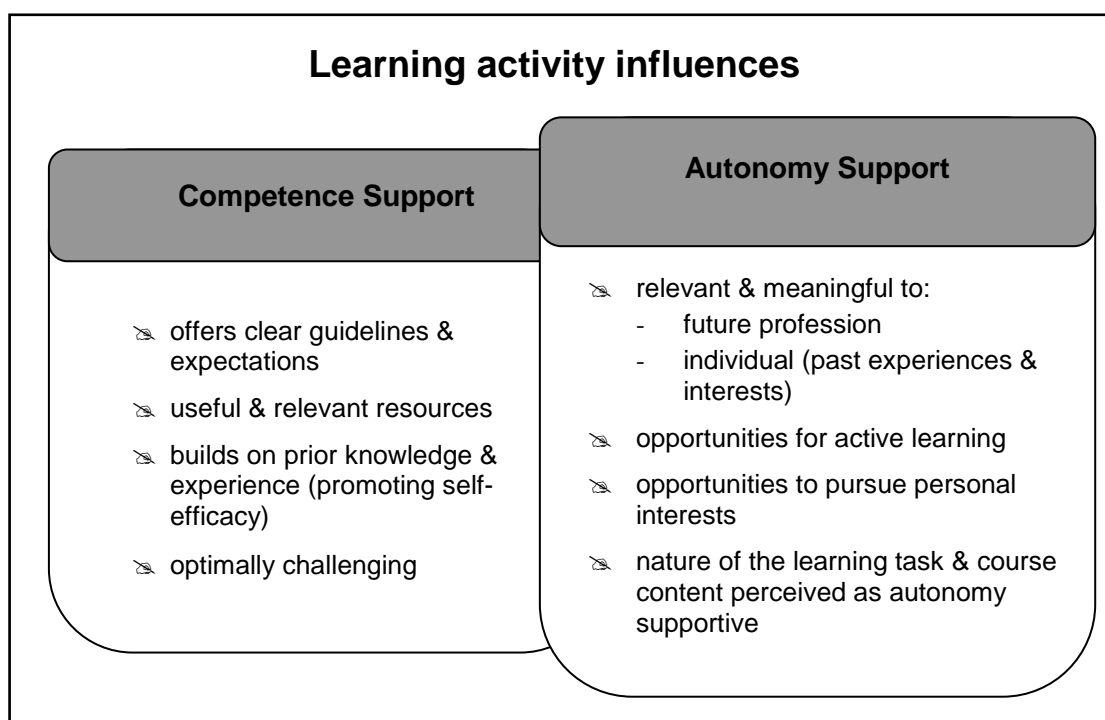


Figure 6.3: Learning activity influences that supported self-determined types of motivation

6.4.3 Peers

Having addressed the influences of the teacher(s) and learning activities that supported the psychological needs of learners, attention is now turned to the third and final area of influence – other learners. In this section, prominent themes that relate to the role of peers within each context are compared and contrasted. Given the different contexts of the two cases, peers within a learner's small collaborative group were most important in Case Study One. As such, peer support for a participant's competence needs emerged as

most important in this context. This was not unexpected given that learners' ability to succeed was dependent on the capabilities of their peers. This was made more salient by the limited amount of class-wide interaction and the gradual reduction of lecturer input – a feature of this type of PBL approach (see Section 6.5.2). This was closely followed by the ways in which peers provided for the relatedness needs of their fellow group members. Finally, learners' who were supported in making contributions to group tasks had their autonomy needs met within the small group context.

In contrast, the individualised nature of the micro-teaching assignment in Case Study Two meant that peers within the wider class were most relevant. In this context, the ways in which students were able to meet their fellow learners' relatedness needs were the most salient. Following on from this, the ways in which class members provided support for individuals' competence needs emerged as the next important area. Again, this is not surprising given that completion of the assignment was not dependent on input from peers. Support by peers for autonomy needs did not feature in the context of this individualised assignment. In other words, the role peers played in meeting the different psychological needs of participants was dependent on the context.

1. Peer influences that supported competence needs

The role played by peers in meeting the competence needs of learners was evident in both case studies. Perceptions of peers being *helpful and supportive*, in terms of learning, was identified as the most important factor in meeting the competence needs of learners and in doing so promoted the expression of more self-determined types of motivation.

i) Helpful and supportive peers

Learners whose competence needs were met by their peers within the context of the PBL assignment tended to function more effectively as a group. Two thirds of Case Study One participants identified the helpfulness and supportiveness of peers within their small group as most salient in terms of meeting their competence needs. This is not unexpected in the context of the PBL environment where lecturer(s) encouraged learners to take ownership of their 'problem'. This meant as lecturer guidance tapered off, students were predominantly reliant on each other to interpret guidelines and

expectations, make decisions, and undertake activities in order to make progress toward assignment completion. Research has shown that fellow students within the small group are most important when it comes to the provision of support for learning (B. Anderson & Simpson, 2004) and motivation (Van Etten et al., 2008). Those participants who perceived their small group peers to be helpful and supportive had their need to feel capable and successful met within the PBL environment. They were also generally more successful in terms of achievement than participants who did not experience their competence needs being met by their peers.

Support at the level of the whole class did not emerge as a dominant theme in Case Study One. However, in Case Study Two it was the most important way in which students met the competence needs of their classmates. Here, the ways in which learners within the whole class provided learning assistance and support to each other, in the form of clarifying expectations, sharing ideas or offering suggestions, contributed to individuals' competence needs being met. Being able to seek and gain assistance from classmates was seen as a source of support and encouragement that, in conjunction with a supportive lecturer, met participants' needs to feel proficient within this context. It also demonstrated that tasks that may be difficult to accomplish alone could be achieved with the help of more competent others (Vygotsky, 1978). This, in turn, contributed to positive (i.e. more self-determined) patterns of motivation.

The value of collaboration has been well documented in the motivation (e.g., Brophy, 2010; Schunk et al., 2008) and online learning (e.g., T. Anderson, 2006) literature, often in terms of meeting learners' relatedness or social connectedness needs. In the case studies described here, support from peers also assisted in supporting the competence needs of students. This corresponds with previous studies that have identified other students as a source of assistance (Van Etten et al., 2008; Whipp & Chiarelli, 2004) and feedback (S.-L. Wang & Lin, 2007a) that contribute to online learners feeling capable and competent. The importance of fellow learners providing learning assistance and thereby supporting the competence needs of their peers can be found in the community of inquiry model (Garrison et al., 2000) and the concept of teaching presence (T. Anderson et al., 2001; Mayes, 2006). Teaching presence is concerned with the role of the teacher in online environments, which encompasses instructional management, development of understanding and direct instruction (Garrison et al., 2000). According

to T. Anderson (2008a), teaching presence is not always the sole responsibility of the instructor and is often assumed by students who contribute their own knowledge and skills to build understanding among the learning community.

ii) Group efficacy

One further way in which learners' competence needs were supported by their peers emerged within the collaborative context of Case Study One. Group members' beliefs in their collective capabilities to successfully undertake the actions required to achieve a desired outcome (Bandura, 2000) provided further support for participants' competence needs. Perceptions of high collective efficacy supported participants' competence needs even when personal self-efficacy for the PBL task was, at times, called into question.

Several participants were able to form high collective efficacy groups by strategically choosing group members early on in the PBL process. Previous research has shown group work to be more motivating when students self-select into groups (Van Etten et al., 2008). Choosing peers not only supported individual learners' own needs to feel capable, but also increased the collective expectancy for success within the group (Eccles & Wigfield, 2002). This was because prior successful experience in similar collaborative circumstances was often used as the criteria for choosing group members. As such, groups whose membership was determined in this way were generally more successful in terms of academic achievement and tended to demonstrate more consistent quality online engagement. Consistent with S.-L. Wang and Lin (2007b), high collective efficacy had positive effects on discussion behaviours and group performance in this online collaborative PBL learning context.

2. Peer influences that supported autonomy needs

Self-determination theory (SDT, Deci & Ryan, 2000) posits autonomy and competence as the most important of the psychological needs that require support in order for more self-determined forms of motivation to be promoted among learners. While competence needs were highlighted as important in both studies, the ways in which autonomy needs were supported by peers were relatively less salient. Only one theme emerged from Case Study One in connection to this.

i) Significant role in group decisions and tasks

Learners in Case Study One who played a significant role in their group's decision-making processes and completion of tasks, perceived their peers as having contributed to supporting their autonomy needs. In other words, they believed their contributions were not only endorsed by their peers but also influenced the overall action taken by the group. Whether this took the form of collective decision-making processes or the role of leader, two thirds of participants perceived their peers as supporting their need to be self-determining. Moreover, participants who viewed their autonomy needs as being met in terms of the ways in which they contributed to group tasks and decisions also reported mutually supportive relationships with their peers. For these participants, autonomy and relationship support from peers were complementary. This finding is consistent with other SDT research that has shown that individuals feel most related to other people who support their own autonomy (Hodgins et al., 1996; Ryan & Deci, 2006).

Support by peers for the autonomy needs of their fellow learners did not feature in Case Study Two. This was due to the independent nature of the micro-teaching assignment. While participants did consult with their peers before making decisions about choice of topic, teaching approach and possible resources, decisions were not dependent on the suggestions made by other students. Self-regulation strategies used by students that saw them selectively choosing online postings from certain peers to read and respond to, further supported participants' autonomy needs. Selective reading and posting of online messages as a function of personal agency has been noted elsewhere (B. Anderson, 2006).

3. Peer influences that supported relatedness needs

Following on from peer support for the competence and autonomy needs of fellow learners, the ways in which peers provided for the relatedness needs of their fellow students was a significant category in both case studies. The importance of relationships with peers across the cases, both within the small group and the wider class contexts, were more prominent than autonomy support provided by those same people.

i) Supportive relationships between learners

Within the main theme of supportive relationships between learners, *two sub-themes* emerged. The most salient of these was the perception that *peers were friendly and caring*, followed by *feelings of being respected and valued*. Peers who were perceived as friendly and caring valued the contributions made by each individual and respected what they had to offer. These students established mutually supportive relationships with fellow learners. This occurred almost exclusively at the small group level in Case Study One, with lack of interaction at the whole class level often cited as the main reason why a wider supportive community was not established. Feeling respected, valued, and cared for by fellow group members was also considerably more salient than the friendly and caring nature of the lecturers. This finding supports research that has highlighted the importance of learners within a small working group in meeting fellow students' affective needs (B. Anderson & Simpson, 2004).

In contrast, the individualised nature of the micro-teaching assignment in Case Study Two meant that relationships with peers in the wider class context were most relevant. That said, the ways in which students in the wider class were friendly and caring, valued individual contributions and demonstrated a respectful attitude, contributed to learners' relatedness needs being met in similar ways to Case Study One. In addition, participants in Case Study Two commented on the importance of the *inclusive learning community* in which their learning was situated. The role played by the teacher in modelling this type of approach was highlighted by participants as critical to the development of an inclusive, respectful community.

The importance of inclusion and respect have been noted in the research literature in terms of 1) encouraging and supporting motivation across diverse groups of students (Ginsberg & Wlodkowski, 2000; McCombs, 1994), and 2) enabling the development of online communities along with the feelings of connectedness and social presence this can engender (Rourke et al., 1999; Rovai, 2002a, 2007). Rentroia-Bonito et al. (2006) and Xie et al. (2006) also found that positive social experience and feeling within the group contributed to learners' motivation to learn and participate in e-learning environments.

Figure 6.4 brings together the different influences associated with peers that facilitated the expression of more self-determined types of motivation via support for learners' psychological needs.

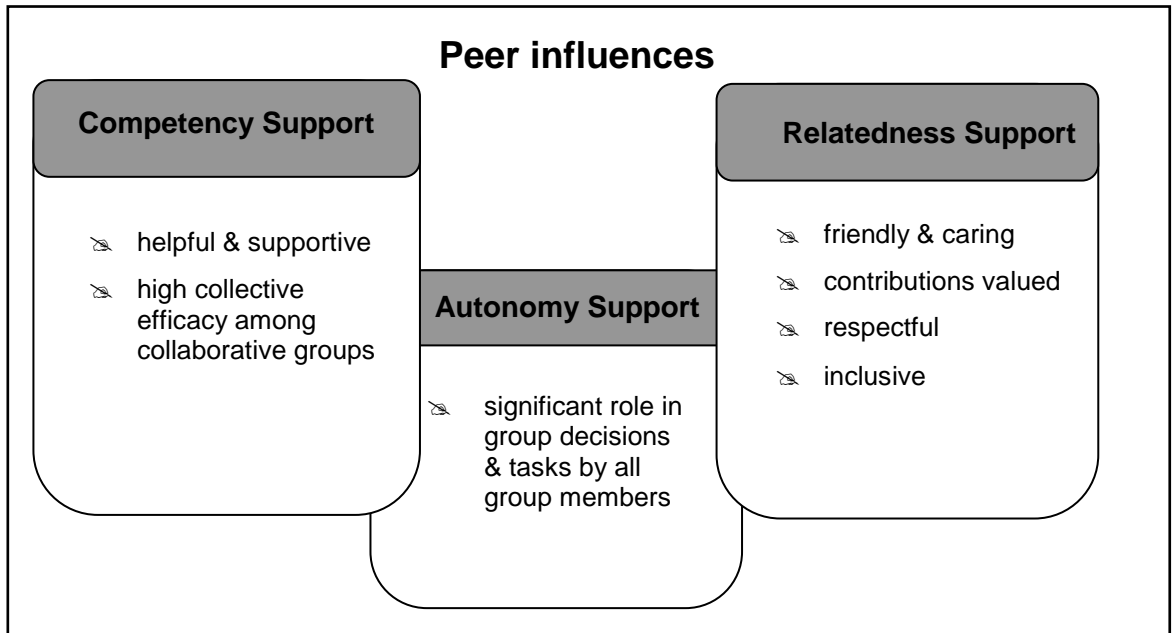


Figure 6.4: Peer influences that supported self-determined types of motivation

In the ways just outlined, the *teachers, learning activities* and *peers* fostered the inner motivational resources of learners and contributed to the more self-determined motivation reported by participants. By identifying a wide range of environmental factors that support student motivation in online contexts, this represents a significant contribution to existing knowledge. However, the psychological needs of participants were also left unmet to varying degrees because a number of social and contextual factors undermined rather than supported them, and the same objective features of the learning environment were perceived in different ways by individual students. In the section that follows, the ways in which the teachers, learning activities and peers contributed to the undermining of research participants' psychological needs are examined. This was particularly apparent within context of the PBL assignment in Case Study One.

6.5 Undermining social and contextual influences

A range of important social and contextual features were found, primarily within Case Study One, that undermined learners' autonomy, competence and relatedness needs. In the following discussion, influences associated with the *teacher*, the *learning activity* and *fellow learners* are categorised based on the psychological needs of the learners they undermine. It is important to note that no one factor undermined all the psychological needs of learners. It is also important to note that learners' perceptions of the extent to which their needs were undermined were formed from multiple influences that combined in complex ways and it these perceptions of events which determined whether they undermined motivation to learn. For example, approximately half of the Case Study One participants felt they had received insufficient guidance and found the PBL activity lacked relevance, while the remainder felt the guidance received was sufficient and found the activity highly relevant.

The findings discussed below represent an important contribution to current understanding of motivation to learn in online distance learning contexts. This is because few existing online studies have identified environmental features which undermine student motivation and then only in very limited terms (e.g., Xie et al., 2006).

6.5.1 Teachers

In this section, two teacher influences are discussed. Factors associated with the teacher that undermined the psychological needs of learners were salient in Case Study One only. The thwarting of *competence* and *autonomy needs* by the lecturers were evident due to 1) *perceptions of insufficient guidance and feedback*, and 2) *perceptions of course expectations and communications as controlling*. These findings demonstrate that when students perceive their needs to be unsupported, this can have a detrimental effect on their motivation. In other words, while it may have been unintentional, the quality of support provided and the way it and expectations were articulated did, in part, influence the quality of motivation experienced by learners. These findings are supported by prior research (Reeve, 2009; Reeve et al., 2008).

1. Teacher influences that undermined competence needs

i) Insufficient guidance and feedback

Half of the participants in Case Study One perceived that the ongoing *guidance and feedback they received from the lecturers were insufficient* for their needs. This was despite extensive information provided in the study guide and on the CD-ROM. The asynchronous online transcripts showed a noticeable difference in the number of messages posted by the lecturers to the different collaborative groups which contained scaffolding, guidance and ongoing support.

Overall, the less self-determined participants (those with a negative self-determination index) received approximately 20% less scaffolding/guidance type messages from the lecturers than the more self-determined participants. In some cases, this situation was exacerbated by learners' lack of online interaction with their peers in their collaborative group, early on in the assignment. Too little input from the teacher in online discussions and activities has previously been shown to be problematic both from a quality of outcome (Hirumi, 2006; A. Jones & Issroff, 2007) and motivation (Moos & Azevedo, 2008; Xie et al., 2006) perspective.

In contrast, perceptions of insufficient ongoing guidance and feedback were *not evident* in Case Study Two. This is due, in part, to participants' prior knowledge and experience of the micro-teaching activity, which meant that they were already familiar with the process. Moreover, given that the micro-teaching assignment in Case Study Two was undertaken individually, it was extremely difficult for the lecturer to respond to each student separately. Instead, where possible, she shared her responses to questions posed by individual students with the wider class. In this way, the whole class benefited from the regular guidance and feedback provided. This was further enhanced by the use of weekly 'lecture' postings that provided ongoing guidance throughout the micro-teaching activity and the course as a whole. Making responses to individual students available to the wider class was a teaching strategy only occasionally used during the PBL activity of Case Study One.

2. Teacher influences that undermined autonomy needs

i) Course expectations perceived as controlling

Course expectations required students to communicate with each other asynchronously online, assisted by the lecturers. The perception that this requirement was controlling was salient to several students who reported high amotivation and external regulation scores, including the co-located students. For the co-located group in particular, their unique situation enabled face-to-face communication and provided a good fit with the ongoing group decision-making processes characteristic of PBL. Consequently, the expectation that required them to be visible online discussing their ideas in an asynchronous environment engendered a sense of compulsion that undermined their autonomy needs. Fully distance students also used synchronous alternatives, such as Skype and phone calls, in addition to asynchronous online communication in order to make progress on the assignment.

Not having a genuine need to enter into online asynchronous discussions with each other, coupled with feedback from teaching staff that decreased over time (a feature of the PBL approach), contributed to the high reported external regulation and amotivation scores of the co-located students that were among the highest reported in the research group. Previous research has also identified the importance of learners having an authentic reason to communicate online with their peers, both in terms of engagement (A. Jones & Issroff, 2007; Mishra & Juwah, 2006; Rovai, 2007) and motivation (Xie et al., 2006). Though not as salient, the perceived compulsory nature of asynchronous communication also contributed to the moderate to high amotivation and external regulation scores reported by several of the fully distance students, who preferred to use synchronous alternatives. It has been noted previously (B. Anderson, 2006), that requirements to interact online imposed by lecturers can have a detrimental effect on personal agency.

In addition, approximately half of the participants *perceived the language used by the lecturers as controlling*. Messages containing directives or commands, as well as messages couched as suggestions but perceived as directives, were evident in several of the PBL discussion transcripts. Less self-determined participants (i.e. those with negative SDI scores) received almost three times as many messages containing

language perceived as controlling than the more self-determined participants. In other words, the less self-determined participants were more often being told *what to do* and less often *how to do it*, a finding that has been noted elsewhere (Deci et al., 1991). The effect of this external pressure, applied through the use of language perceived as controlling, undermined their need to feel capable and contributed to the high reported levels of external regulation. In line with this finding, other research has highlighted how controlling responses from teachers can lower self-determined motivation among learners (see Reeve, 2009).

This finding also indicates that the expressions of autonomy support from the teachers in Case Study One did not consistently translate into autonomy supportive language and behaviour. This finding is consistent with research by Reeve and colleagues (Reeve, 2009; Reeve et al., 2008), who established that the use of controlling language such as directives or commands can lead to students feel pressured and beliefs that their behaviour is initiated and regulated by outside forces.

Reasons why expectations and language were *not perceived as controlling* in Case Study Two, even though the lecturer also used directives, were primarily associated with that lecturer's philosophy of teaching and consequent behavioural style. Anne acknowledged that, as a teacher, she was in an inherently powerful situation. However, she strove to build caring, learning relationships based on power sharing, trust and inclusion. As a result, learners viewed her comments on their involvement (or lack of it) as supportive rather than controlling. Being mindful of not overly relying on the control and power inherent in the teacher's role is a characteristic of autonomy supportive teachers (Reeve, 2009). She was also aware that written language was the primary mechanism for developing relationships with learners given the technology being used (Mersham, 2009).

This section concludes by bringing together the different influences of the teacher(s) in the present study that contributed to the undermining of autonomous motivation among learners in the PBL online distance learning context (see Figure 6.5).

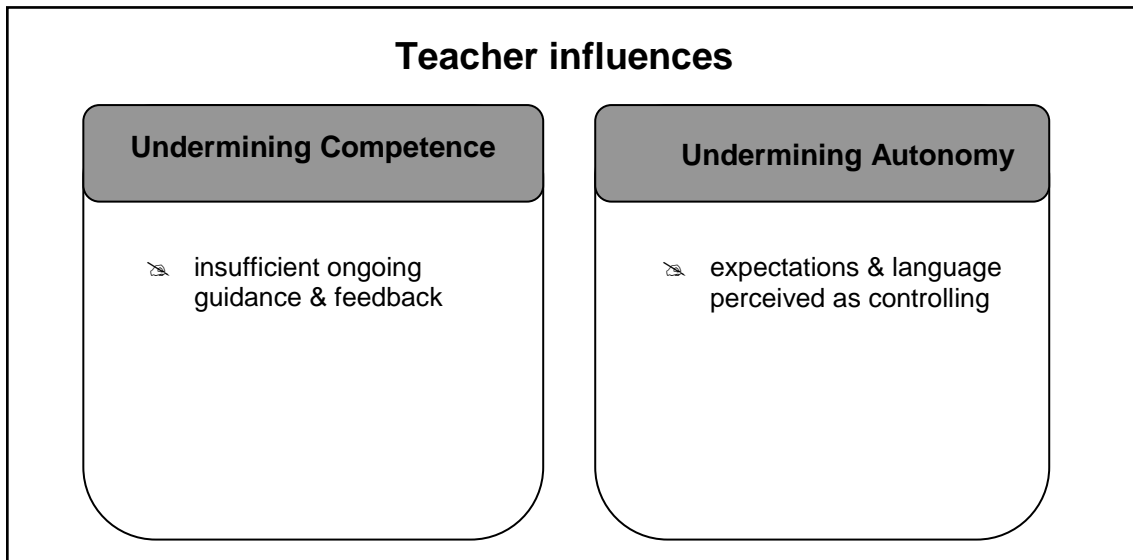


Figure 6.5: Teacher influences that undermined self-determined types of motivation

6.5.2 Learning activity

Having explored the influences associated with the teachers, attention is now turned to factors associated with the learning activity that thwarted the competence, autonomy, and relatedness needs of learners. In terms of the social and contextual factors that contributed to undermining the psychological needs of learners (see Figure 6.1), the majority related to the learning activity. These influences predominantly related to Case Study One, although several were also common to Case Study Two. The ways in which the identified factors undermined the autonomy and competence needs of learners were most important. Lack of support for relatedness needs was evident in Case Study One only, as an unintended consequence of the instructional design of the learning activity.

Several of the factors discussed below also lie within the influence of the teacher. As such they could be considered as motivational influences associated not only with the task but with the people who design and teach the activity. However, as they were experienced by participants as influences within the task, they tended to be associated with the activity. It is acknowledged though, that this delineation is not clear cut.

1. Learning activity influences that undermined competence needs

Several important influences were identified in Case Study One in particular, which contributed to the undermining of learners' competence needs. Of these, perceptions of

unclear and complicated assignment guidelines emerged as the most prominent influence that undermined participants' judgements of their capabilities.

i) Unclear and complicated assignment guidelines

Approximately half of the Case Study One participant group expressed perceptions that the assignment guidelines were unclear or overly complicated. Reasons for this centred on the complexity and quantity of the information provided in the accompanying study guide and CD-ROM. Exhaustive information was provided up-front to support learners and encourage them to take ownership of their learning. An unintentional consequence, however, was that several participants felt overwhelmed by the amount and detail of information. This led learners to make statements about the structure of the assignment being unsupportive in meeting their competence needs as they felt unable to make accurate judgements about their ability to succeed.

Connell and Wellborn (1991) note that in order to meet a learner's need for competence, positive structure in terms of the right amount, quality and clarity of information is necessary. If learners do not perceive the structure to be supportive, this can lead to confusion and anxiety (Reeve, 2009), as was the case for these participants. Course outlines that make course requirements appear overwhelming have also been shown to undermine motivation (Van Etten et al., 2008). Brophy (2010) makes the observation that struggling students often need more ongoing, explicit structuring and scaffolding during the learning process. In line with this, students commented that the scaffolding they received was insufficient, particularly as lecturer input was gradually reduced as the assignment progressed. This finding is also consistent with some distance education literature that argues that structure is necessary for learners to exercise personal control (Baynton, 1992). However, the notion that the greater the autonomy of the learner the less dialogue and structure is needed is central to Moore's (1993, 2007) theory of transactional distance and the self-directed nature of PBL within online distance learning contexts (Hmelo-Silver et al., 2006). This finding points to a possible tension between one interpretation of self-direction as requiring minimal structure and another that highlights the need for structure because it supports self-direction by fulfilling an underlying need for competence (Reeve, 2009).

Unlike Case Study One, Case Study Two participants did not find their activity lacked appropriate structure. Reasons for this can be found in the different nature of the learning task, the familiarity of students with micro-teaching, existing subject knowledge, and the structure provided by the lecturer through the use of weekly communications and frequent informal messages.

ii) Judgements of low self-efficacy

Perceptions of unclear and complicated assignment guidelines, in Case Study One, were exacerbated by students' lack of prior knowledge and experience with PBL. This resulted in several participants questioning their ability to successfully complete the activity on commencement as well as throughout the task. Primarily, the lack of previous related experience with PBL and unclear connections with prior science and technology knowledge had the effect of lowering the self-efficacy of several participants. Added to this, earlier failure in the course and feedback from the lecturer, early on in the process that was perceived as negative, contributed to the anxiety and worry experienced by these learners. This resulted in judgements of low self-efficacy. For these participants, feeling less efficacious contributed to expressions of less self-determined types of motivation. In line with this, Kirschner et al. (2006) have argued that learner-centred approaches such as PBL are most effective when students have the necessary prerequisite knowledge and some prior experience. Juwah (2006) also argues that in order for learners to participate successfully online, they must have the necessary prerequisite prior knowledge. Recently, Artino (2008) found that academic self-efficacy was a significant overall predictor of learner satisfaction in an online context. While satisfaction is not the same as motivation, it does add support for this finding as participants who reported higher amotivation and external regulation scores also expressed dissatisfaction with certain aspects of the activity.

Judgements of low self-efficacy related to lack of prior experience and knowledge were not evident in Case Study Two. This was because students were familiar with the micro-teaching activity that encompassed planning, teaching and assessment components. However, issues with self-efficacy associated with online and distance learning did contribute to undermining the competence needs of two participants in this case. Previous studies (Artino, 2007; C. K. Lim, 2001; Rentroia-Bonito et al., 2006; Yi &

Hwang, 2003) have shown self-efficacy to learn online to be significantly related to performance in the context of online instruction. However, these studies have tended to focus on learners' experience and confidence in using the technology. In contrast, Case Study Two students questioned their ability to regulate their own learning within a distance education context based on limited, and for one participant unsuccessful, previous experience. In a similar fashion, Holcomb et al. (2004) found that prior successful experience with distance education was important for learners to feel efficacious about future learning in a distance education context.

The remaining three environmental factors that contributed to the undermining of learners' needs to feel capable and confident were particular to Case Study One. They included a *learning design that gradually reduced teacher input, the perception that resources were not useful, and perceptions that the challenge of the PBL assignment was too great*. Of these, an instructional design that gradually reduced lecturer input was the most significant factor that caused participants to question their perceived competence as the PBL activity progressed. Together, they highlight how specific factors in the learning activity can undermine the motivation of learners in important ways.

iii) Gradual reduction of teacher input

The PBL activity commenced with significant input (both qualitative and quantitative) from the lecturers. This was gradually reduced as learners clarified their approach and direction and took ownership of their 'problem'. In doing so, this had the unintended consequence of undermining the competence needs of several participants. In particular, for students who were already struggling with perceptions of low self-efficacy, *the increasing lack of guidance and feedback inherent in the design of the PBL activity* proved to be in direct opposition to their need to feel capable.

This is not surprising, given that frequent, informative, performance feedback is necessary for an individual to make cognitive evaluations about his or her perceived competence level (Reeve, 1996). Furthermore, previous research (Jang et al., 2010; Reeve, 2002, 2006, 2009) has shown that self-determined types of motivation are most prevalent in learning environments where teachers provide high structure (e.g.,

provision of regular, constructive feedback) in an autonomy supportive manner (e.g., using informational rather than controlling language). From this perspective, structure and autonomy are not at opposite ends of a continuum but are orthogonal constructs (Guay et al., 2008). Regular instructor input has also been shown to be a crucial part in supporting students' motivation to learn in online (Rentroia-Bonito et al., 2006; Shroff et al., 2008; S.-L. Wang & Wu, 2008; Xie et al., 2006) and traditional educational contexts (Brophy, 2010; Reeve, 2006; Stipek, 2002; Van Etten et al., 2008).

Moreover, the adoption of this assignment design had a noticeable effect on the co-located participants. The unique situation of the co-located group meant the only useful purpose communicating asynchronously online served was to provide opportunities to interact with teaching staff. But when the co-located students perceived that the involvement and feedback from lecturers decreased as time went on, their online communication dropped off as they shifted to face-to-face discussions. In other words, perceptions of a reduction in competence feedback meant the co-located group saw little purpose in continuing with asynchronous communication. This finding is supported by other research (A. Jones & Issroff, 2007; Rovai, 2007) that has highlighted the need to have a genuine reason for requiring learners to interact with each other online.

iv) Lack of useful resources

In conjunction with the planned reduction of lecturer input, the perceived lack of usefulness and relevance of the resources further contributed to the undermining of learners' needs to feel capable within the online PBL environment. Participants who perceived the resources as unhelpful did so primarily because they failed to provide sufficient information to develop their understanding of curriculum integration and PBL. Lack of readily available resources *beyond those provided* (i.e. study guide and CD-ROM) compounded this view. Additionally, the lack of final presentation exemplars left some learners feeling unsure of the format and standard of work required.

This view was endorsed by approximately half of the participants in Case Study One. Additional resources, in the form of further relevant articles and books, examples of student work from previous courses, and further information explicating the step by step process of PBL, were identified by participants as necessary for further development of

their understanding. The importance of sufficient and appropriate resources to scaffold learners through the learning tasks has been identified previously (Reeve et al., 2004; Rentroia-Bonito et al., 2006). Consistent with Martens and Kirschner (2004), participants who questioned the usefulness and relevance of the resources typically reported lower levels of more self-determined types of motivation.

v) *Challenge too great*

The final theme that did not support learners' competence needs was related to the challenging nature of the activity. Participants who experienced the PBL assignment as challenging beyond their perceived capabilities expressed feelings of worry, and in some cases helplessness, consistent with less self-determined types of motivation. This result corresponds with current understandings of competence development (Brophy, 2010; Deci & Ryan, 1985; Stipek, 2002) and reflects results reported previously (Van Etten et al., 2008). Feelings of being overwhelmed discouraged and the task being out of the learner's control occurred because *task difficulty was perceived to exceed ability* (in conjunction with lack of supportive feedback).

Negative perceptions about resources and feeling overly challenged were not mentioned by learners in Case Study Two. This was primarily because learners perceived themselves as having the requisite prior knowledge and understanding necessary to undertake the micro-teaching task. In addition, the lecturer in Case Study Two constantly suggested ways in which the provided resources could be used and offered alternatives that students could follow up if they wished. In fact, participants commented on the breadth and depth of social studies resources that were provided.

2. *Learning activity influences that undermined autonomy needs*

In addition to environmental influences that did not support participants' competence needs, several important factors were identified in Case Study One, in particular, which contributed to the undermining of learners' needs for autonomy. In relation to Case Study One, one cluster of factors were salient to the entire research participant group as contributing to feelings of an external perceived locus of causality. A second cluster was highlighted by learners who reported the highest amotivation and external regulation scores.

i) High workload and salience of assessment

Easily the most salient factor that contributed to the undermining of learner autonomy was the *perception of a high workload* associated with the PBL assignment. *All participants* in Case Study One commented on the heavy workload required to successfully complete the activity. The pressure of workload was further exacerbated by the high stakes nature of the task (60% of the overall course mark). Together, these influences were experienced as external pressures that contributed to the high external regulation scores reported by the participant group as a whole. This finding is in agreement with prior research studies (Reeve, 2002; Reeve et al., 2004) that have shown that external events such as deadlines and evaluation can have a detrimental effect on perceived autonomy and therefore more self-determined types of motivation.

Possible reasons for the consistency in perceptions of high workload may be found in the practicalities of undertaking a PBL activity in an online environment. That is, the requirement for regular, ongoing communication and decision-making among group members contributed to the workload. Alternatively, lack of necessary prior knowledge and experience associated with PBL may have also contributed to learners' perceptions of high workload (Kember, 2004).

ii) Lack of relevance

After issues of workload and salience of marks, *a perception of lack of relevance* was the next most important influence that undermined autonomy. Even though it was only identified by approximately half of the participant group, it was a highly salient factor (in terms of the frequency of references in the data) for the participants who reported high amotivation and external regulation scores. Learners who questioned the relevance of the PBL activity did so at several levels. The dominance of the PBL task in the course caused some participants to question its relevance to the overall course objectives. This, in turn, caused them to question the value of what they had learned, something that Van Etten et al. (2008) discovered can undermine tertiary students motivation. These learners felt it was a course about problem based learning rather than alternative teaching approaches to integrating science and technology. The lack of explicit connection to 1) classroom practice, and 2) previous science and technology experience and knowledge meant the activity held little value for some participants.

Lack of alignment of the task with learners' personal goals, values and interests, both while doing the task and beyond, was the final way in which learners' sense of autonomy was undermined.

Just as perceptions of relevance clearly supported the autonomy needs of some participants in Case Study One and all in Case Study Two, *perceptions of a lack of relevance* contributed to the undermining of self-determined types of motivation for approximately half of the Case Study One participant group. As Brophy (2008) notes, the value placed on engaging in a learning activity is an important area of motivation that teachers need to be concerned about. Students who do not value an activity often feel this way because it does not hold any inherent interest for them or they cannot see why it is important (Reeve et al., 2002). Given the strong evidence linking relevance and personal importance with motivation among learners in traditional (Reeve et al., 2008; Ryan & Deci, 2000a) and online settings (Park & Choi, 2009; Rentroia-Bonito et al., 2006), learners' perceptions of value are an important consideration. This is made even more challenging for the teacher in an online setting where an individual student's appreciation for a particular task may be difficult to determine.

Brophy (2008) argues that students' appreciation for what they are learning needs to be developed. He goes on to suggest that including content and activities that are worth doing, as well as providing explanations of the value of what is being learnt and modelling the skills or ideas being developed, are ways of achieving this. Studies by Jang (2008) and Reeve (2002) have also found that identified regulation was promoted by the use of rationales communicated in an autonomy supportive way. Herein lay the main difference between the two cases. Unlike Case Study One, Case Study Two participants did not find their activity lacked relevance. While the relevance of the micro-teaching task was more obvious, the use of frequent rationale and modelling of skills by the lecturer further emphasised the value and importance of all aspects of the activity.

Two further contextual factors that also served to undermine the autonomy needs of learners were identified across both case studies. These were *time constraints* and *technology constraints*.

iii) Time constraints

The combination of high workload and salience of assessment resulted in perceptions of time constraints among the whole participant group in Case Study One. This left many participants feeling that much of the learning process was beyond their control (i.e. externally regulated). One consequence of the perceived high workload, high stakes nature of the activity and the limited time available to complete it, was the limiting of time spent on other study commitments to free up more time for the PBL task. This had consequences for several participants who felt their other studies suffered because of their need to pass the PBL assignment.

Time constraints were also a factor identified by several participants in Case Study Two. While all participants considered the workload associated with the micro-teaching assignment to be manageable and the assessment weighting reasonable, several students described constraints on their time being a significant factor contributing to high external regulation scores. However, unlike Case Study One, these participants described factors *outside the immediate learning context*, such as personal and other study commitments, impacting on their time available. The impact of time pressures due to external factors on student motivation (Reeve et al., 2004) and decisions to persist or dropout (Giles, 2009; Kuh, 2003) are well documented. Time constraints have also been linked to decreasing intrinsic motivation of online learners (Cheung et al., 2008; Xie et al., 2006), level of involvement in asynchronous discussions (B. Anderson, 2006; B. Anderson & Simpson, 2004) and students' decisions to persist or not with online courses (A. Jones & Issroff, 2007; Willging & Johnson, 2004).

iv) Technology constraints

Perceptions of high workload, time and assessment pressures in Case Study One highlighted the constraining nature of the asynchronous communication medium. In other words, asynchronous communication was perceived by all participants as being not well-suited to the frequent, ongoing, collaborative, decision-making processes characteristic of PBL. The net result of these multiple pressures saw learners turning to synchronous forms of communication to speed up group process in order to meet externally imposed deadlines. For the co-located group at the satellite campus, this meant meeting face-to-face on a frequent basis and reducing online asynchronous

communication. Fully distance students turned to synchronous technologies to meet their needs. Even though synchronous technologies were helpful, there remained a common perception that there was a mismatch between the technological environment they were required to use and the nature of the PBL activity.

This was an unintended consequence of the design of the learning activity. The lecturers used the asynchronous discussions to ‘see’ what students were doing, particularly in the early stages of the process, in order to provide necessary guidance and scaffolding. This finding is supported by the research of Kortemeyer (2006) and B. Anderson and Simpson (2004), who also found that the asynchronous discussion format can disrupt problem-based and problem-solving discussions.

The constraining nature of the online environment was also evident in Case Study Two, but in a different way. Though not as prominent as Case Study One, several participants who reported higher external regulation scores commented on the limitations of the technology medium. While the nature of the task was not dependent on the use of the asynchronous medium (as in Case Study One), the narrowness of text-based asynchronous communication and perceived time delays associated with it were seen as constraining.

Other researchers have also highlighted the constraining nature of asynchronous discussions (A. Jones & Issroff, 2007), that all technology imposes its own constraints (Dron, 2007a, 2007b), and the need to match appropriate technology with the learning task (Andresen, 2009). This finding also demonstrates that the technological medium can contribute to the undermining of student autonomy, a finding noted by B. Anderson (2006). This contrasts with the view that sees online learning as generally supportive of learner autonomy (Artino, 2007; Roblyer, 1999). Therefore, it is important to consider the possible implications of context specific factors, such as the appropriateness of the technology for the required task, as they may undermine student motivation.

v) *Limited or no choice*

The final factor that contributed to less self-determined types of motivation, across the case studies, was the *perception of limited or no choice*. Approximately half of Case

Study One participants expressed a lack of choice or feeling constrained for choice. Obviously, a number of actual choices were available to learners but as this finding demonstrates and recent studies suggest (Katz & Assor, 2007; Patall et al., 2008), provision of choice does not necessarily translate to perceptions of choice by learners.

If learners do not perceive that meaningful and relevant choices are available to them, simply offering choices will not encourage more self-determined types of motivation. The choices available were not particularly appealing to these learners, resulting in their sense of volition being undermined. Artino (2007) also found that online course requirements that restricted meaningful choices appeared to undermine the perceived autonomy of learners. In addition, having to adopt a PBL approach to curriculum integration and meeting prescribed assignment outcomes were seen as imposed and restrictive in terms of choice. Case Study Two participants also had prescribed assignment outcomes but these were not perceived as constraining. However, the externally imposed social studies curriculum (which the assignment was focused on) was seen as restrictive but only by one participant. In this case too, the learner's sense of autonomy was undermined. This finding is consistent with other research that highlights that any external event has the possibility to either control and inform (see Reeve et al., 2003; Schunk et al., 2008).

3. Learning activity influences that undermine relatedness needs

The preceding discussion has highlighted the environmental influences connected with the learning activity that contributed to the undermining of competence and autonomy needs of learners. One final social factor emerged that undermined learners' need to feel connected. Again, this theme was evident in Case Study One only. No social or contextual factors were identified in Case Study Two that inhibited the relatedness needs of learners.

i) Limited class-wide interaction

The single influence identified as not supporting learners' needs for social connectedness was the *limited amount of interaction among the wider class*. The PBL activity was perceived primarily as a collaborative group exercise that offered little opportunity to interact with other learners in the wider class context. This view was held

by all participants in Case Study One. This was not the intention of the lecturers, who incorporated a formative assessment point, early on in the process, as an opportunity for learners to engage with each other. The formative assessment focused on individual learners directing questions to other groups about their projects. While the intention was to encourage learners to use the questions directed to them to think deeply about their direction and approach, the reality of time and workload pressures resulted in students focusing their attention on the task at hand. Therefore little, if any, ongoing discussion occurred between groups. Most participants also commented on the fact that questions posted by other groups did not encourage them to think critically about their approach. This was because many of the questions asked were superficial or outside the scope of their project. This was mainly due to time constraints and the fact that these discussions were not facilitated by the lecturers.

While both lecturers mentioned the importance of developing a learning community within the wider class, perceptions of participants indicated that the formative assessment process was not successful in fostering this. This meant that learners were reliant on their peers within their small group to meet their relatedness needs. If, as was the case for several participants, they found themselves in difficult relationships with their collaborative group members (see Section 6.5.3), their need to belong and feel connected was undermined.

Several researchers have emphasised the importance of providing opportunities for learners to build personal relationships with each other to promote the development of an online community (Rourke et al., 1999; Rovai, 2002a, 2007; Swan & Shea, 2005). Further, social presence has been shown to be performative, that is dependent on visible activity and something that cannot be established without opportunities for interpersonal interaction (Kehrwald, 2008). Feelings of belonging and connection via interaction in online environments have also been shown to have a positive motivational effect on learners (Kehrwald, 2007; Rentroia-Bonito et al., 2006; Xie et al., 2006). But as Rovai (2007) notes, authentic, purposeful, task-oriented discussions that are clear and well-structured are necessary in order to encourage ongoing interaction among learners. This did not occur in Case Study One. Participants were unsure of the purpose of the exercise and, in several cases, it was only after the completion of the formative assessment that they realised this. These discussions needed to be incorporated into the overall design of

the activity to specifically enhance critical thinking skills, and the importance of the discussion needed to be communicated to students. Figure 6.6 combines the range of social and contextual influences associated with the learning activity that undermined the expression of more self-determined types of motivation.

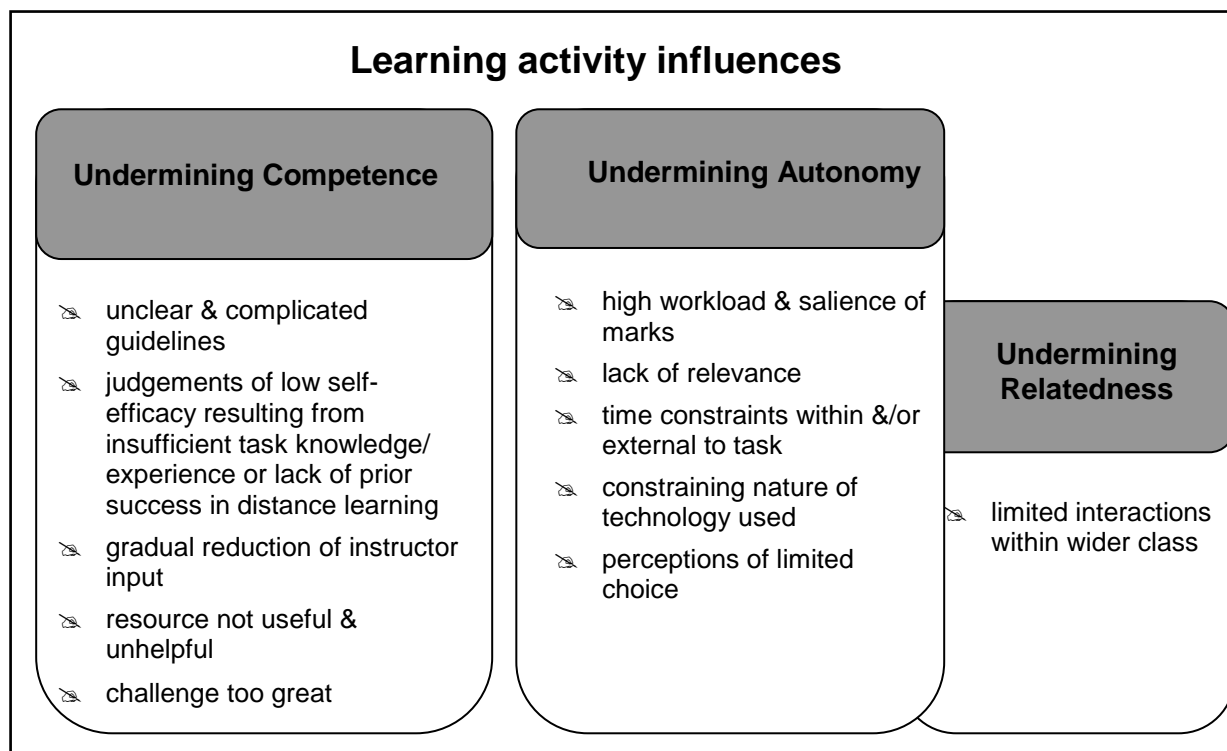


Figure 6.6: Learning activity influences that undermined self-determined types of motivation

6.5.3 Peers

Having addressed the influences of teacher(s) and learning activities that served to undermine the psychological needs of learners, attention is now turned to the third and final area of influence – other learners. In this section, salient themes that relate to the role of peers are explicated. Given the differing contexts of the two cases, social influences of peers that undermined the psychological needs of learners were unique to Case Study One.

1. Peer influences that undermined autonomy needs

Participants who found themselves in groups where communication issues and disagreements were prevalent also expressed difficulties with decision making processes and workload inequality. This resulted in an individualised approach to the

PBL assignment. Together, these issues served to directly undermine some learners' autonomy as well as their relatedness needs. The same issues may have also indirectly undermined competence needs of participants, but these did not emerge as significant.

i) Limited input to group decisions and tasks

Learners who perceived they had limited or no input into the decision-making processes of their group expressed less autonomous forms of motivation. In other words, a number of participants felt that their contributions had little or no influence in the overall actions of the group. Alternatively, some participants expressed frustration at not being consulted when key decisions were made. This not only had a detrimental effect on an individual's autonomy needs, it also undermined their relatedness needs.

ii) Workload inequity

The undermining of several learners' autonomy needs was further aggravated by perceptions of inequitable workloads among group members. A quarter of participants in Case Study One described how some group members contributed more than others and the difficulties this presented. This was further exacerbated by the relative lack of individual accountability, as 75% of the assignment (worth 60 marks) was allocated to the group presentation. Therefore, group members not doing their fair share were an intense source of frustration and resentment for some students. Not being able to significantly change the situation, even when assistance was sought from the lecturer, contributed to perceptions of having little or no control over their learning, a finding noted elsewhere (Blumenfeld et al., 2006; Delucchi, 2006).

Satisfying the need for autonomy involves perceptions of self-determination rather than necessarily acting independently of others (Hodgins et al., 1996; Ryan & Deci, 2006). However, learners tended to take an individualised approach to the PBL activity in an attempt to gain some personal control over the learning process and outcomes. This involved group members breaking the assignment down into smaller tasks and assigning these to individual group members who then took responsibility for completing them. These were then brought together late in the assignment process, often with limited discussion. According to Dillenbourg (1999, p. 70), this type of approach is characteristic of a cooperative rather than a collaborative approach, which "is a process

by which individuals negotiate and share meanings relevant to the problem-solving task at hand”.

Collaborative group work has been shown to facilitate learning in a number of important ways (Swan & Shea, 2005). However, research has also shown that high quality cognitive engagement is hard to achieve (Blumenfeld et al., 2006) and students often dislike collaborative group work because of its dependence on all participants making adequate contributions to the group effort (B. Anderson & Simpson, 2004). The unfairness and decrease in motivation students feel when required to work with group members who do not pull their weight, has also been highlighted previously (B. Anderson & Simpson, 2004; Payne, Monk-Turner, Smith, & Sumter, 2006; Van Etten et al., 2008).

2. Peer influences that undermined relatedness needs

In conjunction with the issues described above, communications between group members characterised by issues and disagreements contributed to feelings of isolation and disconnection experienced by some participants. These issues included lack of communication within the group, misunderstandings about what was being discussed, and disagreements about possible courses of action to take. Collectively, these communication problems and disagreements led to expressions of frustration, and in one case resentment towards another group member that was not resolved to the student’s satisfaction even with lecturer assistance. Together, these problems undermined some participants’ identification with their group and its goals. Those who experienced difficulties with relationships also expressed feelings of their autonomy needs being undermined, a fact that has been noted by others (Martens & Kirschner, 2004).

Given the PBL assignment was scheduled early in the course, there was little time for learners to establish online relationships with each other prior to its commencement. Furthermore, few guidelines were given with regard to individual responsibility for the group effort and little information regarding acceptable behaviour was provided to students. In line with this, Stipek (2002) argues that collaborative learning will only work in some contexts, specifically those in which a community of learners has already been established. If this is not the case then conflict and hurt feelings may feature more

prominently than collaboration. Payne et al. (2006) point to the need for clear goals for learners as well as appropriate strategies for managing and behaving in groups. A. Jones and Issroff (2007) argue that when requiring learners to work within collaborative groups, instructors need to provide a rationale with solid support for the benefits of such an approach. In addition, teachers need to model and insist on mutual respect, inclusion responsibility and participation from students (Stipek, 2002).

Once established, groups require ongoing input from the teacher, as too little input has been shown to be problematic when there is a need for intervention (A. Jones & Issroff, 2007). There is a also need to provide appropriate support for interpersonal and small group skills because they can be an issue for students (Brophy, 2010).

Negative perceptions of peers were not mentioned by learners in Case Study Two. This was primarily because the independent nature of the micro-teaching assignment afforded learners a clear sense of autonomy. However, even in the wider class peers were consistently seen as supporting relatedness needs rather than undermining them. Moreover, participants in Case Study Two commented on the importance of the inclusive learning community in which their learning was situated. The role played by the teacher in modelling this type of approach was highlighted by participants as critical to the development of an inclusive, respectful community. Figure 6.7 brings together the social influences associated with peers that undermined more self-determined types of motivation among participants.

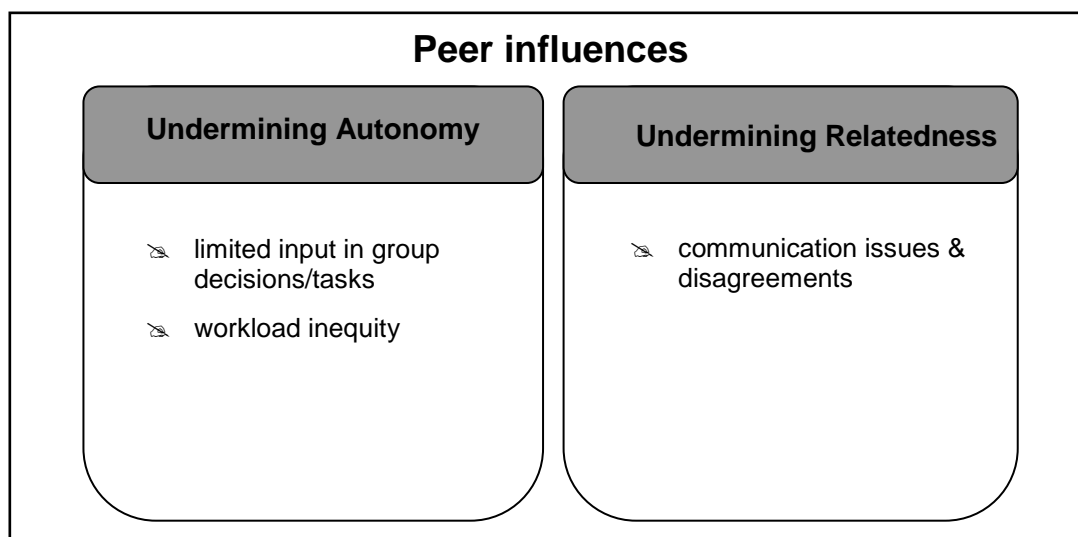


Figure 6.7: Peer influences that undermined self-determined types of motivation

6.6 Chapter summary

This chapter has discussed and synthesised the cross case findings related to the nature of motivation of learners in online distance learning situations; relationships between motivation, achievement and online participation; and the ways in which specific social and contextual influences afforded or constrained the expression of self-determined types of motivation by supporting or undermining learners' autonomy, competence and relatedness needs. Important commonalities as well as differences were noted between the two cases.

The nature of motivation

Unlike previous research (Styer, 2007), learners in the online contexts explored here were *not* primarily intrinsically motivated. Instead, *both intrinsic and extrinsic types of motivation were found to co-exist and were sensitive to situational influences* (e.g., situational interest, perceptions of relevance and time constraints). Taking into consideration the different types of motivation, participants across the two cases reported moderate to high levels of extrinsic types of motivation (*external regulation and identified regulation*). Only Case Study Two participants also consistently reported high levels of intrinsic motivation. Therefore, from a quality motivation perspective, the *perceived importance, relevance and utility value of the activity (associated with identified regulation) was just as important as the interest or enjoyment of the task (associated with intrinsic motivation)*. This confirms what others have argued (Brophy, 2010), that it is important for educators to develop activities that students currently perceive as relevant and meaningful but also to foster an appreciation of the value of what is being taught (Brophy, 2008).

Important distinctions were noted, however, between the two cases in terms of the quality of extrinsic motivation reported by learners. In Case Study One, *external regulation* (salience of external rewards and constraints) and *identified regulation* (value and relevance of the activity) were the most salient motivation types among the participant group. Reported levels of external regulation and identified regulation were higher than intrinsic motivation. In Case Study Two, high levels of *external regulation, identified regulation and intrinsic motivation* (inherent interest and enjoyment of the task) were all reported by learners. Importantly, results for more self-determined types

of motivation (identified regulation and intrinsic motivation) were significantly different between the two case studies. Therefore, from a motivation perspective, the Case Study Two participant group *more consistently perceived the importance, relevance and utility value of the activity and enjoyment/interest inherent in the task* than Case Study One participants. A further important finding from Case Study Two was that even when conditions were supportive of expressions of self-determined types of motivation, many learners were still cognisant of the contingencies and constraints (external regulation) within the broader learning and social context.

Across both cases, the only significant positive correlations found between *motivation* and *achievement* occurred in Case Study One when co-located participant data were removed. Findings from Case Study Two in particular, suggested that *high levels of external regulation are not necessarily detrimental to achievement if accompanied by comparable levels of more self-determined types of motivation (i.e. identified regulation and intrinsic motivation)*. From these findings it is evident that the nature of the activity and the context in which it takes place are important considerations. They also confirm the value of adopting a situational approach when exploring motivation to learn in online contexts.

Online participation

When results from both cases studies were considered, only one significant relationship was found between *active online participation* and *motivation* in Case Study One at both assignment and course levels. No similar relationship existed between passive participation and motivation in either case study. High quality online participation (in terms of cognitive engagement) was also evident across a range of participants in both case studies that had no clear link to the level of reported self-determination.

The only significant relationship between *active online participation* and *achievement*, across both cases, was a moderately positive one in Case Study One at the assignment level. Relationships were further shown to be *highly significant* for the fully distance students in this group (at both the assignment and course levels), when co-located student data were removed. The lack of any significant relationship between *passive online participation* and *achievement* was consistent across both cases when all

participant data were considered. However, when co-located data were again removed in Case Study One, relationships between passive participation (i.e. messages read) and achievement, for the fully distance students in this group, were found to be significant at both assignment and course levels.

The mixed results point to *complex* relationships between motivation, online participation and achievement that are *sensitive to situational influences*. In other words, multiple factors within each learning environment (e.g., the collaborative versus individual nature of the learning activity) influenced participants' motivation, participation and achievement.

Social and contextual influences on motivation

A range of environmental influences were identified as either supportive or undermining of more self-determined types of motivation depending on whether they met learners' competence, autonomy and relatedness needs. Influences associated with the teachers, learning activities and peers were grouped together to clarify findings. Many factors were common to both case studies but the undermining features were predominantly found within Case Study One.

1. Teachers

Teachers were able to foster more self-determined types of motivation among learners by providing support for students' **competence needs**. This was achieved primarily through the provision of *ongoing, informative guidance and formative feedback*. The *timeliness and responsiveness* of that support was also found to be crucial in fostering perceptions of growing competence among learners, thereby supporting students' motivation to learn in these online contexts. Support for learners' **autonomy needs** through the *promotion of situational interest* via authentic learning approaches and the *provision of choice* emerged as the second important area in which teachers supported and encouraged student motivation across the case studies. In addition, the use of *informational rather than controlling language* by the lecturer in Case Study Two further supported the expression of more self-determined types of motivation.

Teacher support for learners' **relatedness needs** was less salient but still important. Participants identified a *friendly and caring approach* by the teacher as key to feelings of belonging. In addition, Case Study Two participants identified the *use of teacher self-disclosure* and a teaching approach that modelled *inclusivity and respect* as further ways in their relatedness needs were met.

Several factors associated with the *teachers* in Case Study One setting also served to undermine more self-determined types of motivation among learners. This was due to the **competence** and **autonomy** needs of learners not being met, primarily because of *perceptions of insufficient guidance and feedback* and *perceptions of the use of controlling language and expectations*. Together, they had a detrimental effect on the quality of motivation experienced by learners in an online PBL context. The complexity of motivation in these contexts was highlighted by the fact that feedback and guidance provided by lecturers was perceived as supportive by some participants and undermining by others.

2. Learning activity

Following on from the influences of the teacher(s), key features of the *learning activities* were also found to promote more self-determined types of motivation among learners. Of primary importance were the ways in which learning activities supported learners' **autonomy needs**. Activities that were *relevant and meaningful to learners*, *enabled students to actively use subject knowledge in practice*, and provided *opportunities to pursue personal interests* were key mechanisms that supported the expression of more self-determined forms of motivation.

Support for learners' **competence needs** was also important. This was principally achieved through the provision of *clear guidelines and expectations*, *availability of relevant and useful resources* to learners; provision of activities that were *optimally challenging*, and *encouraging judgements of high self-efficacy* by designing learning activities that built on the prior knowledge and experience of learners. **Relatedness support** was associated with other people in the learning context rather than with the activity itself, therefore did not feature here.

Certain features of the learning activities were also found to thwart more self-determined types of motivation among learners. Of these, the undermining of learners' **autonomy needs** emerged as most important across the two case studies. In terms of importance, *high workload*, *a focus on assessment*, and *perceptions of lack of relevance emerged as the main influences that undermined learners' autonomy needs during the PBL learning activity in Case Study One*. High workload and the focus on assessment were reported by all Case Study One participants. Lack of relevance was only highlighted by learners who reported high amotivation and external regulation scores (i.e. less self-determined types of motivation). The remaining factors were evident across both cases and contributed to high external regulation scores reported by participants. They included: *time constraints*, *perceptions of technology constraints*, and *perceptions of limited or no choice*.

Lack of support for the **competence needs** of learners during the learning activity was also important. The most frequent theme highlighted by participants in Case Study One was *perceptions of unclear and complicated assignment guidelines*. This was exacerbated by a *lack of prior knowledge and experience with PBL design, resulting in judgements of low self-efficacy*. Prior knowledge and experience was not an issue in Case Study Two. However, low self-efficacy judgements associated with online and distance learning did undermine the competence needs of two participants in the latter case. In addition, an instructional design that *gradually reduced lecturer input*, *resources that were not useful*, and *perceptions of being overly challenged* further contributed to the undermining of learners' needs to feel capable and confident in Case Study One.

Lack of support for **relatedness needs** because of *limited interactions among the wider class* emerged in Case Study One only, as an unintended consequence of the instructional design of the learning activity.

Once again, specific environmental influences were perceived as supportive by some learners and undermining by others (e.g., *perceptions of relevance*, *clarity of assignment guidelines*, *adequacy of resources*, *judgements of self-efficacy and challenge*).

3. Peers

The third and final area of influence was *other learners*. Given the different contexts, peers within a learner's small collaborative group were most important in Case Study One. In contrast, the individual nature of the assignment in Case Study Two meant that fellow students within the wider class context were most relevant. Learners across both cases identified the *helpfulness and supportiveness of peers*, either within their small group or at the class level, as most salient in terms of meeting their **competence needs**. In addition, the formation of collaborative groups with *high collective efficacy* emerged as a further important factor in Case Study One.

There was also considerable overlap associated with learners' **relatedness needs** across the cases. Peers who were perceived as friendly and caring, valued the contributions made by each individual, and respected what they had to offer, established *mutually supportive relationships* with fellow learners. This occurred almost exclusively at the small group level in Case Study One, and at the wider class level in Case Study Two. In addition, participants in Case Study Two commented on the importance of the *inclusive learning community* in which their learning was situated.

The mechanisms by which peers were able to support the **autonomy needs** of other group members was the final area of influence in Case Study One but not Case Study Two. This occurred in groups where learners were *supported by their peers to contribute to group decisions and tasks*.

Certain social influences of peers were also found to undermine the psychological needs of learners but these were unique to Case Study One. Participants who found themselves in groups where *communication issues and disagreements* were prevalent, also had difficulties with *decision making processes* and *workload inequality*. Together, these issues served to undermine some learners' **relatedness** and **autonomy** needs.

Having identified the salient social and contextual influences, it is important to note that no one factor enabled or thwarted all the psychological needs of learners. Rather, learners' *perceptions* were formed from multiple influences that combined in complex ways that were situation dependent.

The following chapter presents the final conclusions of this study from which implications for theory, research and practice are considered. Future research initiatives are also identified to extend the understanding of findings from this study

CHAPTER SEVEN

CONCLUSIONS AND IMPLICATIONS

I have advocated shifting the focus from intrinsic motivation to *motivation to learn*, defined as engaging purposefully in curricular activities by adopting their goals and thus trying to learn the concepts or master the skills that they were designed to develop. Students who are motivated to learn will not necessarily find learning activities pleasurable or exciting, but they will find them meaningful and worthwhile and will take them seriously by trying to get the intended benefits from them. (Brophy, 2008, p. 133)

7.1 Introduction

In the above quote, Brophy (2008) argues for the need to move away from a primary focus on intrinsic motivation, which is important but has limited applicability, to one that emphasises the meaning, relevance and importance of what is being learnt.

Similarly, this research investigation has demonstrated that a corresponding shift of focus from viewing online learners as predominantly intrinsically motivated (Xie et al., 2006), to one that acknowledges the part relevance and personal meaning has to play in motivation, is necessary. While intrinsic motivation constituted an important part of students' motivation to learn in the contexts described here, identified regulation (i.e. recognising the value and importance of the activity) was just as important.

In the research conclusions that follow, the complexity and dynamic interplay of factors underlying and influencing motivation to learn in the online distance learning contexts are highlighted. Then, the contributions and implications of this study from the perspective of theory, research and practice are considered. This is followed by a discussion of the limitations of this investigation, implications for practice and suggestions for future research. The chapter concludes with some final thoughts from the author.

7.2 Research conclusions

What is the nature of motivation to learn of pre-service teachers in online distance learning environments?

Using the conceptual framework of self-determination theory and the continuum of human motivation (Ryan & Deci, 2000a), results across the two case studies showed that motivation to learn in these online distance learning contexts was *complex, multidimensional* and *situation-dependent*. The complexity of motivation was demonstrated when specific environmental influences, in the same learning context, were perceived as supportive by some learners and undermining by others (e.g., perceptions of relevance, choice, support from lecturers, adequacy of resources, assignment guidelines and challenge). Motivation was revealed to be multidimensional because learners *endorsed a variety of types of motivation simultaneously within a given context*. This multiplicity of motivation comprised a range of extrinsic and intrinsic types of motivation to varying degrees that differed depending on the learning environment in which they were engaged (i.e. motivation was influenced by situational factors). For example, amotivation was shown to be an important consequence of combinations of certain social and contextual features within the Case Study One situation.

Unlike previous research (Styer, 2007), learners in the online contexts explored were *not* primarily intrinsically motivated. Collectively, participants in both case studies were found to be *both extrinsically and intrinsically motivated*. However, external regulation, the type of extrinsic motivation that is often contrasted with intrinsic motivation (Ryan & Deci, 2000b), was not the only type of extrinsic motivation reported by learners. *Identified regulation (a more self-determined type of extrinsic motivation), associated with engaging in a task because of its perceived importance, relevance and utility value* (Reeve et al., 2008), *was also found to be just as important as the interest or enjoyment of the task (i.e. intrinsic motivation) for learners*. This indicates that identified regulation, a type of motivation that can be encouraged *by the actions of online instructors* (see Figure 7.1), is much more important than previously thought and can lead to positive outcomes such as quality engagement and higher achievement. It also confirms what previous research studies have shown, but in an online context, that more self-determined students can experience positive learning outcomes even when extrinsically motivated, depending on the quality of the extrinsic motivation (Reeve et al., 2002).

External regulation (the type of extrinsic motivation associated with external requirements such as deadlines and grades) was also found to be salient in both case studies. Certain social and contextual conditions within the immediate Case Study One environment were found to contribute to the relative salience of external regulation (see Figure 7.2). Lower levels of intrinsic motivation were also evident in this context. However, even within an environment that predominantly supported the expression of more self-determined types of motivation, as in Case Study Two, participants were simultaneously mindful of external contingencies (i.e. assessment and time constraints) that form part of the context of university study. It was not surprising therefore, that learners had to balance their need to engage in the learning activity for the sake of interest, meaning and relevance with the need to complete assessed work in a timely manner. This is because, for students in these programmes, extrinsic motivation in the sense of external regulation was embedded in the learning context and was, therefore, unavoidable. Notwithstanding this finding, it was shown that this did not necessarily have a detrimental effect on achievement and engagement if more self-determined types of motivation (i.e. identified regulation and intrinsic motivation) were also present. This points to a buffering effect of self-determined forms of motivation that has been suggested previously (Sheldon & Krieger, 2007).

How does the motivation to learn of pre-service teachers relate to their participation in online distance learning environments?

Comparisons between online participation, both active and passive, with motivation and achievement were *complex* and *situation-dependent*. That is, the different circumstances for the co-located students in Case Study One (i.e. those who met face-to-face on a regular basis) and the differing nature of the activity (i.e. the Case Study One activity was dependent on input from other learners while the Case Study Two task was not) influenced the online participation, motivation and achievement of learners in different ways.

Across both cases, the only significant relationship found between *self-determined motivation* and *achievement* occurred in Case Study One for fully distance students, once co-located participant data were removed. Similarly, a highly significant association between *active online participation* and *achievement* was found for fully

distance students in Case Study One only. The lack of any significant relationship between *passive online participation* and *achievement* was consistent across both cases when all participant data were considered. However, when co-located data were again removed in Case Study One, relationships between passive participation and achievement for the fully distance students were found to be significant. These relationships were evident at both assignment and course levels.

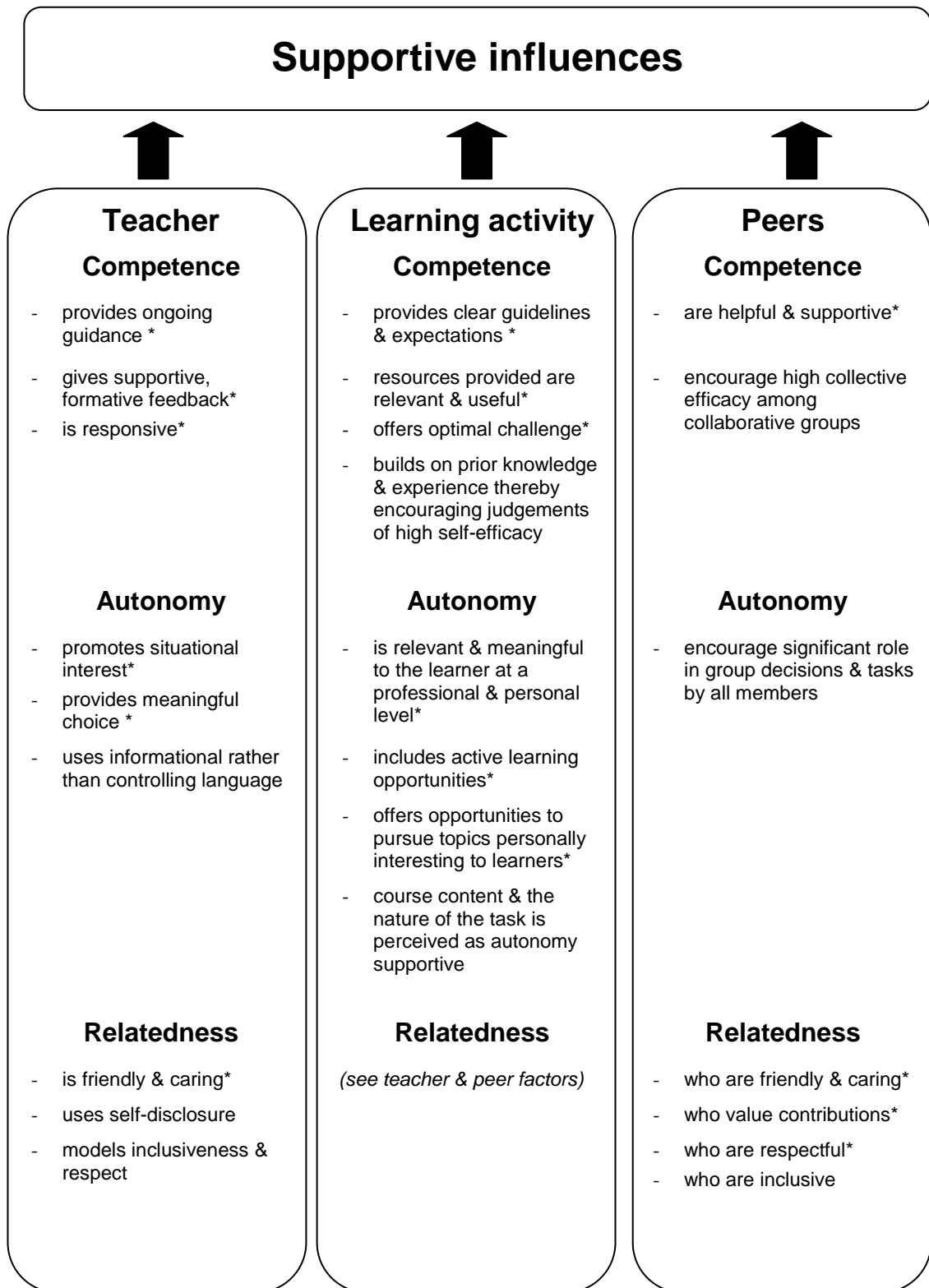
Significant relationships between *active online participation* and *self-determined motivation* were also noted in Case Study One only at both assignment and course levels. No similar relationships existed between *passive participation* and *self-determined motivation* in either case study.

Quality online participation (in terms of cognitive engagement) was apparent from a variety of participants who reported motivation across the range from highly self-determined to extremely non-self-determined. For example, the co-located group from Case Study One demonstrated effective online collaboration and negotiation of meaning (having benefited from prior face-to-face discussion) while reporting low levels of self-determined motivation. Based on this, no obvious link between the quality of online participation and self-determined motivation was evident. Once again, various factors within the specific learning environment combined in complex ways to influence motivation to learn and the nature of participation in online distance learning environments. Together, these findings support the conceptualisation of motivation as complex and situated that has been highlighted elsewhere (Paris & Turner, 1994; Turner & Patrick, 2008).

In what ways do social and contextual factors relate to pre-service teachers' motivation to learn in online distance learning environments?

By adopting a situational motivation perspective, a range of social and contextual factors were found to dynamically influence participants' motivation to learn within the given environments. Of these, a significant number were shown to be supportive of the expression of more self-determined (i.e. high quality) types of motivation by learners (see Figure 7.1). Other factors, however, were shown to undermine learners' autonomy,

competence and relatedness needs, resulting in the expression of less self-determined types of motivation (see Figure 7.2).



*Evident in both case studies

Figure 7.1: Summary of social and contextual influences that supported self-determined types of motivation

When social and contextual influences predominantly supported the psychological needs of learners, as in Case Study Two, participants reported high levels of *identified regulation* (value and relevance of the activity), *intrinsic motivation* (inherent interest and enjoyment of the task), and *external regulation* (prominence of external rewards and constraints). Conversely in Case Study One, when significant environmental influences were perceived to undermine the needs of at least half of the participant group, *external regulation* emerged as the most salient type of motivation. *Identified regulation* was also important in the Case Study One context, but was significantly lower than levels reported in Case Study Two. Intrinsic motivation was also significantly less salient in the Case Study One context than in Case Study Two.

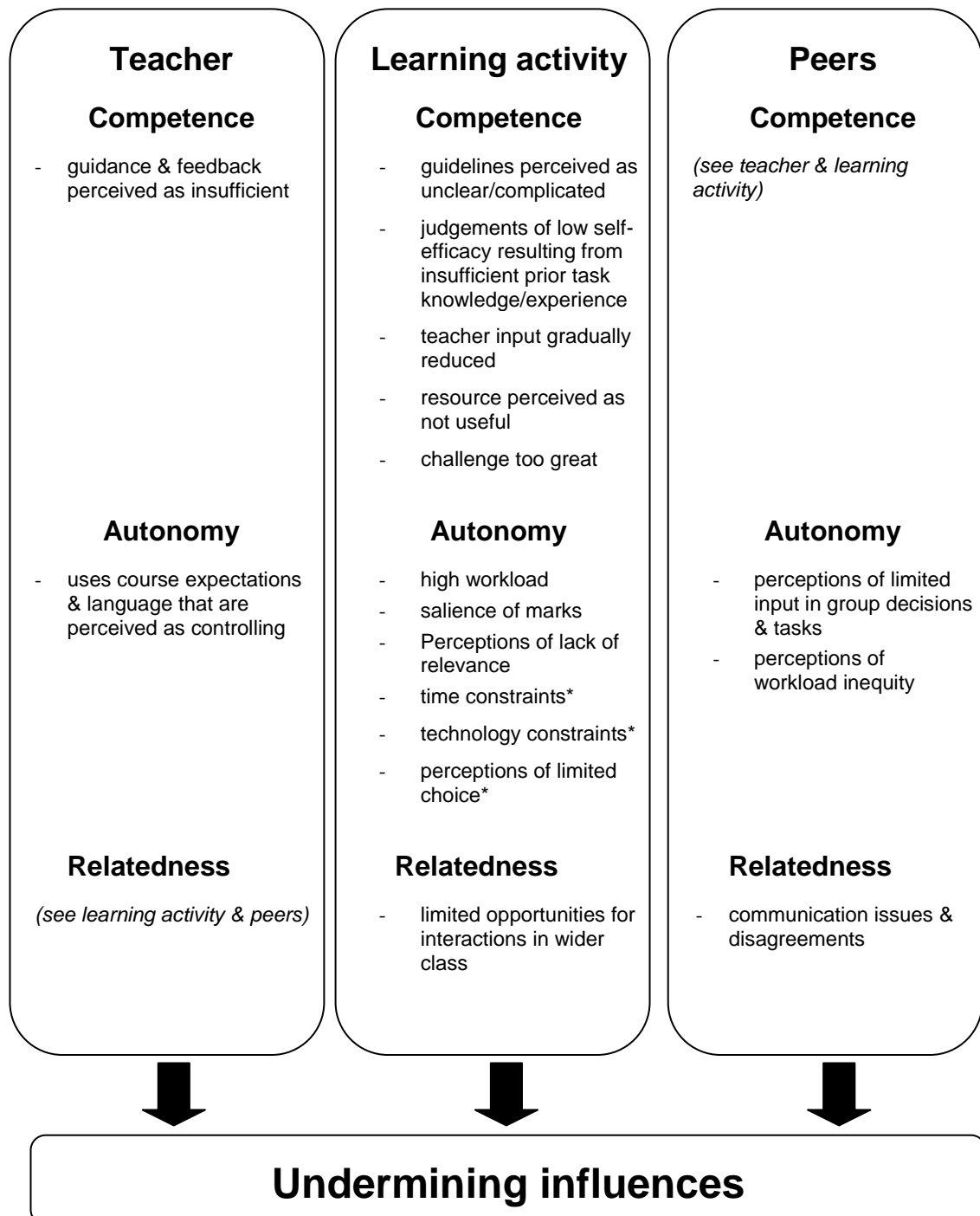
Prominent **supportive factors** for student motivation to learn were associated with the teachers, learning activity and peers. These factors were grouped together in terms of the psychological needs of learners they supported (see Figure 7.1 for a detailed summary of supportive influences).

Support for the *competence* and *autonomy needs* of learners provided by the **teacher** were crucial for the promotion of more self-determined types of motivation among learners. Though less prominent, developing supportive relationships with learners was also important in meeting learners' *relatedness needs*.

Factors that supported the *autonomy needs* of learners were most important in relation to the **learning activity** that fostered the expression of more self-determined types of motivation (i.e. identified regulation and intrinsic motivation). This was followed by support for learners' *competence needs*.

Influences associated with support for *competence* and *relatedness* needs also featured highly in relation to **peers** and were situation-dependent (i.e. collaborative versus independent activities). The ways in which peers supported the *autonomy* needs of their fellow learners featured in Case Study One only because of the collaborative nature of the activity.

The ways in which teachers, learning activities and peers **undermined** participants' psychological needs, were also identified (see Figure 7.2 for a detailed summary of undermining influences). These predominantly occurred in the Case Study One context.



* Evident in both case studies

Figure 7.2: Summary of social and contextual influences that undermined self-determined types of motivation

Lack of support for learners' *competence* and *autonomy* needs, both within the **learning activity** itself and by the actions of the **teachers**, emerged as important ways in which the motivation of learners was undermined. Though not as prominent, the undermining of learners' *relatedness* needs was an unintended consequence of the small group collaborative activity in Case Study One. **Peer** interactions also undermined both the *relatedness* and *autonomy needs* of participants within the Case Study One context.

7.3 Contributions to knowledge

In seeking to understand the nature of motivation to learn of pre-service teachers in online distance learning environments, the knowledge base reviewed in Chapter Two has been refined and broadened. Findings from this study make contributions to knowledge in a number of areas that encompass theory, research and practice. The specific details of these contributions are outlined below and add to the ongoing debate surrounding teaching, learning, and motivation in particular, in technology-mediated environments.

7.3.1 The nature of motivation to learn

One of the most significant contributions of this study is that it has demonstrated that students can *experience multiple types of motivation simultaneously and that extrinsic and intrinsic types of motivation co-exist even in predominantly supportive online environments*. This contribution builds on the work of others (Guay et al., 2008; Vallerand et al., 2008; Van Etten et al., 2008) undertaken in traditional education contexts. It also moves the discussion beyond the simplistic dichotomous view of intrinsic and extrinsic motivation that persists in parts of the literature regarding online learning environments (e.g., Rovai et al., 2007; Shroff et al., 2008).

The research evidence presented has demonstrated that, when a range of motivation types were considered, extrinsic types of motivation (i.e. *external regulation* and *identified regulation*) are just as important as intrinsic motivation. This is somewhat different to previous research studies (Rovai et al., 2007; Styer, 2007; Wighting et al., 2008) that have proposed that students studying online are more intrinsically motivated. Moreover, given that learners will not be intrinsically motivated all of the time and in all situations (Ryan & Deci, 2000a), studies that only focus on intrinsic motivation and

conditions that promote it in online contexts (e.g., Shroff et al., 2008; Xie et al., 2006), or comparative studies of intrinsic motivation between online and traditional learners (Rovai et al., 2007; Shroff & Vogel, 2009; Stevens & Switzer, 2006), have limited applicability.

This study has confirmed the value of exploring the various types of extrinsic motivation. The findings have shown it is *not whether learners are extrinsically motivated* (externally regulated) that is important, because there are influences embedded within tertiary contexts, such as grades and time constraints, which are unavoidable. *It is the degree to which this type of extrinsic motivation is counter-balanced by more self-determined types of motivation (i.e. identified regulation and intrinsic motivation) that is crucial to the overall motivation of learners.* This finding emerged from Case Study Two where several high achieving, engaged students reported a combination of *high autonomous motivations (identified regulation and intrinsic motivation) in conjunction with high controlled motivation (external regulation).* This contribution is consistent with previous research (Lepper et al., 2005; Ratelle et al., 2007; Sheldon & Krieger, 2007) that has found that high levels of more self-determined motivation may *act as a buffer* against the more detrimental effects of external constraints.

Furthermore, the findings have demonstrated that the *relevance, meaning and personal value of the learning activity are important and significant reasons that motivate students to learn*, and that accentuating these are key ways in which teachers can promote high quality motivation (i.e. identified regulation) among online learners. This confirms previous research in related contexts (Artino, 2008; Keller, 2008; Park & Choi, 2009) as well as more traditional settings (Assor et al., 2002; Reeve et al., 2008). In addition, the provision of *clear guidelines and expectations* within the learning activity in conjunction with *ongoing support and informational feedback* from the teachers were deemed crucial for meeting the competence needs of students. This builds on findings in the motivation (Brophy, 2008, 2010; Connell & Wellborn, 1991; Reeve, 2006; Stipek, 2002) and higher education fields (Van Etten et al., 2008; Zepke et al., 2009). The necessity for teacher support and feedback is also well-documented in the online literature (T. Anderson, 2008a; Vrasidas & McIsaac, 1999; Zhu, 2006). By identifying the motivational dimension of the teacher's role, results from this study

make a significant contribution to online research which has frequently considered motivation as a learner characteristic that has little to do with the online instructor (e.g., Yukselturk & Bulut, 2007).

7.3.2 Situational considerations

By adopting an exploratory research approach, supported by self-determination theory (Ryan & Deci, 2000a), the intricacies of the motivation construct and relationships with participation, achievement and various situational environmental factors were uncovered. Van Etten et al. (2008) argue that this type of approach is important and necessary in order to capture the “real complexity of student motivation” (p. 813).

Environmental factors, specific to each case study and within a case study (e.g., the co-located group in Case Study One), were shown to influence relationships between online motivation, participation and achievement. This confirms the value of adopting a situational approach (Paris & Turner, 1994; Turner & Patrick, 2008) when exploring motivation to learn in online contexts. In addition, the lack of conclusive results when investigating these relationships indicates the need for teachers to carefully consider using the number of messages posted by a student as a default indicator of online participation and, in turn, motivation. In other words, high numbers of postings by learners do not necessarily equate to more motivated students and vice versa. This contribution extends existing research that has explored online participation and achievement (Bures et al., 2002; Gerber et al., 2008; Martens et al., 2004; Picciano, 2002; Rovai & Barnum, 2003; Webb et al., 2004; Xie et al., 2006). More importantly, it makes a significant contribution to research focused on motivation and online participation, as there are few existing studies. The exceptions are Dawson et al. (2009) and Martens et al. (2004).

A major contribution of this study was the *identification of factors that supported or undermined self-determined types of motivation in online learning contexts*. Using the underlying concepts of autonomy, competence and relatedness of self-determination theory, the study uncovered a wide range of social and contextual factors that enabled or constrained motivation. By further organising these factors into spheres of influence that encompassed the teachers, learning activity and peers, results were further clarified. In

doing so, this study has developed, evaluated and verified a richer model of influences on motivation than has been previously attempted in online studies (e.g., Whipp & Chiarelli, 2004; Xie et al., 2006). They also represent useful guidelines for teachers and instructional designers when considering the development of and teaching within online educational contexts. These results elaborate and extend findings from previous studies that have highlighted environmental factors, such as the way in which helpful feedback from instructors and peers, that can increase intrinsic motivation of learners in online environments; and influences such as lack of choice and low instructor responsiveness that can decrease motivation. In particular, the identification of a range factors that constrain self-determined types of motivation, most notably *high workload*, *a focus on assessment*, *perceptions of lack of relevance* and *unclear and complicated assignment guidelines*, offer practical assistance in supporting teachers' understanding of the dynamic interplay of factors that can, often unintentionally, undermine student motivation.

7.3.3 Self-determination theory as a theoretical framework

The study has confirmed self-determination theory (Deci & Ryan, 1985) as a useful analytic tool for exploring the complexity of motivation to learn in online contexts. In particular, the underpinning psychological needs of autonomy, competence and relatedness (Deci & Ryan, 2008) provided a powerful framework for elucidating and presenting the social and contextual influences that served to enhance or constrain high quality motivation (i.e. identified regulation and intrinsic motivation) among learners. This represents a significant contribution that demonstrates the applicability of established motivation theories in online learning and extends previous studies that have adopted SDT to explore a limited range of contextual factors (Martens & Kirschner, 2004; Shroff & Vogel, 2009; Xie et al., 2006).

This study also confirms the explanatory power of the continuum of human motivation (Ryan & Deci, 2000a). In particular, *identified regulation* as well as *intrinsic motivation* was shown to be a critical consideration. The value of the model to explore more autonomous types of extrinsic motivation, such as identified regulation, has largely been neglected in past studies into online learning, which have tended to focus exclusively on intrinsic motivation (Martens et al., 2004; Shroff & Vogel, 2009; Xie et al., 2006).

Furthermore, this study has demonstrated that the complexity and multidimensional nature of motivation can be concealed if a composite scale, such as the self-determination index (SDI), is the only measure used to assess motivation. Therefore, this study represents a valuable contribution to knowledge of the complex nature of motivation to learn, that significantly extends previous research in similar contexts. It also provides evidence for the need to shift from exclusively focusing on intrinsic motivation, towards motivation to learn, as Brophy (2008) argues.

7.3.4 Online education theory

A number of theoretical notions have developed out of research conducted within the self-paced, distance education field (McIsaac & Gunawardena, 1996). Learner control, sometimes referred to as autonomy or independence (Baynton, 1992; Garrison & Baynton, 1987; Moore, 1993), transactional distance and the corresponding notion of structure (Moore, 1993), interaction (Moore, 1993; Rovai, 2000), and the community of inquiry model (Garrison et al., 2000) have provided the foundation for a richer understanding of the distance learner that continues to this day (T. Anderson, 2009; Dron, 2007a).

Self-determination theory (Ryan & Deci, 2000a) encompasses a number of these concepts through the postulation of the three innate psychological needs of autonomy, competence and relatedness, albeit from a motivational perspective. Its applicability to online distance education has also been shown throughout this research investigation. Given the similarities in different theoretical approaches, consideration must be given to the ways in which concepts such as autonomy and control are conceptualised (Dron, 2007a), and how, for example, the notions of structure and competence in distance education (Baynton, 1992) relate to similar ideas in SDT (Connell & Wellborn, 1991). This research investigation represents an important first step that has helped to confirm, refine and enrich existing online theories such as transactional distance theory (Moore, 1993) and the community of inquiry model (Garrison et al., 2000).

Finally, confirming previous studies (Assor et al., 2002; Katz & Assor, 2007) in traditional educational settings, this study has shown that *support for autonomy through the fostering of relevance was more important than autonomy support through the*

provision of choice. This suggests that online educational stakeholders have much to gain from adopting an alternative perspective such as self-determination theory that incorporates the concepts of personal control, choice, interaction and social presence prevalent in online literature and research (Dron, 2007a; Garrison et al., 2000; Kehrwald, 2008).

7.3.5 Limitations

While there have been important contributions to knowledge from this research, as with any investigation, there are a number of limitations inherent in the present study. The main limitations are:

- The use of case study methodology meant that research findings are associated with particular chosen contexts, namely two courses that formed part of a pre-service teacher education programme within a single New Zealand university. This limits the transferability or usefulness of findings to other online practitioners in diverse settings.
- Following on from this, the small samples sizes in both case studies limit the transferability of quantitative analysis findings.
- The lack of any statistically significant relationships between motivation, achievement and participation in Case Study Two must also be treated with caution as significant relationships are difficult to find in small samples.
- While the qualitative data gathered in this investigation was semi-longitudinal in nature, the motivation data (i.e. SIMS scale) was cross-sectional. By adopting this type of approach, motivational changes (in terms of the motivation subscales) among learners across the duration of the activity, course or programme were not explored.
- The research design did not encompass a detailed investigation of the broader context in which learners were situated, namely the broader university context in which they were studying, nor the influence of other areas of their lives such as family circumstances. Such influences were shown to have an effect on the motivation to learn at the situational level in the form of time constraints. Other research has also indicated the importance of such factors (Giles, 2009).

7.4 Implications for practice

This study is concerned with motivation to learn in online environments. More specifically, it is focused on the nature of motivation, its relationship with online participation and factors that enable or constrain the emergence of high quality motivation in online environments. In this section, key implications for online instructors, instructional designers and other stakeholders, derived from the above conclusions and contributions to knowledge, are considered.

This study was exploratory in nature and sought to identify, explore and understand pre-service teachers' online learning experiences as they related to their motivation to learn in specific online contexts. By taking this approach, the value of adopting a contemporary motivational framework has been illustrated. But in doing so, this study has also shown that stakeholders may need to reconsider conceptualisations of motivation that have frequently been characterised in limited terms. These include simplistic views of motivation as a dichotomy of *intrinsic versus extrinsic motivation* (Miltiadou & Savenye, 2003), as *lists of learner characteristics* (Wighting et al., 2008; Yukselturk & Bulut, 2007), or *notions that online learners, in general, are intrinsically motivated* – a view that has been perpetuated by online studies that have exclusively focused on intrinsic motivation (Martens et al., 2004; Shroff & Vogel, 2009; Xie et al., 2006).

Understanding the complexity of motivation and the breadth of existing motivation research can be useful because it has practical implications for online instructors and instructional designers. For example, motivation to learn has been shown to play an important role in determining whether learners persist in a course of study, the level of engagement, the quality of work produced, and the level of achievement (Schunk et al., 2008).

Importantly, this study has demonstrated that motivation to learn was situation-dependent and influenced by online teaching practices, the design of learning activities and courses, assessment practices and the social aspects of tasks. This is hardly surprising given our current understanding of the situated nature of learning in traditional (Lave & Wenger, 1991) and online (Wegerif, 1998) contexts. Indeed, the

situated nature of motivation was an underlying premise of this investigation (Paris & Turner, 1994; Turner & Patrick, 2008). The implication here, though, is that differing circumstances of students within the learning context need to be considered and, where possible, accommodated in order to support the expression of high quality (i.e. more self-determined) motivation among learners. St. George and Riley (2008) argue that this “call for qualitatively differentiated learning experiences ... [must] begin *with* the students, aligning what they learn (content), how they learn (processes), and the outcomes of their learning (products) with who they are” (p. 151).

For online instructors, this means taking the time to find out the individual circumstances of students and remaining alert to anything that might result in course requirements being perceived as constraining in some way. In practise, this means going beyond the requirement for students to briefly outline their background, current situation and course goals that is often the basis of introductory exercises in online courses. By establishing frequent, ongoing communication with learners, where they feel able to discuss issues in an open and honest manner without fear of censorship, online instructors are in a better position to accurately monitor and respond to situational factors that could potentially undermine learner motivation.

The adoption of self-determination theory as a conceptual framework facilitated the identification of a number of social and contextual influences that combined in complex ways to *support* (see Figure 7.1) and, in some cases, *undermine* (see Figure 7.2) the motivation of learners. These findings are not intended to be used as a definitive list or a set of prescriptions. Nor will all factors affect all people in all contexts. Rather, they need to be considered as suggestions or indicators situated within specific online learning and teaching contexts. They do, however, provide a *starting point for online practitioners to re-consider their practice* from the perspective of nurturing the psychological needs of learners and in doing so creating the conditions necessary to encourage the emergence of more self-determined motivation.

Moreover, this investigation has confirmed the *crucial motivational role played by the teachers* in the online distance learning environments reported here. Specifically, the ways in which the teachers were able to support the competence and autonomy needs of learners, in particular, emerged as important considerations. This occurred both directly,

encompassing the ways in which the teachers met these needs throughout the learning activity, and indirectly via the nature and organisation of the learning activities themselves.

By providing guidelines and expectations at the outset of an activity that are as clear, detailed and as unambiguous as possible, instructors are able to support learners' competence needs. Furthermore, learning activities need to be optimally challenging by building on the prior knowledge, skills and experience of learners. This requires online teachers to be familiar with students' prior learning and develop activities accordingly. Additionally, online instructors will need to monitor learners' progress on an individual basis as not all students will feel they have the necessary knowledge and skills to succeed.

Even when initial guidelines are clear and the challenge of the task and the skill level of learners are well-matched, the majority of learners will still require varying degrees of ongoing task-related guidance and formative feedback to ensure that self-efficacy judgements remain high. This guidance needs to be offered in a timely, responsive and informational manner. That is, feedback needs to be specific and detailed in order to clarify areas of student work that need addressing and needs to be communicated in a way that highlights these as problems to be solved (with support) rather than as criticism. Keeping students informed about course developments, such as turnaround times for marking assignments, when to expect feedback and other commitments that may affect the teacher's ability to respond in a timely manner, are further ways in which online instructors can facilitate student motivation.

The tone of communication is also important when reminding learners of course expectations such as online participation and assignment requirements. In these situations, teachers can offer assistance and then remind students of their responsibilities, doing so in a way that is direct and specific without being controlling (i.e. avoiding words such as should, have to, must, got to). This is because lack of participation or engagement may be a sign of low self-efficacy. If these learners receive censure rather than support, their motivation is likely to be undermined.

Online instructors also need to be prepared to offer support in a differentiated manner. That is, learners who feel overly challenged or are having difficulties may need more overt structure (even when the design of the learning activity calls for an increasingly learner-directed approach). This may take the form of questioning that helps elicit current understanding, more detailed assignment instructions, more frequent feedback, suggestions of additional resources to aid developing understanding, exemplars that show the standard of work required, and more intermediate deadlines to aid progression toward task completion.

Teachers and instructional designers also need to be cognisant of the important role they play in influencing learner motivation when designing learning activities. Most importantly, the relevance and value of the task (e.g., online discussions) need to be clearly identified and linked to learning objectives to help learners understand how the activity can aid in the realisation of personal goals, aspirations and interests, both in the short and longer term. By offering meaningful choice (i.e. not just option choices) to learners that allows them to pursue topics that are of interest to them, the perceived value of the activity is further enhanced. In addition, designing activities that enable students to apply new learning in an authentic way (e.g., problem-based learning, work-based practise) can promote immediate interest as well as help them to appreciate the larger importance of what they are learning.

Peers also have an important role to play in supporting the motivation of online learners. They do this primarily by offering cognitive help and support within the context of collaborative group work, while meeting learners' affective needs in the context of individual learning activities. By incorporating collaborative activities, at both small group and class levels, online practitioners can create the context for both types of supportive relationships to develop. However, teachers do need to be cognisant of the ways in which unsupportive relationships among peers have the potential to undermine learner autonomy if problems emerge that are not addressed. This is particularly important when learners are engaged in collaborative assignments where success is dependent on input from all group members. Differentiated assessment practices that acknowledge the contribution made by each group member can help alleviate the frustrations often experienced when some group members do more than others.

Online instructors can assist in the development of effectively functioning collaborative groups by encouraging learners to form groups where collective efficacy is high. That is, groups are most effective where each individual member believes in the group's ability to complete the task successfully (even when they may have doubts about their own individual ability). Once groups are formed, learners can be encouraged to define specific facilitation guidelines which are then endorsed by all group members. Ideally, these would include procedures for ensuring everyone has input into the activity and how to deal with problems if they arise. Instructors also need to be willing to actively intervene to ensure all members are aware of their responsibilities and held to account if these are not met. The literature also indicates that learners want assistance when they experience difficulties with other group members (Blumenfeld et al., 2006; A. Jones & Issroff, 2007).

By not equating autonomy with independence, as others have suggested (Moore, 1993), but instead envisaging autonomous acts as those “fully endorsed by the self and thus in accord with abiding values and interests” (Ryan & Deci, 2006, p. 1560), this study has shown that learner autonomy and social relatedness can not only co-exist but combine in ways that promote motivation to learn. Therefore, establishing a supportive network among learners within the wider class is a further, important motivation consideration for collaborative *and* individual online activities. Interaction is an essential element of a supportive community and must be built in to the overall structure of the course (Rovai, 2000). Respect, concern for others and a culture of inclusiveness, help to promote quality online interaction and these need to be modelled by the online instructor. Strategies such as adopting a friendly approach and being willing to share relevant personal experiences are ways in which online instructors can develop and model supportive online relationships that facilitate motivation to learn.

7.5 Future research

This research has clearly demonstrated the value of utilising a well-established, contemporary model of motivation – self-determination theory – to explore the nature of motivation to learn in online distance learning environments. It is one of only a few studies that have adopted SDT as a theoretical framework and the only one that uses the continuum of human motivation (Ryan & Deci, 2000b) to tease out the complexities of

motivation to learn in online environments. It is vital, therefore, to build on this work through further studies that use SDT as their foundation. Further research is also needed in a variety of contexts that encompass other models of online delivery, other uses of technologies, and other domain areas and institutional settings to develop our understanding of motivation to learn in technology-mediated environments.

As Vallerand et al. (2008) note, “the issue of how motivation changes over time is a crucial one” (p. 260). Further research, therefore, is needed to explore if and how motivation to learn changes throughout the duration of an activity, course and programme. In this way, small changes that happen at a situational level that accumulate over time (Vallerand et al., 2008) may indicate trends in motivational change. This may further add to our understanding of the high attrition rates among students undertaking e-learning courses (Levy, 2007) and suggest possible steps to mitigate highlighted issues.

Research incorporating the broader perspectives of learners’ social lives and importantly the wider university context, which impact on cognition, affect and behaviour at the situational level and vice versa, would be a source of fruitful future research endeavour in online learning contexts. A starting point for this could be Vallerand’s hierarchical model of intrinsic and extrinsic motivation (Vallerand, 2000; Vallerand & Ratelle, 2002) that is based on self-determination theory and proposes that motivation occurs at three levels (situational, contextual and global).

7.6 Final thoughts

As the use of technology-mediated distance education and online learning continue to increase at a rapid rate (Moore & Kearsley, 2005), there is a need for stakeholders to consider the complexities of student motivation in order to promote quality learning outcomes. Technology is viewed by some as inherently motivating because it provides a number of qualities that are recognised as important in the fostering of motivation, namely challenge, curiosity, novelty and fantasy (Lepper & Malone, 1987; Malone, 1981). The novelty factor does tend to wear off, however, as users become accustomed to it (Keller & Suzuki, 2004). Others (Blumenfeld et al., 2006) argue that technology can trigger situational interest by providing a hook that engages learners. Alternatively,

Clark (1991) claims that technologies do not influence learning and motivation. The basis for his argument is that the instructional method is separate and distinct from the delivery medium and it is pedagogy that influences learning and motivation, not the medium through which it occurs.

The findings from this study support a perspective that sits between these two extremes where situational factors, such as the teaching approach *and* the technology used, all have a role to play in supporting or undermining motivation among learners. This study has shown that online practitioners have a critical role to play at the situational level in order for learners “to feel respected, connected, challenged and supported” (St. George & Riley, 2008, p. 152).

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APPENDICES

Appendix A – Letter to Head of Department requesting access

[LETTERHEAD]

(Insert name here)

Head of Department of *(insert name here)*
College of Education
Massey University
Private Bag 11 222
Palmerston North

Dear *(insert name here)*,

My name is Maggie Hartnett and I am a full-time doctoral student within the *(insert department name here)*. My research supervisors include Dr. Alison St. George, Dr. Benjamin Kehrwald and Dr. Jon Dron (overseas supervisor) and my area of interest is online and distance education. My research focus is on motivation to learn in online environments from a sociocultural perspective. I plan to select two case studies from the extramural, web-based, undergraduate courses offered as part of the Bachelor of Education (Teaching) programme. Case studies will be selected on the basis that online discussion forms part of assignment work. The research project itself will focus on one assignment *(to be identified)* within the selected course. This will involve both staff and students of the selected course.

I am seeking your permission to invite staff members within the school who teach extramural, web-based courses, to be part of this study. Where consent is given I am also requesting access to lecturers, students and information associated with the selected course. Please note that no questionnaire or student participant interviews will be take place until after this assignment has been **completed and graded**. No WebCT online data and lecturer participant interview data will be collected until after the course is complete.

While the institution (and school) will not be named in the publication of findings, it may be able to be identified due the relatively small number of educational colleges within New Zealand and the nature of the research context.

If you require any further information about my planned research then please feel free to contact me using the details listed below.

I look forward to hearing from you.

Yours sincerely,

Maggie Hartnett
Phone: 027 531 1607
Email: Margaret.Hartnett.1@uni.massey.ac.nz

Appendix B – Email to potential lecturer participants

Hi (*insert name here*),

My name is Maggie Hartnett and I am a full-time doctoral student within the School of Curriculum and Pedagogy. My research supervisors include Dr. Alison St. George, Dr. Benjamin Kehrwald and Dr. Jon Dron (overseas supervisor) and my area of interest is online and distance education. My research focus is on motivation to learn in online environments from a sociocultural perspective. I plan to undertake my research using a case study approach with two undergraduate, extramural, web-based courses from the Bachelor of Education (Teaching) programme. This will involve both staff and students of the selected courses.

From discussions with my supervisors, I understand your course (*insert name here*) is an extramural, web-based course that may make a suitable case study. As the lecturer of this course, I would like to invite you to participate in this research project.

If you are interested then please contact me via email at Margaret.Hartnett.1@uni.massey.ac.nz or phone on 027 531 1607 to arrange a meeting where we can discuss the project in more detail. At that time I will provide you with an information sheet outlining the research project in more detail. At the end of the meeting I will leave a consent form for you to sign and return to me (c/- the Secretary, School of Curriculum and Pedagogy) if you agree to be involved.

Looking forward to hearing from you.

Regards

Maggie Hartnett
Doctoral student

Appendix C – Information sheet for potential lecturer participants

[LETTERHEAD]

Motivation to learn in online environments

INFORMATION SHEET

Lecturer participant

Dear (*insert name*),

I'd like to introduce myself and tell you a little about my research and to invite you to participate. My name is Maggie Hartnett and I am a full-time doctoral student within the School of Curriculum and Pedagogy. My research supervisors include Dr. Alison St. George, Dr. Benjamin Kehrwald and Dr. Jon Dron (overseas supervisor) and my area of interest is online and distance education. This research project is an opportunity for you to discuss and reflect on your online teaching experiences for course (*insert name here*) with an impartial person, which in turn may inform your future teaching practice in this context. The research findings once they are complete may also identify areas of practice that are influential to learner motivation in online environments.

What is the purpose of this study?

The purpose of this doctoral research project is to explore learners' motivation in online environments. In particular the study intends to explore the motivations of online learners using cognitive effort, persistence, achievement and activity choices (if offered) as motivation indicators; and the influence of environmental/social contextual factors including teacher factors, curriculum, course objectives, course structure, activities, resources, and assessments. Patterns of interaction will also be explored to find out whether meaningful relationships exist between learners' motivation, the context and online behaviour. This in turn may inform future pedagogical practices within online distance learning environments.

Who is involved?

Two case studies will be selected from the extramural, web-based, undergraduate courses offered as part of the Bachelor of Education (Teaching) programme. Case studies will be selected on the basis that online discussion forms part of assignment work. The research project itself will focus on one assignment (*to be identified*) within the selected course.

I understand your course (*insert name here*) is an extramural, web-based course that may make a suitable case study. As the lecturer of this course, I would like to invite you to participate in this research project.

All students enrolled in semester one, 2008 for the selected course will also be invited to take part in the study. The identities of students who choose to be part of the project will remain anonymous.

What is involved?

If you agree to be part of this research project it will require a **maximum of one and a half (1.5) hours** of your time. You are invited to participate in the following:

- An interview (of one hour maximum) which involves answering questions about your online experiences as the lecturer of the selected course, in particular assignment (*to be identified*). This will NOT involve any questions about specific students. This interview will take place after the course is complete.
With your agreement the interview will be recorded. This is to help me so I can concentrate on what you are saying rather than trying to write it all down. After the interview the recorded information will be transcribed into written form and sent to you for review. The original audio recording of the interview can also be returned to you if you wish.
- I plan to collect information from WebCT that relates to the work done by students on the relevant assignment (*to be identified*). To make the analysis of this data as complete and coherent as possible, I request access to your contributions that form part of the ongoing learning process during this assignment. This data is stored automatically as part of normal course administration and won't be accessed until after the course is complete. This requires **no extra time** on your part.
- I also intend to undertake an analysis of the contextual factors described previously (see purpose of the study). The intention here is not to make any judgements about the course or the lecturer, but rather to explore possible relationships between different aspects of the context, the environment and learner motivation. Again this requires **no additional time** on your part and will not occur until the course is complete.
- If you choose to be involved I will also request Teaching Assistant (TA) access to the WebCT environment for the course (*insert name here*), after the relevant assignment (*to be identified*) is complete and graded, in order to make initial contact with potential student participants. TA access will also be required to collect WebCT data and undertake the analysis of contextual factors after the course is complete.
- Finally, prior to me making initial contact with potential student participants, I would request that you post a brief introduction using the information at the beginning of this information sheet.

What I will do as the researcher

All information is confidential and will be stored and reported in such a way that participants remain anonymous. The original interview recording, and signed consent form will be stored securely to ensure confidentiality and destroyed after 5 years.

If you choose I will send you a summary of the research results once they are available. Once complete this research will be published as my doctoral thesis which will be available through Massey University library both in printed and electronic format.

What are your rights if you participate in this study?

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- withdraw yourself and the information you have contributed (WebCT data and interview answers) at any time up until the interview transcripts are finalised;
- decline to answer any particular question during the interview;
- ask for the recording to be stopped at any time during the interview;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher; and
- be given access to a summary of the project findings when it is concluded.

Who to contact if you have questions or concerns about the study?

If you have any questions than please feel free to contact me regarding this study via the contact details below. Alternatively, you can contact my supervisor Dr. Alison St. George (see below).

Doctoral Research Student

Maggie Hartnett

School of Curriculum and Pedagogy,
College of Education
Massey University, Private Bag 11 222
Palmerston North, New Zealand
Phone: 027 531 1607
Email:
Margaret.Hartnett.1@uni.massey.ac.nz

Doctoral Supervisor

Dr. Alison St. George

School of Curriculum and Pedagogy,
College of Education
Massey University, Private Bag 11 222
Palmerston North, New Zealand
Phone: 06 356 9099 ext 8627
Email: A.M.StGeorge@massey.ac.nz

Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern B, Application **08/04**. If you have any concerns about the conduct of this research, please contact Dr Karl Pajo, Chair, Massey University Human Ethics Committee: Southern B, telephone 04 801 5799 x 6929, email humanethicsouthb@massey.ac.nz.

Appendix D – Lecturer participant consent form

[LETTERHEAD]

Motivation to learn in online environments

LECTURER PARTICIPANT CONSENT FORM

This consent form will be held for a period of five (5) years

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

(please tick the appropriate box)

I agree / do not agree to be interviewed.

I agree / do not agree to the interview being audio taped.

I want / do not want my audio file of the interview returned to me.

I agree / do not agree to allow access to my WebCT data.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signature:

Date:

Full Name – printed

Appendix E – Initial approach to potential student participants

Hi everyone,

Thank you to (*insert lecturer's name here*) for introducing me and giving a little background as to the reasons why I am contacting you.

I'd like to introduce myself and tell you a little about my research and to invite you to participate. My name is Maggie Hartnett and I am currently undertaking my doctoral degree in Education at Massey University and my area of interest is in motivation in online learning. Before starting my doctorate I completed my Masters degree extramurally through Massey.

In my non-study life I like to spend time outdoors walking (which is a good thing given I'm the only one in our family who walks the dog), cycling, reading and watching good movies. I'm married to a primary school teacher and we have one seven year old daughter.

In this research project I'm interested in exploring the many different factors that play a part in motivation when learning online. The (*insert name here*) extramural, web-based course has been selected because online discussion forms part of the assignment work.

I would like to invite all of you to take part in this research project.

If you agree to take part it will require a **maximum of one and a half hours** of your time and may involve completing a questionnaire (30 minutes) and having an interview (1 hour). I also plan to collect information from WebCT that relates to some of your assignment work. This requires **no extra time** on your part.

Whether you decide to be part of this investigation or not, your decision **will not** affect your academic results, and only those who agree to be involved will have their WebCT discussions included.

If you would like to participate or are interested in finding out more please contact me directly at Margaret.Hartnett.1@uni.massey.ac.nz and I will send you further information.

Thanks for the opportunity to let you know about my research.

Regards

Maggie

Appendix F – Email response to potential student participants

Hi (*insert name*),

Thank you for your interest in my research project.

So that you are fully aware of what's involved I have attached an information sheet that gives more detail about the project.

If you decide to take up the invitation and be involved in the project, please complete and sign the consent form (also attached) and send it the address below or by return email by (*insert date*):

Maggie Hartnett
c/- The Secretary
School of Curriculum and Pedagogy
College of Education
Massey University
Private Bag 11 222
Palmerston North

If you require any further information or have any questions please feel free to contact me via email or phone me directly on 027 531 1607.

Regards

Maggie Hartnett
Margaret.Hartnett.1@uni.massey.ac.nz

Appendix G – Information sheet for potential student participants

[LETTERHEAD]

Motivation to learn in online environments

INFORMATION SHEET

Student participant

Dear extramural student,

I'd like to introduce myself and tell you a little about my research and to invite you to participate. My name is Maggie Hartnett and I am currently undertaking my doctoral degree in Education at Massey University and my area of interest is in online learning. This research project is an opportunity for you to discuss and reflect on your online learning experiences for course (*insert name here*) with an impartial person. From this you may gain insight into what factors are significant to you in terms of personal motivation and the social/environmental factors that affect this. This may in turn influence any future study you choose to undertake.

What is the purpose of this study?

In this research project I'm interested in exploring the many different factors that play a part in motivation when learning online. This means I want to not only look at your motivation as a learner, but also factors that can affect this such as the environment you're learning in; the way the course is structured; the activities and assignments you do; your achievement, and the discussions that happen between you, the lecturer and other students. This will help me to find those things that are important when considering online learner motivation.

Who is involved?

The research will be undertaken in two extramural, web-based courses including (*insert name here*). They have been chosen because in both cases online discussion forms part of the assignment work. The extramural group of students enrolled in semester one, 2008 are being invited to take part. The lecturer teaching each course will also be interviewed which will involve general questions about this course, the learning environment and the online discussion that goes on, but will **NOT** involve any questions about specific students. The lecturer will not know which students have chosen to be involved and which students haven't. Whatever you decide it will **NOT** affect your academic results in any way.

What is involved?

The research will focus on one assignment in this course. You will not be informed which assignment this will be until it has **been completed and graded**.

If you agree to be part of this research project it will require a **maximum of one and a half hours** of your time. You are invited to participate in the following:

- An online questionnaire which will take a maximum of **30 minutes** to complete and will include a question asking you about the mark and grade you received for the relevant assignment. You will be asked to complete the questionnaire once this assignment has been complete and graded.
- Student interviews (preferably in person if I am within travelling distance of you; or alternatively online or by phone – at a time and place convenient to you). This will take no longer than **one hour** and I'll be asking questions about your online experiences in this course. I will be doing a maximum of 15 student interviews. If more than 15 students agree to be interviewed then interviewees will be randomly selected. If you are agree to be interviewed, I will contact you to let you know what is involved and to arrange a suitable interview time. Interviews are likely to take place near or just after the end of semester one.

With your agreement the interview will be recorded. This is to help me so I can concentrate on what you are saying rather than trying to write it all down. After the interview the recorded information will be transcribed into written form and sent to you to read. At this stage you will have the chance to add, delete or change any information you have provided. The original audio recording of the interview can also be returned to you if you wish.

- I also plan to collect information from WebCT that relates to the work you do on the relevant assignment. This data is stored automatically as part of normal course administration and won't be accessed until the course is complete. This requires **no extra time** on your part.

What I will do as the researcher

All information from WebCT, questionnaires and interviews is confidential and will be stored and reported in such a way that participants remain anonymous. The original interview recordings, questionnaire results and signed consent forms will be stored securely to ensure confidentiality and destroyed after 5 years (this is the usual procedure that is followed with research information).

No WebCT discussions will be included from students who have chosen not to be part of the project. If the assignment (to be determined) required you to work in small groups, any group members who decide not to take part in this project will have their WebCT discussions excluded.

If you choose, I will send you a summary of the research results once they are available. Once complete this research will be published in my doctoral thesis which will be available through Massey University library both in printed and electronic format.

What are your rights if you participate in this study?

You are under no obligation to accept this invitation and your decision will NOT affect your academic results for this course. If you agree to participate, you have the right to:

- withdraw yourself and the information you have contributed (WebCT information questionnaire answers, academic results and interview answers) at any time up until the interview transcripts are finalised;
- decline to answer any particular question within the questionnaire or during the interview;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- ask for the recording to be stopped at any time during the interview; and
- be given access to a summary of the project findings when it is concluded.

Who to contact if you have questions or concerns about the study?

If you have any questions than please feel free to contact me regarding this study via the contact details below. Alternatively, you can contact my supervisor Dr. Alison St. George (see below).

Doctoral Research Student

Maggie Hartnett

School of Curriculum and Pedagogy,
College of Education
Massey University, Private Bag 11 222
Palmerston North, New Zealand
Phone: 027 531 1607
Email:
Margaret.Hartnett.1@uni.massey.ac.nz

Doctoral Supervisor

Dr. Alison St. George

School of Curriculum and Pedagogy,
College of Education
Massey University, Private Bag 11 222
Palmerston North, New Zealand
Phone: 06 356 9099 ext 8627
Email: A.M.StGeorge@massey.ac.nz

Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern B, Application **08/04**. If you have any concerns about the conduct of this research, please contact Dr Karl Pajo, Chair, Massey University Human Ethics Committee: Southern B, telephone 04 801 5799 x 6929, email humanethicsouthb@massey.ac.nz.

Appendix H – Student participant consent form

[LETTERHEAD]

Motivation to learn in online environments

STUDENT PARTICIPANT CONSENT FORM

This consent form will be held for a period of five (5) years

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

(please tick the appropriate box)

I agree / do not agree to complete the questionnaire.

I agree / do not agree to be interviewed.

I agree / do not agree to the interview being audio taped.

I want / do not want the audio file of the interview returned to me.

I agree / do not agree to allow access to my WebCT data.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signature:

Date:

Full Name – printed

Appendix I – Potential student participant follow-up letter

[LETTERHEAD]

Hi everyone,

Following on from (*insert course coordinator's name*) introduction in WebCT, I'd like to introduce myself, tell you a little about my research, and remind you of my invitation to you to participate in my research. My name is Maggie Hartnett and I am currently undertaking my doctoral degree in Education and my area of interest is motivation in online learning. Before starting my doctorate I completed my Masters degree extramurally through Massey, while juggling family and work commitments.

My working life has centred on teaching, most recently within the secondary school and polytechnic sectors. In my non-study life I like to spend time outdoors walking (which is a good thing given I'm the only one in our family who walks the dog), cycling, reading and watching good movies. I'm married to a primary school teacher and we have one seven year old daughter.

In this research project I'm interested in exploring the many different factors that play a part in motivation when learning online. The (*insert name here*) extramural, web-based course has been selected because online discussion forms part of your assignment work.

I would like to invite all of you to take part in this research project.

If you agree it will require a **maximum of one and a half hours** of your time and may involve completing a questionnaire (30 minutes) and having an informal interview (1 hour). The interview is really an opportunity to talk about what is important to you over a cup of coffee (or tea). Completing the questionnaire will take place in June and interviews will happen, after exams and before semester 2 starts, **at a time and place that suits you**. Wherever possible I will travel to you. I also plan to collect information from WebCT that relates to some of your assignment work. This requires **no extra time** on your part.

Whether you decide to be part of this investigation or not, your decision **will not** affect your academic results, and only those who agree to be involved will have their WebCT discussions included.

If you would like to participate or are interested in finding out more please contact me directly at Margaret.Hartnett.1@uni.massey.ac.nz or call me (027) 531 1607 and I will send you further information. If you'd like to know more about me (including what I look like) then visit my webpage at <http://www.homepages.ihug.co.nz/~magsstev>.

Thanks again for the opportunity to let you know about my research, and to those who have already contacted me your willingness to be involved is greatly appreciated.

Regards
Maggie ☺

Appendix J – Potential student participant follow-up message

Hi (*insert student name here*),

Now that TE is finished (I hope it went well), I wanted to let you know that it's still **not too late** to join in and be part of my research project into online motivation.

To make it as easy as possible, I've attached the information sheet (which outlines what's involved) and consent form (to sign) if you decide to be part of the research.

The **maximum** amount of time involved is **1 ½ hours** (30 minutes to complete an online questionnaire and a 1 hour interview). Where possible I will travel to you to conduct the interview.

I realise that you may have assignments to finish and exams to do before the end of the semester, so I'm happy to organise an interview after these are complete, if you prefer.

I also realise that semester 2 will bring new commitments for you, so I'll make sure it's all finished before then. Feel free to contact me by email Margaret.Hartnett.1@uni.massey.ac.nz or phone (027) 531 1607 if you want to know more.

If you'd like to take part and have your say, please complete the attached consent form and return it to me at the address below by **Monday 16th June, 2008**:

Maggie Hartnett
School of Curriculum and Pedagogy
College of Education
Massey University
Private Bag 11 222
Palmerston North

(note: I can send you a stamped addressed envelope if you prefer)

Looking forward to hearing from you and all the best for the remainder of the semester.

Regards

Maggie :)

Appendix K – Email to student participants with questionnaire details

Hi (*insert name here*),

Now that teaching practicum is finished (I hope it went well) I wanted to let you know that the research questionnaire is available for you to complete, when you have some time. The first part of the questionnaire asks for some general information, while the remaining questions relate to assignment (*to be identified*) which you have now completed.

If you decide to participate, you have the right to decline to answer any particular question within the questionnaire.

To complete the questionnaire simply click on the following link and you will be directed to the questionnaire web page:

(insert web link here)

You can move backwards and forwards as much as you like to get an idea of the questions but only press the submit button once you have completed questionnaire to your satisfaction.

The final date for submission of the questionnaire is (*insert date here*).

I also wanted to find out some suitable interview times that work for you. If you have assignments and/or exams to finish then you may prefer to do it after they are finished. Can you please send me your address and let me know what works for you time wise.

If you need any further information or have any questions please feel free to contact me via email at Margaret.Hartnett.1@uni.massey.ac.nz or phone me directly on 027 531 1607.

Looking forward to hearing from you.

Regards

Maggie

Appendix L – Questionnaire for student participants

Motivation questionnaire for *(insert name of course here)*



SCHOOL OF CURRICULUM
AND PEDAGOGY
Private Bag 11 222
Palmerston North
New Zealand
T 64 6 356 9099
F 64 6 351 3472
www.massey.ac.nz

Hello and welcome.

The questions here relate to **assignment** *(insert number here)* you have completed as part of the course *(insert name here)*.

They ask you about your motivation for learning during this assignment and your experiences of the online learning environment.

Please take your time and answer the questions as accurately as possible, so that the answers reflect your own attitudes and behaviours during this assignment.

It will take approximately **20-30 minutes to complete**.

All your responses are strictly confidential and will be used only for the purposes of this study. Results of the study will be published as part of my doctoral thesis. After 5 years all original questionnaires will be destroyed.

You have 3 weeks to complete this questionnaire, the final date for submission is **10th June 2008**.

If you have any questions regarding your participation, please contact Maggie Hartnett via email at Margaret.Hartnett.1@uni.massey.ac.nz or phone me directly on 027 531 1607.

Thank you for taking the time to answer this questionnaire.

Section 1: Personal Information

Please enter your information in the fields below. This information is necessary so that this information can be linked to your WebCT discussions.

1) Please enter your details in the fields below.

First Name:

Family Name:

email address:

2) Please specify your gender:

Male

Female

3) Please specify your age-range (select only one option).	
18-23 years	
24-30 years	
31-40 years	
41-50 years	
51 years or over	
Other (Please Specify):	

4) Please select the ethnicity that applies to you (choose all that apply):	
Maori	
NZ European	
Pacific Island	
Australian	
Asian	
European	
Other (Please Specify):	

5) What mark and grade did you receive for assignment (<i>insert number here</i>)?	
Mark	
Grade	

<p>Section 2: Motivation</p> <p>In this next section please read each item carefully.</p> <p>Using the scale below, please select the number that best describes the reason why you engaged in the online activity related to assignment (<i>insert number here</i>)</p> <p><i>1: corresponds at not all; 2: corresponds very little; 3: corresponds a little; 4: corresponds moderately; 5: corresponds enough; 6: corresponds a lot; 7: corresponds exactly.</i></p>

6) Because I think that this activity was interesting.							
	1 not at all	2 very little	3 a little	4 moderately	5 enough	6 a lot	7 exactly

7) Because I was doing it for my own good.							
	1 not at all	2 very little	3 a little	4 moderately	5 enough	6 a lot	7 exactly

8) Because I was supposed to do it.							
	1 not at all	2 very little	3 a little	4 moderately	5 enough	6 a lot	7 exactly

9) There may be good reasons to do this activity, but personally I don't see any.							
	1 not at all	2 very little	3 a little	4 moderately	5 enough	6 a lot	7 exactly

10) Because I think that this activity was pleasant.							
	1 not at all	2 very little	3 a little	4 moderately	5 enough	6 a lot	7 exactly

11) Because I think that this activity was good for me.							
	1 not at all	2 very little	3 a little	4 moderately	5 enough	6 a lot	7 exactly

12) Because it is something that I had to do.							
	1 not at all	2 very little	3 a little	4 moderately	5 enough	6 a lot	7 exactly

13) I did this activity but I am not sure if it was worth it.							
	1 not at all	2 very little	3 a little	4 moderately	5 enough	6 a lot	7 exactly

14) Because this activity was fun.							
	1 not at all	2 very little	3 a little	4 moderately	5 enough	6 a lot	7 exactly

15) By personal decision.							
	1 not at all	2 very little	3 a little	4 moderately	5 enough	6 a lot	7 exactly

16) Because I don't have any choice.							
	1 not at all	2 very little	3 a little	4 moderately	5 enough	6 a lot	7 exactly

17) I don't know; I don't see what this activity brings me.							
	1 not at all	2 very little	3 a little	4 moderately	5 enough	6 a lot	7 exactly

18) Because I felt good when doing this activity.							
	1 not at all	2 very little	3 a little	4 moderately	5 enough	6 a lot	7 exactly

19) Because I believe that this activity was important for me.							
	1 not at all	2 very little	3 a little	4 moderately	5 enough	6 a lot	7 exactly

20) Because I felt that I had to do it.							
	1 not at all	2 very little	3 a little	4 moderately	5 enough	6 a lot	7 exactly

21) I did this activity, but I am not sure it was a good thing to pursue it.							
	1 not at all	2 very little	3 a little	4 moderately	5 enough	6 a lot	7 exactly

Section 3: Learning Environment

Please answer the following questions as fully as possible:

22) How did having choice affect your approach to this assignment (if you had a choice)?

--

23) What resources were available for this assignment and how useful were they?

--

24) What support/ feedback did you receive during this assignment?

--

25) What effect did working in WebCT have on your approach to this assignment?

--

26) What are your thoughts about the assignment structure and information provided and how did it affect your approach?

--

27) How did this assignment relate to the course curriculum?

--

28) What did you learn by doing this assignment?

--

29) What was your overall impression of this assignment?

--

30) In what ways did the opportunity to discuss things online with your peers help you to complete assignment 2?

--

Appendix M – Email to student participants requesting an interview

Hi (*insert name here*),

I'm contacting you again to arrange a suitable interview time. The interview is likely to take no longer than **one hour**.

If you have assignments and/or exams to complete then you may prefer to do it after they are finished. Can you please send me your address and let me know possible dates and times so that I can arrange the details. I'll contact you to confirm the interview time and location once I know when I will be visiting your area.

Also do you have any ideas about a good place to meet that's not too noisy, so we can have a coffee and a chat?

Please feel free to get in touch with me if you require any further information or have any questions.

Regards

Maggie Hartnett

Margaret.Hartnett.1@uni.massey.ac.nz

Phone: 027 531 1607

Appendix N – Interview schedule for student participants

Welcome and thank you for participating! The following questions are starters focused on your motivation and other aspects touched on in the questionnaire relating to the course (*course name here*), with particular emphasis on (*assignment number here*).

There are no right or wrong answers to these questions I'm interested in what you have to say.

1. How long did you work on assignment (*insert number here*)? (Over days? Weeks?)
2. What would a typical week look like for you in terms of time spent on this assignment? This includes time spent offline.
3. What was interesting/ enjoyable about this assignment?
4. How clear were you about the goals of the assignment and what you needed to do? What influenced this?
5. How have you been challenged throughout this assignment?
6. How capable/ competent has this made you feel?
7. What kinds of choice did you have during this assignment?
8. What factors influenced the choices you made around your assignment?
9. How much input did you have in any decision making processes?
10. What are your impressions of using WebCT for this assignment?
11. Can you tell me about your online experiences with your lecturer/tutor and peers during this assignment?
12. What kinds of things caused you problems with this assignment?
13. What did you do when you had these difficulties? Why? (Or: What would you have done if you did have difficulties?)
14. Was there anything about this assignment that you found frustrating? What was it?
15. What things most affected your involvement in this assignment?
16. If you had the opportunity to change anything about this assignment, what would you change and why?
17. If you had the opportunity to change what you did during this assignment, what would it be and why?
18. What did you learn by doing this assignment?
19. How important was this assignment to your overall experience of the course?
20. Overall what stands out about this course in terms of its organisation or structure and why?

Closing

That's all. Thank you so much for participating! I appreciate your time and effort.

Appendix O – Interview schedule for lecturer participants

Introduction

Welcome and thank you for participating! The following questions are designed as starters to explore factors that may have influenced students' motivation in the course (*course name here*), with particular emphasis on (*assignment number here*), within the context of the WebCT online learning environment.

The first part of the interview focuses on assignment 2 while later questions relate to the course as a whole. There are no right or wrong answers to these questions I'm interested in what you have to say.

1. What are your impressions of this year's semester one cohort of students?
2. What considerations influenced the development and inclusion of this assignment 2 in the course?
3. What expectations do you have regarding student online activity during this assignment? Why?
4. How are students made aware of these expectations?
5. How do you go about stimulating learner interest and participation in this assignment?
6. What resources are available to learners during this assignment? What influenced the inclusion of these resources?
7. What kinds of choices (*if any*) were learners given during this assignment?
8. What are your reasons for giving (or not giving) learners' choices in this assignment?
9. What do you consider important when you interact with students online during this assignment?
10. What sort of feedback/support do you give students during this assignment? Why?
11. How can learners gauge their own progress during this assignment?
12. What are the main factors, do you think, that affect students' engagement (both in general and online) with this assignment?
13. How does this assignment help learners to achieve the learning goals of the course?
14. What kinds of issues (*if any*) arose during this assignment?
15. How did you manage/resolve these?
16. What, do you think, is important to consider when constructing an online environment that encourages learning?
17. What challenges does using the WebCT environment present to you as a lecturer?
18. How do you communicate learning progress to learners and encourage feelings of competence throughout the duration of the course?
19. What do you consider key features of the curriculum and structure of this course?
20. How do you communicate course objectives, learning goals and learner responsibility, so that learners are clear what is expected of them?

Closing

That's all. Thank you so much for participating! I appreciate your time and effort

Appendix P – Transcriber’s confidentiality agreement

[LETTERHEAD]

Motivation to learn in online environments

TRANSCRIBER’S CONFIDENTIALITY AGREEMENT

I (Full Name – printed) agree to transcribe the tapes provided to me.

I agree to keep confidential all the information provided to me.

I will not make any copies of the transcripts or keep any record of them, other than those required for the project.

Signature: **Date:**

Appendix Q – Student participant authority for release of transcripts

[LETTERHEAD]

Motivation to learn in online environments

**AUTHORITY FOR THE RELEASE OF TRANSCRIPTS
Student Participants**

This form will be held for a period of five (5) years

I confirm that I have had the opportunity to read and amend the transcript of the interview conducted with me.

I agree that the edited transcript and extracts from this may be used by the researcher, *Maggie Hartnett* in reports and publications arising from the research.

Signature:

.....

Date:

.....

Full Name – printed

.....

Appendix R – Lecturer participant authority for release of transcripts

[LETTERHEAD]

Motivation to learn in online environments

AUTHORITY FOR THE RELEASE OF TRANSCRIPTS Lecturer Participants

This form will be held for a period of five (5) years

I confirm that I have had the opportunity to read and amend the transcript of the interview conducted with me.

I agree that the edited transcript and extracts from this may be used by the researcher, *Maggie Hartnett* in reports and publications arising from the research.

Signature: **Date:**

Full Name – printed

Appendix S – Letter and permission forms requesting aggregated data

[LETTERHEAD]

(Insert date here)

(Insert name here)
Paper Coordinator
College of Education
Massey University
Private Bag 11 222
Palmerston North

Dear *(insert name here)*,

RE: Research project – **Motivation to learn in online environments**

As a result of constructive feedback it has become evident that it would be valuable to have aggregated achievement data about research participants and non-participants so comparisons can then be made. This is to determine whether the research participant group's achievement is typical when compared with the non-participant group, both in terms of the one assignment that was the focus of this research and the course as a whole.

I wish to request permission from you as Course Coordinator to access student results from the university's results database for *(insert name of course here)* for semester one, 2008. It is proposed that this information be provided to a third party, namely the researcher's supervisor Dr. Alison St. George, so that the privacy of both research participants and non-participants is preserved.

I request that the following information be provided by you to Dr. St. George:

- a) Student final grades and
- b) Actual marks for the assignment which was the focus of the research.

I will in turn provide a list of names of research participants to Dr. St. George. From this list Dr. St. George will then be able to identify the final grade and assignment mark of the research participants in relation to non-participants by means of a * next to the appropriate grades and marks. Once complete, a final list of grades and marks, with all names removed, will be forwarded to me for the purposes of data aggregation.

Permission to access results from the university's results database for the above purposes has been granted by Dr. Patrick Sandbrook, Director of National Student Relations.

If you agree to this request, would you please sign and return the attached form at your earliest convenience. If you require any further information then please contact me using the details provided. I look forward to hearing from you.

Yours sincerely,

Maggie Hartnett
Doctoral Student Researcher
School of Curriculum & Pedagogy
Massey University
Private Bag 11 222
Palmerston North
Phone: 356 9099 extn 8626
Email: m.hartnett@massey.ac.nz

[LETTERHEAD]

Motivation to learn in online environments

PERMISSION TO GRANT ACCESS TO STUDENT RESULTS DATA

Paper Coordinator

This form will be held for a period of five (5) years

I confirm that as course coordinator of _____
(insert name of course)

for semester one, 2008, I agree to provide Dr. Alison St. George with the requested student results data for the purposes of the above-named doctoral research project. I understand that the researcher, Maggie Hartnett, will not receive any information that includes student names or will identify individual students. I also understand that those students participating in the research will not be identified to me.

I agree that the aggregated data may be used by the researcher in reports and publications arising from the research.

Signature: **Date:**

Full Name – printed

Appendix T – Example of NVivo auto coding collating same question responses

The screenshot displays the NVivo software interface with a window titled "Question- 22. How did having choice influence your approach to this assignment (if you h...". The interface includes a menu bar (File, Edit, View, Project, Links, Code, Tools, Window, Help), a toolbar with various icons, and a text editor area. The text editor shows four references, each with a question and a response. The references are: Elizabeth (9.65% Coverage), Giselle (8.69% Coverage), Hazel (7.61% Coverage), and Irene (9.25% Coverage). The status bar at the bottom indicates "Sources: 12 References: 12 Unfiltered".

Question- 22. How did having choice influence your approach to this assignment (if you h...

File Edit View Project Links Code Tools Window Help

New

Arial 10

Code At Name ... In Free Nodes

[<Internals\Questionnaires\Elizabeth>](#) - § 1 reference coded [9.65% Coverage]

Reference 1 - 9.65% Coverage

Question: 22. How did having choice influence your approach to this assignment (if you had a choice)?

It meant we could discuss issues that were real to us and then investigate an issue that had meaning.

[<Internals\Questionnaires\Giselle>](#) - § 1 reference coded [8.69% Coverage]

Reference 1 - 8.69% Coverage

Question: 22. How did having choice influence your approach to this assignment (if you had a choice)?

I think choice allowed me to choose what was of personal importance to me, to my life. So because it had relevance I was engaged and motivated.

[<Internals\Questionnaires\Hazel>](#) - § 1 reference coded [7.61% Coverage]

Reference 1 - 7.61% Coverage

Question: 22. How did having choice influence your approach to this assignment (if you had a choice)?

The only choice I/we had was the topic and this enabled me/us to choose something that was meaningful. If there had been a choice of question options for this assignment, I would have chosen another option.

[<Internals\Questionnaires\Irene>](#) - § 1 reference coded [9.25% Coverage]

Reference 1 - 9.25% Coverage

Question: 22. How did having choice influence your approach to this assignment (if you had a

Sources: 12 References: 12 Unfiltered

Appendix U – Example of coding of qualitative data using NVivo

The screenshot shows the NVivo software interface with a document titled 'Irene'. The document content is as follows:

12. Problems

What kind of things if anything caused you problems during in the assignment?

Probably getting our heads around the technical side of it. With the PowerPoint display because we wanted to put our thinking log through. But we didn't want to umm yeah it was sort of how to intermingle that. So we had a go at the audio thing, recording it on to the PowerPoint. Which was quite good in the end because it was something we did that we wouldn't otherwise have done.

Umm and yeah just challenging to try and keep up with your group mates. I mean you wanted to make sure you were keeping your side of it up to date and up to scratch.

So it sounds like it was a bit of as you said before commitment to the group and made sure that people did their part.

Yes. Because Wendy had a, she went away for a week on school camp. And so she made sure that she had done all her bits before she went away and then she yeah. When she came back she wanted to make sure she was all up to scratch again and so that was fine. I mean it didn't worry the group because we knew what was happening

How does it make you feel when you are working in a group like that?

Yeah good. You feel like you have got some support out there yeah. Yeah it was really interesting working as a team instead of plugging away on your own.

Have you had a different experience to that perhaps in other names?

The right-hand side of the interface shows a coding tree with the following nodes and their associated colors:

- Coding Density (grey)
- Technology (purple)
- Effective (green)
- Negotiation_Sharing meanings & tasks (purple)
- Similar Expectations_commitment (purple)
- Trustworthy_reliable (red)
- Supportive_care (yellow)
- Interaction (blue)

Brackets on the right side of the text connect these nodes to specific paragraphs. For example, 'Technology' is linked to the first paragraph, 'Trustworthy_reliable' to the paragraph about Wendy, and 'Supportive_care' and 'Interaction' to the paragraph about working in a team.

Nodes: 75 References: 121 Read-Only Line: 337 Column: 0