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Investigating the role of community in sustaining teacher participation in blended professional development

Thesis submitted by

Michael John HENDERSON

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For the degree of Doctor of Philosophy

In the School of Education,

James Cook University

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The research presented and reported in this thesis was conducted within the guidelines for research ethics outlined in the National Statement on Ethics Conduct in Research Involving Human (1999), the Joint NHMRC/AVCC Statement and Guidelines on Research Practice (1997), the James Cook University Policy on Experimentation Ethics. Standard Practices and Guidelines (2001), and the James Cook University Statement and Guidelines on Research Practice (2001). The proposed research methodology received clearance from the James Cook University Experimentation Ethics Review Committee (approval number H1934).

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ACKNOWLEDGMENTS

ABSTRACT

This research sought to understand how the participation of teachers in a professional development course is sustained over time and, in particular, the role of community in that process. The literature review indicated that, while a mixture of face-to-face and computer mediated professional development has strengths in supporting social structures as well as being flexible in time and place, it was also clear that sustaining teachers' professional development is not automatically resolved through simply incorporating technology.

Consequently a situated learning (Lave & Wenger, 1991) perspective was adopted from which it is argued that teachers' professional development is a complex socio-cultural transformative experience involving not only the re-negotiation of practices but also identity. In particular, this research used Wenger's (1998b) conceptualisation of Community of Practice to explain why sustained participation is important for effective professional development as well as provide a lens by which the complexities of sustaining teachers' professional development can be understood and *designed for*. It is argued that sustained participation is a characteristic of community cohesion, that is, an investment in mutual engagement (doing things together), joint enterprise (responding to problems together) and shared repertoire (resolving problems together).

Nevertheless, the nature of the relationship between Community of Practice and sustained participation remained unclear in the literature, especially in the context of a small-scale blended professional development course. Consequently, this research was driven by a single research question: *What role does Community of Practice cohesion play in the sustained participation of teachers in a small-scale blended PD course?* In addressing this research question, a case study methodology was applied to two groups of teachers participating in a blended professional development course which had been designed to provide opportunities for participants to mutually engage in a joint enterprise and share repertoire. However, the design

and its impact on the participants were not the research focus *per se*. The focus lay in trying to understand the sustainability of participation in terms of Community of Practice cohesion.

The study was exploratory in nature. It is limited in its generalisability and the findings should be considered critically due to subjectivity. Nevertheless, the scope of this research was to identify issues relating to the role of Community of Practice cohesion in relation to sustained participation of teachers in a small-scale blended professional development course. Those issues are theoretically generalisable and the aim was to provide the research literature with avenues for future research which may, in turn, lead to generalisable professional development design principles or strategies.

Case Study One included five participants in Australia and Case Study Two had four participants in the United Kingdom. All but one of the participants successfully completed the course and participated online for up to 13 weeks. Although the case studies had similar outcomes, they were significantly different in the ways in which the teachers' interacted with each other. From a Community of Practice perspective, these differences were critical for both community cohesion as well as sustained participation. Case Study One indicated characteristics of a localised, coherent Community of Practice. In contrast, Case Study Two demonstrated less coherence in mutual engagement, joint enterprise and shared repertoire. In both case studies, it has been argued that community cohesion or lack thereof helped to explain issues of sustainability of teacher participation.

While not forgetting the context of this research and the limitations on generalisability, the findings support seven propositions: (1) Community of Practice cohesion affords sustained participation of teachers in a small-scale blended PD course; (2) the relationship between cohesion and sustained participation is synergistic; (3) mutual engagement sustains participation through reciprocity, social engagement, and community maintenance practices; (4) joint enterprise sustains participation because it both focuses and spurs social energy; (5) shared repertoire both affords and threatens sustained participation in a blended course through reification of identities of competence; (6) the facilitator acts as a community broker and

legitimates members' participation in centripetal practices of the community; and (7) the facilitator also supports sustained participation through brokering community rhythm.

The research findings also support three broad professional development design implications: (1) professional development design needs to focus on relationships; (2) professional development design needs to support meaningful social activity and should re-examine goals, curriculum and assessment to emphasise this as a core principle; and (3) online participation, such as through discussion forums, is not a risk free activity and represents a negotiation of identity. Consequently forums, including social forums, need to be facilitated to provide a safe environment for identity formation.

Based on the research findings, this thesis also outlined a number of recommendations for future research. These recommendations include considering the implications of group size, gender, quality of participation, and using professional development course graduates to induct new members. It is also made clear throughout this research that there is little consistency in the way in which the terms "community", "community of practice" and other variations are applied in the research literature. Often they are used synonymously or are poorly explained despite the significant theoretical implications. This research calls for a comprehensive review of the research and theoretical literature with the aim to map connections which, in turn, can be used to support research findings.

This thesis has addressed gaps in the current research literature. It crucially adds to the theoretical understanding of Community of Practice cohesion. In particular, the ways it affords and threatens sustained participation.

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CHAPTER ONE: INTRODUCTION

The Context and Rationale

The Professional Development (PD) of teachers should, among other design principles, be sustained over time (e.g., Downes et al., 2001; Hawkes & Romiszowski, 2001; Hawley & Valli, 1999; Kenny, 2003; Vance & McKinnon, 2002). However, the majority of PD is delivered in single or short sequences of face-to-face sessions and gives limited consideration to this requirement (Commonwealth Department of Education Science and Training, 2001; Downes et al., 2001; McRae, Ainsworth, Groves, Rowland, & Zbar, 2001). Furthermore these forms of PD have been shown to be generally ineffectual in impacting on teacher practice and student learning (Brooks-Young, 2001; Centre for Educational Research and Innovation, 1998; Commonwealth Department of Education Science and Training, 2001; Hawley & Valli, 1999; McRae et al., 2001; Miller, 1998).

Five years of personal experience, as a Department Head in charge of delivering and co-ordinating school-wide PD in ICT, supports these comments; once the face-to-face training is completed, a large proportion of teachers appear to succumb to entropy, that is, they no longer engage with the materials, ideas or skills covered in the PD course. Furthermore, in many instances it is not desirable for the teacher, school administrator, or professional developer to prolong the face-to-face training. Apart from financial repercussions such as paying teachers to cover lessons, there is the issue of disruption to the teaching and learning process. The question arose: how can I help sustain teachers' professional development when it is not possible to extend the face-to-face training? The use of a pronoun in this question is valuable as it contextualises this research in terms of a local, as opposed to a systemic, approach to sustaining the PD experience. Within this pragmatic lens, I shift the focus from issues of systemic support, administrative leadership, technology, and other wider constraints to one of a

professional and social contract between myself and the PD participants. In other words, how can a PD course with limited resources and budget sustain teacher PD?

One response can be seen in the growth of online and CD/DVD based training courses which allow teachers to continue their training in their own time. However, the literature also points out that these attempts often fail to address the complex needs of professional teachers (Brooks-Young, 2001; Commonwealth Department of Education Science and Training, 2001; DeWert, Babinski, & Jones, 2003; Downes et al., 2001; Hawley & Valli, 1999; McRae et al., 2001). More than mechanistic knowledge or skills need to be addressed. Teachers' PD is intensely multifaceted and involves the issue of identity as much as any question of learning new practices. Effective PD aims to transform an outlook, not just a skill set. The literature review consequently argues that teachers' PD must be situated in their social and cultural environment and, consequently, that situated learning and, in particular a community based approach may be useful in addressing these complex needs. Furthermore, the literature review proposes that a blended mode of delivery, utilising both face-to-face and computer mediated PD, such as a virtual learning environment, may be able to facilitate and sustain the PD community while remaining within the pragmatic limitation of a personal rather than system response. These arguments are further explored in the literature review Chapters Two and Three.

Although PD policy, guidelines and research literature cite community as a viable approach to sustainability of teacher participation, the literature review also reveals that there is little uniformity in the way community is defined. Furthermore, there was no research that specifically focused on the connection between community and sustained participation. This became a critical issue for the current research project. It changed the initial focus of this research from trying to find a way in which to sustain participation to trying to identify the role community has in sustaining PD. In effect the research moved from seeking a strategy to better understanding the process.

In a further attempt to refine the focus on community, it is argued that Community of Practice (CoP) is a valuable framework which helps to explain both the need and complexity in

achieving sustainability. In this framework, learning is a personally transformative experience where practice and identity are negotiated over time. This explains why sustained participation is important. Moreover, CoP provides a lens by which the complexities of sustaining teachers' PD can be understood. Crucially, the literature review also reveals that a cohesive CoP is one which sustains participation. However, the nature of the relationship between CoP and sustained participation, especially in the context of a small-scale blended PD course, is not further elaborated in either the theoretical or research literature. Consequently, this research aimed to address this knowledge gap.

Research Aims and Question

I originally conceived this research project as a way to find strategies in sustaining teachers' participation in PD. Furthermore, as I researched literature on PD it became apparent that CoP addressed all the criteria of effective PD but also indicated a means of achieving sustained participation. However, this ambitious aim was, through necessity, modified. After consideration of the CoP theoretical and research literature, it became clear that the relationship between CoP and sustainability, particularly in the context of teacher's PD, had not yet been investigated. Consequently the aim of this research was to explore the connection between the process of CoP cohesion (as defined by Wenger, 1998) and the sustained participation of teachers in PD. It is important to emphasise that this project's aim was not to argue that CoP sustains participation, but rather that CoP may help us understand the issues of sustainability in the context of teachers' participation in PD. Furthermore, this research is contextualised within a small-scale blended (face-to-face and online) PD course. As such, it also raises the issue of the validity of CoP as an approach when dealing with small numbers of participants who interact via face-to-face and online modes.

Consequently, this research is driven by a single research question:

What role does CoP cohesion play in the sustained participation of teachers in a small-scale blended PD course?

This research question tries to balance the broad scope afforded by the exploratory nature of this study with the contextualised focus of teachers in a small-scale blended PD course. Nevertheless, as I have found throughout the course of this project, the CoP lens recasts PD as a socio-cultural transformation and, as a result, it is easy to get lost amongst all of the emergent lines of inquiry. Consequently, the scope and limitations of this research need to be clearly defined in order to understand why I have pursued some avenues while leaving others for future research.

Scope and Limitations

The definitions of community, including CoP, vary considerably across the PD and CoP research literature. In order to strengthen the analytical generalisability of this research the theoretical focus has been limited to Wenger's (1998b) CoP framework. The reasons for choosing this specific framework are included in Chapter Three. As a result of this choice, the research literature which has been used to build a theoretical understanding of CoP and its applicability to PD is critically considered or eschewed where it does not use or specify the specific CoP framework. Similarly the data collection, analysis and findings rigorously focus on the processes of CoP according to Wenger's (1998b) framework.

This research purposely does not consider how the participant behaviour, or the processes of CoP, may be explained by other theories. It is not the purpose of this research to validate CoP as a theory, but rather investigate if, from such a theoretical perspective, emergent themes can be identified. Consequently, although the observed and reported social activity could be recast as an exploration of power-relations, culture, gender differences, socio-economic class, organisational behaviour, personality or any other socio-cultural phenomenon, such lines of inquiry are eschewed unless they emerge as significant themes which help to

clarify the role of CoP. Indeed, CoP as a social theory of situated learning is compatible with these socio-cultural influences in the way it considers them as personal histories and trajectories of identity.

This research uses a case study methodology with small numbers of participants. Consequently the findings of this research are limited in generalisability. In addition, since I was the researcher, PD course designer (writer) as well as the PD course facilitator (trainer) the validity and reliability of data collection and analysis is threatened by subjectivity (Huberman & Miles, 1998; Silverman, 2005) and the Hawthorne Effect (Tashakkori & Teddlie, 2003). The issues of generalisability, validity and reliability are carefully addressed in the methodology chapter. Consequently, in an attempt to strengthen the findings, this research uses a variety of strategies including, but not limited to, triangulation across multiple collection points, tools, and cases as well as member checking. Furthermore, the design and facilitation of the course is documented and is based on defensible good practice as identified in chapters two and three. Nevertheless, the research findings should be considered heavily contextualised with limited analytical generalisability.

It is true that the course was designed and facilitated using defensible PD practices (see Chapter Two) but also in a way that was designed to encourage the formation of a localised, cohesive CoP. Nevertheless, this research does not pretend to be studying a representative PD course. Indeed, the reason why the course was designed and facilitated was because there were no courses which were available to the researcher that used the CoP framework. This research does not attempt to show which PD design elements did or did not facilitate CoP cohesion except where they also clarified the role of CoP cohesion in sustained participation. Furthermore, the role of the facilitator in that process is well documented and considered as part of the results analysis in both case studies.

Another point which should be highlighted is that this research was originally conceived as an investigation into teachers' PD in the area of information technology. However, after some time reviewing the research literature it became apparent that, while there is considerable literature, media publicity and government interest in the PD of teachers in using

ICT, the same problems, including sustainability, were being faced by all PD areas in education. Consequently this research is grounded in PD in the area of information technology but speaks to the wider issue of teachers' PD. This research considers PD in the wider context and not just the training of technical or computing skills. This means that this research frequently refers to research literature regarding PD in general as well as drawing on the considerable research in teacher PD in information technology.

To reiterate, this research is founded on a pragmatic approach to PD which reduces the focus of research to the PD design and facilitation. It does not attempt to identify or control external influences such as school support, leadership, technical capability, family, etc. These issues, like the socio-cultural influences mentioned above, are discussed as and when they emerge from the data as a theme impacting on the process of CoP. In particular, this research refines its focus of CoP to three dimensions of cohesion, that is, mutual engagement, joint enterprise, and shared repertoire. Themes which help to clarify the role of these dimensions (either positively or negatively) are discussed. Data which do not appear to be relevant, despite being of considerable interest to other theoretical frameworks, are not discussed, although in many cases have been raised as issues for possible future research.

As a final point, it should be noted that this study is exploratory in nature. It attempts to go where no-one has gone before! It is limited in its generalisability and the findings should be considered critically due to subjectivity. Nevertheless, the scope of this research is to identify issues relating to the role of CoP cohesion in relation to sustained participation of teachers in a small-scale blended PD course. Those issues are theoretically generalisable and the aim is to provide the research literature with avenues for future research which may, in turn, lead to generalisable PD design principles or strategies.

This research is also limited in its research focus by defining "sustained" in terms of "over time" (as opposed to, for example, cognitive effort). It also defines PD broadly as processes, and activity that arise from those processes, which are likely to lead to change in teachers' identity, knowledge, skills and nature of work. These definitions and their implications for the scope and limitation of this research are further explained below.

Definitions

This research uses a number of widely used terms which can be interpreted in a number of different ways. Consequently the literature review Chapters Two and Three spend considerable time in defining terms such as professional development, participation, community and community of practice. However, brief explanations are provided below to assist in aligning the reader's perspective to that of this research.

Defining Professional Development (PD) and Blended PD

In this research, PD is used to refer to processes, and activity that arise from those processes, which are likely to lead to change in teachers' identity, knowledge, skills, and nature of work. For the purposes of this research PD is a process not an outcome. PD outcomes may be an understanding of different teaching strategies or increased skills in technology. In contrast the proposed definition of PD includes any process or activity which may lead to those outcomes, even if they are not successful. This broad definition encompasses teachers' applications of the term such as, "I went on a PD course" as well as the concept of career-long learning. The definition can also be equally applied to situated and informal processes as well as special or externally provided courses. The definition draws upon the frameworks of social constructivism, CoP, and situated learning.

This definition allows this study to consider processes that extend beyond the planned activity. For instance, teachers may participate in a face-to-face training session where ideas and practices are discussed. However, the PD does not stop at that point. The teachers may then take elements of those ideas discussed and trial them in their workplace which, in itself, may negotiate new meanings and identities for the teacher. As a result, PD is not limited to the confines of the planned activity, nor is it restricted by observable outcomes. Indeed, for the

purposes of this research a teacher continues to be engaged in PD if they are thinking, planning or reflecting upon the processes or activity.

This research also refers to blended PD. The term 'blended' is applied in this research to indicate a mixture of face-to-face and online or distributed activity. It does not suggest equal emphasis or any particular order of the activity. In the case of this research the PD begins with a face-to-face day followed by online activity through a Virtual Learning Environment (VLE).

Defining Virtual Learning Environments (VLEs)

A VLE is most commonly a web based system that allows teachers and students to share resources, communicate and to some extent participate in assessment activities. Virtual Learning Environments are also known as: Managed Learning Environment (MLE), Content Management Systems (CMS), Learning Management Systems (LMS), eLearning systems, online learning, and learning portals. This list is not definitive. Most of these terms are often used synonymously, although upon closer inspection they do have slightly different connotations. A Managed Learning Environment connotes an integrated management of student data, institutional procedures and learning tools (Baskin & Henderson, 2004; Everett, 2002). On the other hand, a Content Management System connotes the delivery of materials rather than the facilitation of community (M. Henderson, 2004a). As a result this research uses the rather more generic term VLE to encapsulate a web-enabled environment which can provide content, facilitate communication and support collaboration. Jackson and Anagnostopoulou (2002) define a VLE as a structure built from a synthesis of communication software and online methods of course delivery. The Joint Informations Systems Committee (JISC) similarly define a VLE as being primarily concerned with the facilitation of communication between students and teachers (Everett, 2002). Not surprisingly, there are many different VLEs and they all vary in features and capability (Jackson & Anagnostopoulou, 2002).

This research utilises Blackboard software which has been licensed by Education Queensland for use by classroom teachers as well as for use in the Virtual Schooling Service

and in their Distance Education programs. It has both strengths and weaknesses which will not be explored in great depth at this time but will be revisited in the methodology and, where appropriate, in the discussion of results chapters. It is sufficient at this point to note that Blackboard meets the VLE definition because it is a web based platform designed to support learning through a combination of CMC technologies such as email, discussion forums, notices, calendars, course materials, images, video clips and other media.

<center>*Defining Sustained Participation*</center>

This research aims to study how teachers' participation in PD is sustained. In this context "sustained participation" refers to ongoing or repeated engagement in that process or activity. Both words "sustained" and "engagement" are applied in the sense of common usage. Sustained is defined by the Merriam-Webster Online Dictionary as meaning supported, prolonged and buoyed ("sustain," 2006). Engagement is defined as a state of involvement or participation ("Engage," 2006).

Consequently the focus of this research is the relationship between community and participation over time. This is an important distinction because sustained engagement could be misread to suggest a focus on cognitive skills. While the level of cognitive engagement would logically be a significant variable in the impact of the PD, it is not the goal; the primary aim of this research to investigate how PD is sustained over time. While reported and observed levels and types of engagement will be described in this research it is not my intention to distinguish between the forms of engagement or to theorise on their relative impact or value. The relationship between PD and the type of engagement is a topic for future research.

<center>*Defining Community and Community of Practice (CoP) Cohesion*</center>

Community is a term which is frequently applied, especially in online environments, to collaborative interaction, particularly if there appears to be a sense of solidarity or emotional

connection (Brown, 1999; Wallace, 2003). In contrast, CoP refers to a social theory of situated learning. It has already been pointed out that CoP has also been used widely, often in ways that bear little resemblance to its origins in the works of Lave and Wenger (1991) and Wenger (1998b). Chapter Three explores the theory of CoP in considerable detail.

However, it is useful at this point to acknowledge that, while PD literature and, indeed, the participants themselves refer to community, it should be assumed, unless otherwise stated, that they are using it in the sense of the vernacular as opposed to the theory of CoP. In contrast, whenever I use the terms "CoP" and/or "community", I am referring to the theory of CoP as outlined by Wenger (1998b). Nevertheless, I infrequently use the term community, especially at the beginning of this thesis in order to avoid confusion. I use "community" more frequently in the discussion of results to help unpack the text and make the argument more discernable to the reader.

Overview of the Chapters

Apart from the current chapter, this thesis is organised according to the following structure.

Chapter Two: Professional Development

Chapter Two contains a literature review of professional development priorities, trends and models. Effective PD needs, among other things, an element of sustainability that is currently lacking in one-shot and face-to-face professional development. While long term face-to-face training is not practical for most schools and teachers, other methods of training that attempt to provide a solution, such as ePD, are proving to be unsuccessful. In contrast, blended models appear to have some promise. However, the literature review also suggests that we need to address not just mechanistic technical knowledge but also issues of teachers' intensely multifaceted and socio-political environments. Literature suggests that a community based approach may be useful in addressing these complex needs.

Chapter Three: Community of Practice

Chapter Three contains a literature review of CoP which becomes the theoretical construct underpinning the current research. It is argued that CoP helps to explain how and why a community based approach may address the issue of sustaining participation in teacher PD. However, because of the general lack of research on sustainability of professional development from a CoP perspective, much of the literature is drawn from outside of the education industry and has resulted in heavily theoretical extrapolations.

By the end of the literature review I propose that sustained participation may be achievable through a blended approach (as argued in Chapter 2), wherein a Virtual Learning Environment (VLE) is used to facilitate a learning space that draws on the strengths of a CoP. Moreover, that the CoP cohesion model drawn from Wenger's (1998b) work provides an analytical framework by which we may better understand the role of CoP in the sustained participation of teachers in a small-scale blended PD course. As a result, the review concludes by identifying the research question: What role does CoP cohesion play in the sustained participation of teachers in a small-scale blended PD course?

Chapter Four: Methodology

The methodology chapter argues that a qualitative multiple-case study approach is the most appropriate research design for this exploratory research. The chapter justifies the selection of data collection and analysis methods by considering the strengths and weaknesses of the methodological approach while acknowledging the theoretical lens and paradigm which frames the research and researcher. In addition to outlining the reasons for a qualitative, multiple-case study methodology, issues such as generalisation, validity and reliability are also discussed. The chapter proceeds to describe the case selection, participants, ethical considerations, PD course design and implementation, as well as participant researcher

considerations. Finally, the chapter explains the methods and tools used in the collection and analysis of the data.

Chapter Five: Case Study One

This chapter presents evidence of how the teachers participated in the PD course and how their participation over time can be understood in terms of CoP. In doing so the chapter is divided into two parts. Part One describes how the teachers participated over time and provides the context for the discussion of CoP cohesion and its role in sustainability in Part Two. Consequently, it is argued that Case Study One is an example of how teachers engaged locally, coalescing into what is described as a sub-community. Case Study One data indicates that members were invested in the three dimensions of CoP cohesion: mutual engagement, joint enterprise and shared repertoire. Furthermore, these elements appeared to have a synergistic relationship with sustained participation.

Chapter Six: Case Study Two

This chapter follows the same structure as the previous chapter, except that it also highlights points of convergence and divergence with Case Study One. Part One of Chapter Six describes how the teachers participated in the blended PD course over time. Part Two explores how the data indicate or, more often, contra-indicate CoP cohesion and, more importantly, clarifies the issue of sustained participation. Consequently this chapter concluded that Case Study Two was not a coherent localised community. The comparison of case studies reveals issues of significance such as critical mass in a rhythm of meaningful participation, and highlights issues for future research, such as gender differences in CoP cohesion.

Chapter Seven: Conclusion

This chapter presents a summary of the research project along with general conclusions, theoretical and PD design implications as well as suggested avenues for future research. Although Wenger (1998b) agued that the dimensions of cohesion sustain a community, he gave little indication of how this occurred. It is argued that the current research has addressed this gap in the literature and not only indicates the appropriateness of a CoP approach in small-scale, blended PD but also helps to explain the role of CoP cohesion in the sustained participation of its members. While not forgetting the context of this research and the limitations on generalisability, the findings support seven theoretical propositions regarding the role of CoP in the sustained participation of teachers in a small-scale blended PD course. The conclusion chapter also includes several PD design implications emerging from the data as well as being based on the theoretical propositions. The thesis concludes with an outline of suggested future research avenues. These suggestions are drawn from the theoretical and PD design implications as well as potentially significant issues which emerged from the data but which were not further investigated due to the scope and limitations of this research.

CHAPTER TWO: PROFESSIONAL DEVELOPMENT

This chapter draws on policy, guidelines and research literature to reveal current problems, practices and possible solutions in the PD of teachers. The literature review begins with a brief overview of the national and international focus on PD of teachers in the use of Information and Communication Technologies (ICTs). This reflects the fact that this research arose from what appeared to be a failing of PD of teachers in the area of information technologies. However, the literature review is necessarily broadened in the pursuit of defining the nature of PD, identify key principles of effective PD, and explore potentially useful models of delivery. This research does not limit itself to PD in ICT. While acknowledging the threats and affordances of information technology in PD, this research argues that PD is more than learning mechanistic skills. In addition, this chapter identifies sustained participation of teachers to be desirable in PD but that there is no clear or pragmatic design in achieving this goal. Furthermore, that technology in itself does not address the complex needs of teachers' PD. This chapter concludes by calling for further analysis of CoP theory as a possible solution.

Professional Development: Priorities, Trends and Models

Context: National and International Priorities in ICT PD

The literature on PD of teachers, especially in the area of ICT, clearly indicates that state, national and international priorities are not being met (APEC Education Forum, 1999; Boucher & McRae, 2001; British Educational Communications and Technology Agency, 2004; Kearns, 2002; McRae et al., 2001; United Nations Educational Scientific and Cultural Organisation, 2002). The take-up of ICT in classroom practice is almost negligibly affected by traditional methods of PD (Downes et al., 2001; Kearns, 2002; Lloyd & Cochrane, 2005;

McKenzie, 2001; McRae et al., 2001). The integration of ICT across the curriculum is a key issue in primary and secondary education at both the national and state levels. However, while "teachers are developing basic ICT skills the main challenge of integrating new technologies into teaching practice still lies ahead for the bulk of the profession [furthermore] progress is taking place but not at the pace or depth required to effect major change" (Department of Education Training and Youth Affairs, 2000, p. 52). In addition, in a report on the integration of ICT, the Commonwealth Department of Education, Science and Training (DEST) stated that "traditional forms of professional development are not really effective in creating improvements in student learning" (2001, p. 9). This contention is well supported by research (e.g., Hawkes & Romiszowski, 2001; Lloyd & Cochrane, 2005; Vance & McKinnon, 2002). Given that current models of professional development, especially the popular "one-shot" (e.g., workshop) and face-to-face models, continue to fail in delivering ICT integration on the scale demanded, it is not surprising that The Ministerial Council on Education, Employment, Training and Youth Affairs (2003) identified teacher professional development with regards to ICT as one of the five national research priorities.

Australia's concern is reflected internationally. In a survey of ten countries, including the United Kingdom and the United States, Peter Kearns (2002) pointed out that the professional development of teachers is seen as crucial while at the same time admits to the general failure of traditional methods. A review of research literature from 26 countries conducted by the British Educational Communications and Technology Agency (2004) also comes to the same conclusion. Furthermore, a brief foray into the popular media and research literature also reveals considerable concern with regard to teachers' skills in meeting a perceived need for the integration of technologies. An example can be found on the site of a respected educational consultancy and software designer:

> In today's online culture, it's possible for students to access thousands of different topics in a matter of minutes. Yet our current education system is a throwback to the methods of schooling developed during the Industrial Revolution... In many cases, the

techniques our teachers use to interact with and impart knowledge to our students are

embarrassingly outdated. (Funderstanding, 1998-2001, ¶ 1)

Similarly, in an international report, the United Nations Educational Scientific and Cultural

Organisation (2002) argued that our educational systems have evolved from agrarian and

industrial cultures and are not prepared to take advantage of the information age. The report

proposed a series of radical shifts in thinking in order to ensure that teachers are prepared both

technically but also in term of pedagogical ICT skills.

Despite the considerable international and national interest in PD, especially in the area

of ICTs, there are no clearly defined solutions. Nevertheless, the literature makes it clear that

PD is more than learning mechanistic skills and traditional methods of PD have been generally

ineffective. Consequently the following sections outline a definition of PD and attempt to

identify current trends and effective strategies.

Defining Professional Development

PD is also referred to as: continuing professional development, staff development, and

in-service training (Downes et al., 2001); training and development, professional learning, and

training and professional development (McRae et al., 2001); and in some cases professional

regeneration (Hattam, Shacklock, & Smyth, 1996) or professional renewal (Kemp, 2001; Steffy,

Wolfe, Pasch, & Enz, 2000). For the purposes of this research, these terms are considered

synonymous, however, the term Professional Development or PD will be primarily utilised.

Downes et al. (2001) define PD as "any activity that develops existing teachers'

professional skills, knowledge and expertise" (p. 3). However, McRae et al. (2001) argue that

there is "significant difficulty in distinguishing and circumscribing professional development

activity" (p. 1). Indeed, PD is a complex and multifaceted term laden with political overtones

and in many cases unrealistic expectations. McRae et al. (2001) point out that professional

development intersects with larger issues, such as school reform, systemic and other externally-

induced change, retention of teachers, standards of performance, and the notion and

implications of professionalism itself. Smyth (2001), arguing from a Labour Process perspective[1], suggests that PD is just another form of control and subjugation of the teaching profession and process by the management. At the same time, PD is an intensely personal activity. McRae et al. (2001) indicate that respondents in their survey cogently argued that most things they do are professional development, from thinking constantly about their work to trialling new ideas discussed with colleagues. Indeed, it has been argued that PD spans an entire career of formal and informal learning experiences (Fullan, 1991; McIntyre & Byrd, 1998; Vrasidas & Glass, 2004b).

      Because of the private and public nature of PD any definition should be evaluated by the extent to which it marginalises teachers' work. For instance, the National (USA) Staff Development Council (2001) defines PD in terms of staff activities that result in the increase of student achievement. However, this risks marginalising teacher professionalism, personal aspirations and interest, pastoral values, child welfare and other non-outcome orientated activities. However, not all definitions that recognise public and private readings of teachers' work are apolitical. For instance, McRae et al. (2001) argue that PD can be defined as "deliberate processes designed for teacher['s]… professionally related education and training" (McRae et al., 2001, p, i). It is useful to note that while they carefully do not circumscribe the concept of "professional", they do limit the nature of the activity to those which are deliberate, that is, planned and goal orientated. Johnson (1999) advocates a Learning Community model which values situated or workplace learning and as a result argues that such perceptions of PD voiced by McRae et al. (2001) and the National (USA) Staff Development Council (2001) are too narrow and should be conceived "more broadly as opportunities for learning that occur naturally in the workplace as well as outside on special occasions" (p. 31). However, this

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[1] Labour Process theory is rooted in Marxist ideology but recast to explain modern management techniques. It is primarily focussed on the method by which workers get less than a full wage in return for selling their labour. Labour Process theory argues that workers, such as teachers, are silenced through inequitable power relations reinforced by such mechanisms as accountability measures, devolvement of responsibility, and professional development. These mechanisms may at first appear to be empowering tools, however, they also intensify the work, increasing responsibility and inevitably work hours without equitable reward (Smyth, 2001).

definition suggests that a gulf exists between "natural" PD and more structured or "special" PD, that is, workplace learning excludes structured and deliberate processes.

The above definitions pose a problem for research into "special" externally provided PD but which values "natural" workplace learning such as communities of practice, situated learning, teacher reflection, collaboration, and sustained experiences. Wenger's (1998b) theory of Community of Practice (CoP), which will be discussed more fully later in this research, is particularly problematic with regards to the above definitions. Wenger (1998b) argues that being a member of a CoP, both in terms of practice and identity, is inextricably linked to learning. Therefore any definition of PD must account for changes in not only how we think about our work but also our own identity.

While definitions of PD are varied and in some cases contradictory, a social constructivist lens could be used to validate dual or multiple meanings. We could therefore argue that PD seen holistically subsumes PD as an identifiable or deliberate activity. As a result, and for the purpose of this research, PD is used primarily to refer to processes, and activity that arise from those processes, which are likely to lead to change in teachers' identity, knowledge, skills, and nature of work. For the purposes of this research PD is a process not an outcome. PD outcomes may be an understanding of different teaching strategies or increased skills in technology. In contrast the proposed definition of PD includes any process or activity which may lead to those outcomes, even if they are not successful. This definition encompasses teachers' applications of the term such as "I went on a PD course" as well as the concept of career-long learning. The definition can also be equally applied to situated and informal processes such as critical reflection as well as special or externally provided courses. The definition draws upon the frameworks of social constructivism and situated learning. It allows this study to consider processes that extend beyond the planned activity. For instance, teachers may participate in a face-to-face session where ideas and practices are discussed. However, the PD does not stop at that point. The teachers may then take elements of those ideas discussed and trial them in their workplace which in itself may negotiate new meanings and identities for the teacher. As a result, PD is not limited to the confines of the planned activity, nor is it

restricted by observable outcomes. Indeed, for the purposes of this research a teacher continues to be engaged in PD if they are thinking, planning or reflecting upon the processes or activity.

This research aims to study how teachers' participation in PD is sustained. It has already been pointed out in Chapter One that "sustained participation" refers to ongoing or repeated engagement in that process or activity. Both words "sustained" and "engagement" are applied in the sense of common usage. Sustained is defined by the Merriam-Webster Online Dictionary as meaning supported, prolonged and buoyed ("sustain," 2006). Engagement is defined as a state of involvement or participation ("Engage," 2006).

Consequently the focus of this research is the relationship between community and participation over time. This is an important distinction because sustained engagement could be misread to suggest a focus on cognitive skills. While the level of cognitive engagement would logically be a significant variable in the impact of the PD, it is not the focus of this research. Instead, the primary aim is to investigate how PD is sustained.

PD in Schools: Current Trends

In their national survey, *PD 2000 Australia,* McRae et al. (2001) indicate that there are three core formats of professional development in schools: workshop discussion, listening to a speaker followed by a discussion, and conference attendance. While there were a variety of other formats available, the survey revealed that the vast majority of PD utilised a "one-shot", "face-to-face" model. Moreover, one-shot models were the preferred means of ICT professional development by both teachers and trainers (Commonwealth Department of Education Science and Training, 2001; Dede, Breit, Ketekhut, McCloskey, & Whitehouse, 2005; Downes et al., 2001; McRae et al., 2001). This is despite significant research which shows that one-shot delivery methods are generally ineffectual in impacting teacher practice and student learning (Brooks-Young, 2001; Centre for Educational Research and Innovation, 1998; Commonwealth Department of Education Science and Training, 2001; Hawley & Valli, 1999; McRae et al., 2001; Miller, 1998).

In contrast, sustained, collaborative, situated and reflective experiences are more likely to engender change in practices and thinking leading to the integration of ICT in more effective ways (Downes et al., 2001; Hawkes & Romiszowski, 2001; Hawley & Valli, 1999; Kenny, 2003; Vance & McKinnon, 2002). Literature which argues that face-to-face PD is valued, and that sustained, collaborative and reflective communities are vital, can be read from a social constructivist lens as being a symptom of the need for *semiotic spaces* (Wertsch, 1991) where meaning can be negotiated through interaction and exploration of the discourse. However, this is a process that takes time, which is, of course, limited in a one-shot method. Nevertheless, the value of a sustained approach is being recognised by developers and participants alike, resulting in an increasing trend of PD to incorporate serial or follow-up activities (Downes et al., 2001; McRae et al., 2001). The emphasis on sustained engagement is common throughout the literature on professional development. For instance the National Foundation for the Improvement of Education (1996) argue that long-term change of practices require a rigorous and sustained approach to PD. The Centre for Educational Research and Innovation (1998) argue that PD, in order to be effective, must be sustained, ongoing, and intensive. Both the United Nations Educational Scientific and Cultural Organisation (2002) and APEC (1999) argue that sustainability is a key element in PD.

While sustained engagement in the PD process is valuable and is the central focus of my research, it should be placed in context as only one of the design principles for effective PD. In their meta-analysis of PD research, Hawley and Valli (1999) stated that there is "an almost unprecedented consensus … emerging among researchers, professional development specialists and key policy makers on ways to increase the knowledge and skills of educators" (p. 127). In their synthesis of the literature Hawley and Valli (1999) identified eight commonly asserted design principles for effective PD (see Table 1), of which, sustained engagement features prominently in the guise of "continuous and supported" PD.

Table 1

Design Principles for Effective Professional Development

Design principle	Effective professional development:
Goals and student performance	is driven, fundamentally, by analyses of the differences between (1) goals and standards for student learning and (2) student performance.
Teacher involvement	involves learners (such as teachers) in the identification of their learning needs, and when possible, the development of the learning opportunity and/or the process to be used.
School based	is primarily school based and integral to school operations.
Collaborative problem solving	provides learning opportunities that relate to individual needs but for the most part are organized around collaborative problem solving.
Continuous and supported	is continuous and ongoing, involving follow-up and support for further learning, including support from sources external to the school.
Information rich	incorporates evaluation of multiple sources of information on outcomes for student and processes involved in implementing the lessons learned through professional development.
Theoretical understanding	provides opportunities to develop a theoretical understanding of the knowledge and skills to be learned.
Part of a comprehensive change process	is integrated with a comprehensive change process that deals with the full range of impediments to and facilitators of student learning.

Note. Adapted from Hawley and Valli (1999, p. 138).

It is interesting to note that Hawley and Valli's (1999) design principles have since been used as a benchmark by the Australian government (Department of Education Science and Training, 2002; Downes et al., 2001; McRae et al., 2001) and in academic literature (Barron, Martin, Roberts, Osipovich, & Ross, 2002; Bett & Kelly, 2002; Boucher & McRae, 2001; Dede et al., 2005). McRae et al. (2001), in their own analysis of literature on effective PD, argued that the above principles are so well established that there is little value in further researching new principles of effective PD. Instead, they claim there is a general consensus that practitioners have not been able to apply these principles effectively. This rather contentious statement is not supported by a wealth of recent literature outlining examples of practitioners and researchers attempting to translate the principles into reality (for example, see Herrington & Oliver, 2000 for research on collaborative problem solving; Hogue, 2003 for a description of online PD related to teacher involvement; MacKenzie & Staley, 2001 for addressing the task of providing an information rich environment; and Newell, Wilsman, Langenfeld, & McIntosh, 2002 for a sustained community approach). However, the literature does support Hawley and Valli's (1999) comment that "few of these principles are common to professional development programs in schools and colleges, and the cases where most, much less all, of the principles are being implemented simultaneously are rare indeed" (p. 145). For this reason researchers and practitioners are turning to community based approaches as a possible solution to the failures of other professional development models (Downes et al., 2001).

A community solution.

Communities of practice and learning communities have become popular, and often synonymous, catch phrases (Downes et al., 2001; McRae et al., 2001; National Staff Development Council, 2001). They are emotively charged with connotations of collaboration, collegiality and solidarity. However, CoP are difficult to sustain and direct (Lieberman, 2000). Indeed, Lave and Wenger's (1991) situated learning theory argues that, while communities of practice are fundamental mechanisms in learning, such communities cannot be designed, but

can only be designed for. (The complex theories of situated learning and communities of practice will be explored in depth later in the following chapter.)

Despite the complex and sometimes ethereal qualities of CoP, they are frequently advocated as an almost magical solution to PD (Downes et al., 2001). For instance, the APEC Education Ministers made the following joint statement: "Sustainable communities of practice among teachers, students, researchers and other stakeholders will allow us to leverage on each other's experience, knowledge, and research findings on innovative uses of ICT in learning and teaching" (APEC, 2004, ¶ 15). Similarly, the American National Staff Development Council (2001) argues that a "learning community … encourages collaboration and shared inquiry, providing the necessary resources, and ensuring strong leadership to sustain the efforts" (p. 5). Lloyd and Cochrane (2005) point out that professional learning communities had the greatest overall impact, including sustained impact, when compared with such models as face-to-face, multiple session, and online projects. They state:

> Professional learning communities were found to be a contributing factor in sustaining the impact of professional development by supporting learners, establishing networks and encouraging collaboration and sharing of knowledge and ideas. Professional learning communities were seen as powerful and supportive environments for teachers seeking to develop their professional practice. (Lloyd & Cochrane, 2005, p. 7)

Indeed, there is a rapidly growing body of research literature on PD using CoP or community based design which support the effectiveness of such an approach (e.g., Buysse, Sparkman, & Wesley, 2003; Clarke, 2006; Grisham, Bergeron, & Brink, 1999; Lloyd & Cochrane, 2005; Palloff & Pratt, 1999; Smith & Trayner, 2005; Wallace, 2003). For instance, Dede, Breit, Ketekhut, McCloskey, & Whitehouse (2005) indicate that, in a review of 40 empirical research projects on online teacher PD, 25 of the studies used CoP theory in the design of the PD.

However, it is also readily apparent that despite the high expectations of CoP as an effective PD approach, the way in which the research literature applies the term varies significantly (C. Johnson, 2001; Wallace, 2003). For instance, Lloyd and Cochrane (2005) refer to a professional learning community and cite organisational structures as examples. In contrast,

Wallace (2003) uses the term CoP but applies it with the connotation of collaboration whereas Smith & Trayner (2005) refer to CoP as a structural model as defined by Wenger, McDermott, & Snyder (2002). This is quite different from the way in which LiaBraaten, Rustin, & Sullivan (2004) define CoP as an amalgam of both the structural model of Wenger, McDermott, & Snyder (2002) as well as the social learning theory of Wenger (1998b). This list is but a sample of the different ways in which the terms "community", "community of practice", "learning community", "online community", "professional learning community" are used interchangeably or without clear definition despite considerable differences in their theoretical significance. For instance, community as a collaborative enterprise is considerably different from CoP as originally theorised by Lave & Wenger (1991).

Based on the PD literature it is argued that CoP appears to address the key principles of effective PD including sustainability. However, it is also clear that the literature needs to be considered with a critical understanding of the disparity in community approaches. This is addressed in the CoP literature review in Chapter Three.

ePD (electronic Professional Development)

While the literature increasingly places value on sustained PD, Brooks-Young (2001) noted that implementing ongoing and systemic training has been impractical for many schools because of the financial cost and disruption to the teaching and learning process. As a result, it is not surprising that administrators and trainers have begun to look at ePD[2] solutions as possible ways to achieve effective PD at an acceptable cost (Downes et al., 2001; Killion, 2000; McRae et al., 2001).

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[2] Throughout the literature on PD, including community based approaches, the role of technology facilitated PD, especially online or web-based PD, is commonly cited as a valuable approach in providing an ongoing PD experience. However, in order to not favour one technology over another (for example, webpages compared with instant messenging) and to allow for emergent technologies (for example, vlogs) I have coined the term, "ePD" (M. Henderson, 2004b). ePD refers to any PD that relies on information and communication technologies to deliver or sustain the PD experience. Although the term includes the use of CD-ROM, DVD, video-conferencing, etc., it does connote a significant emphasis on internet based technologies.

The shift towards ePD has been supported by systemic arguments of cost effectiveness and accountability (Killion, 2000). There is also a body of literature that argues the efficacy of ePD as a learning tool. Hawkes and Romiszowski (2001) contend that computer mediated communication can significantly improve the breadth and depth of teacher reflection in comparison with face-to-face discourse. This stance is supported by Vance and McKinnon's (2002) study. However, the Commonwealth Department of Education Science and Training (2001) warns that "neither 'online learning communities' nor 'online professional development' can provide quick fixes for the complexities of continuing professional development" (p. 9). Indeed, while there are a number of advantages to ePD "the jury is still out on its overall effect" (Brooks-Young, 2001, p. 26).

In an Australian national survey McRae et al. (2001) found that, despite a growing trend of providers moving towards online professional development, it is by far one of the less popular methods of training and is as equally unsuccessful as face-to-face PD. However the same survey found that ICT was not only the most common PD topic on offer but also had the highest rating of PD participation (McRae et al., 2001). Clearly, ePD by itself has not significantly impacted teachers' use of ICT. While a variety of explanations have been suggested by researchers, none have dismissed the medium outright. Instead they raise issues such as needing to improve the quality of materials (McRae et al., 2001), provide social, emotional, and professional support in addition to practical skills (DeWert et al., 2003), provide authentic activities and social spaces to explore the discourse (Herrington & Oliver, 2000), embed social interactions (Kreijns & Kirschner, 2001), or be school based and driven by student performance (Downes et al., 2001). In short, the same good design principles of face-to-face PD are recommended for ePD.

This is not to say that ePD does not have some advantages over other modes of delivery. The American National Staff Development Council (2001) argued that ePD fundamentally changes the learning environment and, among other things, facilitates modelling and visualisation as well as unprecedented access to information, networks, people, and ideas. As previously mentioned, Hawkes and Romiszowski (2001) argued that the asynchronous

capacity of ePD can engender more thoughtful and reflective participation. Dede, Breit, Ketekhut, McCloskey, & Whitehouse (2005) argue that face-to-face "rated higher for interactivity … but that online discourse was significantly more reflective" (p. 39). Brosnan and Burgess's (2003) research found that computer mediated communication is particularly suited to fostering learning communities. Fowler and Mayes (1999) argued that computer mediated communication can provide a supportive environment for students to explore their identities and therefore transform learning. Herrington and Oliver (2000) pointed out that computer mediated communication is particularly useful in (a) supporting students to articulate, reflect and scaffold with a partner and (b) providing authentic contexts of activity. Mather (2000) reported that,

> adding an online component to professional development allows teachers to participate over an extended period of time and to intimately connect their learning to what is going on in their classrooms. This has proven particularly important for teachers isolated in rural districts and for those with limited resources from inner-city schools.
> (p. 24)

To synthesise, themes of situated workplace learning and sustained or ongoing engagement not only frequently appear in the ePD literature but are also two of the eight design principles of effective PD. While ePD may not provide the whole solution, the literature does appear to support the potential for ePD in affording an environment conducive to both community and sustaining participation.

Systemic issues within ePD.

Some proponents of ePD (e.g., DeWert et al., 2003; Killion, 2000) cite accessibility, flexibility in scheduling, and cost efficiency as strengths of the delivery method. While these are *prima facie* advantageous for PD participants, it is important to distinguish political agendas from pedagogic justifications. This research aims to further the knowledge base of effective PD from the point of view of the students and of the teachers. What appears to be effective and valuable on the part of teachers may be considerably different to the view of administrators, principals, districts, and regional offices. Indeed, it would be surprising to find otherwise since

the latter have different pressures, namely budgetary limitations and accountability of procedures and outcomes.

Many of these political or systemic agendas are couched in pedagogic rhetoric. For instance, DeWert, Babinski and Jones (2003) stated that "online communities overcome barriers of time and distance" (p. 312) which appears to be a valuable and logical strength of ePD. However, the logic of their argument is not supported by the statistical data that points out teachers in remote locations, despite the barrier of distance, participate in as much or more face-to-face PD than teachers in urban environments (McRae et al., 2001). As a result, it is essential that summative statements of effectiveness, worth, and value are critically evaluated. Killion (2000), writing for the National Association of Secondary School Principals, stated that online staff development promises "increased access, greater flexibility, cost savings and greater opportunity for collaboration" (p. 39). He argued that not only can staff access ePD from anywhere, including their homes and schools but also at anytime and, as a result, "they will not have costs associated with travel, child care, or lost travel time" (Killion, 2000, p. 41). While this appears to be an advantage for the participants, potential strengths of ePD can be undermined by not recognising the wider perspective of teacher professionalism and its systemic pressures (M. Henderson, 2004a). Killion (2000) went on to argue that reduced travel means fewer face-to-face experiences and consequently reduced trainer costs. Indeed, he succinctly highlighted a misconception of ePD:

> Once a course is developed, it can be made available to 2 or 20,000 learners. After the initial cost of course development, the course can be easily modified, updated, and available for extended periods of time even if the 'trainer' is not. (Killion, 2000, p. 41)

Such arguments tend to ignore the need for social engagement in learning. Administrators, politicians, and the public are seduced by the common misconception that learning is a matter of knowledge transmission.

Killion (2000) also noted the potential for online PD to meet accountability indicators such as time frames of delivery, completion rates, and assessment scores. This claim of accountability should be considered cautiously and critically evaluated in terms of whether it

furthers the teaching and learning process or meets some other need. Drawing on a Labour

Process perspective, Smyth (2001) recognized that the trend of accountability is a symptom of a

larger malaise, that being the subjugation of teacher professionalism, and is closely linked with

deskilling, standardizing, intensification of work, and taking responsibility for poorly planned

government initiatives. Labor Process theory views accountability measures as being primarily

a means of controlling labour rather than ensuring quality of learning (Smyth, 2001). This

perspective is born out by Killion (2000) who warns that "schools and districts might find it

easy to relegate staff development to after hours" (p. 43) because of the supposed benefits of

ePD to the individual in terms of access, cost, and flexibility.

In their report on professional development trends in Australia, McRae et al. (2001)

argued that there is a significant pressure to limit professional development days, namely due to

the child minding function of schools. They clarified this argument by comparing education

with other industries, including mining which has reportedly the highest level of ongoing staff

training in the Australian workforce. However, "three million homes do not have to be notified

when miners have a day off for training" (McRae et al., 2001, p. 165). At the same time there is

significant pressure on the government and administrators for increased PD as a means of

accountability. As a result, systemic encroachment of holidays and non-award hours are real

threats. Indeed, "teachers are undertaking more professional development than a decade ago,

largely made up of out-of-hours, non-award-bearing work" (McRae et al., 2001, p. 8). Such

systemic action is not justified by research which argues that effective professional

development must (among other things) be embedded in the working day (McRae et al., 2001

in order to allow teachers to inquire, reflect, and experiment (Centre for Educational Research

and Innovation, 1998; Downes et al., 2001). McRae et al. (2001) indicated that this can be

achieved through a systemic "re-conceptualisation of professional development from an 'event'

to an ongoing work process" (p. 166). My research addresses this re-conceptualisation by

drawing heavily on theories of situated learning and CoP, which will be discussed later in the

literature review. In so doing, discussions of flexibility and access are shaped in terms of how

they help teachers to draw on authentic and meaningful tasks as opposed to potentially misleading arguments of financial and time costs.

To this point I have discussed ePD in terms of binary opposition to face-to-face modes of delivery. This approach has provided a useful framework to build an understanding that both modes have strengths and weaknesses. For example, face-to-face PD often cannot address issues of sustained engagement. However, ePD is faced with the difficult task of supporting a social environment that can help sustain engagement. An obvious solution may be in blending the two modes. This is sometimes referred to as a blended or mixed-mode approach.

Blended or Mixed-mode Approaches

Anderson and Baskin (2002) suggested that "blended" approaches that involve face-to-face and ePD have some merit in tackling sustainability issues. For example, a blended approach may cater for the preference of face-to-face delivery at the initial stage followed by computer mediated communications that engender sustained engagement with the professional development topic (M. Henderson, 2004b). Moore and Barab (2002) used this blended approach noting, with some irony, that it was the face-to-face mode that most influenced long term relationships. Similarly, Brosnan and Burgess (2003) found that an initial face-to-face component was invaluable in developing an effective social network which in turn encouraged greater participation, more open contributions, and sharing of reflection on practices. This kind of support after the face-to-face professional development session also has the advantage of being flexible in time and place, catering for teachers with different time commitments and those in remote or isolated locations (Douglis, 2004; Mather, 2000; Wiesenberg & Willment, 2001). Indeed, Wiesenburg and Willment (2001) argued that a particular strength of a blended approach is that it can "extend beyond typically time-limited opportunities" (p. 5) of face-to-face models.

The use of a blended approach seems to take advantage of the strengths of face-to-face training and the flexibility and sustainability of ePD. Although Johnson (2002) does point out

that there are some disadvantages to blended courses, namely the greater amount of time required in implementing and maintaining the course. Nevertheless there is a plethora of research articles, mainly in higher education contexts, which indicate that blended delivery has a positive impact, when compared with other models, on small and large groups of adult learners (Ausburn, 2004; Bieber et al., 2002; Dziuban, Moskal, & Hartman, 2005; King, 2002; Martyn, 2003; McShane, 2003; Rovai & Jordan, 2004; Story & DiElsi, 2003; Vignare et al., 2005). Some of the reported benefits include knowledge construction (Bieber et al., 2002), lower attrition and higher satisfaction (Dziuban, Hartman, & Moskal, 2004), deep learning (Garrison & Kanuta, 2004), dynamic dialogue and substantial peer-to-peer interaction (King, 2002), student-centred learning (Martyn, 2003) and a greater sense of community (Rovai & Jordan, 2004; Story & DiElsi, 2003).

There are a number of studies in community based approaches which support the importance of face-to-face modes, especially for the initial contact between community members (Borthick & Jones, 2000a; Fischer, 1998a; C. Johnson, 2001). However, Smith and Trayner (2005) also argue a CoP is facilitated by weaving the different modes and different technologies. In particular, they recommend that an "online ramp-up can make a face-to-face event more potent, and subsequent online collaboration more productive" (Smith & Trayner, 2005, p. 1).

Rovai & Jordan (2004) argue that their research findings indicate that blended courses can produce greater sense of community than either traditional or fully online courses. In contrast, Parkinson, Greene, Kim, & Marioni (2003) in their qualitative research on distance and face-to-face higher education courses conclude that students who were in a distance course generally felt a lack of community and sense of belonging. However, Rovai & Jordan (2004) point out in their research that a higher sense of community was a result of the focus of instruction shifting from information delivery to making connections. This highlights that technology, or the mode of delivery, does not in itself encourage CoP. However, the research literature does indicate that with appropriate course design and facilitation blended models of

PD can support the formation of a CoP (Rovai & Jordan, 2004; Smith & Trayner, 2005; Story & DiElsi, 2003; Wenger, 2001).

A blended approach seems to address the aim of this research in finding a pragmatic approach in sustaining the PD experience. Furthermore, it appears that a blended approach can facilitate a CoP which has been linked to sustained participation.

The Complexity of Teaching Teachers

Another dimension to this research is that teachers and their work are not homogenous. The profession is highly complex and constantly evolving. Teachers' work is both publicly accountable and intensely private. Vrasidas and Glass (2004b) point out that "professional development must honour the complexity of teachers' practices" (p. 3). Professional development that simply tackles technical proficiency or knowledge acquisition will inevitably be less successful than if it also addresses the contextual needs of teachers, giving them the space to discuss, share and reflect on their beliefs and practices (Hawley & Valli, 1999; McRae et al., 2001; Moore & Barab, 2002).

In understanding the role of the social world in the learning process, this research is heavily influenced by social constructivism. Social constructivism as a theory explains how individuals living and, therefore, interacting within their social and cultural environment are able to learn new concepts and skills and generally make meaning of the world. Social constructivism is essentially a subjective and non-positivist paradigm (Fosnot, 1996). It does not exclude cognitivism but it does emphasise the role of the social environment in the learning process. Indeed, Fosnot (1996) argued "I cannot understand in the same way as another human who has had different experiences, but with language, with stories, with metaphors and models, we can listen to and probe one another's understanding, thereby negotiating 'taken-as-shared' meanings" (p. 26). In this way, social constructivism is particularly valuable in explaining the role of social activity in a teacher's formulation of knowledge that, in its broadest sense,

includes skills, concepts, attitudes and perspectives on the world in general and the profession in particular. From a social constructivist point of view, PD is intimately linked with individuals' social histories, belief structures, values and the discourse in which the participants engage.

Professional development of teachers is not an issue to be resolved easily through collaborative approaches. Downes et al. (2001) pointed out that "the very nature of the teaching profession as being a practice 'behind closed doors' mitigates against school-based collaborative teacher development" (p. 3). Also, teachers need to feel justified before investing themselves in PD. For example, in a draft report on ICT PD comparing seven APEC countries [3] it was found that teachers are unwilling to change their practices because they "do not believe that the benefits of ICTs for student improvement and teacher fulfilment have been proven through academically justified studies" (APEC Education Forum, 1999, p. 4).

Another issue is raised by McRae et al. (2001), who suggest that time is an important issue. Teachers are under a great deal of pressure and their time is limited. As a consequence, some resistance to PD is not born out of apathy or negativity but, instead, from the desire to "have a life." Furthermore, sustainability of PD in ICT is complicated by teachers' attitudes, skills, socio-economic and cultural differences; gender; external expectations; incentives; hardware; technical support; and barriers of time and distance (Bain & Rice, 2006; British Educational Communications and Technology Agency, 2004; DeWert et al., 2003; L. Henderson & Bradey, 1999; Kenny, 2003; McRae et al., 2001).

Obviously, the PD of teachers is not a simple task. A change in teaching practice means a change in understanding, beliefs, and priorities. It is fundamentally a transformation of practice and identity. This means that PD design needs to acknowledge the wider socio-cultural context of teacher's work and lives. To simplify teacher's participation in PD could only result in meaningless conclusions. The following chapter will further explore a Community of

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[3] Brunei Darussalam, Canada, Chile, South Korea, Malaysia, the United States of America and Hong Kong.

Practice framework which appears to address issues of sustainability as well cater for the complex socio-cultural activity in which teachers are embedded.

Précis

A précis of my argument to this point in the literature review is that PD needs, among other things, an element of sustainability that is currently lacking in one-shot and face-to-face professional development. While long term face-to-face training is not practical for most schools and teachers, other modes of delivery, such as ePD, are also proving to be unsuccessful. In contrast, blended models appear to draw on the strengths of both face-to-face and ePD and consequently offer the most useful means of delivering sustainable PD within the pragmatic limitations of this research.

Nevertheless, blended PD does not inherently sustain teacher participation. Indeed, the review of the literature suggests that in order to understand and best cater for teachers' PD needs, we need to address more than mechanistic technical knowledge but also address issues of teachers' intensely multifaceted and socio-political environment. The PD literature indicates that a community based approach may be useful in addressing these complex needs. Indeed, "as a locus of engagement in action, interpersonal relations, shared knowledge and negotiation of enterprises, such communities hold the key to real transformation – the kind that has real effects on people's lives" (Wenger, 1998a, p. 85). Furthermore, the literature indicated that a community approach could provide a key to sustainability.

Chapter Three discusses the issue of community, with a particular focus on CoP which appear to be most relevant in the PD of teachers.

CHAPTER THREE: COMMUNITY

In the previous chapter I have argued that sustained engagement is commonly accepted as one of several key elements in achieving effective PD. The PD literature also indicated that the various modes of delivery such as face-to-face, ePD and blended do not inherently sustain teacher participation. However, the PD literature did suggest that there was a connection between community and sustainability.

This chapter argues that CoP theory provides a way to address the effective PD design principles including achieving sustained participation. Certainly, a CoP perspective helps to contextualise the debate over the mode of delivery, and instead focuses on the need to address the complex nature of teachers as members of a wider community, as professionals with specialist needs and fundamentally unique perspectives, and as situated learners. From this perspective sustainability is not just a question of providing opportunity or reducing barriers to continued participation. Sustainability signifies a continual negotiation of practice and identity through a socio-cultural process of community engagement. It is argued that the key to sustainability is not the PD mode or content per se, but rather the social action in which the PD is embedded.

Different Types of Communities

Before exploring the theory of CoP it is important to distinguish CoP from the way in which "community" has been applied in the literature. The term "community" and derivatives such as "learning community" and "gaming community" have been popularised and are often applied to any identifiable group, especially those on the internet.

"Community" is quite possibly the most over-used word in the Net industry. True

community - the ability to connect with people who have similar interests - may well be

the key to the digital world, but the term has been diluted and debased to describe even

the most tenuous connections, the most minimal interactivity. (Brown, 1999, p. 3)

This is further supported by a review of online learning literature by Wallace (2003) who argues

that there is no clear definition of community and that it is most often used to connote

collaboration: "collaboration is sometimes a token for community, and community is defined as

some form of collaboration, with perhaps an added element of social interaction or evidence of

personal concern" (p. 262).

This oversimplification of the concept can lead to some potentially confusing outcomes.

For instance, Lloyd & Cochrane (2005) argue that their research indicates that professional

learning communities have a greater impact on PD than other models. Unfortunately, they do

not define the term 'professional learning community' except by citing examples of 'groups and

programs such as QSITE' (Queensland Society for Information Technology Education) (Lloyd

& Cochrane, 2005, p. 23). By inference, in Lloyd & Cochrane's (2005) research, community

could be taken to mean any group of people who come together under the same banner with the

implication of a formalised structure. This is significantly different from the way in which

Wiesenberg & Willment (2001) use the term professional learning community which they argue

centres on trust and respect between members. Further differing applications of "learning

communities" can be found in the works of Palloff and Pratt (1999) and Retallick, Cocklin, &

Coombe (1999). However, it is not the intent to displace the value of these researchers'

findings. The point is that the term community has been applied in the research literature a wide

variety of ways with little rigorous exploration of what the term means, let alone the processes

by which it sustains participation. Consequently, the current research must be critical of which

type of community it uses as a framework.

It is clear that while there is a general consensus in the research literature that there is a

connection between community and sustained engagement, there is no uniformity in the way in

which community is described nor any explanation of its role in sustainability (for instance,

APEC Education Forum, 1999; Dede et al., 2005; Downes et al., 2001; C. Johnson, 2001;

Rovai, 2002; Wallace, 2003). An example can be seen in the research by Hung and Chen (2001)

who suggest that a "vibrant and sustaining community" (p. 7) requires the dimensions of situatedness, commonality, interdependency and infrastructure. However, Hung and Chen (2001) do not elaborate how these dimensions are connected to sustainability. Nevertheless, they do note that the theory of CoP helped inform their design principles.

Indeed, CoP is frequently cited in the literature as being a key to effective PD (for example, APEC Education Forum, 1999; Dede et al., 2005; Downes et al., 2001; C. Johnson, 2001). CoP is distinctly different from other types of communities and, as will be shown in the next section, suggests how participation can be sustained within the scope and limitations of this research. The following section aims to clarify the theory of CoP. In doing so it explores the origins of CoP, that is, situated learning, and several theories that have evolved from it and which appear relevant to the PD of teachers.

Situated Learning and Communities of Practice

Situated Learning: Legitimate Peripheral Participation

Wenger (2001) pointed out that "a community of practice is not merely a community of interest. … Members of a community of practice develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems – in short a shared practice" (pp. 2-3). However, they "are connected by more than their ostensible tasks. They are bound by intricate, socially constructed webs of belief, which are essential to understanding what they do" (Brown, Collins, & Duguid, 1989, p. 34). Community of practice in this sense originates in Lave and Wenger's research in the 1980's on situated learning. Their subsequent book *Situated Learning: Legitimate Peripheral Participation* (Lave & Wenger, 1991) is now regarded as seminal in the area of situated learning and what they coin "legitimate peripheral participation". They argued that learning should be viewed holistically where a person, firmly situated in a social and cultural environment, increasingly participates in communities of practice. They summarised their theory by stating that rather than learning "replicating the performance of

others or by acquiring knowledge transmitted in instruction, we suggest that learning occurs through centripetal participation in the learning curriculum of the ambient community" (Lave & Wenger, 1991, p. 100).

Lave and Wenger (1991) substantiated their theory of situated learning by providing several examples of apprenticeships such as Yucatec midwives, U.S. Navy Quartermasters, and Vai and Gola tailors. In these ethnographic case studies, the apprentices had to not only learn the peripheral skills such as the terminology but also the cultural and social context of their work. This was done over time and through being given increasing access to more central practices of the community. Lave and Wenger (1991) did not suggest that there is a definitive central practice, or indeed illegitimate peripheral practice. They simply used the term "legitimate peripheral participation" to refer to the way in which "new comers" gain access to the knowledge, skills, artefacts, and meaning making of the "old-timers". As new comers become more adept, they will in turn become old-timers. In this way a CoP reproduces itself.

Legitimate peripheral participation is firmly placed within a social constructivist school of thought. Vygotsky (as cited in Wolfson & Willinsky, 1998) argued that learning is "the product of collaborative construction of understanding" in the context of "socioculturally evolved means of mediation and modes of activity" (p. 97). However, Lave and Wenger (1991) pointed out that Vygotsky's theory and subsequent research, especially on the Zone of Proximal Development, has traditionally focused on internalisation of learning within the immediate social environment. In contrast, they argue, along with Engeström (1987), that this is a narrow construct which ignores societal activity and collective practice as the "more experienced other".

Lave and Wenger (1991) pointed out that the traditional narrow perspective is largely derived from the focus of social constructivist research in the context of classrooms and pedagogics. In contrast, Lave and Wenger consciously steered away from drawing examples from formal schooling, arguing that classrooms and formal curriculum primarily serve to (re)produce schooled adults. Students who study physics do not graduate as full members of the physicists' community. The classrooms and formal curriculum are not generally situated within

communities they study and therefore do not have access to the CoP, that is, "legitimate peripherality" (p. 100) rarely or barely exists. In contrast, they argued that, school students participate within a school community and its practices which primarily relate to its own reproduction. For this reason, any formal curriculum, including that of PD of teachers and especially its stated objectives, should be considered cautiously.

Legitimate peripheral participation explicitly moves the focus from the individual and his or her immediate social environment by theorising about broader forces such as shared cultural systems and political-economic structures. Lave and Wenger (1991) placed "more emphasis on connecting issues of sociocultural transformation with the changing relations between newcomers and old-timers in the context of a changing shared practice" (p. 49). In this way legitimate peripheral participation refers to learning through participation in social practice which "emphasises the relational interdependency of agent and world, activity, meaning, cognition, learning, and knowing" (Lave & Wenger, 1991, p. 50). From this perspective, being a member of a CoP necessitates learning through participation in social practice which, in itself, is not immutable but rather an evolving form of membership.

Wenger (1998b) argued that a CoP bridges the gap between institutional demands and the realities of the work. In other words "the collective construction of a local practice … among other things, makes it possible to meet the demands of the institution" (p. 46). In Wenger's (1998b) ethnographic study of insurance claims processors he points out how the job, despite being compartmentalised and made into a "paper assembly line" (p. 46), relied on the CoP of the processors to resolve conflicts between expected productivity and other seemingly incompatible tasks such as answering the phone. In this instance the CoP developed and propagated a series of unofficial strategies (such as not giving out their names over the phone so that there would be less chance of them being asked for by clients) which helped the processors to achieve some degree of control over their environment. The old-timer processors shared their practices with new-comers. In this way Wenger (1998b) argued that a CoP not only provides a resolution to institutionally driven conflicts between accountability measures and work practices but also supports a communal memory that allows practitioners to do their work

without needing to know everything. This is particularly relevant to the situation of teachers where institutional demands, expectations, and accountability measures are sometimes incongruent with teachers' day to day work. From this perspective, we can begin to understand the nature of teachers' resistance to systemic initiatives and directives such as the integration of ICT (L. Henderson & Bradey, 2004). When applying Lave and Wenger's theory of legitimate peripheral participation to the professional development of teachers we can make five conjectures.

First, teachers as a CoP are diverse in their beliefs, approaches, knowledge, and skills. Nevertheless they all identify within the same community. Tools of the trade, such as computers, are viewed, discussed, and used in certain ways which make most sense to teachers and only partially understood by those outside of the community. From this approach, the need to contextualise, or situate, PD within the teaching and learning environment becomes essential.

Second, PD is a common component of the community of teaching. Therefore, it is likely that not only the type, content, and underlying principles of the professional development but also the teachers' preference for face-to-face workshops are closely related to, and symptomatic of, the community's reproduction cycle.

Third, PD curriculum which attempts to overtly change teaching or community practices are unlikely to succeed when the training is, in itself, dictated by the CoP and its larger environmental context and where the new practices are not supported within the day to day life of the practitioner. In other words, PD is primarily a means of centripetal participation not innovation.

Fourth, in the case of PD in ICT the ability to use technology such as computers is only one aspect of the teaching community. Full members of the community need not be adept in the use of ICT. Indeed, Lave and Wenger (1991) state that we should not try to reduce centripetal participation to "a linear notion of skill acquisition" (p. 36). However, we could conceptualise the community of teaching practitioners as having sub-communities of practice or, as Wenger (1998b) suggests, constellations of localised communities within a global framework.

Fifth, legitimate peripheral participation firmly places the issue of identity on centre stage. In order for teachers to transform their practices they must enter into what is essentially a personally transformative experience that occurs over time. As a result legitimate peripheral participation begins to explain why sustained experience is valuable, and why PD must tackle more than mere technical skills or information transmission.

Legitimate peripheral participation is a theory that explains the social process of someone becoming a member of a CoP which subsumes the process of learning. It is not in itself a theory of learning. It does, however, try to explain the context in which learning occurs. Since Lave and Wenger's (1991) attempt to draw the focus of learning from internalisation to a function of the social environment, situated learning has been heavily criticised as well as praised by the academic community (Herrington & Oliver, 2000). The greatest criticism by, and challenge to, researchers and educators is that the theory cannot be readily operationalised (Brown & Duguid, 1993). This challenge has resulted in two streams of situated learning: an activity-based approach and a wider social context approach. The activity-based approach includes such approaches as problem-based learning and anchored instruction but is most popularly represented by the theory of cognitive apprenticeship (Fowler & Mayes, 1999). The alternative approach is one of a wider social context. In this stream of situated learning, the concepts of social learning and CoP are fundamental in understanding how and why individuals learn (Fowler & Mayes, 1999). These streams of thought are not binary, nor does one necessarily subsume the other. They draw on different focal points and each offers something valuable to the current research.

Situated Learning: An activity-based approach

The articles by Collins, Brown, and Newman (1989) and Brown, Collins and Duguid (1989) coined the term, "cognitive apprenticeship," and by doing so have been credited as being the first to outline an activity-based model of situated learning (Wolfson & Willinsky, 1998). They agreed with Lave and Wenger (1991) that learning or knowledge cannot be separated

from activity and that, "by ignoring the situated nature of cognition, education defeats its own goal of providing usable, robust knowledge" (Brown et al., 1989, p. 32). They provided several examples including that of school based mathematical word problems which, they argued, are often posed in such a way that has no relevance to what mathematicians "do." In this case, students' knowledge has little or no transference to the domain culture. They stated:

> All knowledge is, we believe, like language. Its constituent parts index the world and so are inextricably a product of the activity and situations in which they are produced. A concept, for example, will continually evolve with each new occasion of use, because new situations, negotiations, and activities inevitably recast it in a new, more densely textured form. So a concept, like the meaning of a word, is always under construction. This would also appear to be true of apparently well-defined, abstract technical concepts. Even these are not wholly definable and defy categorical description; part of their meaning is always inherited from the context of use. (Brown et al., 1989, p. 2)

Professional development is no exception to this argument. Indeed, if meaning is socially negotiated and renegotiated then the preference for face-to-face models and the importance of sustained experiences is further explained.

However, Brown, Collins and Duguid (1989) make a significant step away from Lave and Wenger's theory of legitimate peripheral participation by suggesting that schools, classrooms, and formal education can tap into the domain cultures, that is, legitimately participate in the practices of the community. They propose that this can be achieved through providing authentic activity, in other words, engaging in ordinary practices of the community. While this is not a new idea, they warned that although schools often attempt to incorporate such activities, the schools often fail to realise that by stripping away the context, reducing the concepts, and silencing social negotiation and collaboration, the activity is no longer authentic (Brown et al., 1989).

In contrast, they proposed that students "need to be exposed in the use of a domain's conceptual tools in authentic activity – to teachers acting as practitioners and using these tools in wrestling with problems of the world" (Brown et al., 1989, p. 36). In order to describe this

process Collins, Brown, and Newman (1989) coined the term "cognitive apprenticeship". In this learning paradigm, teachers model how they tackle an authentic task, which is followed by student scaffolded practice and eventually autonomous participation in the culture.

The theory of cognitive apprenticeship argues that any learning environment has four dimensions: content, method, sequence, and sociology. "Content" refers to the type of knowledge required for expertise, such as, domain knowledge, heuristic strategies, control strategies, and learning strategies (Collins et al., 1989). The second dimension of "method" suggests that cognitive apprenticeship can be implemented through six methods: modelling, coaching, scaffolding, articulation, reflection, and exploration (Wang & Bonk, 2001). The third dimension argues that three principles of "sequencing" must be balanced: global before local skills, increasing complexity, and increasing diversity. Finally, the dimension of "sociology" positions the learning back in the larger social context and involves situated learning, CoP, intrinsic motivation, and exploiting cooperation (Collins, Brown, & Holum, 1991). Clearly, cognitive apprenticeship focuses on the individual. As such it resonates with cognitivist theorists and has grown away from its social learning roots to be recognised as a model of learning in its own right.

In addition to cognitive apprenticeship there is a great deal more research in the field of activity based situated learning. After an extensive cross analysis of literature, Herrington and Oliver (2000) identified nine commonly asserted situated learning design elements. That is, situated learning environments should: provide *authentic contexts* that reflect the way the knowledge will be used in real life; provide *authentic activities*; provide access to *expert performances* and the modelling processes; provide *multiple roles and perspectives*; support *collaborative construction of knowledge*; promote *reflection* to enable abstractions to be formed; promote *articulation* to enable tacit knowledge to be made explicit; provide *coaching* and *scaffolding* by the teacher at critical times; provide for *authentic assessment* of learning within the tasks (Herrington & Oliver, 2000, pp. 25-26). These design elements are explored in Table 2 adapted from Herrington and Oliver (2000, pp. 26-27).

Table 2

Situated Learning Design Elements and Implementation Guidelines

Design element	Guidelines for design and implementation
1 Provide authentic context that reflects the way the knowledge will be used in real life (Brown et al., 1989; Collins, 1988; Gabrys, Weiner, & Lesgold, 1993; Harley, 1993; Moore et al., 1994; Palincsar, 1989; Resnick, 1987; Winn, 1993; Young, 1993):	• A situated learning environment should provide: • A physical environment that reflects the way the knowledge will ultimately be used (Brown et al., 1989; Collins, 1988) • A design to preserve the complexity of the real-life setting with 'rich situational affordances' (Brown et al., 1989; Collins, 1988; Young & McNeese, 1993) • A large number of resources to enable sustained examination from a number of different perspectives (Brown et al., 1989; Collins, 1988; Spiro, Vispoel, Schmitz, Samarapungavan, & Boeger, 1987; Young & McNeese, 1993) • A design which makes no attempt to fragment or simplify the environment (Brown et al., 1989; Honebein, Duffy, & Fishman, 1993; Spiro et al., 1987; Young & McNeese, 1993)
2 Provide authentic activities (Brown et al., 1989; Cognition and technology group at Vanderbilt, 1990a; Griffin, 1995; Harley, 1993; Resnick, 1987; Tripp, 1993; Winn, 1993; Young, 1993):	• Activities which have real-world relevance (Brown et al., 1989; Cognition and technology group at Vanderbilt, 1990a; Jonassen, 1991; Resnick, 1987; Winn, 1993; Young, 1993) • Ill-defined activities (Brown et al., 1989; Cognition and technology group at Vanderbilt, 1990a; Winn, 1993; Young, 1993) • A single complex task to be investigated by students (Bransford, Vye, Kinzer, & Risko, 1990; Cognition and technology group at Vanderbilt, 1990b; Jonassen, 1991) • An opportunity for students to define the tasks and subtasks required to complete the activity (Bransford, Vye et al., 1990; Cognition and technology group at Vanderbilt, 1990b; Collins et al., 1989; Young, 1993) • A sustained period of time for investigation (Bransford, Vye et al., 1990; Cognition and technology group at Vanderbilt, 1990b) • The opportunity to detect relevant versus irrelevant information (Cognition and technology group at Vanderbilt, 1990a; Young, 1993) • The opportunity to collaborate (Young, 1993) • Tasks that can be integrated across subject areas (Bransford, Sherwood, Hasselbring, Kinzer, & Williams, 1990; Bransford, Vye et al., 1990; Jonassen, 1991)
3 Provide access to expert performances and the modelling of processes (Collins, 1988; Collins et al., 1989; Lave & Wenger, 1991; Resnick, 1987):	• Access to expert thinking and modelling processes (Collins, 1988; Collins et al., 1989) • Access to learners in various levels of expertise (Collins et al., 1989) • Opportunity for the sharing of narratives and stories (Brown et al., 1989; Brown & Duguid, 1993; Lave & Wenger, 1991) • Access to the social periphery or the observation of real-life episodes as they occur (Brown et al., 1989; Brown & Duguid, 1993; Lave & Wenger, 1991)

4	Provide multiple roles and perspectives (Bransford, Sherwood et al., 1990; Brown et al., 1989; Cognition and technology group at Vanderbilt, 1990a, 1993; Collins et al., 1989; Lave & Wenger, 1991; Spiro, Feltovich, Jacobson, & Coulson, 1991a, 1991b):	• Different perspectives on the topics from various points of view (Bransford, Sherwood et al., 1990; Brown et al., 1989; Cognition and technology group at Vanderbilt, 1990a, 1993; Collins et al., 1989; Lave & Wenger, 1991) • The opportunity to express different points of view through collaboration (Honebein et al., 1993) • The opportunity to criss cross the learning environment by providing more than one investigation within a resource sufficiently rich to sustain repeated examination (Spiro et al., 1991a, 1991b; Young, 1993)
5	Support collaborative construction of knowledge (Bransford, Sherwood et al., 1990; Brown et al., 1989; Cognition and technology group at Vanderbilt, 1990a; Collins et al., 1989; Resnick, 1987; Young, 1993):	• Tasks that are addressed to a group rather than an individual (Alessi, 1996; Brown et al., 1989; Collins et al., 1989; Hooper, 1992; Resnick, 1987; Young, 1993) • Classroom organisation into pairs or small groups (Hooper, 1992) • Appropriate incentive structure for whole group achievement (Hooper, 1992)
6	Promote reflection to enable abstractions to be formed (Brown et al., 1989; Cognition and technology group at Vanderbilt, 1990a; Collins, 1988; Collins et al., 1989; Resnick, 1987):	• Authentic context and task (Brown et al., 1989; Norman, 1993) • The facility for students to return to any element of the program desired, and to act upon reflection (Boud, Keogh, & Walker, 1985; Collins & Brown, 1988; Kemmis, 1985) • The opportunity for learners to compare themselves with experts (Collins, 1988; Collins & Brown, 1988; Collins et al., 1991) • The opportunity for learners to compare themselves with other learners in varying stages of accomplishment (Collins et al., 1989) • Collaborative groupings of students to enable reflection with aware attention (Kemmis, 1985; Knights, 1985; von Wright, 1992)
7	Promote articulation to enable tacit knowledge to be made explicit (Bransford, Sherwood et al., 1990; Collins, 1988; Collins et al., 1989):	• A complex task incorporating inherent, as opposed to constructed opportunities, to articulate (Bransford, Sherwood et al., 1990; Collins, 1988; Collins et al., 1989; Edelson, Pea, & Gomez, 1996) • Collaborative groups to enable social then individual understanding (Mercer, 1996; Vygotsky, 1978) • Public presentation of argument to enable articulation and defence of learning (Lave & Wenger, 1991; Pea, 1991)
8	Provide coaching by the teacher at critical times, and scaffolding and fading of teacher support (Collins, 1988; Collins et al., 1989; Griffin, 1995; Harley, 1993; Resnick, 1987; Young, 1993):	• A complex, open-ended learning environment (Collins, 1988; Collins et al., 1989; Resnick, 1987) • No attempt to provide intrinsic scaffolding and coaching (Collins, 1988; Dreyfus & Dreyfus, 1989; Greenfield, 1984; Reeves, 1993; Wilson & Welsh, 1991) • Collaborative learning, where more able partners can assist with scaffolding and coaching (Collins, 1988; Collins et al., 1989; Young, 1993) • Recommendations that the teacher implementing the

		program is available for coaching and scaffolding assistance for a significant portion of the period of use (Collins, 1988; Griffin, 1995; Harley, 1993; Young, 1993)
9	Provide for integrated assessment of learning within the tasks (McLellan, 1993; Young, 1993, 1995):	• Fidelity of context (Meyer, 1992; Reeves & Okey, 1996; Wiggins, 1993) • The opportunity for students to be effective performers with acquired knowledge, and to craft polished performances or products (Wiggins, 1989, 1990, 1993) • Significant student time and effort in collaboration with others (Kroll, Masingila, & Mau, 1992; Linn, Baker, & Dunbar, 1991) • Complex, ill structured challenges that require judgement, and a full array of tasks (Linn et al., 1991; Torrance, 1995; Wiggins, 1993) • The assessment to be seamlessly integrated with the activity (Reeves & Okey, 1996; Young, 1995) • Multiple indicators of learning (Lajoie, 1991; Linn et al., 1991) • Validity and reliability with appropriate criteria for scoring (Hooper, 1992; Lajoie, 1991; Resnick & Resnick, 1992; Wiggins, 1990; Young, 1995)

Note. Adapted from Herrington and Oliver (2000).

Although Table 2 represents a significant contribution to the literature on situated learning it does not directly address the issue of sustainability.

Herrington and Oliver's (2000) study primarily focussed on applying situated learning to computer environments. They dismissed arguments by Hummel (1993) and Tripp (1993) that situated learning cannot be generated in virtual environments. Instead they argued that computers can provide the essential authentic context required by situated learning. They cited several researchers who supported this stance, including McLellan (1994) who argued that "context can be the actual work setting, a highly realistic or 'virtual' surrogate of the actual work environment, or an anchoring context such as a video or multimedia program" (p. 8) or, by extension, ePD. In fact, the results of Herrington and Oliver's (2000) own study indicated that not only could situated learning be successfully applied to a multimedia learning environment, but that, in addition to the acquisition of complex knowledge, there was no need for interventionist strategies such as prompting by an external agent. This is particularly interesting since this thesis seeks a pragmatic approach to PD where a sustained experience is valued but simultaneously recognises that trainers are limited in resources, including time.

Herrington and Oliver's research has made a considerable contribution to the literature. The design principles which they synthesised from the literature and validated in their own research provide a valuable understanding of situated learning. Nevertheless, both Herrington and Oliver's research as well as the other activity-based approaches to situated learning do not address issues of sustainability. Indeed, many of the strategies require an investment of time but do not provide an insight into how the participants are sustained. In contrast, Communities of Practice provide a way in which we can understand both the need for sustained engagement and how membership is sustained.

Situated Learning: Communities of Practice

One concern with activity-based situated learning is that it minimises the focus on CoP. By trying to identify measurable and controllable features of situated learning environments, we may lose sight of the larger sociocultural context. It is not so much that the proverbial forest is forgotten, but that it is easier to focus on the trees. Situated learning at its grass roots argues that learning is a matter of enculturation (Brown et al., 1989) or legitimate participation (Lave & Wenger, 1991) within the community of practice. Such a concept cannot be easily atomised.

Wenger (1998b) tackled the task of operationalising the theory of situated learning by exploring the mechanisms of a community of practice and extrapolating a set of design principles that recognise the importance of "learning by doing" and "learning by becoming" (p. 5). Wenger calls this design framework a "learning architecture" (Wenger, 1998b, p. 230) which "encourages us to consider educational designs not just in terms of techniques for supporting the construction of knowledge (let alone in terms of delivery of curriculum), but more generally in terms of their effects on the formation of identities" (Fowler & Mayes, 1999, p. 11). Wenger (1998b) argued that practice and identity are inseparable components of all CoP. Practice is more than what we do. It is how we perceive our environment and how we interact with what goes on around us. At the same time, our identity which frames how we perceive ourselves and what is important to us, shapes and is shaped by our practices. A disruptive

student may be perceived by a teacher as trying to avoid cognitive effort, whereas a social worker could perceive the student as rebelling against the lack of control afforded to students in a formal learning environment. In this situation the teacher understands the classroom environment and learning activity (both of which are examples of practice) in a different way to the social worker. Furthermore, the teacher's identity as a member of the CoP with a personally distinct history would flavour that understanding in a way that is essentially individual. Both practice and identity play a role in how the teacher perceives and responds to a situation, but also how they learn. For instance, when teachers sympathetically swap "war" stories they are sharing practice and demonstrating that they are members of the community.

Community Cohesion

Wenger (1998b) argued that a community's cohesion is a product of the extent to which practice and identity are invested in mutual engagement (doing things together), joint enterprise (responding together to the organisation's needs and goals), and shared repertoire (resolving problems together).

An example of these elements could be teachers who work together, have coffee together, attend meetings together, etc. The same teachers would be involved in joint enterprise, such as responding to the same departmental requirements and guidelines. Furthermore, the teachers would share their repertoire of ways in which to meet their needs, such as the departmental requirements. In this way the teachers reshape and reinforce their identities as members of the community as well as negotiate and propagate the community's practices. Obviously this process of change occurs over time. However, there is no minimum length of time needed; instead, "it is a matter of sustaining enough mutual engagement in pursuing an enterprise together to share some significant learning" (Wenger, 1998b, p. 86). In this respect, CoP are "shared histories of practice" (Wenger, 1998b, p. 86). This both explains the failure of one-shot PD to generate meaningful learning but also suggests that while a blended approach is still limited in time, it may be able to transform practice and identity with sustained emphasis

on mutual engagement, joint enterprise, and shared repertoire. The degree to which the emphasis must be sustained is something which Wenger and the literature in general do not answer.

The concept of community cohesion is pivotal to this research. As Wenger pointed out, a CoP is sustained through community cohesion. How this translates into the specific context of a small-scale blended PD course is still to be explored. Nevertheless, in seeking a way in which to understand teachers' sustained participation in a blended course it is logical to consider community cohesion as providing a potentially useful lens.

An attempt to represent the process of community cohesion is illustrated in Figure 1. The model is founded on the need to invest both practice and identity in the three elements of mutual engagement, joint enterprise and shared repertoire. From a CoP perspective, practice and identity are fundamentally linked. As Wenger (1998b) pointed out "the formation of a community of practice is also the negotiation of identities" (p. 149). Identity in this sense is defined socially, that is, it is produced through participation in a community.
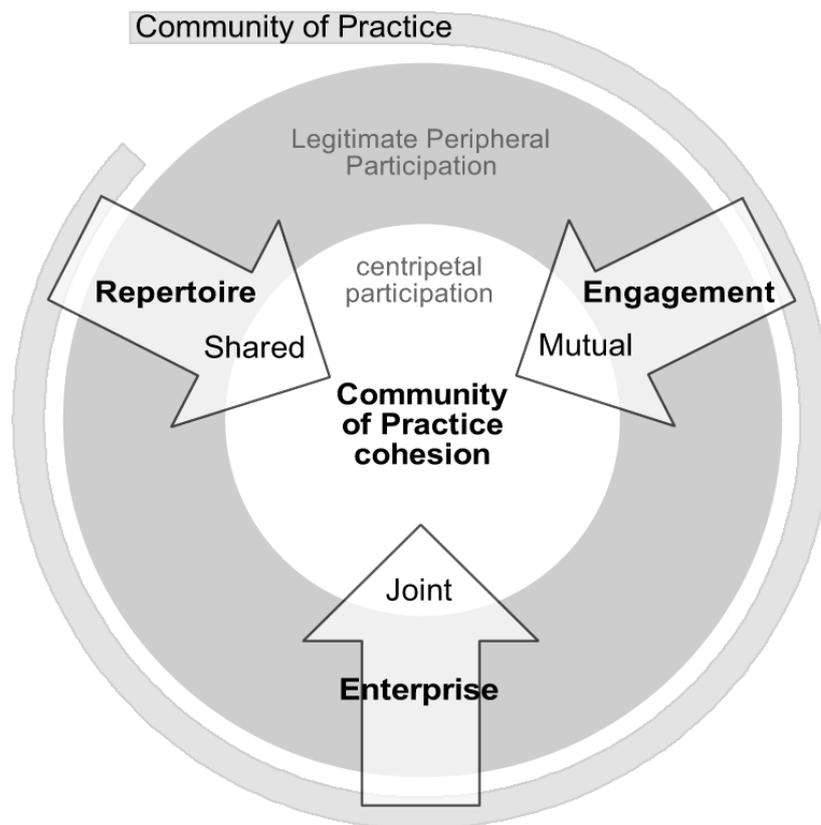
Figure 1. Representation of the dimensions of CoP cohesion.

The key to community cohesion are the elements of engagement, enterprise and repertoire. In order to move from legitimate peripheral to centripetal participation, community members need to increasingly invest in the mutuality of engagement, the joining of enterprise, and sharing of repertoire. These elements of cohesion are further clarified in Table 3.

Table 3

Defining the Elements of Cohesion

Elements of Cohesion		Characteristics
Mutual Engagement	is	• Doing things together • Sharing in an activity (MacBeath, 2003) • Being included in what matters • Relationships between members: members form mutual relations of engagement • Membership: it defines membership, that is the practices of a community and the context for belonging • Community maintenance: the formal and informal work that enables engagement • Negotiating Diversity: members are not homogenous, they find a unique place and identity within the community. Mutual engagement is as likely to facilitate differentiation as homogenisation. • Understanding Partiality: individuals cannot define or encapsulate the entirety of the Community of Practice. Mutual engagement is understanding members' competencies, that is, what each member can and cannot do and being able to tap into those skills and knowledge. • Making sense of the world: people are engaged in actions whose meanings they negotiate with one another
Joint Enterprise	is	• Responding together • Mutual accountability. This is a socially negotiated understanding of what matters, what is important, what needs to be done and what can be taken for granted. It includes knowing what can be ignored, what should not be done, and what should be left unsaid. It is having a sense of what needs to be justified, what is good enough and what needs improvement. • Locally responding to global needs and institutional pressures • Reconciling competing demands (MacBeath, 2003). • Understanding and judging quality (MacBeath, 2003) • A negotiated response to their situation (and thus belongs to them in a profound way, which also makes it difficult for non-members to observe and articulate) • Not immune to the "pervasive influence of the institution" (Wenger, 1998b, p. 79). A CoP can be influenced, manipulated, duped and intimidated, but it can also be inspired, helped, supported, enlightened and empowered. • Not necessarily a harmonious or identical response, but rather a response which has been shaped, and given meaning through mutual engagement. • A local means to satisfying or avoiding institutional

		demands. "Even if strict submission is the response its form and its interpretation in practice is a local collective creation" (Wenger, 1998b, p. 80).
		• Both a source and direction for social energy. "It spurs action as much as it gives it focus" (Wenger, 1998b, p. 82).
Shared Repertoire	is	• Resolving problems together
		• Using and creating communal resources in the process of negotiating meaning
		• A socially negotiated, and therefore profoundly unique, understanding of routines, words, tools, ways of doing things, stories, gestures, symbols, and actions of community
		• A historical reflection of mutual engagement
		• Boundary formation (Thorpe, 2003). People who cannot understand the reified objects of a community, and who do not share the community's discourse cannot fully participate in that community.

Note. Unless specifically stated otherwise the characteristics have been drawn directly from Wenger (1998b).

The formation of a localised, coherent CoP is dependant on the participants doing things together and forming a sense of belonging by which their perspective on the practices around them take on new meaning (mutual engagement). This common frame of reference is then the basis of understanding how problems can be resolved, what is important and what should be done (joint enterprise). As the participants engage with each other, responding to problems, they form a unique social history that includes not only a communal memory of action but also a raft of tools, concepts and language that helps them in engaging with the core practices, and thereby also defining the boundaries of the CoP (shared repertoire).

The process of members mutually engaging in a joint enterprise with shared repertoire not only signifies a cohesive CoP but is also the process by which the centripetal practices are negotiated. This highlights a core argument in CoP theory, that centripetal practices are essentially defined by the community, and cannot be externally proscribed. This has ramifications for the design of PD, as from a CoP perspective we cannot instructionally dictate a community's practices. However, Wenger (1998b) does argue that we can *design for* learning, by providing a landscape in which a community of practice can develop.

Once again, it should be pointed out that the concept of community cohesion is pivotal to this research. A CoP is sustained through community cohesion. Although the remainder of

this chapter continues to explore the theory and further clarify the complex processes involved in designing for a CoP it is the model of CoP cohesion which will be used to inform the research design and analysis.

Learning Architecture

Wenger's (1998b) learning architecture provides a way in which we can design an environment that affords the evolution of Communities of Practice. The learning architecture is not a prescriptive design or recipe. It outlines the questions that need to be asked and the choices that need to be made in light of the different circumstances of each community to provide the best environment in which the community of practice can coalesce. In light of the current research project, it is valuable to note that the learning architecture provides a framework that is equally applicable for virtual learning environments as it is for face-to-face delivery modes (Wenger, 1998b). The learning architecture is a amalgam of key points in the theory of CoP. The aim of this section is to not only outline a way in which a PD course could be designed to best afford the formation of a CoP but also to highlight key characteristics and processes within CoP.

The learning architecture outlines four "dimensions" (Wenger, 1998b) or "dualities" (Brosnan & Burgess, 2003) that must be considered in the design of a virtual CoP: reification/participation, designed/emergent, local/global, and identification/negotiability. These dimensions provide an environment that facilitates the development of the CoP. Wenger (1998b) argued that within this learning space, in addition to negotiating new practices, the members need to be able to negotiate and reshape their identity. This process of learning is facilitated by participating in what Wenger (1998b) calls "multiple modes of belonging" (also known as "components"): engagement, imagination, and alignment. Wenger argues that the "challenge of Design is to support the work of engagement, imagination and alignment" (Wenger, 1998b, p. 237). The relationship between the dimensions and components of

Wenger's (1998b) learning architecture is conceptualised in Figure 2 and will be explored in greater detail below.
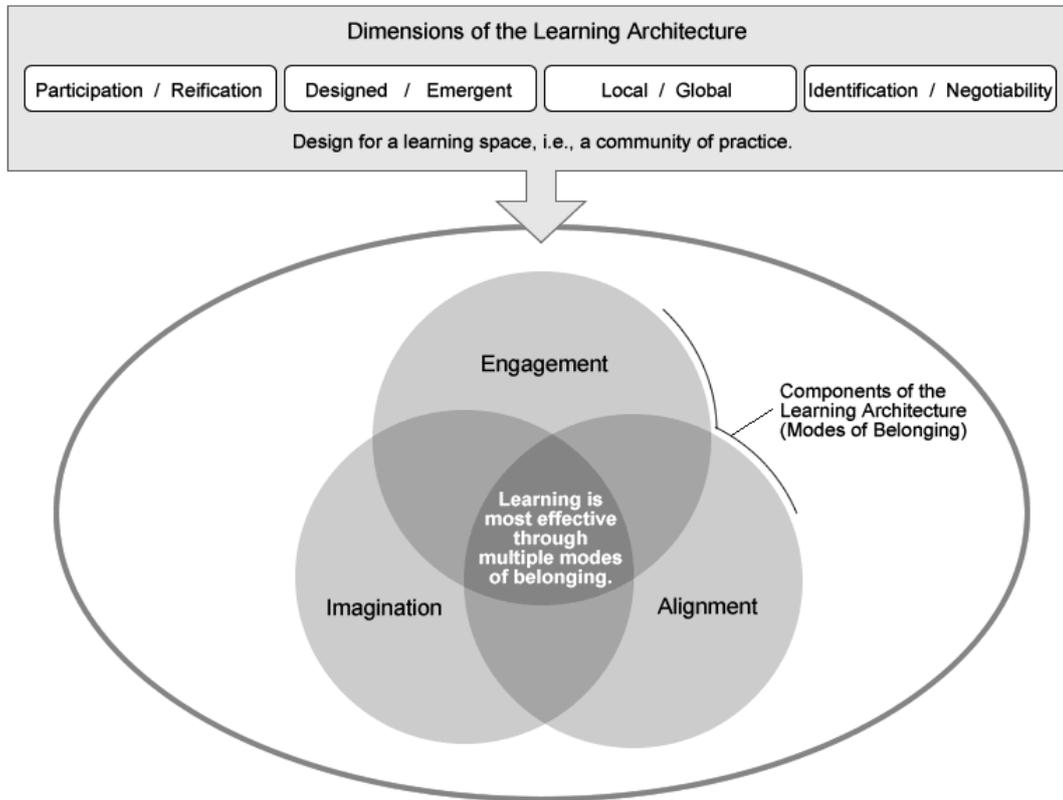
Figure 2. A conceptualisation of Wenger's (1998) learning architecture.

Participation and Reification.

Participation is more than just engagement in an activity. As a member of a community you continue to participate even after the physical activity ceases. For instance, a teacher may relate to someone outside of the profession something that happened to them at school. She is no longer engaged in teaching but her description would be influenced by her community membership. Furthermore, participation is a social activity even when a member is alone (Wenger, 1998b). For instance, a teacher may develop his lesson plan in isolation but will constantly be making decisions based on his understanding of his students' needs as well as a sense of what is acceptable according to the institution's expectations and a need for his

colleagues' approval. What appears to be a solitary pursuit is actually an intensely socially negotiated practice.

Interestingly, in this example, the lesson plan that was created through participation is an example of reification. Reification describes the situation where an abstract is treated as a concrete object (Wenger, 1998b). Wenger (1998b) argued that through reification we create something which acts as a focal point for the negotiation of meaning and identity. In the case of the teacher's lesson plan, although it is a concrete object in terms of being written on paper, it is at the same time a projection of the teacher's participation. It lends some sense of "concreteness" to the ideas of time management, pedagogy, accountability, etc. We make meaning through such projections. For instance if the lesson goes horribly wrong the teacher may turn to his lesson plan considering that his manifestation of a particular pedagogical strategy was deficient. The plan serves as a focal point by which his participation can be evaluated and meanings can be (re)negotiated. However, reification can refer to both an object and the process of its production (Wenger, 1998b). For instance, a teacher might comment to another teacher "I spent the weekend planning." This is both a reification of an aspect of a teacher's practice but also her identity as someone who is engaged with the practices of teaching.

Wenger (1998b) stated that "a good tool can reify an activity so as to amplify its effects while making the activity effortless" (p. 61). A lesson plan template may make the process of planning easier by providing sections for the teacher to complete, such as a column to note how long each activity should take and a column with the heading "description of learning activity." In this example, the template, among other things, is amplifying pedagogical considerations of time management. However, this focussing characteristic of reification can also marginalise certain practices (Wenger, 1998b). For instance, the second column of the template clearly leaves no room for anything other than learning activities. In this way important teaching practices such as administration and behaviour management are marginalised. This in turn may cause teachers to renegotiate their understanding of the importance of different practices.

Clearly, participation and reification cannot be separated. However, Wenger (1998b) states that participation is inherently a social act and as a consequence cannot be substituted for by an object. This is particularly relevant for this research as it suggests that a computer or even highly interactive software cannot be substituted for participation in a CoP. The software is a product and therefore is a reification of elements of practice and identity within the community. We can use the computer in this regard to renegotiate meanings. However, in order to do so we would need to be able to relate the object to our social participation in the practice. Participation and reification are complementary. Effective learning requires both. Consequently, a virtual learning environment could provide a powerful tool in PD, whereby it fosters participation through providing social spaces for members to interact and at the same time provides reification of important elements of practice and identity.

Designed and Emergent.

Practice and identity cannot be externally imposed. While a set of procedures can be defined by the institution, the practices surrounding those procedures are a result of negotiated meaning by the community members. Similarly job descriptions do not define members' identities. Communities of Practice, and therefore learning, cannot be designed, created and controlled. This is significant for the current investigation because it suggests that we cannot create a CoP for specific PD goals. However, Wenger (1998b) argues that while you cannot design the learning you can design *for* learning. In other words you can design an environment that will either facilitate or frustrate emergent practices and identity. Wenger (1998b) draws on the concept of legitimate peripheral participation and states that "required learning takes place not so much through the reification of a curriculum as through modified forms of participation that are structured to open the practice to non-members" (p. 100). Learning is more than a process of handing down a defined body of knowledge to new-comers, rather it is best described as a process of catching up to a dynamic, changing and essentially social practice. Aspects or versions of these practices are offered to new-comers who can legitimately participate in a centripetal trajectory. Furthermore, Wenger (1998b) points out that practice is

not a result of design but a response to design. As a result it is important that any design for

learning balances prescriptive measures with that of emergent practices.

Local and Global.

A CoP is not defined by size or geographic location. Rather it is defined by

engagement, both in terms of identity and practice. Wenger (1998b, pp. 127-8) has suggested

some indicators that a community of practice has formed:

1)   sustained mutual relationships – harmonious or conflictual

2)   shared ways of engaging in doing things together

3)   the rapid flow of information and propagation of innovation

4)   absence of introductory preambles, as if conversations and interactions were merely the continuation of an ongoing process

5)   very quick setup of a problem to be discussed

6)   substantial overlap in participants' descriptions of who belongs

7)   knowing what others know, what they can do, and how they can contribute to an enterprise

8)   mutually defining identities

9)   the ability to assess the appropriateness of actions and products

10)   specific tools, representations, and other artefacts

11)   local lore, shared stories, inside jokes, knowing laughter

12)   jargon and shortcuts to communication as well as the ease of producing new ones

13)   certain styles recognized as displaying membership

14)   a shared discourse reflecting a certain perspective on the world.

These indicators help us to perceive that a CoP is something with which we can engage. While

we can participate in a larger community such as the teaching profession, we do not directly

engage with that community. The diversification of teaching roles within the profession is so

great and the level of the engagement with each other so small that it does not lend itself to any further analysis. Instead, teachers engage in practices and identify as more localised CoP, such as, at the school level rather than a national level. In this regard the teaching profession could be seen as a constellation of increasingly localised communities of practice.

The local community cannot exist without the global. At the same time the global constellation does not predetermine the practices and identities of its constituent communities. When this is considered in terms of learning, Wenger (1998b) points out that "no community can fully design the learning of another and at the same time no community can fully design its own learning" (p. 234). Clearly, while a curriculum can be laid down by a macro-community, it is still necessary to recognise that local communities will use that curriculum or design as a boundary object between the localities of community. For example, PD of teachers can be created by authorities, associations, schools, etc. However, the practices and negotiation of identity is not directly shaped by the PD materials. Instead the PD materials form a "communication artefact" (Wenger, 1998b, p. 235) around which the CoP can negotiate their participation and identity. Clearly any PD design must allow participation and identity negotiation at both a local and global level. They should be able to participate in the global community such as using the discourse, discussing global issues, being aware of their place within the global. At the same time they should also be given the opportunity to engage with the local community, that is, do things together, share practice, etc.

Another issue is the process by which a CoP can learn or negotiate meaning through its relationships with other communities. This relates to communities within a constellation of other communities as well as communities in different realms altogether. CoP are bridged in two ways; brokers and boundary objects. Brokers are members of multiple CoP and who are able to help change practices through the renegotiation of participation. For example, a teacher could convince a school of the value of some software she has used in a previous school, thus brokering the mode of participation in one community to another. This new form of participation in turn impacts on the way in which the community negotiates meaning. Brokering is an important element in bridging the boundaries between computer literate and illiterate

teaching practitioners. The second bridging tool, boundary objects, are reified nexus points between CoP. While the objects are understood by the different CoP in different ways they create the opportunity for meaning to be renegotiated through understanding the reification of that object by another community. For instance report writing software forms a nexus between administration, management and teaching communities of practice. Each community has a window into the other through that nexus point.

Identification and Negotiability.

CoP are equally defined by the practices and identities of members. Wenger (1998b) is careful to use the term "identity" which he believes allows us to look at the individual within the community from a social theory perspective. He claims that our identity is a negotiated experience through participation and reification, in much the same way as practice. Furthermore, membership of a CoP entails a certain level of competence in the dimensions of engagement, enterprise and repertoire (Wenger, 1998b, p. 153). The below diagram illustrates Wenger's (1998b) point:

Community of Practice
is defined by

Identity (as a form of competence)	**Practice**
Mutuality of engagement	Mutual engagement
Accountability to an enterprise	Joint enterprise
Negotiability of repertoire	Shared repertoire
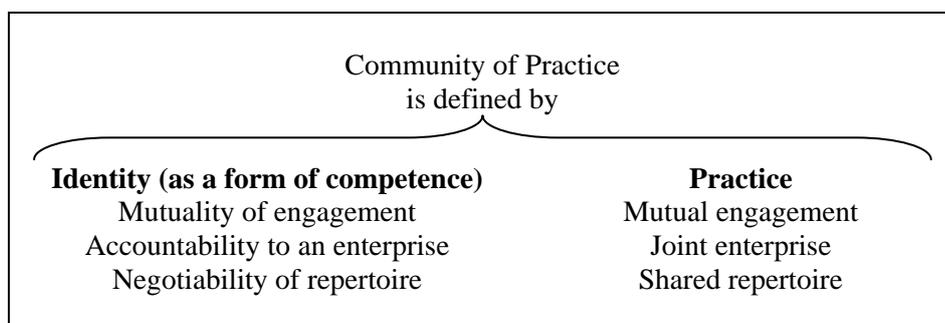
Figure 3. Identity as a form of competence.

Wenger also argues that our identities are constantly changing, moving in a trajectory that ties both the past and future. In this way we identify ourselves as much by where we have come from and where we believe we are going as by our current competence as members of the CoP. Because identity is constantly being renegotiated it is inextricably linked with learning. In

this regard learning cannot be addressed without tackling issues of identity. Any design for learning must support identity formation through facilitating competence as community members as well as allowing for individual negotiability based on trajectories and other issues such as multimembership.

Engagement, Imagination, and Alignment.

Wenger argues that our identity can be shaped by three modes of belonging to a community. He goes further to posit that when the modes of belonging are combined effectively, the Community of Practice can become a learning community (Wenger, 1998b). The modes of belonging are complementary and work best when in harmony. For instance Wenger (1998b) describes the situation where the alumni of a college may belong to a community, "but getting them to pledge funds usually requires a substantial amount of alignment work" (p. 187). Indeed, Wenger describes belonging as being a kind of work. It is not something that happens to us, rather it is something that we are actively involved in and which affects both ourselves and others.

"Engagement" refers to the formation and continued building of the community through social networks, sharing personal histories, contributing, and collaborating in socially meaningful ways. Engagement "implies sustained intensity and relations of mutuality" (Wenger, 1998b, p. 184) and equally relies on access to both participation and reification. Members need to engage in authentic practices, develop interpersonal relationships, manage boundaries, negotiate solutions, as well as have access and contribute to the CoP symbols, discourse and other reified objects.

Wenger (1998b) used the term, "imagination", to capture the need of members to stand back from their position of engagement and explore alternative views, connections, and scenarios. In effect, to reflect and take risks with seemingly established beliefs and practices. Imagination as a mode of belonging also entails creating models, generating scenarios, sharing stories, considering others' experiences and perspectives, and defining our practices within larger constellations of practice. One physical manifestation of members exploring this mode of

belonging is through visits and contact with other CoP. Imagination is "the ability to dislocate participation and reification in order to reinvent ourselves, our enterprises, our practices, and our communities" (Wenger, 1998b, p. 185). Imagination could be seen by some, management in particular, as not contributing to productivity or outcomes. As a result it is important that any learning architecture is critical of accountability measures, and is willing to accept non-participation or participation in foreign practices. In terms of reification, imagination both uses and produces materials such as maps, stories, simulations, and language. Indeed, imagination may be manifested in serendipitous or purposeful modification, perversion, or combination of reified objects and practices.

"Alignment" as a mode of belonging is the coordination of perspectives and actions towards a common goal. Wenger (1998b) lists some characteristics of members working towards alignment: investing energy in a coordinated activity; finding common ground; imposing a perspective; convincing and inspiring others; defining broad visions; proposing stories of identity; creating boundaries and reconciling diverging practices and identities. Alignment recognises the need for members to make connections between the activity of the learning community and broader issues outside of the community (Brosnan & Burgess, 2003). Boundary objects, practices and multimembership provide focal points of perspective and activity.

Any learning architecture must provide members the opportunity to explore the three modes of belonging both in terms of participation and reification.

Applying the learning architecture to virtual learning environments.

Moore and Barab (2002) have questioned whether networking technologies can truly create something that resembles a CoP for teachers. In contrast, in a survey of community-orientated technologies, that is, software designed to afford social spaces and negotiated meaning, Wenger (2001) argued that there were thirteen "fundamental elements of successful communities of practice which technology can affect" (p. 45): presence and visibility, rhythm of events and rituals, variety of interactions, efficiency of involvement, short-term value, long-

term value, connection to the world, personal identity, communal identity, belonging and relationships, complex boundaries, evolution (maturation and integration), and active community-building. In a study of health and social care professionals, Brosnan and Burgess (2003) found that Wenger's learning architecture can be applied effectively to web-based PD to sustain the learning experience. They contended that the web is a medium that is well suited to fostering and supporting learning communities as well as learning process skills. Indeed, Wenger (2001) pointed out that flexible technologies such as virtual learning environments can not only support CoP but have the added advantage of flexibility in time and place.

Community of Practice: A Structural Model for Knowledge Management

One of the greatest criticisms of Wenger's 1998 framework of CoP is that, like situated learning, it is difficult to operationalise. Wenger's (1998b) attempt at defining issues which need to be considered in designing a learning architecture is complex and does not provide any clear process by which a CoP can be achieved or leveraged.

In an attempt to operationalise CoP, Wenger, McDermott and Snyder (2002) proposed a structural model which they argued allows us to cultivate communities of practice as a means to managing organisational knowledge. This model of CoP is remarkably simplified in contrast with Wenger's 1998 framework. It is critical to recognise that Wenger, McDermott and Snyder's (2002) model was specifically devised as a guide to managing knowledge. Indeed, the book's jacket states that "communities of practice can be leveraged to drive overall company strategy, generate new business opportunities, tie personal development to corporate goals, transfer best practices, and recruit and retain top talent" (Wenger et al., 2002). The text even offers a formula by which managers can calculate the return on investment in CoP strategies in monetary terms. In essence, the structural model has recast the CoP theory from being about situated learning as a socio-cultural process to CoP as a product of organisational structure and agency. The following paragraphs outline the structural model and then consider the implications of such a structural framework it in light of the current research.

The structural model proposes that a CoP is made up of three elements: domain, community, and practice. The CoP domain refers to a common and well-defined set of issues, boundaries and values. Members are united in their domain and understand what is acceptable and valuable. The community is the social element it recognises the need for belonging as much as any intellectual participation. The third structural element of practice refers to the knowledge being used, created and shared. Practice not only encompasses the process of reification but also the need for competence in using those objects.

Wenger, McDermott and Snyder (2002) maintain that creating a CoP, that is, "designing for aliveness" is not something you can guarantee. However, they do refer to their model as "practical" (Wenger et al., 2002, p. 45) and outline seven principles of cultivating CoP. The following table summarises the principles:

Table 4

CoP Structural Model Design Principles for Knowledge Management

Design Principle	Summary
1. Design for evolution	Designing for a community is essentially a process of catalysing its evolution. CoP are organic and often form from pre-existing personal relationships. It is important to provide social and organisational structures such as regular meetings, a web presence, or even a co-ordinator which will in the first instance encourage membership while defining the domain.
2. Open a dialogue between inside and outside perspectives	Community members understand the community domain; its issues, boundaries, complexity, and values. However, it is difficult for community members to sometimes see how the community could improve on existing networks. For this reason it is important to include perspectives, stories and ideas from outside of the organisation.

	Examples of how this could be achieved are: visiting other organisations and co-ordinating guest speakers. The dialogue between the inside and outside perspectives strengthens the community domain.
3. Invite different levels of participation	There are four levels of participation: the core group (active, regular and intensely invested participation with often co-ordinating roles), active members (regular attendance and occasional participation), peripheral members (irregular or rare active participation) and outsiders (people who have an interest or connection to the community). A CoP should not be designed to force all members to participate at the core. Indeed, the peripheral membership will account for 70 to 80 percent of the entire community. As the community evolves members will drift between the levels, and in both directions. As a result, it is important to design opportunities for members to participate at the different levels. An example may be to facilitate lurking, or semiprivate conversations for peripheral members.
4. Develop both public and private community spaces	Members need to be able to strengthen their personal connections in addition to participate in the public events. Coordinators of CoP need to actively engage with members between events. Stronger personal connections result in richer events. A design for community needs to plan for these community spaces. For instance, email, time for networking before official meetings, thank you cards, private responses to public forums, etc.
5. Focus on value	Communities cannot exist without deriving value from their activities. A design for community needs to give members a chance to see the value of what they are doing in terms of the community and the larger organisation. Early stages of community development will derive value

	from resolving the immediate problems and issues of the members. One design element to support this principle would be to facilitate dialogue about value, for example, members can share stories of how the CoP has been valuable in meeting their needs.
6. Combine familiarity and excitement	Familiar or routine activities provide a stable foundation for building relationships. Exciting or out of the ordinary events provide a way in which members can be challenged, think in different ways, and create spontaneous relations. Exciting events can include conferences, workshops, and lectures by speakers with controversial ideas.
7. Create rhythm for the community	The community design must align the rhythm of events with that of the community membership. Too many events and expectations of participation can drive members away because they feel that they cannot contribute or are overwhelmed. On the other hand, too slow a rhythm and members can drift away feeling that there is little value in terms of their own needs and that of the organisation. As the community develops the rhythm will change and the community design needs to be able to adapt.

Wenger, McDermott and Snyder (2002) further propose that a knowledge management CoP typically progresses through five stages of development: potential, coalescing, maturing, stewardship and transformation. The final stage of transformation may require the community to return to an earlier stage and redefine its goal, membership and practices or alternatively it may signify the end of the community through lack of membership or other factors. Figure 2 illustrates the stages of development and their corresponding level of visibility or energy.

Energy Level
and Visibility

Stewardship

Maturing

Coalescing

Transformation

Potential

Time

Discover/ | Incubate/Deliver | Focus/Expand | Ownership/ | Let Go/Live On
Imagine | Immediate Value | | Openness |

Stages of Community Development
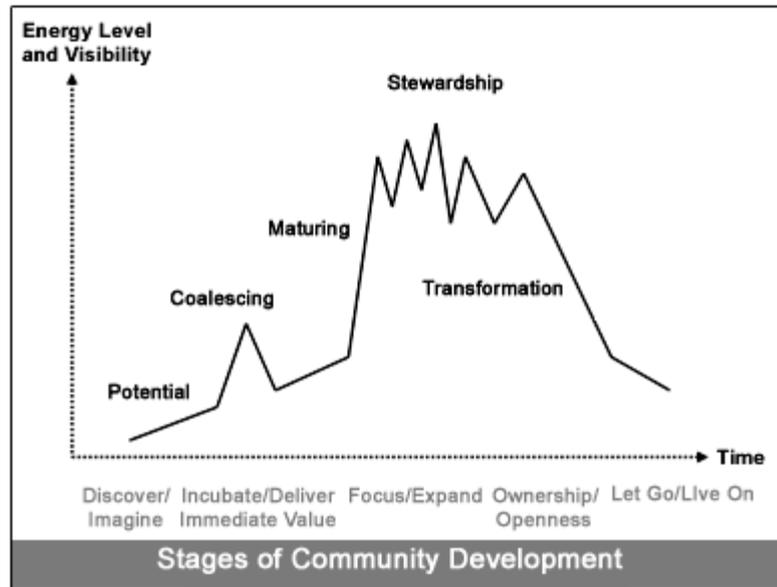
Figure 4. Stages of community development (Wenger et al., 2002, p. 69).

It is valuable to note that Wenger, McDermott and Snyder (2002) point out that while a

developmental model is a useful construct "it cannot be taken too literally" (p. 69).

Communities may spend different amounts of time, skip or regress stages. Furthermore the

stages of development in Figure 2 were clearly developed within a structural model of CoP

which places significance on organisational and management indicators such as energy and

visibility. In contrast, in an earlier publication, Wenger (1998a) had defined the stages of

development from a social learning perspective using member activity as a frame of reference.

This is illustrated in Figure 3 and serves to highlight that CoP development can be interpreted

from a multiplicity of perspectives. However, the two models of development also emphasise

the temporal nature of CoP. Communities of Practice do not last forever.

Stages of Development
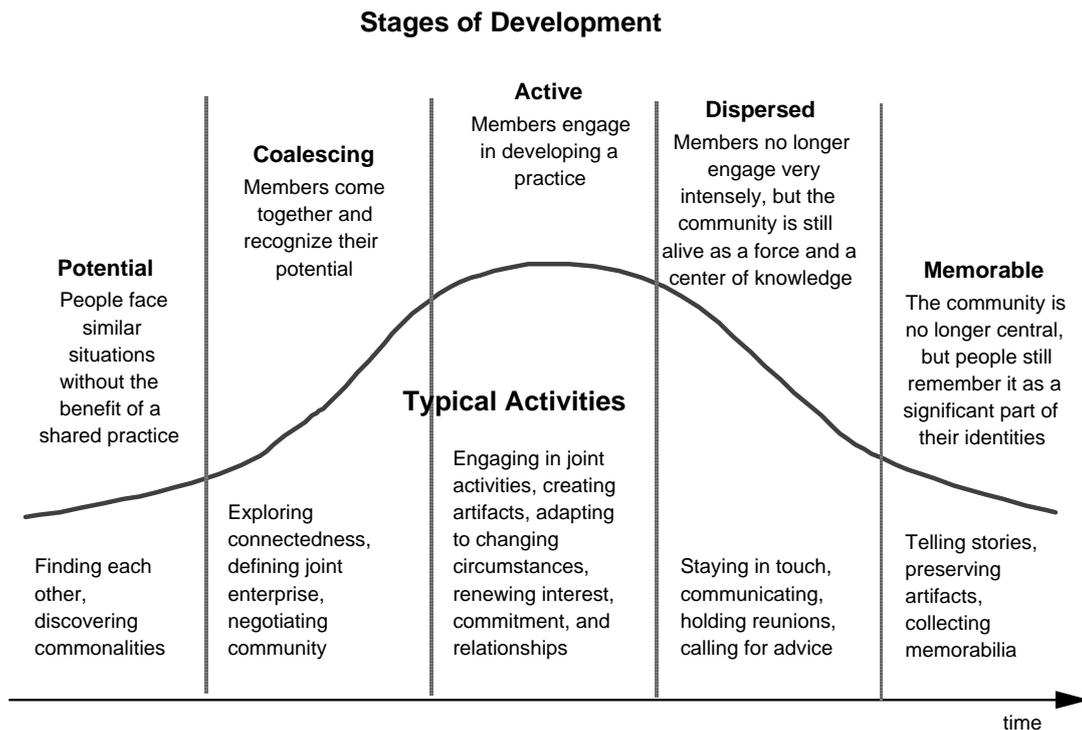
Figure 5. Stages of development according to level of activity (Wenger, 1998a, p. 3).

Wenger, McDermott and Snyder (2002) devote a chapter to cultivating distributed communities, that is, a CoP which cannot regularly meet face to face. They do not answer the question of whether some face to face interaction is absolutely necessary; however, they do recognise the trend towards and value of distributed communities. They point out that distributed communities are at risk in a number of ways. For instance, they have to resort to technologies "that are not real substitutes for face to face interactions" (Wenger et al., 2002, p. 116). As a result distributed communities suffer from a sense of lack of presence. Distributed communities also risk becoming too large by reaching out to too many people. Larger communities are harder to facilitate, and sometimes do not provide enough opportunities to build personal connections. Finally, Wenger, McDermott, & Snyder (2002) point out that distributed communities can also suffer from differences in affiliations, priorities, values and culture. In an attempt to address these weaknesses Wenger, McDermott, & Snyder (2002) argue that special care should be taken to: achieve stakeholder alignment; create a structure that promotes both local variations and global connections; build a rhythm strong enough to

maintain community visibility across time zones and geography; and finally, develop effective ways in which the community members can privately interact and strengthen their personal connections.

The CoP structural model is problematic for the current research. It focuses on CoP as a means by which we can manage organisational knowledge. It dramatically simplifies the role of identity and the way in which members negotiate their practices. In achieving a managerial guide it renders CoP down to an asset that can be leveraged without consideration of the deeply complex socio-cultural processes in which the members are situated. For instance, Wenger, McDermott and Snyder (2002) argue that in to overcome differences we need to achieve stakeholder alignment. Firstly, I propose that the managerial reference to members as stakeholders marginalises the focus of CoP as a socio-cultural process. Secondly, according to Wenger (1998b) alignment is a mode of belonging where members' identities are invested in the community enterprise; this is a transformative process. However, Wenger, McDermott and Snyder (2002) suggest that stakeholder alignment is accomplished by "engaging all players" and eliminating "barriers" (p. 124). Clearly, the community members' agency is marginalised. It should be pointed out that the structural model is not ignorant of the complex nature of CoP, but it does purposely limit itself to a simplified representation, in particular that of business management of organisational knowledge. In this sense, the structural model has limited value for the current research which seeks to explore the role of CoP and participation and sees the complex nature of membership as being a fundamental concept in understanding that relationship.

In contrast, Wenger's 1998 framework not only outlines a learning architecture by which a CoP can be designed for but also suggests that sustainability can be achieved through the dimensions of community cohesion.

After a considerable exploration of CoP research literature it is apparent that the term CoP is widely used but also applied in a wide variety of ways. This issue has already been touched on at the beginning of this chapter. However, I feel that it is useful to acknowledge that CoP as a theoretical framework has been diluted by the multiplicity of definitions, either stated or implied. The application of CoP has been extended to encompass new meanings that were not part of Lave and Wenger's (1991) original ideas (Hildreth, Kimble, & Wright, 2000; Mittendorff, Geijsel, Hoeve, de Laat, & Nieuwenhuis, 2006).

The most obvious and problematic example of this is Wenger's own participation in the reframing of CoP as a structural model for leveraging organisational knowledge (see Wenger et al., 2002). This application of a social learning theory to business management has caused some researchers to question the validity of CoP as a useable construct (Wallace, 2003) and has caused other researchers to confuse the later work as simply a further refinement of Wenger's 1998 framework (LiaBraaten et al., 2004). However, other researchers (for example: Berntsen, Munkvold, & Østerlie, 2004; Contu & Willmott, 2003; Thorpe, 2003), including myself contend that these variations should be carefully considered as separate frameworks or theories of social activity. They have similarities, as do all discussions of community, but their conceptualisation of process and agency are significantly different. Perhaps the most useful similarity to be drawn from the two frameworks is that CoP are emergent.

Due to the limitations of the CoP structural model (Wenger et al., 2002), as outlined in the previous section, the remainder of this research focuses on Wenger's 1998 framework and should not be confused with other conceptualisations of CoP or community in general.

Being Critical of CoP

It has been argued that a CoP perspective offers a way in which we can better understand the issue of sustainability in PD participation. It has been argued that a cohesive

community is one which is characterised by sustainability. However, it has also been shown that there is no clear indication of the role in which community cohesion plays in the sustained participation of teachers in a PD course. Consequently, this gap in the literature has become the focus of the current project.

However, CoP should also be considered critically as a wide reaching social theory of learning which by its very complex socio-cultural foundations defies operationalisation (Herrington & Oliver, 2000). Indeed, from a CoP perspective knowledge is not a transferable symbolic representation of reality but, instead is "provisional, mediated and socially-constructed" (Handley, Sturdy, Fincham, & Clark, 2006, p. 642). Consequently, unlike other learning theories, CoP describes a situation where learning, knowing, meaning and the social world cannot be separated (Wenger, 1998b). Mittendorff, Geijsel, Hoeve, de Laat, and Nieuwenhuis (2006) point out that CoP involves a process of informal or implicit learning and consequently "results in tacit knowledge, which is context specific, personal and difficult to communicate" (p. 299). Although this makes CoP difficult to operationalise, it is also one of its strengths, in that it explains why tacit knowledge resists being codified and transferred (Handley et al., 2006; Mittendorff et al., 2006; Roberts, 2006).

It is interesting to note that when I began this research project at the end of 2003 there were very few research articles which cogently critiqued the theory of CoP. Indeed, the majority of research appeared to be illustrating the existence of a CoP rather than rigorously investigating its origins, process or outcomes. This is supported in the literature reviews by Johnson (2001) and Wallace (2003). Despite the growing body of research literature on CoP the lack of agreement about the term "community of practice" has resulted in an increasing fragmented theoretical landscape. Lindkvist (2005) and Handley, Sturdy, Fincham, & Clark (2006) agree that the phrase is continuing to evolve and the ambiguity is problematic. Consequently, the research literature is "hardly coherent" (Lindkvist, 2005, p. 1191). Nevertheless, Roberts (2006) predicts that:

Over the coming years, as communities of practice are applied and studied in an

increasing number of organisation contexts, we will gain a deeper understanding of the

strengths and weaknesses of the approach. (p. 637)

However, this prediction continues to be undermined by the lack of theoretical rigour seen in

the research literature. An example of this is the research by Mittendorff, Geijsel, Hoeve, de

Laat, & Nieuwenhuis (2006) who embarked on a promising research project to develop a

framework by which we could better identify CoP characteristics within different groups.

Unfortunately, in their exposition of how they built their research tool they mistakenly

summarise Wenger's 1998 framework as the combination of domain, community and practice

which wholly belong to the CoP structural model of Wenger, McDermott, & Snyder (2002).

Until the research literature begins to be more rigorous in the way in which the term CoP is

applied the research findings will continue to be poorly generalisable.

In addition to problems of the theory being operationalised and a lack of theoretical

rigour in the research literature there are also a number of other critiques of CoP. However, it

should be noted that the majority of these criticisms originate from research in the CoP

structural model of Wenger, McDermott, & Snyder (2002). This is not to suggest that the

structural model has more failings than the 1988 framework, but is more likely a reflection of

the increasing amount of research literature using this model, especially in the area of business

and organisational management. Nevertheless, some of the criticisms do appear relevant to

Wenger's 1998 framework and are cautiously reported here.

One such criticism is that CoP does not "take full account of issues of power and

control within organisations" (Owen-Pugh, 2002, p. 149). However, the CoP theory does not

exclude such an interpretation but rather that "early interpretations of Situated Learning have

tended to neglect the effects of broader social and power relations" (Handley et al., 2006).

Indeed, Contu and Willmott (2003) argue that CoP is a valuable construct and an "embryonic

appreciation of power relations as media of learning" (p. 283). Within Wenger's 1998

framework power relations are represented in the way in which the joint enterprise is

negotiated, mutual relations are established and how repertoire is shared. Power relations are at

the core of negotiating membership, legitimacy and identity. This is supported by the wealth of research literature in gender construction as communities of practice (for example, Holmes & Marra, 2004; Paechter, 2006a; Paechter, 2006b; Parker, 2006). Consequently, the claim by Roberts (2006) that CoP do not adequately address the impact of an organisations' power structure seems to be more related to the simplification of social agency in Wenger, McDermott, & Snyder's (2002) framework than a weakness of the original CoP theory.

Another criticism of CoP arises from Wenger's (1998b) reference to CoP as localities of negotiated practice which has been interpreted as dislocating individuals from the influence of their wider socio-cultural experiences and histories (Handley et al., 2006; Roberts, 2006). In justifying their critique Handley, Sturdy, Fincham, and Clark (2006) and Roberts (2006) cite Mutch's (2003) work which draws on Bourdieu's concept of habitus to highlight the power of socialisation in determining our dispositions to act in similar ways across multiple communities of practice. However, Mutch (2003) does not fully subscribe to the fatalistic notion of habitus, but instead argues a middle ground where individuals retain some agency in being able to partially adapt their participation and identity according to the community. It is interesting to note that Mutch (2003) acknowledges that Wenger (1998b) has a similar understanding of persistent practices, he cites Wenger:

> We engage in different practices in each of the communities of practice to which we belong. We often behave rather differently in each of them, construct different aspects of ourselves, and gain different perspectives. (Wenger, 1998b, p. 159)

Despite Wenger's attempt at allowing for persistent dispositions in participation, the articles by Handley, Sturdy, Fincham, and Clark (2006) and Roberts (2006) cite Mutch's (2003) article to substantiate their claim that CoP is a compartmentalised theory of social activity.

One more critique of CoP which I have found to particularly interesting has been raised by Handley, Sturdy, Fincham, and Clark (2006) who argue that the terms "participation" and "practice" are particularly ambiguous and seem to overlap in their meaning. They point out that according to Wenger's (1998b) application "participation" can occur at anytime and that it is not something that members can turn off simply because, for example, they go home. Similarly,

"practice" are not only the things that members do but also the ways in which they understand what they do. Consequently, Handley, Sturdy, Fincham, and Clark's (2006) argue that "practice" should be redefined as simply "activity", while "participation" should be considered "meaningful activity" (p. 651). They argue that this makes the theory easier to operationalise. However, it is also apparent that Handley, Sturdy, Fincham, and Clark (2006) are addressing the theory from an organisational management perspective where it is desirable to have easily measurable (observable) outcomes to management interventions. I contend that Handley, Sturdy, Fincham, and Clark (2006) have made an error in seeing participation as encompassing practice since Wenger clearly argues that in his framework participation and reification are both the work of practice. Nevertheless, despite Handley, Sturdy, Fincham, and Clark's (2006) questionable reading of the theory, the point of ambiguity is clear. Wenger's theory is fluid, which is both a threat and a strength (Owen-Pugh, 2002).

These critiques of CoP help the current research in a variety of ways. Firstly, it is clear that the breadth of the theory is both a strength and weakness. While it can help us to understand the complexity of PD it also resists being operationalised. Consequently, any PD design that tries to cultivate a CoP needs to be considered critically. Furthermore, the design and analysis of the data must adhere rigorously to a single framework of CoP. This also means that findings should only be qualified by research literature founded on the same theoretical basis (unless of course the intent is to show differing explanations). The issue of individuals' persistent histories of socialisation should also be considered in the analysis of data to qualify the agency of CoP in observed patterns of social activity.

<center>Précis</center>

Chapters two and three have provided evidence from the research and theoretical literature to support a series of key arguments which provide both a context and rationale for the below research question. Chapters two and three have argued that:

- sustained PD is a characteristic of effective PD and leads to transformative learning,

- sustained PD is particularly lacking in current models of PD, and generally unsuccessfully addressed by the trend towards multiple session PD,

- a blend of ePD and face-to-face modes capitalises on the strengths of each, particularly in increasing social support structures, and being flexible in time and place,

- teachers' PD needs are complex and require more than technical skill acquisition,

- teachers' PD is best supported through social activity responsive to their professional contexts,

- Situated Learning and, in particular, CoP argue that learning is a personally transformative experience where practice and identity are negotiated. This begins to explain why sustained participation is important.

- Situated Learning and, in particular, CoP provide a lens by which the complexities of sustaining teachers' PD can be understood and *designed for*.

- In particular, sustained participation is a characteristic of community cohesion, that is, an investment of practice and identity in mutual engagement, joint enterprise and shared repertoire.

However, the nature of the relationship between CoP and sustained participation is unclear, especially in the context of a small scale blended PD course. Indeed, before we can investigate causality we need to first establish the applicability of a CoP lens with regards to sustainability of teacher participation in a small scale, blended PD course. As a result, this research is driven by a single research question:

What role does CoP cohesion play in the sustained participation of teachers in a small-scale blended PD course?

In answering this question we must necessarily examine a small-scale blended PD course and gather evidence about teacher's participation. The evidence needs to then be considered in light of CoP theory. In other words, can the pattern of participation be explained by a CoP lens?

Clearly, this project does not propose that CoP sustains participation, but rather that CoP may help us understand the issues of sustainability and possibly, in turn, shed light on

influences. However, it would be naïve for me to suggest that this research was not originally conceived to find a way to sustain participation, and that a CoP was a plausible means by which to achieve it. Nevertheless, this ambitious aim has, through necessity, been modified. After consideration of the literature review, it is clear that the relationship between CoP and sustainability has not yet been investigated.

Consequently, this research aims to explore the connection between CoP and sustained participation. However, since a CoP cannot be forcibly created there is some uncertainty in how this research will play out. As it is this research may find that there is insufficient evidence of a localised CoP to explain the pattern of participation over time. Indeed, the lack of a cohesive CoP may be informative in itself. Alternatively the research could find evidence suggesting that reported influences on sustained participation can be explained by CoP. In any case, the question of how to leverage the CoP to do so is for future research projects.

It is also worthwhile pointing out that the research question purposely excludes the examination of other theoretical frameworks in understanding the observed processes. This research is an exploration of sustainability from the perspective of CoP. The intention is to provide a body of evidence that can inform future research into issues of causality, theoretical comparisons and issues of teachers PD from a socio-cultural learning perspective. The purpose of any exploration is not to refine a process but rather to go where no-one has gone before. Consequently, the aim is to identify possible issues of significance and gain an insight into the process of sustainability from a CoP perspective which can then provide a basis for hypothesis development, testing, and further exploration.

CHAPTER FOUR: METHODOLOGY

Methodology has been defined as the general principles and traditions of data collection (David & Sutton, 2004; Silverman, 2005). It includes both the study of, and discourse surrounding, research methods from the level of epistemology through to the application of data collection tools (David & Sutton, 2004). The choice of a methodological approach must not only be appropriate for the research questions but it is also guided by the paradigm or worldview as well as the theoretical lens adopted by the researcher. In turn, the choice of a methodological approach helps to determine the methods used, that is, the actual process used to collect and analyse the data (Burns, 1997; Kumar, 1996; Silverman, 2005). This is illustrated in Figure 1 which builds on a framework used by Creswell (2006) and Crotty (1998).

Methodology framework	The current research design
Paradigm or Worldview	• *Social Constructivism*
Theoretical Lens	• *Situated Learning* • *Community of Practice*
Methodological Approach	• *Case Study (multiple case, observation over time)*
Methods of Data Collection	• *Participant-researcher observations,* • *Likert scale and open ended questionnaire,* • *Semi-structured interview,* • *Computer records of participant online access, and* • *Archived records of emails, forum posts and chat sessions*
Methods of Data Analysis	• *Coding and categorising with NVivo software* • *Iterative process of code development*

Figure 6. Framework of methodology.

Consequently, to justify the selection of data collection and analysis methods, this chapter explores the strengths and weaknesses of the methodological approach and acknowledges the theoretical lens and paradigm which frames the research and researcher. In doing so, explanations are provided as to why a qualitative, multiple-case study methodology was chosen for the research design and issues such as generalisation, validity and reliability are discussed. This chapter also describes the case selection, participants, ethical considerations, PD course design and implementation, as well as participant researcher considerations. Finally, the methods and tools used in the collection and analysis of the data are clarified.

Paradigm and Theoretical Lens

This research utilises the situated learning theory of CoP as a theoretical lens through which the social processes in a professional learning context can be understood. It is important to emphasise that this research uses Lave and Wenger's (1991) and Wenger's (1998b) framework of CoP and not other variations such as Wenger, McDermott, and Snyder's (2002) structural model of CoP.

Consequently, this study is firmly entrenched in the non-positivistic paradigm of social constructivism (Lave & Wenger, 1991) and has been described in considerable detail in Chapter 3. However, it is pertinent to note the methodological implications of such a paradigm. Constructivism considers knowledge to be a personal construct and not an absolute fact (Flick, 2004a). The objective world exists but our understanding of it is mediated by our perceptions and understanding; indeed, our knowledge, "is negotiated rather than discovered" (Kayrooz & Trevitt, 2005, p. 118). In addition, social constructivism emphasises the role of the social environment as significant in the process of meaning making. Consequently any attempt to explain the dynamics, influences, or issues of significance in a social organisation or community must necessarily value the stories of the people involved. Kayrooz and Trevitt (2005) stated, "If we wish to inquire about the nature of social events, we need to gather

evidence of people's perceptions according to the context in which they occur" (p. 10).

Accordingly, a social constructivist paradigm values naturalistic enquiry where the social

context is *more likely* to be at their natural state than in experimental or other modes of enquiry.

Indeed, the relationships between agent, world and meaning cannot be understood outside of its

social, cultural and ideological context, (Denzin, 1997). Lincoln & Guba (2000) argued that as

constructivists:

> We do not believe that criteria for judging either 'reality' or validity are absolutist, but
>
> rather are derived from community consensus regarding what is 'real,' what is useful,
>
> and what has meaning (especially meaning for action and further steps). We believe
>
> that a goodly portion of social phenomena consists of the meaning-making activities of
>
> groups and individuals around those phenomena. The meaning-making activities
>
> themselves are of central interest to social constructivists, simply because it is the
>
> meaning-making activities/sense-making/attributional activities that shape action (or
>
> inaction). (Lincoln & Guba, 2000, p. 167)

Clearly, the focus of social constructivist research is being able to understand participant

experiences and how they are interpreted.

A social constructivist paradigm further complicates social research by recognising the

subjectivity and interpretative nature of researchers (Schwandt, 2000) and the necessity of

convergence:

> All parties (including the researcher) construct meanings by reference to their particular
>
> context. The methods are selected to seek meaning from representative stakeholders
>
> and the more convergent the meaning the greater the validity. (Kayrooz & Trevitt,
>
> 2005, p. 118)

In other words, the implication of a social constructivist approach requires the context,

participants and researcher be described in sufficient detail to support the validity of the

research conclusions.

As described in detail in Chapter 3, CoP is the theoretical lens adopted by this research

(see Figure 1) and it, too, has implications for the research design. Community of Practice is an

ongoing social process wherein members are constantly transforming their identity and practice and, as a result, it is an intensely subjective experience (Wenger, 1998b). Consequently, CoP does not lend itself to being objectively measured or quantified. Observable patterns, interactions and products of a CoP reveal some aspects of the nature of the community. However, community members "are connected by more than their ostensible tasks. They are bound by intricate, socially constructed webs of belief, which are essential to understanding what they do" (Brown et al., 1989, p. 34). Even so, this does not mean that CoP cannot be empirically researched. A qualitative approach provides an avenue for empirical research as it complements a social constructivist non-positivistic paradigm. Fosnot (1996) pointed out that from a social constructivist viewpoint, we "cannot understand in the same way as another human who has had different experiences, but with language, with stories, with metaphors and models, we can listen to and probe one another's understanding, thereby negotiating 'taken-as-shared' meanings" (p. 26). In essence, through rich dialogue we can describe the subjective experiences of individuals within a CoP.

As a guiding theoretical lens of this research, the situated learning theory of CoP values an understanding of members' construction of identity and practice within a socially rich context. Consequently, the research design needs to be able to accommodate participant stories with ill-defined concepts, multiple interpretations and agency of the social environment. Indeed, it has been a considerable source of criticism of CoP that it sees situated learning as a function of the social environment (Herrington & Oliver, 2000). This brings us to a critical implication for this research design. Since it is difficult to measure or interrogate the social environment, particularly from a social constructivist paradigm and CoP lens, it is necessary to discern its agency through the community members' perceptions. Consequently, this research needs to be able to access participants' subjective experience and interpretations of the social context through a rich exchange in dialogue.

Methodological Approach: Case Studies

The previous section of this chapter has argued that the paradigm and theoretical lens (see Figure 1) are most appropriately addressed through a qualitative approach. Certainly qualitative approaches are considered to be more suited to understanding multiple participant meanings and the process by which they came to those meanings (Creswell, 2006). Denzin & Lincoln (2000) pointed out:

> Qualitative researchers stress the socially constructed nature of reality, the intimate relationship between the researcher and what is studied, and the situational constraints that shape inquiry. They seek answers to questions that stress **how** social experience is created and given meaning. In contrast, quantitative studies emphasise the measurement and analysis of causal relationships between variables, not processes. (p. 8; authors' emphasis)

In this research the possible variables influencing sustainability are too numerous to easily quantify, let alone control or establish causality. Possible variables could include: participant personal histories or trajectories, external forces such as school funding or collegial support, technical support, classroom environments, family and domestic issues, course facilitation, computer mediated communication, and participant researcher involvement. The relationship, between these and other contextual variables on participant investment of identity and practice in engagement, enterprise and repertoire in the context of teacher PD, is unlikely to be a simple equation. Clearly, the research aim cannot be achieved through clinical or experimental studies. The variables are far too numerous, the causal relationships are unclear, and the nature of the study revolves around deeply subjective topics. In contrast, a qualitative approach can accommodate multiple variables with indistinct relationships and high subjectivity (Burns, 1997). Nevertheless there are a number of methodological approaches within a qualitative framework. These include action research, grounded theory, ethnography and case study. In an attempt to establish the most appropriate approach, a literature review was conducted on research pertaining to sustaining PD within a CoP.

Unfortunately this literature review has revealed very little directly relevant research. While there are a considerable number of studies using the term, "community" or "community of practice," only a portion of these studies use the term as applied by Wenger (1998b) and none have been found which use his framework to consider the issue of sustainability. For instance, while Ge & McAdoo's (2004) research, entitled "Sustaining teacher's efforts in technology integration", refers to CoP and cites Wenger's (1998b) theory, they base their case study and Peer Learning Community Model on Barab & Duffy's (2000) concept of "Community of Learners and Practice". In contrast, Brosnan & Burgess' (2003) case study of 16 health care professionals used Wenger's (1998b) learning architecture to both design and analyse the online PD course but did not specifically focus on the issue of sustainability. Nevertheless, Brosnan & Burgess' (2003) case study remains the most applicable to this research as the only example that had been found which applied Wenger's 1998 framework in a PD context.

A broader literature review revealed that, in general, research in CoP is dominated by qualitative case study and ethnographic approaches. This is not surprising since the theory does not lend itself to the identification of measurable variables, although there are increasing attempts at applying Wenger, McDermott, & Snyder's (2002) structural model in this way (for example, Campbell & Uys, 2007; Mittendorff et al., 2006).

Lave and Wenger's (1991) original study of situated learning and Wenger's (1998b) work on CoP (on which this research bases many of its theoretical assumptions) followed an ethnographic approach. More recent studies of CoP appear to predominantly use a case study approach. In a survey of research on CoP, Johnson (2001) identified the majority of reporting styles to be case studies. Similarly, Wallace (2003) reported that in his literature review the majority of CoP studies used case study methodologies with anecdotal evidence to support

findings. Table 1 is an adaptation of Johnson's (2001) findings with additional items based on this study's literature review.

Table 5

Sample of Case Study Research with a CoP Focus

Case study	Type	Description
Bloomer & Hodkinson (2000)	Longitudinal	One individual's learning patterns.
Borthick & Jones (2000b)	Study between groups	Three online courses vs. one traditional course.
Brosnan & Burgess (2003)	Study within a group	16 health and social work students in an online PD course. Interviews, online statistics and discussion forum archives.
Cuthell (2005)	Study between groups	Discussion of five online communities. Anecdotal and historical documents.
Edmondson (1999)	Study between groups	Fifty-one teams, four in detail. Trust in teams.
Fischer (1998b)	Study within a group	Fifty-one middle school teacher trainees in a Web-based training environment.
Ge & McAdoo (2004)	Study within a group	112 teachers engaged in an online PD course.
Grisham, Bergeron, & Brink (1999)	Study within a group	Survey: Web usage of individuals in an online community of practice.
Hammond (1998)	Study within a group	Communication patterns of individuals.
Hammond (1999)	Study between groups	Three case studies. Participation levels between asynchronous communities.
Hammond (1999)	Study within a group	Meta-analysis of three case studies: asynchronous communities.
Hodkinson & Bloomer (2000)	Longitudinal study within a group	Four individuals' participation in a learning community.
Oliver, Omari &	Study between groups	Three pairs of students. Comparison of pairs

Herrington (1998)		in collaboration.
Renninger & Shumar (2002)	Study within a group	Three individuals in details within a larger case study of forty-two teachers. Interviews.
Ricketts, Wolfe, Norvelle, & Carpenter (2000)	Study between groups	Three online courses that mixed CD-ROM and Internet delivery with a traditional course.
Robey, Khoo, & Powers (2000)	Study between groups	Twenty-two participants via open interviewing in three virtual teams.
Soden & Halliday (2000)	Study within a group	Twenty-five subjects investigating vocational training in Britain.
Stamps (2000)	Study within a group	Two individuals in an organization's attempt at facilitating a CoP.
Winsor (2001)	Study within a group	Six interns in an engineering company.

This trend in using a case study approach in CoP research can be explained by Kayrooz and Trevitt's (2005) claim that a case study approach is a valuable research design when trying to understand the complexity of organisation and community contexts. Burns (1997) and Yin (2003) also pointed out that a case study approach is affective in addressing "how" or "why" questions about a contemporary set of events over which the investigator has little or no control. In this regard, the current research is no different from those in Table 1. Not only does the current research aim to explore how and why a CoP may influence sustainability in teacher PD, it is also a contemporary phenomenon (online PD within a CoP design) over which the researcher has little direct control.

Similar to the above literature review on CoP, a further literature review on PD, and online PD in particular, shows that it is also well represented by the case study approach (e.g., Davis & Resta, 2002; Ehman & Bonk, 2002; Vance, 2004; Vrasidas & Glass, 2004a). In a survey of 40 empirical studies on online teacher professional development, Dede, Breit, Ketekhut, McCloskey, & Whitehouse (2005) reported that they found the majority were small scale case studies primarily using qualitative methods. While there are a number of larger

studies using quantitative and mixed methods, they predominantly focused on "what" rather than "how" or "why" questions, such as, "what are teachers' PD preferences?" (e.g., APEC Education Forum, 1999; Downes et al., 2001; Lloyd & Cochrane, 2005; McRae et al., 2001).

Case Studies

The discussion to this point has attempted to demonstrate that a case study approach is a valid form of inquiry in addressing the research focus. Moreover, that a case study approach is particularly suited to this kind of exploratory research where "the boundaries between the phenomenon and context are not clearly evident" (Yin, 2003, p. 13). However, the strength of case studies in studying highly subjective and ill-defined social activity has also resulted in criticisms of generalisability, validity, reliability and researcher bias (Burns, 1997; David & Sutton, 2004; Yin, 2003). In other words, how do we know that the data, analysis and conclusions represent what actually took place, and, furthermore, that the findings are applicable outside of the particular context of the case study? These issues are addressed below with particular reference to the current research.

Generalisability

An objection to case study research is that the findings are not generalisable to the wider population (Yin, 2003). Conclusions drawn from one case study cannot be assumed to be true of another case study even if they appear to be similar. However, case studies can be generalised to theoretical propositions. In other words, case studies can be used to support an argument, hypothesis or theory. This is a shift from quantitative or positivist perspectives in that the selection of a case is not one of statistical representation, but rather purposeful, in which "the investigator's goal is to expand theories" (Burns, 1997, p. 380). As a result the question changes from, "Is this representative of the wider population?" to "How does this case change

our theoretical understanding?" In this light, the selection of "abnormal" cases could provide more valuable information than trying to select representative cases.

In case studies, the task of making wider generalisations is left to the readers who, through their own evaluation of the rich contextual information, can decide the relevance or "fittingness" of the study to other situations (Burns, 1997; Schofield, 2002; Yin, 2003). Therefore it is essential that any case report is accompanied by sufficient information from which the reader can make such a decision.

Naturally, generalisation is an issue which case study research cannot ignore. However, the focus of case study research design necessarily becomes one of demonstrating the validity and reliability of the data collection methods and analysis in light of the research questions being asked (Burns, 1997). Yin (2003) went one step further and argued that all case studies, including ones of an exploratory nature, are best served by identifying clear theoretical propositions. These propositions guide both the design of the data collection as well as provide a defined scope for generalisation. As Eisenhardt (2002) pointed out, "If these constructs prove important as the study progresses, then researchers have a firmer empirical grounding for the emergent theory" (p. 11).

Yin's (2003) advice has been particularly relevant for this study. In the very early stages of this study, the research design planned to capture as much information about social interactions as possible with the intention of trying to explore any and every connection of a variety of social learning theories, including social presence, transactional distance, social affordance, reflective practice and, of course, situated learning and CoP. The initial framework is summarised in Figure 7.
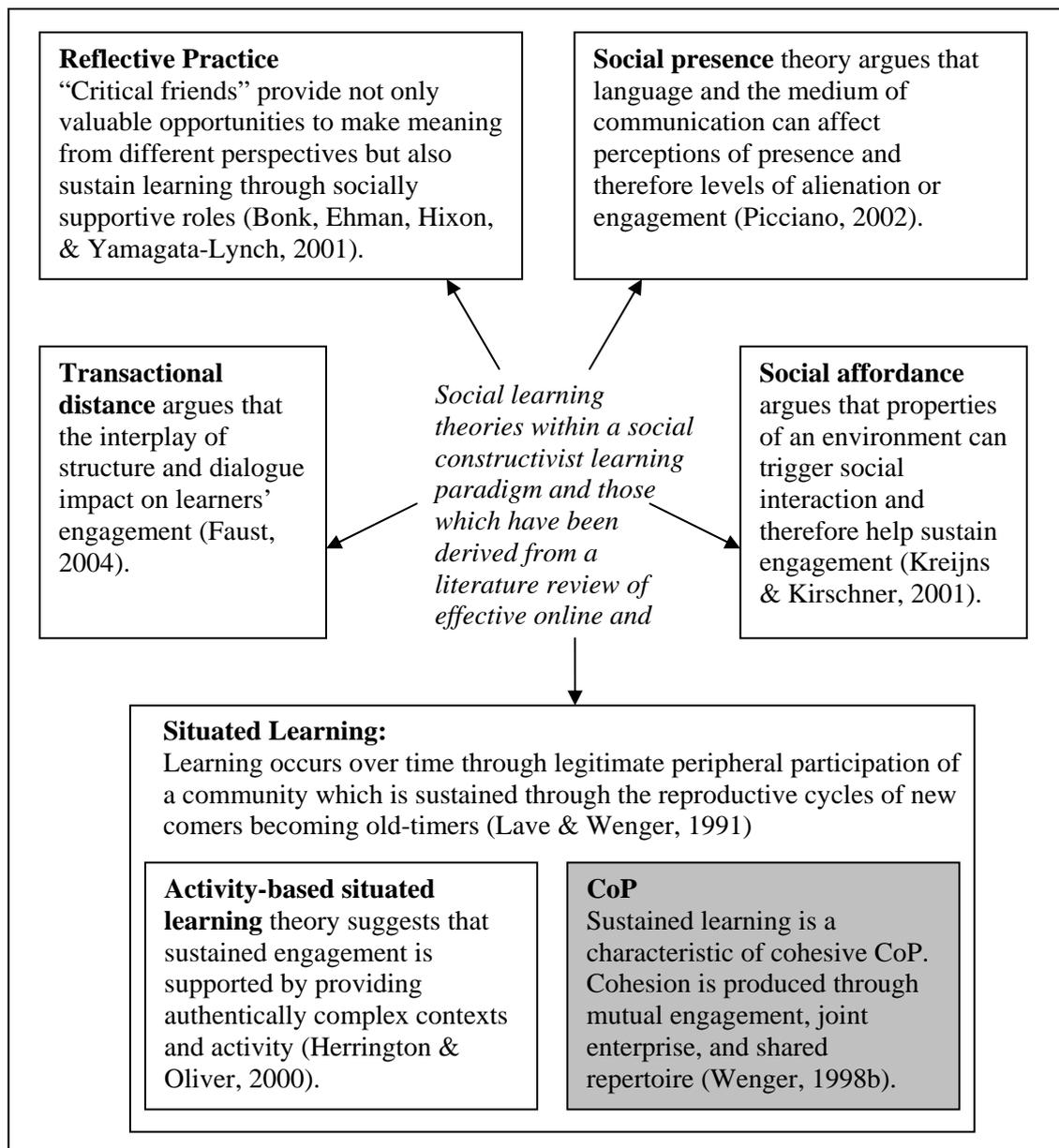
Figure 7. A framework of social learning theories derived from a PD literature review.

It is obvious from Figure 7 that the initial conceptualisation was so broad that both the data collection and data analysis would have been beyond the resources of this PhD study. For instance, the kinds of questions and data required in an exploration of transactional distance is significantly different from that needed in an exploration of CoP, and would have necessarily meant considerable more time, questions, and analysis. In an attempt to improve the analytical generalisability of this study, it was decided to focus on CoP (shaded area in Figure 7), and,

specifically, the role of CoP in sustained participation of teachers in small-scale blended PD courses. It is significant to note that this focus shifts questions away from evaluating the effectiveness of the course design. Instead, the data collection and analysis is limited in its scope to the interplay between CoP and PD sustainability.

In addition to limiting the theoretical scope of the study, analytical generalisability is supported by the validity and reliability of the data collection and analysis. Yin (2003) described four tests which can be used to aid the research design and implementation: construct validity, internal validity, external validity, and reliability. These tests are discussed in the following sections.

Construct Validity

This test refers to whether the data collection tools and strategies employed are appropriate or valid for the kind of information required to answer the research questions. Furthermore, construct validity raises the question of researcher subjectivity in deciding what data is worth collecting and what data is unimportant. Construct validity is primarily concerned with strengthening the researcher's claim to having collected sufficient data to substantiate any findings. A key strategy in addressing construct validity is through using multiple sources of data (Burns, 1997; Yin, 2003). This provides the opportunity for triangulation through converging lines of inquiry, that is, "any finding or conclusion in a case study is likely to be much more convincing and accurate if it is based on several different sources of information" (Yin, 2003). Table 6 indicates the data collection strategies employed in this research and the way in which they provided converging lines of inquiry.

Table 6

Data Collection Strategies and Converging Lines of Inquiry

Strategy	Convergence
Participant-researcher observations during face-to-face training day and online course	The researcher was also the PD course facilitator. The strengths and weaknesses of participant-researchers in case studies are covered elsewhere in this chapter. Of prime concern here is that the researcher was able to make observations during the face-to-face training day as well as during the remainder of the course if participants contacted the researcher outside of the online communication tools, such as by telephone. If the facilitator was not the researcher, potential interaction could go unobserved.
Likert scale and open ended questionnaire post face-to-face training day	The aim of the questionnaire was to capture data regarding the face-to-face training day as well as the initial period of virtual training. Part of this inquiry converges with that of the participant-researcher observations of the face-to-face day.
Semi-structured interview at the end of the PD course	A section of the semi-structured interview is designed to reflect on participant-researcher observations, the questionnaire, records of online access, and archived communication records. In this way the data collection provides an opportunity for convergence of inquiry.
Statistics of participant online access	The statistics included the number of times a participant logged onto the online system as well as how many times they posted a message and the frequency of their visits to the PD course sections. Although such statistics provide little insight into the experience of CoP, they could provide triangulation on the issue of sustainability. More importantly, it was thought that the pattern of course access should provide a line of inquiry which converges with themes arising from the other collection strategies.
Archived records of emails, forum posts and chat sessions	A significant foundation of CoP is that members need to engage. Engagement in an online course is primarily limited to, and most easily observed, via their online communications. Consequently, themes or lines of inquiry arising from the semi-structured interview or the other collection strategies could potentially be supported through the analysis of the archived records. For

instance, a participant could mention in the interview that they felt the others were very supportive. The archived records could be useful in not only validating this statement but also exploring the kind, frequency, and other aspects of such support.

Each data collection strategy is discussed in greater depth later in this chapter.

Internal Validity

Internal validity refers to how well the findings match reality (Burns, 1997). Yin (2003) argued that this test is less relevant in exploratory research which is not trying to make causal claims, such as the current research. Furthermore, the concept of "reality" is problematic from a social constructivist point of view. Indeed, rather than an objective sense of reality the more important issue from a social constructivist perspective is whether the data analysis reflects a *convergence of meaning*, that is, reality from the point of view of individual and group constructs. Internal validity can be addressed through strategies such as triangulation, long term observation, and participant checks (Burns, 1997; Yin, 2003). The current research uses all of these strategies.

Triangulation through multiple sources of data provides greater opportunities for convergence of meaning. While one data source could provide enough information to build an understanding of a process, the strength of triangulation is that a much more convincing account of the same process could be built by testing it against multiple data sources. As described in the previous section, this research does this through a variety of data sources using converging lines of inquiry.

Long term observation lends validity to research through the assumption that contradictory data, patterns and themes will emerge over time. In this research participant-researcher observations, archived communications records and course statistics provided longitudinal data on observable behaviour while the questionnaire and semi-structured

interview captured snapshots of participant perspectives after the face-to-face training and at the end of the course.

Participant checks support internal validity by providing an opportunity for the participants to reflect on the researcher's analysis of the data. In this research, participant checks were used to the extent that emerging points of interest, arising from the observations, questionnaire, statistics and archived records, were queried in the semi-structured interview. For instance, in an analysis of several participants' course statistics and archived records, the level and frequency of social engagement become a point of interest. Indeed, it seemed that the social engagement may be dominating all other activities. Consequently, the interview included a question which allowed participant checking.

External Validity

This test primarily refers to whether the study's findings are generalisable beyond the immediate case. While the problem of generalisability in case study research has already been broached in this chapter, it did not discuss strategies to increase external validity. Yin (2003) and Burns (1997) have identified two such strategies: the purposeful selection of cases (see also "theoretical sampling": Eisenhardt, 2002; Merkens, 2004) and the use of multiple cases as a form of convergence. This study has used both strategies to varying degrees.

Case selection.

The selection of a specific case study can support external validity by limiting the scope of generalisability, or "fittingness", to similar cases. Unlike quantitative sampling measures, there is no attempt to suggest that the data is representative of the general population. Instead, the case has been chosen for one or more contextual reasons, such as location, and consequently the analytical generalisability is limited to cases with similar characteristics.

Case studies can also be selected for theoretical reasons. This can help establish the robustness of the theoretical propositions. For instance, if a case were selected because it was

thought to display unusual, interesting or critical behaviours and the data collected suggested a confirmation of the theoretical propositions, then it would provide a much more compelling basis for claims of analytical generalisability. Obviously, the use of multiple cases would further substantiate the robustness of the claims by demonstrating a convergence of meaning across studies.

Multiple case studies.

Multiple cases provide external validity by enhancing the readers' confidence that the findings are applicable to more than one case. It does not matter whether the cases confirmed or disconfirmed patterns. Validity arises from the careful re-evaluation of the theoretical propositions to satisfy all the evidence (Eisenhardt, 2002). Obviously, more case studies would provide greater external validity. For each significant dimension to the research there should be multiple case studies to allow comparison (Flick, 2004b). However this can quickly become unmanageable for projects of limited funds or personnel (Flick, 2004b; Yin, 2003). While numerous case studies are clearly preferable, Yin (2003) argued that the use of two case studies is still eminently more preferable than one:

> [Firstly,] even with two cases, you have the possibility of direct replication. Analytic conclusions independently arising from two case studies, as with two experiments, will be more powerful than those coming from a single case (or single experiment) alone. Second, the contexts of the two cases are likely to differ to some extent. If under these varied circumstances you can still arrive at common conclusions from both cases, they will have immeasurably expanded the external generalisability of your findings, again compared to those from a single case alone. (Yin, 2003, p. 53)

Having considered Yin's (2003) argument, it was decided to use multiple case studies in this research to support the external validity of what was an exploratory research project with poorly-defined boundaries and, therefore, potentially highly interpretive findings. Two cases, selected for literal replication, would give readers greater confidence in drawing conclusions of "fittingness" to other situations.

In this research, one case study was in Australia and the other in the United Kingdom. The selection of location was purposeful, driven more by a sense of exploration to see if the research findings converged despite significant contextual differences between the groups of teachers. Since this research was exploratory, there were no clearly defined theoretical propositions which could be tested. The selection of case studies was based more on an intuitive sense of what may be important rather than trying to establish the validity of a proposition. Clearly, the context, support structures and other contextual variables are important in the creation of a CoP. The selection of these cases provided the opportunity for divergent evidence to arise due to differences at the macro level such as educational systems, curriculum focus and teacher training as well as global teaching communities. Another reason for the selection of an international case study was that the topic of the PD course "Integrating Online Learning" was carefully selected to be aligned with Education Queensland's investment in online learning. This can be seen in the licensing of Blackboard and offering of VLE facilities to classroom teachers, as well as the increasing pressure on teachers to demonstrate integrating ICTs. In contrast, while the United Kingdom has similar expectations for teachers to engage with online learning, this course used the Blackboard software to which they do not have access. In addition, the course has a significant component of theoretical content, making assumptions about pedagogical understandings of the teachers. Further details of the cases and the course participants will be described in greater detail later in this chapter.

Reliability

This test asks whether another researcher using the same procedures and observing the *same* case study would arrive at the same conclusions. This is significantly different from the quantitative concept of reliability which argues that the same intervention can be given to different studies with the same result. Instead, the focus in case studies is that the decisions, procedures and conclusions arising from the study are sufficiently documented to allow others to have confidence that there were no errors or biases in the study (Yin, 2003). Strategies in

addressing this test are: triangulation, documentation as to how the data was obtained and how the categories were established, the maintenance of a case study database which subsequent researchers could potentially use to analyse the same case study, and finally, reporting of any researcher bias (Burns, 1997; Yin, 2003).

This research has been careful to apply these measures. Triangulation is facilitated by multiple data sources as well as multiple cases with converging lines of inquiry. This chapter documents the data collection methods, instruments, procedures as well as how the data was coded and the themes identified. All data has been stored and represents a comprehensive record of the cases. Finally, the issue of researcher bias is addressed by including contextual details of the researcher including the source of funding for the project. Nevertheless, the issue of researcher bias is further complicated because the researcher is also the course facilitator. Consequently, it deserves a more considered response.

Researcher bias.

The issue of researcher subjectivity is a common objection to most qualitative research. Case studies are no exception. Burns (1997) pointed out that "the greatest concern has been the role of human subjectivity when selecting evidence to support or refute, or when choosing a particular explanation" (p. 379). However, both Burns (1997) and Yin (2003) noted that quantitative methods, including experimental design, are not impervious to claims of researcher bias. Indeed, from a constructivist point of view, "we cannot step outside our own experience to obtain some observer-independent account of what we experience" (Maxwell, 2002, p. 41). In case studies, the subjectivity of researcher observations is offset by the potential opportunity to draw together themes out of rich data, often intuitively (Maxwell, 2002). Indeed, in the case of participant observation, Yin (2003) argued that there is a distinct strength in the researcher being able to access insider perspectives. Nevertheless, in studies such as the current research where the researcher is also a participant observer this issue of bias becomes critical (Yin, 2003). Yin (2003) identified four specific concerns with regard to participant observation.

The first two concerns were also raised by Burns (1997) who stated that the researcher may "lose detachment, or assume advocacy roles detrimental to unprejudiced reporting" (p. 373). In the current study the participant observer was also the course facilitator. Inevitably as a course facilitator, the success of the course and satisfaction of the participants become a central concern. Consequently there is a risk of the course and participant relationships being reported in a more positive light. However, it is also valuable to stress that this research focuses on the applicability of a theoretical construct, that is, CoP. Issues of participant success or satisfaction in completing the course are not the primary research concern.

The third concern raised by Yin (2003) is that the researcher's role as a participant may require too much attention, not allowing sufficient time to make observations. During the face-to-face training in this research, this could have been a problem as the researcher was also the course facilitator with little time to make observational notes. However, both the subsequent questionnaire and semi-structured interviews interrogate participant perceptions of the face-to-face training day. Yin's (2003) concern is not as relevant for the online component of the PD course as all interactions are archived for later analysis.

The fourth concern raised by Yin (2003) is that in physically distributed communities it is difficult for the participant observer to be in the right place at the right time. In this research the community was mediated (and archived) by online communication tools which allowed the researcher to observe all online interactions regardless of time and location of the participants. However, in both case studies, two participants were based at the same school and therefore potentially significant interaction could occur without being observed. The current research design addressed this concern by including questions about offline interaction in the semi-structured interview.

Context: The Participants and Course Design

A search for potential case studies was undertaken with the aim of finding a blended (online and face-to-face) PD course which could be easily adapted to, or already utilised, a

design which was likely to engender a CoP. While there were examples of blended PD courses in Education Queensland's "The Learning Place", the courses could not be altered due to copyright protection or were clearly unsuitable. Similarly, further investigations, including in the London Grid for Learning, were not successful. As a result, a blended PD course was developed to train the two groups of teachers. Apart from the lack of suitable alternatives, the lack of project funds meant that a course developer and course facilitator could not be employed. Fortunately, I was experienced in developing face-to-face and online training materials as well as conducting the training. Nevertheless this also raised the issue of researcher bias as discussed earlier in this chapter. The following section attempts to provide some information on myself as participant researcher that may be relevant in considering the research analysis and discussion.

The Researcher

An Australian citizen by birth, I trained as a teacher at James Cook University, Queensland, Australia exiting with two degrees, Bachelor of Arts and Bachelor of Education (first class honours). As a qualified secondary school teacher, I taught in the Queensland and then English educational systems for approximately four and five years respectively. Prior to this I had also been employed as an educational multimedia programmer in tertiary distance education.

As Head of ICT in a secondary school in the United Kingdom I had responsibility for teachers PD in ICT. During this period it became clear that, among other things, teachers' PD needed to be sustained over time. It also became clear that the majority of teachers in this school were not familiar with a large scope of pedagogical issues which are a common foundation for Queensland trained teachers. The English National Curriculum imperatives, privatised examination board requirements and subsequent curriculum development, as well as the system of teacher accreditation were assumed to be partly responsible. While these issues are peripheral to the current research, they did raise the question of whether the same blended

course could facilitate CoP and therefore sustain the PD in remarkably different professional contexts. Clearly, having experience of the Queensland and English educational systems was an underlying reason for selecting these two locations for the case studies.

Despite concerns of researcher bias there were some advantages for researcher participation. First, as a teacher with over nine years experience in developing and delivering face-to-face and online training materials for other teachers, I felt that I could develop and deliver a PD course of a high standard and relevance. Second, the formation of a CoP would require the course facilitator to act as a community broker, as well as constantly considering the dimensions of Wenger's learning architecture. Third, by facilitating the course in both case studies I could provide an element of literal replication. This would provide a greater level of external validity despite the potential weaknesses of participant-observer research (Yin, 2003).

Case Selection

This research used two case studies. Each case study is defined as the implementation of the same blended PD course to a different group of teachers. One case study was conducted in Australia with five teachers and the other in the United Kingdom with four teachers. The use of different groups was designed to provide greater triangulation as well as analytical generalisability. Reasons for the selection of an international case study have been already discussed in this chapter and most importantly centre on the assumption that the professional context in Queensland and England are significantly different and may provide greater opportunity to build more robust theoretical propositions. This decision was driven predominantly by a sense of exploration rather than testing any proposition. Both Yin (2003) and Burns (1997) support that in exploratory studies decisions of case selection are sometimes best served by seeking those which will potentially provide the greater variance. Furthermore, since the aim of exploratory research is to find out how and why something occurs, the choice of cases is sometimes nothing more than a researcher's sense of what may be important (Yin, 2003).

The small number of participants in each group was intentional. Each case study was intended to include four to six teachers. The reason for this small number was threefold. First, this study was limited in resources and I determined that I may not be able to manage the amount of rich data more participants would create. Second, the research was intended to be a pragmatic approach for small scale PD programs. This was referred to in the introductory chapter and arises from the researcher's personal experience as being the ICT Professional Development coordinator for a school community. Third, the small number of participants allowed the course to include individualised tasks and force the participants to engage with each other more than would occur in a large group and, as a result, could have a significant impact on the formation of a CoP. The impact of a small number of participants on sustainability is investigated in the data collection and analysis in Chapters Five and Six.

Prior to the selection of the cases and participants, the researcher developed the PD course entitled, "Integrating Online Learning". The course was specifically written for secondary school teachers and consequently the recruitment of participants was limited to secondary schools. Teachers were recruited on a first-come first-served basis. There were no restrictions on the participants' teaching areas or years of experience. It was also acceptable if some of the participants were from the same school. While this could detract from online engagement, it was decided that if this situation arose it may provide for rich comparative data in terms of the role of virtual communities and social presence when support through a local CoP is closer to hand. In each case study, two of the participants were from the same school.

Instead of trying to establish a random selection process for the schools, it was decided that the recruitment of participants should be similar to the process of recruitment followed by many small-scale PD courses, namely, through flyers sent directly to schools and by word of mouth. In Australia, the face-to-face training day was to be in Townsville. As a result all of the secondary schools in Townsville were approached with a flyer (Appendix A) and asked to advertise the course to the teaching staff. In addition, the researcher sent emails to several ICT teachers in the schools indicating that the course was being offered. In the United Kingdom it was decided to host the training day in the county of Kent. The researcher had a network of

colleagues in that area and felt that he could utilise that network to find a school to host the face-to-face training. Indeed, prior to the recruitment of participants, a secondary school in Kent offered to host the training. As a result, the flyer (Appendix A) was sent to secondary schools in the region and the ICT Head of Department also advertised the course at a meeting of schools strategically linked through their ICT initiatives.

Five teachers applied, and were accepted, to participate in the PD course in the Australian case study. In the United Kingdom case study five teachers applied but only four teachers attended the training. The fifth participant withdrew prior to the course due to personal issues.

Australian Participants

In the Australian case study, hereafter also referred to as Case Study One (CS1), the five participants were drawn from four different secondary schools. They had a range of teaching areas and varied in their teaching experience. Table 7 presents a brief profile of each participant. Names of the participants and the schools have been changed to preserve confidentiality[4].

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[4] The names of the five participants have been randomly substituted with the label's P1, P2, P3, P4 and P5. This is in accordance with assurances of confidentiality as discussed later in this chapter. I had originally intended to replace these labels at a later stage with names, however, as my analysis of the data continued I found that the labels took on significance in their own right. I also found the use of homogenised pseudonyms helpful in analysing a participant's interactions in terms of CoP; that is, the focus was on the similarities and differences in their participation before considering their gendered, social, cultural and other phenomenological perspectives. However, it is not the intent of this research to ignore or marginalise any of these important frames of reference, after all, CoP is not a socially isolated process. Indeed, issues relating to gender differences between case studies are considered in chapter six.

Table 7

Case Study One Participants

Alias	CS1 P1	CS1 P2	CS1 P3	CS1 P4	CS1 P5
Gender	Female	Female	Female	Female	Female
Years Teaching	12	18	2	3	2
Teaching Qualifications	BEd (Qld, Australia)	Cert.Teach, BSc, BEc (Qld, Australia	BEd (Qld, Australia)	BEd (ECE) (Qld, Australia)	BEd BA (Qld, Australia)
Subject Specialties	English and Modern History	Chemistry, Science & Math	English, ICT, Math	Nil	English, SOSE, History
Position	Senior Teacher	HOD Centre for Continuing Secondary Education	IT coordinator	Head of Year	Teacher
Subjects taught	English 11-12, 8; Modern History 11-12; QCS/PDP 12	Year 12 Math A	English 9-10; Computer Studies 8-10; IPT 11/12	SOSE	SOSE 8-10; English 10-12
School ICT responsibilities	Nil	Nil	IT coordinator assisted other IT teachers and manage hardware and software in the school with 3 other teachers	Teacher of a laptop class which involved working in a team to plan integrated tasks.	Nil
Description of school	Mixed gender Years 8-12 State funded 1080 students 50 teachers	Mixed gender Years 8-12 (taught both as mainstream and adult school) State funded 140 adult school students 600 mainstream students 90 teachers	Mixed gender Years 8-12 State funded 550 students 49 teachers	Mixed gender Years 8-12 State funded 600 students 60 teachers	Mixed gender Years 8-12 State funded 1100 students 50 teachers
Participant access to computer and internet facilities in class, at school and at home.	Computer labs available for classes. Shared computer access in staffroom. Dial up internet connection at home.	Computer labs available for classes. Shared computer access in staffroom. Dial up internet connection at home.	Computer labs available for classes. Shared computer access in staffroom. No access to computer or internet at home.	Some classes had personal laptops. Computer labs available for other classes. Shared computer access in staffroom. Dial up internet connection at home.	Computer labs available for classes. Shared computer access in staffroom. Dial up internet connection at home.
Any prior relationship	Had taught at the same	Had taught at same school	Nil	Had taught at same school	Nil

with the researcher?	school in 1996 and 1997.	for less than a term in 2003. No direct contact.		for less than a term in 2003. Had worked as a tutor for the researcher in a university subject in 2005.

Further biographical details are raised in later chapters, and where appropriate to the discussion of the results.

UK Participants

In the United Kingdom case study, hereafter also referred to as Case Study Two (CS2), the four participants were drawn from three different secondary schools. They had a range of teaching areas and varied in their teaching experience (see Table 8). However, all of the participants had specialist interests or responsibilities with regards to ICT in their schools. Table 8 presents a brief profile of each participant. Names of the participants and the schools have been changed to preserve anonymity.

Table 8

Case Study 2 Participants

Alias	**CS2 P6**	**CS2 P7**	**CS2 P8**	**CS2 P9**
Gender	Male	Male	Male	Male
Years Teaching	20	25	10	0
Teaching Qualifications	Postgraduate Certificate of Education, BSc (England, UK)	MEd, MA, PGCE, BA (England, UK)	Postgraduate Certificate of Education, BSc (England, UK)	None
Subject Specialties	Science and Mathematics	History and Religious Education	Science	None
Position	Assistant Headteacher	Assistant Headteacher	Director of ICT	Part-time Assistant Teacher
Subjects taught	Science 7, 12, 13	Business & Communication	ICT 7-11	None – see responsibilities

		Systems 10-11		below
School ICT responsibilities	Managing whole-school ICT, from hardware to software, and line managing the team of ICT technicians.	Managing school use of online learning environment. Responsibility for Specialist Technology College Status.	Co-ordinating all aspects of ICT including hardware, software, curriculum and line managing teaching and technical staff.	ICT Mentor to support students in Year 11 who were sitting GCSE ICT. This was a special position established as a trial to support online learning initiatives.
Description of school	Mixed gender Years 1-13 State funded 1240 students 80 teachers	Mixed Gender Years 7-11 State Funded 750 students 39 teachers	Mixed gender Years 7-11 State funded 1000 students 40 teachers	Mixed Gender Years 7-11 State Funded 750 students 39 teachers
Participant access to computer and internet facilities in class, at school and at home.	Some lessons scheduled in computer labs. Every other classroom is equipped with a PC with internet access. Computer and internet access at home.	Lessons were taught in computer labs. Had own computer access in office. ADSL connection at home.	Taught in computer labs. Had own computer at school. ADSL home connection.	Had computer access. ADSL connection at home.
Any prior relationship with the researcher?	Nil	The researcher had interviewed the participant for a separate research project in 2004.	Had taught at same school for a term in 1998.	Nil

Further biographical details are raised in later chapters, where appropriate to the discussion of the results.

Gender Difference and Identities of ICT Competency

It has already been pointed out that the demographic make-up of the case studies was not controlled. The participants who enrolled in the PD course were accepted on a first-come first-served basis and were not limited by age, gender, school, teaching area, teaching experience or other demographic variation. However, this self-selection process resulted in two potentially significant variations between case studies. The Australian participants were all

female and were from a diverse range of teaching areas. Only one of the Australian participants had an ICT teaching and management role in her school. In comparison, the United Kingdom teachers were all male and, while varied in their teaching backgrounds, had ICT teaching and management responsibilities in their schools (apart from P9 who did not continue with the course after the face-to-face day). Although these differences were not planned, they were thought to have added diversity to the case studies which could strengthen analytical generalisability. In other words the diversity between case studies could help to demonstrate the 'robustness' of overlapping findings.

However, it is also useful to consider the implications of these differences. This research is fundamentally a study of social activity. It is trying to understand the sustainability of participation from the perspective of the social learning theory of CoP. Furthermore, it uses face-to-face and online modes of delivery as part of the PD course. Since gender difference has been well documented in different patterns of face-to-face and online behaviour (e.g. Cherny, 1994; Collins-Jarvis, 1997; Davidson-Shivers, 2006; Herring, 2000; Truong, 2005), language (e.g. Eckert & McConnell-Ginet, 1999), support behaviour (e.g. Fisher, 1999; Pines & Zaidman, 2003), relationship development through ICT (e.g. Igarashi, 2005), and access/use of information and communication technology (e.g. Anderson, Klein, & Lankshear, 2005; Bain & Rice, 2006) it is not unreasonable to assume that the current research may also reflect these differences. For instance, the literature suggests that females are more attuned to inter-personal and emotional contexts, participate more in supportive strategies, and are more capable in establishing and maintaining dialogue. In the current research these gender aligned skills could provide Case Study One a much stronger mutual engagement and joint enterprise than Case Study Two.

Furthermore, the fact that all of the participants in Case Study Two are competent in their ICT skills and teach ICT could result in significant difference compared with Case Study One where their levels of ICT competency and confidence are not as high. It could be assumed that the technical support needs of the two groups will be different and, in Case Study One, may constitute a considerable barrier to continued participation. Indeed, this situation is further

complicated by research literature which indicates that females are often disadvantaged in using ICT resources due to a variety of reasons including lower levels of confidence, less access, and unwelcoming gendered environments (Bain & Rice, 2006). Another possibility is that Case Study Two, due to their apparent similarities in ICT responsibilities, may form a more cohesive community based on an established sub-community of ICT teaching.

The point of this section has been to highlight two obvious demographic differences between the case studies. It has been suggested that these differences could impact significantly on the formation of the community. However, it should also be pointed out that there are a variety of other socio-cultural difference and other variables which could also have a significant impact. The most obvious difference is that the case studies are situated in different countries with different professional contexts. The Australian teachers work within a curriculum framework which requires considerable professional flexibility. In contrast, the United Kingdom teachers work within England's national curriculum framework which has significantly different demands in terms of professional knowledge. The Australian teachers are being urged by their employer (Education Queensland) to use the online learning software (Blackboard). In contrast the UK teachers have never encountered Blackboard and have no opportunity to use it outside of this PD course. Another difference is the size of group and the fact that the facilitator is Australian.

While gender and other differences should not be forgotten, it is also important to remember that this research aims to explore the role of CoP in the sustained participation of teachers in the PD course. As a consequence, the research focuses on the three dimensions of cohesion (mutual engagement, joint enterprise and shared repertoire) and how they are linked with sustained participation. In addressing this aim it is important to be critically aware of the larger socio-political environment in which the participants act but also we should not restrict the focus of the research. We need to allow themes to emerge from the data that help us to understand how CoP interplays with sustainability. It is worth nothing that the significance of gender differences is discussed with regard to the case study data at the end of chapter six but is

not broached until that point when cross-study comparisons reveal it as a potential theme of significance.

Course Design

The course was designed to support the facilitation of a CoP. Using the literature review from Chapter 2 and Chapter 3, the course facilitator tried to include as many relevant best practices as possible. This raises a methodological concern for the current research. That is, should every course design component, software feature and facilitator decision be documented? On one hand, the PD course is an active agent in the formation of community and as a result should be documented. Also, issues of literal replication and reliability of data (as discussed in this chapter) demand that the course be documented to better qualify the readers' judgements of fittingness. On the other hand, it is also important to point out that the focus of the research is the role of the CoP in sustaining the PD. Consequently, the VLE software, course content, and the actions of the facilitator are only relevant to this research where they impact on the role of CoP. As a result this section will describe the course and outline some of the decisions made in its design but will not attempt to document every detail which would be almost impossible. Instead, further discussion of the course design will be included in the results and discussion chapters where issues arise which demand closer scrutiny, that is, where they impact on the role of CoP in sustaining PD.

The PD course developed by the researcher was entitled, "Integrating Online Learning" (IOL). The objective of the course was to develop teachers' skills in using Virtual Learning Environment (VLE) tools for classroom use. For example, the course included both technical skills and pedagogy in using discussion forums. The topic of Integrating Online Learning was chosen due its currency and recent state education initiatives in implementing VLE applications in schools. At the time of research, the Australian federal government had invested $34 million into the development of online resources while Education Queensland, through The Learning Place, had heavily committed itself to the process of flexible learning, including the licensing of

the VLE software called Blackboard for use by classroom teachers. Similar priorities were found in the United Kingdom. For example, at the time of research the London Grid for Learning had just invested in a VLE called Digitalbrain catering for 2500 schools (1.2 million students). In addition, the Local Education Authority in Kent was also experimenting with VLEs, including Ramsys. A further justification for choosing Integrated Online Learning as the topic of the PD course was that it also aligned with the researcher's experience as a course developer and trainer.

The PD course was designed to begin with a face-to-face training day and then to be completed via computer mediated communication (i.e., through the VLE). This form of blended approach acknowledged the limitations, as discussed in Chapter 2, faced by most teachers and trainers in being released from other duties to attend face-to-face training as well as financial implications for extended face-to-face delivery. According to Brosnan and Burgess (2003), the use of a face-to-face session at the beginning of blended mode PD, is invaluable in developing an effective social network which, in turn, encourages greater participation, more open contributions and a sharing on the reflection of practices. As a result this pragmatic approach, in providing face-to-face training at the beginning of the blended mode PD, catered to professional expectations and financial and time limitations as well as facilitating participant interaction which is the foundation of community development.

Face-to-face Component

The face-to-face training day was ostensibly devoted to technical skills relating to the VLE software while concurrently introducing the participants to some of the pedagogical topics covered in the online component. Throughout the day the participants were inducted into using the VLE enabled community tools, such as, the personal profile, discussion forum, chat, email and blog. This established the boundary of the community, a framework for interaction, a sense of the enterprise and a process by which they could share repertoire. However, a further significant aim of the face-to-face training was to facilitate the groundwork of a CoP by

encouraging mutual engagement. The day was designed to give participants opportunities to engage with each other by collaborating over technical tasks as well as in social settings. Appendix B is a running sheet used by the course facilitator for the face-to-face day and outlines the sequence, content and aims for the day's sessions, including the breaks.

Running sheets or similar items are standard practice in training environments and are meant to act as a quick reminder to the trainer of pertinent points, references, tasks and goals throughout the day. In this research the running sheet also provided a valuable tool in strengthening literal replication of the case studies. Indeed, both case studies' face-to-face components followed the running sheet with little variation.

As indicated in Appendix B, the course facilitator invested considerable effort in using the morning break, lunch and wrap-up sessions to provide participants with chances to find commonality and to negotiate their identity within the group. The course facilitator was particularly interested in facilitating the swapping of professional and personal stories. Swapping stories is a form of shared repertoire. It involves an investment and negotiation of both their identities and practices. Furthermore, this kind of social engagement supports Wenger's (1998b) learning architecture by facilitating the three modes of belonging (See Figure 2, Chapter 3). As a result, it was decided that any facilitation of discussions during the morning break, lunch and wrap-up sessions needed to be informal and unstructured on the assumption that negotiation of identity and the sense of belonging could not be enforced. Accordingly, the facilitator needed to be attentive, interested and an active listener. It was important that the participants felt welcomed and valued.

Virtual Learning Environment Component

After the face-to-face component, the remainder of the course was mediated by the VLE, and was designed so that it could be completed within four weeks. However, the course was also designed to allow the participants significant flexibility in researching topics of interest, choosing assessment, interacting with each other, determining the criteria for success

and deadlines. This flexibility acknowledged Wenger's (1998b) learning architecture (see Figure 2, Chapter 3) by balancing designed components and emergent needs.

The content of the course was conceptualised as four layers: Planning for Online Teaching; Content Design; Facilitating Communication & Collaboration; Assessment & Feedback Design. In each layer the participants were asked to explore the topics, raise the issues of most interest to them in the discussion forum as well as complete individual and collaborative tasks. Appendix C is an extract from the online course which not only outlines the course layers but also the underlying philosophy, participant roles, course structure and assessment. It is worth noting how the extract shows how the participants and facilitator were positioned as members of the group with common goals and valuable roles. For example: "Your task/role is to: support **your fellow** community members. **Together we will**: sift through the mountain of potentially relevant theories and strategies; identify and scrutinise those **most relevant to us** and **become knowledgeable online teachers**" (Appendix C, emphasis added). Appendix C should be read as a course outline but also as an attempt to design for learning through the CoP learning architecture's dimensions of local/global and identification/negotiability as well as the modes of belonging (see Chapter Three).

A more detailed overview of the content of the course can be found in Appendix D which is a modified extract from the Case Study Two online course site map. The site map has been modified to preserve the anonymity of the participants. Each case study had a slightly different site map because the participants had full editorial rights to the course and, as part of their collaborative tasks, they had to add and change items in the course. Appendix D is also an indicator of the breadth of topics in the course. The aim was to provide a great deal of flexibility in participant choice. This supports the learning architecture's dimensions of local/global and identification/negotiability by providing avenues for participants to explore, compare and challenge the implications of the local and global communities and, as well, to find ways in which they could establish their identity, define their trajectory and negotiate membership.

Course participants had access to the site map as a navigational aid. However, the course navigation and content would typically be used by participants as shown in Figure 8. On

the left is the navigational menu while, on the right, they can read and interact with the content. It is worth noting that Figure 8 shows *Our Community* as the first navigable link. This section provided an area for participants to manage their identity, in terms of a picture and textual description. As the first item on the navigation menu, it emphasised that community is important. Furthermore, the links to *Announcements, Our Calendar, Discussion Forum,* and *Email* were also at the top level of the navigation system, reinforcing that community engagement, rather than content, was more highly valued. The intention was that this emphasis would support the CoP dimensions of participation/reification and identification/negotiability (see Chapter Three).
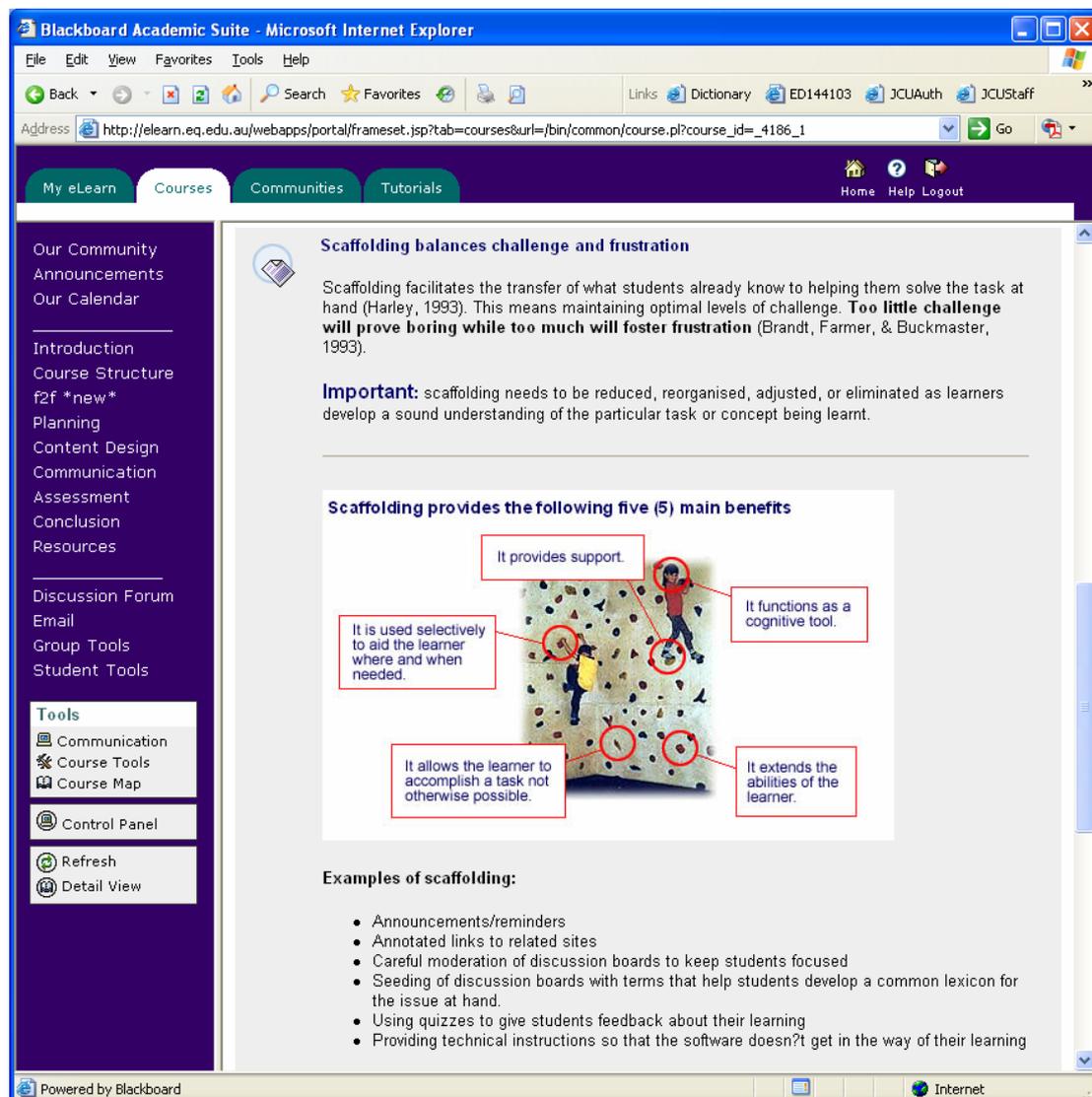
Figure 8. Screenshot of a section of the online PD course.

In each layer of the course, in addition to participating in the discussion forum, the participants were given a choice of tasks which included both technical and pedagogical elements. Each task could not be completed without the participation or feedback of the other participants. For instance, in Layer 2 (module two) the participants could have chosen this task:

> Create and moderate a discussion forum with the purpose of discussing the various content design techniques in this layer and forming a consensus about the most valuable ones. To make the discussion forum a little more heated I suggest you aim to agree on 3 or 4. Not an easy task!

In order to complete the task the participant needed the others to engage with them. Furthermore, the task provided considerable latitude in terms of the specific topic and the success criteria. The above example also represents how the participants' knowledge was valued, and how they were encouraged to engage with each other. For instance, the need to find consensus necessitates engagement and an investment of identity and practice through sharing repertoire. In Case Study One, this task resulted in a discussion extending over four weeks as participants returned to further qualify the ongoing debate.

The course propositioned only one rule: support your fellow community members. This is a key design principle for the course. This rule guided the time-line, content, goals, and assessment. For instance, the collaborative tasks were predominantly centred on evaluating and responding to each other's contributions. In this way engagement with each other was not just a course criteria, it was intended to become a core enterprise of the course. This design element of the PD course drew on Wenger's (1998b) CoP learning architecture dimension of participation/reification.

Although the core materials of the course were provided, the essential element of critical evaluation was left to the participants and, in this way, allowed for the CoP dimension of designed/emergent. Participants could use some or all of the content provided. As participants raised new topics in the discussion forums and other activities, they were negotiating what was important to them, and consequently shaping the path of the entire group.

Participants maintained personal pages with images and contact details. They engaged in personally and emotionally meaningful dialogue through the social forums, chat and e-mail. Combined with opportunities to reflect and articulate on the theories and strategies in the course, they were given space to explore the CoP dimension of identification/negotiability.

Throughout the course, the hypertextuality of the online medium facilitated exploring wider perspectives. The course facilitator acted as a community broker between the local and global communities as well as facilitating the rhythm of the community through maintaining a flexible, enthusiastic and inclusive approach to course pace and goals. The facilitator participated in the discussion forums from the point of view of a fellow teacher, and not as the infallible instructor. Throughout the course, the facilitator would refer to his own teaching experiences and give equal regard to the participants' opinions, ideas and experiences. In such way, the facilitator tried to act as a community broker, and allowed the participants to negotiate the centripetal practice in the localised community (see Chapter Three). Thus, issues of engagement, alignment and imagination were also supported.

As already mentioned, further details regarding the software functions and content will not be discussed at this stage. This research aims to investigate the role of CoP in sustaining PD. While it is reasonable to consider that the software and course structure would have an impact on sustainability, it is not the primary focus of this research. However, this is not to say that the software or course structure will be ignored, simply that, in this research, their significance is limited by their relationship to the CoP and will therefore be raised in the results and discussion chapters where relevant.

Ethics and Research Approval

Prior to contacting the schools or participants, the ethical research conditions and restrictions for both Queensland and England were addressed. In addition to ethics approval by James Cook University Human Ethics Sub-Committee, it was also necessary to gain Education Queensland research approval because Case Study One was to include Education Queensland

staff. In England, the Department for Education and Skills does not have an ethics or research application form. Instead, researchers are asked to approach each school individually for permission to conduct research with their teachers (A. Kenny, personal communication in the form of an email from Department for Education and Skills information officer, September 9, 2004). Furthermore, the United Kingdom does not have a social research register or statutory requirements other than fulfilling the obligations of the Data Protection Act of 1998. This act requires that no personally identifying data is recorded without the express permission of the subject. Furthermore, the Act declares that subjects of research must be assured of confidentiality and that their details are not used without the permission of the data subject ("Data Protection Act," 1998). Also, under Section 33 of the Act, collection of personal data for the purpose of research exempts the data controller from having to register under the Act so long as "the data are not processed in such a way that substantial damage or substantial distress is, or is likely to be, caused to any data subject". While not a statutory requirement, the Institute of Education, University of London (The Institute of Education, 2004) recommends that students of its Post-graduate degrees conform to the research guidelines outlined by the British Education Research Association. These guidelines (British Educational Research Association, 2004) are similar to those followed by James Cook University and are met by the conditions set by the JCU Human Ethics Sub-Committee.

In meeting the ethics and research requirements (JCU Human Ethics Sub-Committee, Education Queensland, Department for Education and Skills, UK legislation and British Education Research Association), the information sheet (Appendix E) and consent form (Appendix F) were presented to the principals and participants prior to the research for their written consent.

In addition, the UK participants were required to complete a Memorandum of Understanding produced by Education Queensland that required the participants used the Education Queensland systems in an ethical and moral manner.

Confidentiality

The research was based on a case study methodology that required some contextualisation of the data (e.g., the school, location, people, students, etc.). However, identifying details such as, but not limited to, names of schools and participants have been omitted or changed prior to the writing process. Confidentiality of participants' personally identifying details has been assured. However, anonymity could not be guaranteed as the research was conducted in small groups and semi-structured interview was conducted by the researcher.

All participants were required not to use the real names of their students or any other personally identifying descriptions. Nevertheless, due to the nature of the online collaboration some of the data gathered inevitably included anecdotal evidence regarding students. This data was checked prior to the research analysis and reporting stage to ensure that any references to a student's name or identifying description were changed to preserve anonymity.

Research Schedule

This PhD research project was funded over three years by a variety of sources including an Australian Postgraduate Award, a James Cook University School of Education scholarship, Queensland Government Smart State Fund, and a JCU Graduate Research Scheme grant. The study was to be conducted within three years with the research schedule as shown in Figure 9.
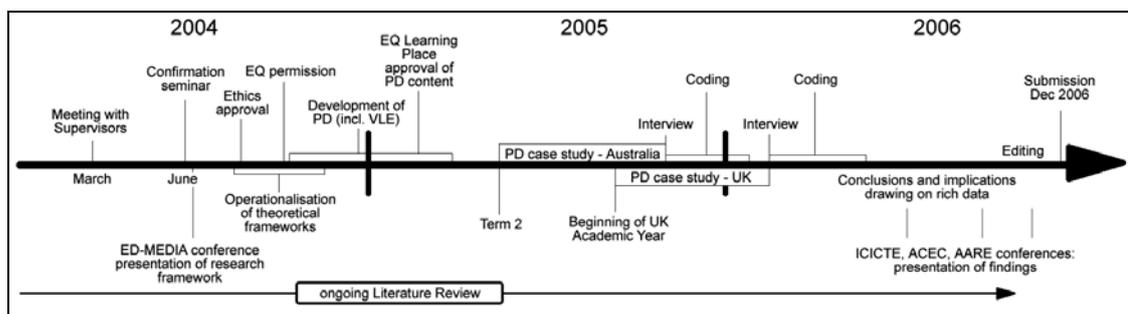
Figure 9. Research schedule.

Although the two case studies overlapped (Figure 9), the participants were not aware of each other as the online course was duplicated and they were run separately. This meant that at various times the facilitator was in different countries from the course participants. While this was not a focus of the research, it does highlight the success of the pragmatic model. That is, the facilitator or participants are not limited by time and place.

Data Collection

Figure 10 represents the PD "delivery" and data collection schedule for each case study. Prior to the face-to-face component and as part of the enrolment process, participants emailed the course facilitator and each other with some basic information about themselves, such as, delineating what they hoped to gain from the course. Participant observer notes were taken throughout the face-to-face training with regard to observed social interaction, with a particular focus on factors highlighted by the theoretical framework, such as, mutual engagement, identity alignment, and boundary setting. A questionnaire with Likert scale and open ended questions was administered shortly after the face-to-face training in order to establish a marker at the point of transition from face-to-face to virtual training. Questions focused on issues such as the emergence of community and identity. A participant observer journal was kept throughout the VLE stage noting any interactions with the researcher as PD trainer and any reported interactions between participants which were not captured by the computer system. This was used as a means of identifying replication issues between case studies and was utilised when shaping the semi-structured interviews.

During the post face-to-face phase, emails, discussion forum entries and shared resources were archived. After the minimum course requirements were completed by the participants and the observed level of interaction (as indicated by numbers of discussion forum posts and website hits) appeared to be in decline, the semi-structured interviews were carried

out. Because the level of interaction was sustained for varying periods, the exact timing of the

semi-structured interview also varied between case studies and participants.
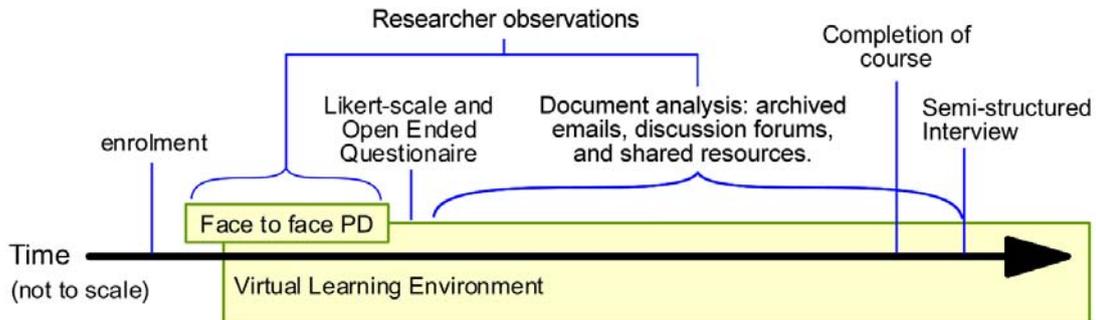
Figure 10. Data collection schedule for each case study.

The application of these data collection methods is explained and justified in the following

sections.

Enrolment Activity

After the participants were selected, the course facilitator sent an email to all the

participants in each case study with details of where and when to meet for the face-to-face

training day. The task as shown in Figure 11, was also included in the email. The task was

aimed to satisfy both a pragmatic need to find out about the technical proficiency of the

participants as well the need to begin establishing a sense of community.

Your first TASK (10-15 minutes)

This is an important task that you should try to complete prior to the training day.

The task:
Send your answers to ALL of the course participants (including me).

Instructions:
1. use the "reply to all" (or similar) option in your email program. If you have any problem please email or phone me and I will talk you through the process.
2. delete all the information in the email except for the questions which you can use as headings.
3. please don't feel limited by the questions – express yourself in anyway you like.

The reason: this task helps us establish our identities within our learning community. It also provides me with an idea of your technical proficiency and allows me to tweak the course prior to Monday.

The questions:
1. Your preferred name
2. Your school
3. Describe your teaching interests (not necessarily the same as your subjects)
4. What are you most looking forward to from this course?
5. How do your colleagues perceive you in terms of using computers?
6. Are you comfortable using the Internet, Word, and computers in general?
7. What is your most used or favourite web site?
8. Tell us a little about what is happening in your world (personal or professional) over the next month. For instance you may be planning to rewrite a unit, get married, organize a field trip, or buy a pet.

Figure 11. Enrolment introductory task.

The tasks of replying to all recipients and answering questions six and seven were particularly designed to inform the facilitator of the participants' basic competence. Also, by getting participants to reply to all recipients (i.e., all of the participants), instead of just the facilitator, it was hoped to encourage participant ownership of the course. When they turned up to the face-to-face training the participants would at least know some things about each other. All of the questions were designed to not only inform the participants about each other but more importantly, to allow the participants to begin negotiating their identity both within the community of teaching practice as well in the sub-community of teaching with ICT.

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The post face-to-face questionnaire was administered approximately one week after the face- to-face training. The exact time varied in each case study because it was decided to wait until the participants had posted several messages online. The aim of the questionnaire was to capture not only data about the face-to-face training but also about the beginning of the online component. It was reasoned that this juncture could provide valuable insights into CoP and sustainability of PD. However, unlike traditional longitudinal research design, the questionnaire was not intended to be a comparative data point. Indeed, such a goal would have been quite unattainable as this research was exploratory in nature and had no specific measurement items or schedule by which it could hope to compare over time. Instead, the aim was to try and highlight any emerging issues in the area of CoP and PD sustainability. It was hoped that such information could help adapt the PD to meet any emerging problems and, most importantly, to provide stimulus for the semi-structured interview at the end of the course. Indeed, the post face-to-face questionnaire was considered essential as the course could potentially run for several months before the semi-structured interview took place.

As a result, the questions followed two main themes. The first theme entailed a pragmatic desire to establish participants' satisfaction of the training and to identify any emerging problems which needed to be addressed. This would also provide the research with comparative data on participants' perceptions of the face-to-face and online modes which could be used as a stimulus for the semi-structured interview to further investigate theoretical issues. For instance, the questionnaire sought some indication from participants of their sense of comfort in working online, in order to inform theoretical issues such as identity through competency (see Figure 3, Chapter 3). The second theme involved an investigation of whether the face-to-face training has a role in sustaining PD. It was noted from the literature review that a blended model of PD combines the strengths of face-to-face and virtual modes. While virtual learning has the potential to extend the PD over time, it does not necessarily support social learning. The face-to-face training, in addition to teaching content, was designed to facilitate

engagement in social learning, for instance, a CoP, and thereby engender sustained engagement via the online environment. In terms of CoP, it was thought important to establish whether the face-to-face training fostered an environment for social learning.

Appendix G includes a copy of the paper version of the post face-to-face questionnaire. The participants could complete the questionnaire on paper or via an online survey from within the Blackboard VLE software. Both versions included the same questions in the same order. Due to the need for rich data, the questionnaire used a mix of Likert scale and opened ended questions. While the open ended questions would provide richer data, they were also time consuming to complete. Because of this, the Likert scale items were used to reduce the time while simultaneously providing a greater scope of possible answers via the sliding scale than could be achieved via other closed question types. This compromise was also made with the understanding that issues arising from the questionnaire could be further explored in the semi-structured interview.

Table 9 includes a brief justification for each question used in the questionnaire. Instructions to the participants on how to complete the questionnaire and a statement of anonymity can be found in Appendix G.

Table 9

Post Face-to-face Questionnaire Design

#	Question	Type	Justification
1	Please explain your motivations for doing this course?	Open-ended short answer	It was thought that different motivations could be significant both in the face-to-face training and online modes, especially in the areas of mutual engagement and joint enterprise.
2	Was the face-to-face training challenging for you?	Likert scale	These questions attempted to gather some feedback on the face-to-face training. If the
3	Was the face-to-face training relevant to your teaching?	Likert scale	training was irrelevant, inappropriate or was not flexible enough to meet their

			needs, then it could impact on their engagement in the VLE and consequently the CoP.
4	To what extent was the face-to-face training flexible?	Likert scale	
5	Do you feel that the face-to-face training could have been delivered effectively online? Please provide a detailed explanation.	Open-ended short answer	This question attempted to explore the role of the face-to-face training in establishing an effective PD environment. The literature review indicated that teachers preferred face-to-face training. This question tests such an assumption but also encourages participants to explain their position. It was thought likely that the participants would reference the social nature of face-to-face training. This may provide a rich source of stimulus for interrogating the role of CoP in sustaining PD.
6	Do you feel that the face-to-face training adequately prepared you to engage with the virtual component of the course?	Likert scale	This question attempted to establish the effectiveness of the training in terms of using the VLE. The answer to this question would also moderate the interpretation of the following questions. That is, a negative answer may help explain why the following questions were answered in a negative way.
7	How do you feel about the prospect of completing the course over the next four weeks via the VLE? Please explain your answer.	Likert scale and Open-ended short answer	These questions tackle the same issues from different angles hoping to establish internal validity of data through multiple lines of inquiry.
8	To what extent has the face-to-face training made the online course more welcoming?	Likert scale	They try to explore issues relating to the formation of CoP. For instance:
9	To what extent do you feel connected with the other participants in the course? Please explain your answer.	Likert scale and Open-ended short answer	• Identity formation • Belonging • Mutual engagement
10	SINCE the face-to-face training do you picture or consider the other participants when you add a discussion forum message? Please explain why you think this is the case.	Likert scale and Open-ended short answer	• Joint enterprise

11	Do you consider yourself to have an active voice in this course or do you feel estranged or distanced from the course, its activities and its participants?	Likert scale	
12	To what extent do you feel that you are working with the rest of the participants towards a shared goal? Please explain.	Likert scale and Open-ended short answer	
13	If you had to describe this course to a colleague, what are the key things you would say?	Open-ended short answer	This question was used to break the series of questions relating to identity and community.

This question attempted to explore the participants' perceptions of the course, especially at the juncture between face-to-face and online modes. It was thought that answers could provide further lines of inquiry with regards to CoP and sustainability. |
| 14 | Circle the most appropriate answer.

I perceive myself as a slightly different teacher than I was before: Yes / No | Yes/No choice | These items and questions attempted to explore how the participants perceived their identity and practice in terms of the group. Questions 15 and 16 should particularly provide insights concerning the idea that both identity and practice are negotiated. |
15	Describe yourself in terms of how you think the others perceive you.	Open-ended short answer	
16	Explain why this is accurate or not accurate.	Open-ended short answer	
17	Do you feel comfortable with the group?	Likert scale	
18	Please make any comments about the face-to-face training or course in general. Any thoughts, observations or suggestions will help my research.	Open-ended long answer	This question was an attempt to conform to effective PD techniques in providing avenues for participants to make suggestions for improvement. This question also provided a further avenue for unforseen lines of inquiry to emerge.

Although the results of the questionnaire will be discussed in the following chapters, it is suffice to point out in a chapter on methodology that not all of the questions proved to be valuable or relevant. This was not surprising due to the exploratory nature of this research where the aim was to identify emerging themes.

Archived Documents and Course Statistics

Throughout the online component of the course the researcher collected all emails between the facilitator and participants. Emails directly between participants were not collected because it was reasoned that to ask the participants to copy all emails to the researcher who was also the course facilitator could be considered invasive and detrimental to establishing mutuality (see Chapter Three). However, participants were encouraged to use the discussion forums for communication. Also, the semi-structured interview included a question relating to direct communication and other support. In addition to emails, the researcher used the VLE software to collect all discussion forum entries and community profile entries (description about each participant). These multiple data sources were used to justify lines of inquiry in the semi-structured interview as well as to reflect on the participants' responses. The discussion forums particularly provided a valuable source of data when exploring engagement, enterprise and repertoire. The VLE software was also used to collect a variety of user statistics, such as, the access dates, the number of page requests, which sections were visited, and the number of forum posts and messages read by the participants. Although these statistics are limited, it was thought that they would provide a useful indicator of online participant behaviour which may lead to further lines of inquiry.

Researcher Observations

Although the strengths and weaknesses of researcher observations have already been discussed, it was the plan to use researcher observations to further enrich data collection in the

face-to-face and online modes, particularly where participant actions were not automatically recorded for later analysis. However during the face-to-face training day, as participant, I found that I had no time to make any such recordings. Managing the training as well as the trying to engender rapport in the social breaks required considerable concentration. I made some notes at the end of the day, predominantly relating to the social breaks. For instance, "the two smokers seemed quite animated in discussion outside the café. They returned to the table after about five minutes and mentioned that they had found out that they both have recently had similar problems at school with students." Since these were reflections, it was thought prudent that the post-face-to-face survey and the semi structured interview also included questions regarding the face-to-face day.

The Semi-structured Interview

The semi-structured interview was implemented at the end of the PD course. The end of the PD course was determined according to two variables: successful completion of the certificate and an apparent cessation or significant drop in online engagement as indicated by the VLE course statistics. This was purposely flexible since the research focus was on the participants' sustained participation in the PD. It was thought that even though the participants may achieve the certificate which is the traditional end of PD courses, they could still engage with each other and with the PD course for an unspecified time. Consequently, the VLE statistics on user access and forum posts were used to give the researcher an indicator of activity.

The semi-structured interview schedule is included in Appendix H. The schedule followed semi-structured interview techniques of providing the interviewer with instructions and an opening statement which both sets the tone and provides some level of conformity across interviews. The majority of the questions were devised to be open ended and provided several interviewer prompts in the event of the interviewee being confused or straying off topic. It was intended that each question would be used but probably not all of the prompts. Also,

familiarity with the questions is a prerequisite in semi-structured interviews as they invariably need some small adaptations such as tense, gender, or other details depending on the interviewee. Because the interviewees sometimes answer more than one question at a time, instead of skipping the already answered question, the interviewer was prepared to adapt the question to be used as a member checking tool.

The semi-structured interview was organised into five broad sections. Table 10 provides a summary of these sections as well as a rationale for the questions. This table should be read in conjunction with the full interview schedule included in Appendix H.

Table 10

Semi-structured Interview Schedule Underlying General Purpose of Questions

Section	Questions	Rationale
Introduction	1	This open-ended question provides the interviewee an opportunity to become comfortable talking about their experience while being recorded. It also provides an opportunity to identify lines of inquiry that have not yet been considered or covered in the following questions. In particular comments of particular interest should be noted for follow-up in question 17. The reason for this is so that interviewee is not overly interrupted at this stage in case the researcher is seen as dominating the process. This also provides an opportunity for member checking.
What, Where, When and Why	2-5	The interview needs to gather information on how the participants perceived their engagement in the course. While course statistics provided some basic data, from a social constructivist and situated learning point of view the participants' reported engagement is significant. Furthermore, engagement is not limited to observable participation. Participants could be engaged in the course in a variety of ways which the online environment did not record. Consequently these questions aim to gather data about when, where, and how the participants engaged in the course. Also a major theme of the literature review on PD in

		Chapter Two, identified an assumption that VLE flexibility in time and place affords sustainability in PD. It is important to address the issue of time and place in these questions so that they can be reflected upon in light of the CoP framework.
		Participants were asked to not only discuss their experiences but also to draw on a graph. Such a device, while subjective in nature and of little value as absolute comparative data, should provide interesting data with regards to participant perceptions of engagement, quality of participation and motivation. It also provides the interviewer with additional prompts to explore these themes.
Identity and Practice	6-16	These questions address lines of inquiry arising from the literature review on CoP. The questions focus on identity and participation, particularly in mutual engagement, joint enterprise and shared repertoire. Since there are no interview schedules identified in the literature review to inform the design of these questions, they have been written to be broad, exploratory and overlapping in the hope that, through multiple lines of inquiry, significant themes may be highlighted.
Data driven questions	17	This section is unstructured because some questions are specific to the individual, arising from observed participation, their interactions and the post face-to-face survey. Possible stimuli include: initial email prior to the course; face-to-face training day; post-f2f survey; discussion forum entries (initiation and response); site access logs.
Sustained engagement	18-24	This final section of the semi-structured interview attempts to directly inquire into the participants' perception of why their PD was sustained over time. Although some of the questions overlap with previous questions, they have this specific focus.

While the semi-structured interview was designed to be completed in one hour it took closer to 1.5 hours. When the first hour in each interview was completed the interviewer asked the participant if they were able to continue. All participants agreed.

In reviewing the literature on interview methods it became clear that there was a tension between making a welcoming environment to share personal thoughts and feelings but also to remain sufficiently distant as to reduce influencing the participants' stories. Kvale (1996) and Wolff (2004) agree that the interviewer must project both an interest in what is being said but also an attitude of deliberate naiveté. The researcher,

> can easily run the risk of being or wishing to appear too wise too quickly. To counter this risk, it is advisable to exaggerate one's naivety, not only to the field but also to oneself, to exploit methodologically, and for as long as possible, the researcher's (real or imagined) ignorance" (Wolff, 2004, p. 202).

If the interviewer reacts too strongly or personally to the content of the interview, or is evaluative, then it can sway the course of the interview and way in which the content is phrased and interpreted. For example, Hermanns (2004) pointed out that a statement such as, "I used to be like that," constitutes an offer of alliance which positions and to some extent binds the interviewee.

The interview is not a neutral. Indeed, Hermanns (2004) argued that it is an interpersonal drama "actively produced by both participants" (p. 209). This is particularly relevant with regards to this research where the interviewer was also the course trainer and assessor. In addition, in the PD course the trainer is positioned as a community broker and as such could be viewed as a member of the group. This can cause problems in that the interviewee may assume that the interviewer has a similar world view and, consequently, may omit assumed shared understandings (Wolff, 2004). This problem is further exacerbated by the fact that if the interviewer asks for clarification, whether it is real or strategic naiveté, then the interviewer is positioned as an outsider, possibly altering the nature of information gathered in the remainder of the interview and, in the case of snapshot data collection, the remainder of the study.

Interviews are clearly not neutral data collection tools. The data collected needs to be considered in the light of the roles and relationships of the participants. Consequently, Hermanns (2004) suggested several effective strategies in interviews: explain the context and structure of the interview to the subject, including the focus of the study; be relaxed and try to understand the meaning not just the words; give the subject room to open up; do not explain your views or dis/agree with them, do not be judgemental or evaluative, do not be protective of them; allow the story to unfold and do not dominate through high frequency of questions, interpretations, or even supportive utterances; use short accessible questions grounded in the terminology of the subject; and do not attempt to discover theoretical ideas but rather come to understand the life-world of the subject.

These strategies were considered when designing the semi-structured interview schedule as well as during the interview itself.

Interview Transcription

The aim of transcription is to allow a more detailed analysis of the interview. As per Kowal and O'Connell (2004), transcripts should be an accurate representation of not only the words and part words uttered but also their acoustic form and any non-linguistic behaviour such as throat-clearing. However "transcribers, as language users, frequently transcribe unreliably" (Kowal & O'Connell, 2004, p. 251). For instance, many conversational phenomena such as slips of the tongue, hesitations, and fillers are automatically ignored. In other situations the perceptual distinctions, especially when working from only audio recordings, is beyond the transcriber's capability. Consequently Kowal and O'Connell (2004) made several recommendations which are pertinent to this study: only transcribe those features of conversational behaviour which will actually be analysed; subjective perceptions and/or categorisation on the part of the transcribers should not be noted as objective measurements; clear distinctions should be made between descriptions, explanations, comments and interpretations.

Consequently these recommendations have been applied in the transcription of the interviews. For instance descriptions are clearly indicated with brackets. An example of this is that a short pause within a statement is transcribed with a comma or period, however, an extended pause is described as "[pause]". Furthermore, all descriptions were limited to auditory signals such as "[noise]", as opposed to "[siren in background]" which is an interpretation. Common utterances such as "Um", which were clearly pronounced were transcribed as such. However, any other utterance that was not readily discernable and was transcribed as "[…]". At any moment when I needed to check the tone or other auditory cue it was easy to access the digitally recorded interviews and quickly find the part of the interview which was of interest.

An example of a section of transcribed interview is below.

Interviewer: Do you feel that your relationship with these participants has been different to those in other PD courses?

P5: Yeah, I like them more, these participants.

Interviewer: Why is that?

P5: Um because there is some distance and so you don't know who you know. I mean that's a metaphor of course but you know they can't do things that irritate me when in person and that's a bonus. That personal relationship, that person to person that irritates you or if you can tolerate you know "gee I really like that person for the 6 hours that I was with them and really am interested that they're doing okay" and so forth, it's the distance though, yeah I like them more. [P5 continues…]

This extract has been cut for the sake of brevity, the participant (P5) goes for some length and concludes with an interesting comment about how we project different images of ourselves online. However, the point of this extract is that it indicates how the interview has been transcribed and also shows how the researcher tries to minimise his impact on the interview by not being judgemental and through open ended prompts. This specific extract has been chosen because it also shows how quotation marks are used to indicate when the speaker has affected a different voice.

Data Analysis

The data collection tools and procedures have already been described. This section

deals with how the data is manipulated, reported and interpreted. In doing so it is worth

discussing some of the problems faced by case study research in the process of data analysis.

Some of these problems such as validity and reliability, including researcher bias have been

explored earlier in this chapter. It is of particular interest here to explain why some data are

used and why other data are not. It is also important to explain the analytical structure used by

this research in presenting the data and building a logical description of two complex social

phenomena: CoP cohesion and sustained participation.

The data analysis is considered by Yin (2003) to be one of the "least developed and

most difficult aspects of doing case studies" (p. 109). Yin (2003) goes on to argue that without

clear guidelines on what data is to be collected, reported and analysed and for what purpose the

case study can easily drift from the original topic. This is a common argument found in the case

study literature, especially with regards to exploratory case studies such as this one (e.g., Burns,

1997; Eisenhardt, 2002; Silverman, 2005). As a solution it is advised by both Yin (2003) and

Silverman (2005) that the researcher constantly refers to the research aim, questions and

theoretical propositions which led to the research and which drove the data collection. This is

not to suggest that deviant or contradictory evidence is not pursued but that the researcher needs

to justify how the data being pursued is relevant to the research purpose. This strengthens the

case study by maximising the relevance of data being presented and analysed (Yin, 2003).

Consequently the analysis of data in this research is firmly guided by Wenger's 1998

framework of CoP, and in particular the proposition that a cohesive community is, among other

things, one in which participation is sustained over time. It should be noted that this proposition

is carefully worded and does not suggest causality but that there may be a relationship. It was

felt important to consider that while CoP cohesion could sustain participation, alternative

explanations could be equally valid, for instance: sustained participation facilitates CoP

cohesion; the two phenomenon are co-occuring but not causally linked; or, there is a level of

synergy between the two. In addition, the process of CoP is not clear and there are such a variety of other influences which make proposition testing to be impractical.

As a result, the case study chapters are limited to presenting data that illuminate the relationship between community cohesion and sustained participation. In doing so the data analysis uses a mixture of chronological reporting along with the community cohesion framework (see Table 3, Chapter Three) to structure the case study discussion. This is similar to the linear-analytical structure as described by Yin (2003) who claims that it is eminently suitable for exploratory studies. The key to this structure is that the problem and relevant literature set the scene for the case study findings which then are analysed and from which implications for further research are drawn.

Each chapter begins with a description of what the participants did in the course over time, with a particular focus on how they interacted. This not only provides a landscape for the following discussions regarding the role of community cohesion but is also intended to provide the reader with enough information to judge the validity and reliability of the data being presented. A further reason for using a chronological structure in reporting observed patterns of participation at the beginning of each chapter is so that the reader can more easily compare the two case studies.

Each of the case study chapters conclude with a detailed analysis of the data, organised according to the three dimensions of community cohesion: mutual engagement, joint enterprise, and shared repertoire (see Table 3, Chapter Three). Fundamentally, Wenger (1998b) proposed that a community is sustained when its members invest their practice and identity in mutual engagement, joint enterprise and shared repertoire. As a result, each chapter explores how these dimensions are manifested, if community cohesion was evident and how it was related to sustainability of participation.

However, the selection of data in building an argument has also been the source of criticism of case study research. Silverman (2005) points out that there is a well documented problem of "anecdotalism" (p. 211) in case study reporting where research findings are supported with selections from the data but with limited explanation of the generalisability of

such data across the case (see also, Eisenhardt, 2002; Yin, 2003). In effect, it questions the reliability of the data being presented as representative of the case, or if not representative, the level of significance in comparison with other case data. In addressing this issue Eisenhardt (2002), Yin (2003) and Silverman (2005) point out the importance of maximising research validity and reliability protocols such as using triangulation and member checking. These issues have already been discussed in this chapter along with other criticisms of case study research such as researcher bias. However, it is worth noting that throughout the data analysis special attention is given to providing the reader with information regarding the generalisability of the comments, as well as using data between participants and across data collection instruments.

The Issue of Coding

In analysing the data the three dimensions of community cohesion (see Table 3, Chapter Three) were used to not only to structure the discussion but also to guide the coding and categorisation process. In this sense coding refers to the tag or label attributed to specific section of the data (Coffey & Atkinson, 1996). Categorisation is used to refer to different ways in which the codes could be grouped and consequently reflect themes in the data.

This was approached as an iterative process and was facilitated by the NVivo 2 software. All of the data, including questionnaires, interview transcriptions, and discussion forum messages were imported into the NVivo software. None of the advanced features, such as automatic coding, were used and consequently will not be discussed here. It is suffice to say that the software provided a way in which the researcher could manually code the data, organise the codes according to categories and retrieve all instances of either a code or category from all of the data sources. This provided a flexible way in which all of the data relating to one code or category could be brought together in one place.

However, it should be noted that the first attempt at coding the data failed. I had attempted to code the data according to not only the CoP cohesion dimensions but also according to the CoP learning architecture which was used to design the course, in addition, I

used vivo coding for any data which seemed to be interesting or relevant. I had made the mistake of believing that the data could be coded for multiple purposes at the same time. The problem with such an undisciplined approach was that it resulted in over 157 codes with almost no heuristic value. It is interesting to note that this problem is documented in the methodology literature (e.g., Burns, 1997; Coffey & Atkinson, 1996; Silverman, 2005) and is especially noted as a problem of using software such as NVivo which allows researchers to code data so easily and without any practical limitations (Gilbert, 2002; Richards, 2005). Consequently, this attempt was aborted.

It was clear that the coding of over 180 pages of interview transcription, 420 forum messages and 155 emails, not to mention other data such as researcher observations, needed to be more disciplined. Consequently, the second attempt at coding used the description of the community cohesion dimensions as presented in Table 3, Chapter Three as an initial test for relevance. Before coding the data it was first considered in light of the cohesion dimensions. This resulted in a simple coding system of data that related to mutual engagement, joint enterprise, and shared repertoire. However, since these dimensions of cohesion are inherently interdependent many instances of data were coded according to two or even all three dimensions.

A second coding process was then undertaken to develop the themes which are discussed in chapters Five and Six. For instance, the data relating to mutual engagement was retrieved and further coded according to descriptive labels that were either related to the descriptions of the dimensions (Table 3, Chapter Three), striking patterns of significance (such as the role of the facilitator) or according to comments made by the participants. Each new descriptive code was compared with the previous codes to provide a level of coding reliability. However, it was not the intention to develop a rigorous coding structure, but rather to better access the data and to explore possible themes.

It is interesting to note that the final stages of data analysis involved a process of reading back through the printed transcripts and other data in order to gain a holistic perspective of the teachers' participation. Indeed, the issue of "closeness" in qualitative software such as

NVivo, that is, the ease with which you can categorise data and never work with the whole text is reported by Gilbert (2002) and Richards (1998) who argue that researchers need to develop strategies in both focussing on the small categories of data as well as "achieving a wide angle view" (Richards, 1998, p. 324).

The result of this iterative process was not a coding structure which in itself was meaningful, as it still included a considerable number of codes which were not repeated across data sources or in the analysis and discussion did not prove to be worth pursuing as they did not clarify the role of CoP in the sustained participation of the teachers. In addition, the codes were only a heuristic tool in accessing the data from a CoP cohesion perspective and did not categorise data according to forms of participation, time, or other important contextual features. For instance, a discussion forum message could be coded as being an instance of community maintenance (a process of mutual engagement) however, it was still necessary for the researcher to contextualise the data according to who posted the message, when they posted it, how that post may be linked with the participants' comments about community maintenance work, etc. Consequently, as themes emerged from across the data sources the researcher was still left with the task of analysing the data to make sense of how it related to sustained participation.

Furthermore, it should also be pointed out that no attempt was made to build a rigorous coding system across case studies. In other words there was no attempt to force the coding structure of Case Study One onto the data of Case Study Two. While the codes drew on the same analytical framework (i.e., the community cohesion dimensions) a critical understanding of CoP reveals that different communities will, for instance, mutually engage in different ways (Wenger, 1998b). For example, what could be taken as community maintenance work in one community could be divisive in another community.

It should also be noted that the coding is conducted by the researcher. Issues of researcher-participant bias, as well as tests of reliability, validity and generalisability have already been discussed. Since the researcher coded the data the selection and organisation of themes needs to be considered critically, however, as discussed already, the participant perspective of the researcher as well as the contextualised data provides a basis upon which the

readers can judge the credibility of the coding and findings. The limited resources of this research project did not allow for a second coder however, it is useful to note that there was no attempt to develop a rigorous coding structure, and that the themes arising from the data are justified by data triangulation.

It is worth noting that the analysis of Case Study Two (Chapter Six) varies from Case Study One (Chapter Five) in two ways. Firstly, the findings of Case Study Two are, where relevant, compared with the findings of Case Study One. It is important to distinguish this from using Case Study One to interpret the data of Case Study Two which could exclude new themes from being identified (Yin, 2003). Instead, this process allows for emergent themes while at the same time providing the opportunity for comparisons when and where it seemed relevant. This also had a pragmatic motivation as it would resolve the need to write a further chapter devoted to comparing the cases. The second variation in chapter structures is related to the first, namely the comparison of case studies highlighted themes of significance across the cases which required further exploration.

As a final point on the data analysis, it is evident throughout chapters five and six that some of the reported interactions and patterns could be explained according to other theories such as social presence (Picciano, 2002), social affordance (Kreijns & Kirschner, 2001), and transactional distance (Faust, 2004). This is particularly true of the variations of situated learning, which I described in Chapter Three as activity-based situated learning theory, and which included such approaches as cognitive apprenticeship. However, as I have argued repeatedly, this research does not attempt to test the theory of CoP against other theories. Furthermore, it has adopted a specific lens, that of Wenger's 1998 framework. This focus, to the exclusion of other theoretical constructs, is acknowledged as both a weakness in the generalisability of this study as well as a strength in developing focussed theoretical propositions.

Summary

In this chapter I have described the methodological issues surrounding the choice of research design. I have laboured over the question of generalisability and have considered the issues of validity and reliability. The remainder of this chapter has been devoted to providing considerable detail of how the PD course was implemented, how the data was collected, and the way in which I approached the analysis. The following two chapters each deal with Case Study One and then Case Study Two. Each chapter contains a description of the ways in which the teachers participated over time as well as a discussion of how CoP related to their participation. Consequently each chapter contains a mixture of results and discussion. Chapter Six includes not only a discussion of Case Study Two but also a comparison with Case Study One.

CHAPTER FIVE: CASE STUDY ONE

Introduction

Teachers are part of a global community of practice. However, members do not typically engage at the global level but rather at the local level (Wenger, 1998b). Case Study One is an example of how teachers engaged locally, coalescing into what could be described as a sub-community. Case Study One data indicates that members were invested in mutual engagement, joint enterprise and shared repertoire. Furthermore, these elements appeared to have a synergistic relationship with sustained participation.

In order to arrive at this conclusion the chapter will provide evidence of how the teachers participated in the PD course and how their participation over time can be understood in terms of CoP. Consequently, this chapter is structured in two parts:

1. Part one describes the teachers' participation in the PD course. This part of the chapter is organised according to modes of participation;

    - Participation in the face-to-face training day,

    - Participation in the online learning environment

    - Participation outside of the online learning environment

    In brief, part one of this chapter describes "what happened" in terms of participation, with a particular focus on participation over time. This provides a context by which part two of this chapter can discuss the role of CoP.

2. Part two explores how the teachers' sustained participation can be understood in terms of CoP. This part of the chapter is organised according to the main components of community cohesion model:

    - Mutual Engagement (doing things together)

- Joint Enterprise (responding together)

- Shared Repertoire (resolving problems together)

In addition to these dimensions of community cohesion, the role of the facilitator as a community broker is also considered. Although the facilitator's work emerged as a theme in each of the dimensions of cohesion it became apparent that the logical development of this chapter would be better served by discussing this issue in one place.

The chapter concludes with a summary of the findings and raises issues to be explored. These findings and issues are then revisited in the following chapter on Case Study Two in an attempt to develop a more robust understanding of the process.

Part One: Teacher Participation

While this research is not directly concerned with the learning outcomes or impact on teaching practices of the five participants, all of them successfully completed the PD course and achieved a "Learning Place Course Developer" certificate from Education Queensland. This is a positive indication of the effectiveness (or at least adequacy) of the course and its design. The participants demonstrated that they were proficient in the use of the online learning system and were knowledgeable of online teaching and learning strategies and pedagogies. They predominantly achieved this by supporting each other's participation. In some instances this required the participants to create resources for the others, to begin discussions, or to help clarify or resolve a problem. The participants successfully completed the PD within the course design as discussed in the methodology chapter and outlined in Appendix C.

In the process of completing the PD course, the teachers attended the face-to-face training and subsequently engaged with the materials, each other and the facilitator electronically for an extended period of time. The participants also reported significant and ongoing planning and reflection outside of the online course environment. Consequently, the following sections describe the teachers' participation: in the face-to-face training day; in the online learning environment through discussion forums, email and chat; and, outside of the

online learning environment. This will provide the context which the remainder of this chapter will use to frame the analysis and discussion of CoP and specifically community cohesion in sustaining participation.

Participation in the face-to-face training day

The face-to-face training followed the running sheet as outlined in Appendix B. As already mentioned in the methodology chapter, I was unable to record observations during the day due to managing the PD as well as the breaks. However, at the end of the day I made notes on participant interaction and other potentially significant incidents. In addition, the post face-to-face questionnaire also asked the participants to reflect on the training day (see Appendix G). Consequently, this section will use data from the researcher observations and questionnaire to describe the way in which the five participants interacted, and report on the effectiveness of the face-to-face training.

At the beginning of the day the participants did not react to each other in the way I had expected. I had assumed that the enrolment activity, which required them to email some information about themselves to the other participants prior to the course, would make the initial contact on the day easier. However, even though the teachers had done this, they still made no attempt to introduce themselves prior to the formal introductions which I instigated at the beginning of the face-to-face training. Also, when I asked the participants to briefly introduce themselves and describe what they were hoping to learn from the course, only two of the participants (P2 and P5[5]) made some reference to their emails.

In addition to the formal introductions, the participants were asked to engage in two other activities during the day that were designed to allow them to negotiate their identity and facilitate a sense of belonging. This included posting messages about their first week back at school after the holidays into the social discussion forum which the participants decided to call,

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[5] The participants' pseudonyms have already been discussed in the methodology chapter. In brief, each participant has been given the name P1, P2, P3, P4 or P5. The names have been assigned randomly to assure confidentiality.

"The Coffee Pot". (In order for ease of cross-case study discussion, this forum will be called the social forum.) The participants were also asked to create a profile about themselves in the "Our Community" section of the website. This included a photo as well as contact details. These two activities were designed to situate the participants as both teachers in school and members of the PD course.

The most significant activities in supporting the community formation were the morning and lunch breaks. This observation was confirmed in the post face-to-face questionnaire and semi-structured interview. Prior to the morning break, the participants demonstrated very little interaction with each other. They generally worked independently following instructions and exploring the software. However, the morning break provided an opportunity to generate conversation and was, for this purpose, held in a different room to that of the computer lab with food and drink provided. Nevertheless, the participants did not initiate much conversation except with the instructor. The researcher observations (composed at the end of the day) noted: "The conversation seemed stilted and I was quite concerned that my goal of getting the participants to make connections with each other seemed unlikely" (Researcher Observations, 04/07/05). For instance: "P3 seemed reticent to initiate conversation at the morning tea despite her relative verbosity in the technical training session. It seemed clear to me that she saw herself as being technically skilled and consequently confident in the computer lab, but was not so confident in the social setting" (Researcher Observations, 04/07/05). Since the course design required the facilitator to encourage participant interaction, especially in sharing goals and needs, I prompted conversation between participants by asking about their ambitions in completing this course which resulted in a broader discussion of school contexts. This worked because the conversation flowed more easily and the training session after the break contained more interaction between the participants. For instance, "while P3 and P4 asked more questions and made more comments than the others, they all seemed to be more ready to interact with each other, even if it were simply nodding or stifling a laugh at a cynical joke about teaching. All of them also readily helped each other if they got confused or lost" (Researcher Observations, 04/07/05).

Nevertheless the greatest change in interaction appeared to have been stimulated by the lunch break. The lunch was catered at a local café and all the participants and myself sat together. I noted:

Conversation seemed to be quite a lot easier than at morning tea. I wonder if the large space and clinical atmosphere of the morning tea room had something to do with it? In any case, the lunch table was full of conversation. All of which was not about the course. Most of it was not even about education or teaching. (Researcher Observations, 04/07/05)

This is confirmed by P3 who commented:

I don't know why but I found the communication with us being stuck at that small little table in the corner of the café, 100 percent better than at that really big table in that tea room, the staff conference room or whatever it was … We just seemed to be stretching our legs, a bunch of strangers in the same room sort of keeping distance … it felt very hostile. But being jammed together I guess because after we'd been together for a while and that and therefore built up some familiarities between each other because we'd experienced the same things and being down there in that coffee shop made it a lot easier. But I guess it physically falls to people to be close together to actually therefore encourage discussions, so find a smaller tea room I'm absolutely serious because I think that would make a big difference to what came out of the face to face. (P3, Interview, 23/08/2005)

Clearly the lunch break marked a difference in the way in which the participants engaged from the morning tea. P3 noted that it was both a sense of common history ("We'd experienced the same things") as well as being physically forced to face each other in a confined space and an informal context. The impact of this social engagement will be further explored in part two of this chapter.

During the lunch, two of the teachers left the table for a cigarette. I was "concerned that they would miss some of the connections being made; however, when they returned they seemed quite animated and mentioned how they realised they had some common problems in

their schools" (Researcher Observations, 04/07/05). Throughout the lunch I encouraged the teachers to expand on comments they made about schooling, teaching, students or their ambitions. These invariably led to others sharing their similar or disparate experiences. All the participants engaged in the conversations although it was quite an effort for P5 who was suffering from a cold or similar illness. Indeed, P5 indicated during the morning tea that she was quite ill. She appeared quite tired but stated that she turned up because she didn't want to miss the PD opportunity. I did not think of it as being particularly significant at the time, simply making mention of her illness and apparent tiredness in my observations. However, P5 referred to her illness several times over the following weeks in the online discussion board as well as at the semi-structured interview. The impact of her illness and its significance will be discussed later.

Following lunch all of the participants were more vocal in the training session. Reflecting on that afternoon, I noted one occasion towards the end of the training:

> While we were all using the online chat facility with my computer screen projected onto the whiteboard, P4 answered one of my verbal questions by surreptitiously typing into the chat area. I was looking around the room expecting someone to answer. I did not notice the projected chat window change behind me. While this was a small practical joke it entertained everyone, especially when I didn't notice for some time! It was made all the more ironic because the "comic chat" facility was turned on, whereby all of the participants including myself were graphically represented in the chat as cartoons with speech bubbles. At this point I felt that the participants had made a stronger connection with each other. The day had been long and the training was complex and the practical joke seemed like a communal response to the demands of the environment. It was a tentative expression of what was valued, who had power and, perhaps most interestingly, a subversion of the technology to fit community values. (Researcher Observations, 04/07/05)

The researcher observations suggest that this event is indicative of a significant change in the way in which the teachers participated; they had a "stronger connection". Certainly, this

practical joke reflects elements of community cohesion, that is, mutual engagement, joint enterprise and shared repertoire.

They were mutually engaged in the chat session and, apart from having invested quite a lot of time in the training day, they were doing the same task, communicating in a synchronous chat session where they were directly interacting with reified projections of each other. They were doing something valuable together. They also demonstrated a joint enterprise in communally legitimating what was not only allowed but also appreciated. The final component of a cohesive community, shared repertoire, is also evident in the way in which P4 used the technology (a tool of the community) in a way that the other participants understood to be humorous. The participants demonstrated competency in the CoP by being able to communally make meaning from the subversive use of the technology. I also contend that their competency in the CoP was all the more demonstrated by the subtle irony of a cartoon representation of P4, complete with speech bubble, answering my question.

The face-to-face training day finished less than an hour after the above chat session. The researcher observations do not indicate any other significant event in this period apart from: "The participants looked tired and I began to make some small mistakes in what I was saying, [and] had to repeat myself on at least two occasions. I'd warned all of the participants that it would be a long day, but I'd forgotten how tiring it was for the trainer as well!" (Researcher Observations, 04/07/05). In light of how tiring the day was, it is perhaps not surprising that no-one lingered after the wrap-up session (Appendix B). This was both a relief to me, as I was tired from the pressure of training the participants as well as facilitating interactions, but also a disappointment in that I was unsure if I had pushed the participants too hard or that they simply did not have enough connectedness with each other to linger (Researcher Observations, 04/07/05). Consequently the post face-to-face questionnaire asked the participants to reflect on the face-to-face training both in terms of effectiveness as well as being a social catalyst.

A summary of the post face-to-face questionnaire results is contained in Appendix J. The summary includes the Likert scale answers but summarises unstructured answers for the

sake of brevity. Extracts of the unabridged original answers are used in the analysis and discussion sections in this chapter.

Questions two to eight of the post face-to-face questionnaire asked the participants to specifically reflect on the face-to-face training (Appendix J). Based on this data it is clear that all the participants felt that the training had sufficient challenge, was relevant, and was flexible in meeting their needs (Questions 2, 3 and 4 respectively). Three of the participants (P1, P3, and P4) felt that the course had adequately prepared them for the online component while P2 and P5 indicated some hesitancy. P2 was uncertain of her preparedness whereas P5 indicated that she felt "a little under prepared"; nevertheless, both participants still felt positively about the prospect of completing the course over a four week period (Questions 6 and 7, Appendix J).

Four of the participants (P1, P2, P4 and P5) felt concerned about the amount of time that they needed to devote to the PD course and in the case of P1, P2 and P5 felt that it may impact on their ability to complete the course (Questions 7 and 12, Appendix J). This is an interesting comment since the participants had agreed to the three hours per week requirement that the course demanded. P1 provides an insight into a reason for their concerns: "I know what I have to do, but am worried that I do not have enough spare time to do the course (and Michael) justice at the moment" (P1, Post Face-to-Face Questionnaire). Apart from the oblique reference to PD as super-ordinary work because it has to compete with other demands on time, it is clear that P1 felt that there was a level of participation which must be achieved. Perhaps the participant had temporarily forgotten that the course only required a three hour per week commitment. However, I contend that the participant's sense of "justice" was independent of the externally proscribed three hour requirement. This contention is supported by P2's explanation: "I would like to totally immerse myself in it [the course], but am tempered by being conscious of my other commitments." These participants' statements indicated that they had a common understanding of what was valuable and (erroneously) expected of them; that is, a significant investment of time in the PD. The four participants (P1, P2, P4 and P5) also referred to "time" as a scarce commodity and that PD had to compete with other demands for their time outside of work hours.

These responses are characteristic of joint enterprise; that is, the participants (P1, P2, P4 and P5) had a communally negotiated understanding of what is valuable, what is expected, and how to respond so that competing demands are reconciled. On one hand the participants' joint enterprise encouraged significant participation in the course. On the other hand it also offered a way in which to protect their practices and identities from being wholly invested in the PD. In this regard, joint enterprise is as much a risk as it is a potential source of sustained participation.

The post face-to-face questionnaire affirmed the teacher preference for a face-to-face mode of delivery (Commonwealth Department of Education Science and Training, 2001; Downes et al., 2001; McRae et al., 2001). Four of the participants expressly stated that the training provided in the face-to-face mode could not have been accomplished as effectively online (Question 5, Appendix J). Although P5 disagreed with the others, she did expressly argue that it "would require a high degree of interaction with the coordinator … [and] an even higher level of commitment on the behalf of the participants". All of the participants valued the face-to-face training because it afforded immediacy in problem resolution (Question 5, Appendix J). Various participants also argued that it provided greater flexibility in meeting their needs (P1, Question 5, Appendix J), increased social interaction (P4 and P5, Question 5, Appendix J) and heightened their awareness or sensitivity towards each other (P2, Question 10, Appendix J). P2 also pointed out that face-to-face training was something which could not be ignored. It was a task which could not be put aside for later. Thus, by its very nature, it became a priority (Question 5, Appendix J). This last comment helps to explain the entropy effect which I noticed as a teacher-in-charge of professional development and which resulted in this research (see Chapter 2).

The face-to-face component is understood to temporarily place the PD at a high level of priority. However, after the face-to-face component other commitments assert their dominance. If this temporary shifting of priorities is understood as a joint enterprise, that is, a socially negotiated response to conflicting demands – PD versus other commitments - then achieving sustained participation is dependant on a communally negotiated shift in values and/or

priorities. During the semi-structured interview P1 commented that, in order for PD to be

sustained,

> it has to be seen as something that's valuable to people whereas a lot of face to face
>
> PDs, you go, you get hyped up about it for a millisecond and then, by the time that you
>
> get back to school and you have all these other things that you have to do, you lose the
>
> motivation, you lose the impetus to keep going with it. (P1, Interview, 23/08/2005)

Clearly this is not about learning new skills. Rather, achieving sustained participation is

dependant on it becoming a centripetal practice in the community.

Based on the PD literature (see Chapter 2) it is important to remember that effective

PD, that is, transformative learning, requires the participants to be engaged over a sustained

period of time. However, from a CoP perspective the lack of sustained participation can be seen

as a joint enterprise in managing conflicting pressures. Consequently, to achieve sustainability

the participants' joint enterprise must undergo a transformation. This is a shift not only in what

they do but also how they see the world. This helps to explain why sustained participation is

difficult to achieve. In addition, it is a justification for using a CoP design which places

sustained participation as a centripetal practice. This is a pivotal concept and will be considered

further, later in the chapter.

Participation in the online learning environment

All five teachers in Case Study One participated in the PD course for an extended

period of time. They attended the face-to-face training day at the beginning of the course and

then accessed the online materials and interacted with each other and the facilitator through the

discussion forums, email and chat for a period of time ranging between six and thirteen weeks.

This is significantly longer than the four weeks which was expected for course completion.

Furthermore, participants indicated a desire to continue participating even after completing their

certificate.

The intensity of engagement varied over time for the different teachers with a high level of participation at the beginning and a slow decline of participation as time went by. These general trends are represented in the Figure 12 which graphs the total number of site requests and forum posts made by the five participants each week. Site requests include any requests by the teachers' web browsers to view a web page. This included any information in the online PD course, including content materials, announcements, participant profiles and the discussion forums. Forum posts refer to the number of messages the teachers posted to the discussion forums. In reading this graph it is important to note that each series of numbers uses a different scale. The site requests use the primary Y axis (on the left) and the forum posts use the secondary Y Axis (on the right). The reason for graphing both series is to demonstrate an overall trend by the teachers in engaging with both the content and with each other.
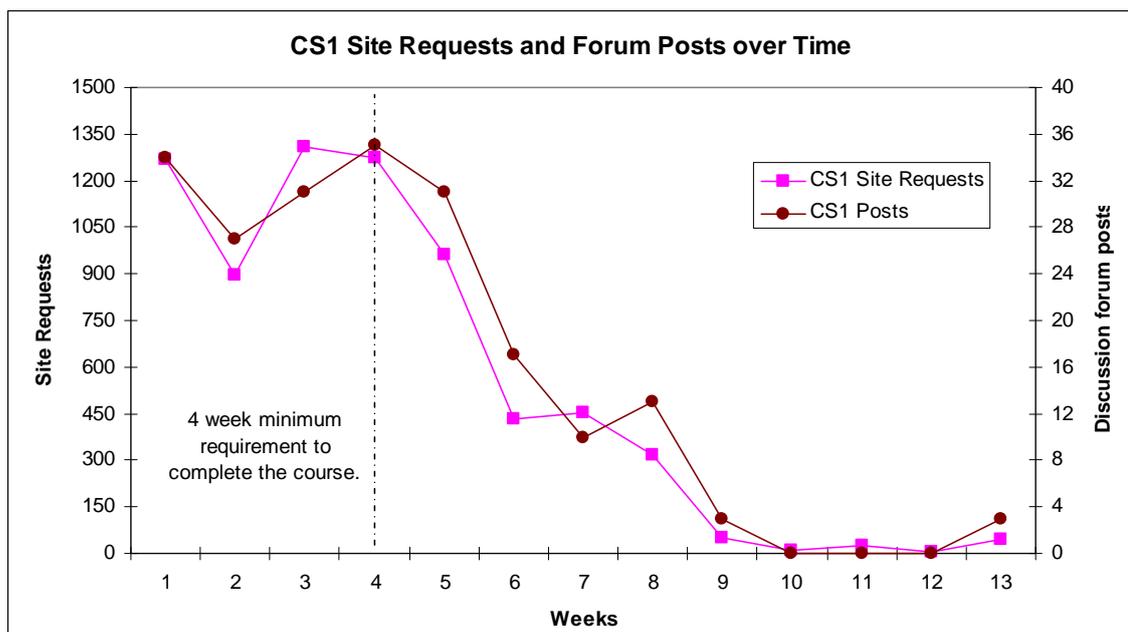
Figure 12. Case Study One site requests and forum posts over time

Although the frequency and volume of site requests and forum posts do not capture the entirety of participation, they do represent the primary means of engaging with content materials and each other. In Case Study One there were only five emails sent by participants to

the entire group (as opposed to private emails to the course facilitator which will be dealt with in a separate section of this chapter). In addition there was one chat session and two reported instances of face-to-face conversation, of which only one conversation led to working on the course content. There were no reported phone calls between participants. Consequently, the graph provides a valuable general trend of the teacher participation over time. Appendix I contains the tabulated data for site requests and forum posts.

It should be noted that in week one the site requests and discussion forum posts numbers include the face-to-face day of training as well as the following six days of online participation. Nevertheless, Figure 12 shows that the site requests and forum posts were sustained at a high level for five weeks and at a medium level for an additional three weeks before dropping to no posts and minimal site requests in the tenth week with a brief renewal of engagement in week thirteen. In week fourteen which is not illustrated in this graph, one of the teachers posted a message trying to arrange a face-to-face meeting with the other teachers and course facilitator. This meeting took place at the end of the fourteenth week but only one participant – the instigator - and the facilitator attended. Two participants extended their apologies via email and expressed their disappointment at not being able to attend. No further attempts were made to meet face-to-face.

Three of the participants logged into the website on six occasions in the following twelve month period. In these infrequent instances, the teachers invariably accessed the discussion forum index page which highlights if there are any new messages. However, none of these participants posted any messages on those occasions. Nor did they access the content area of the course. Since this behaviour occurred after the semi-structured interview, no data has been collected as to the reasons or expectations of the teachers who logged in. Nevertheless, they were clearly interested in the part of the course which hosted the inter-personal action as opposed to the content materials. Indeed a focus on the discussion forum is apparent in the online system records. This can be seen in Table 11 which indicates the number of site requests made by the participants in each main online application or function.

Table 11

Case Study One Participants' Site Requests According to Online Application

Participants	Content Area	Discussion Board	Our Community	Announce- ments	Email function	Other	TOTAL
CS1 P1	233	488	7	45	0	0	773
CS1 P2	517	1023	6	134	2	9	1691
CS1 P3	530	879	32	95	0	1	1537
CS1 P4	795	1356	4	167	8	15	2345
CS1 P5	191	473	3	37	1	0	705
Total	2266	4219	52	478	11	25	7051

Note: "Other" refers to pages such as "Resources" which includes links to software manuals and "Communication Tools" which includes links to email and other communications options.

Although Table 11 does not show the use of online applications over time (the online system did not record this data), it does clearly demonstrate that the participants accessed the discussion board almost twice as much as the course content. In addition, Table 11 indicates that P2, P3 and P4 made two to three times as many site requests as P1 and P5. Figures 13 and 14 help to highlight the different patterns of participation by showing the cumulative trend over time of the participant teachers' site requests and forum posts, respectively. These graphs show the cumulative effect of the participant teachers and therefore are an appropriate way in which to consider the individual contribution of the participants while maintaining a focus on the community. Since participation from a CoP perspective is a socially negotiated act of meaning making, it was reasoned that the participants' actions should be considered as a whole.
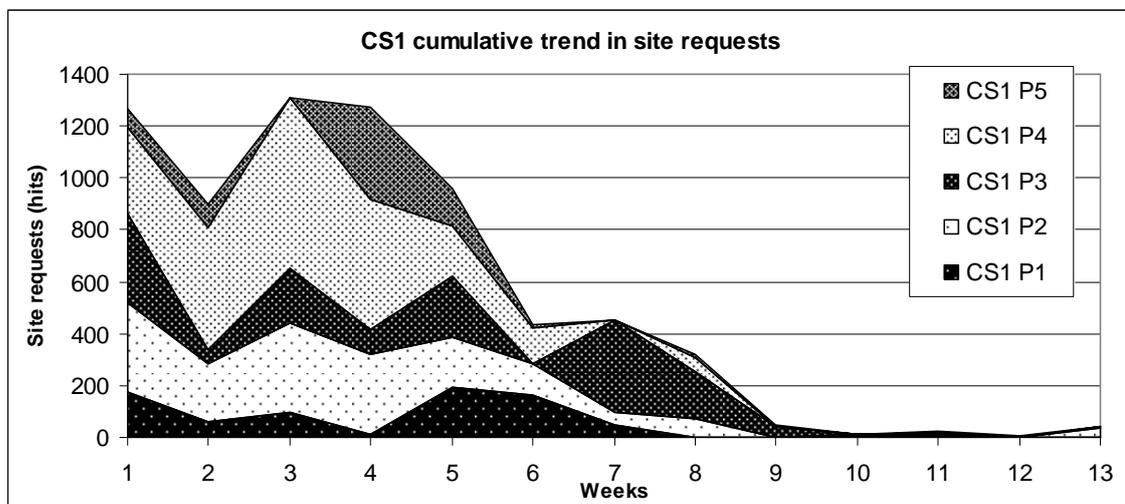
Figure 13. Case Study One Cumulative Trend in Site Requests

Table 11 indicated that some of the teachers accessed the online course more than others. However, Figure 13 shows that the comparative level of site requests were not constant. For instance, P2 and P4 consistently made more site requests for the first four weeks than did P1, P3 and P5. The level of P3's site requests was visibly erratic over time with an almost fortnightly cycle of low and high levels of site requests. On the other hand, P1 and P5 made relatively few site requests over the first few weeks but sustained higher levels for a fortnight (P1 in weeks 5 and 6, P5 in weeks 4 and 5).

Although the numerical values for the number of site requests made by each participant each week can be found in Appendix I, the value of this cumulative graph is that it shows the individual participant's contribution to the overall trend of site requests. It suggests that P2 and P4 were engaging more actively with the course than the other participants. However, it should be noted that the number of site requests is limited as an indicator of course engagement. For instance, a teacher could make a single site request by accessing a web page and then spend a considerable amount of time engaging with the content of the page whereas another teacher may make numerous site requests going back and forth between pages following ideas and engaging with the content in a different way. Both teachers engaged with the content but the online system would register that one of them had a greater number of site requests.

As already suggested, based on Figure 13, it may be assumed that P2 and P4 were the more active course participants. However, Figure 14 shows a different trend in the participants' forum postings. Clearly, the volume of site requests does not directly correspond to the number of forum posts. For instance in week 2, P2 and P4 made more site requests than did P3; however P3 posted significantly more messages at that time. Indeed, P3 posted more messages (72) than any other participant (P1=20, P2=40, P4=31, P5=26) during the 13 weeks (see Appendix I).
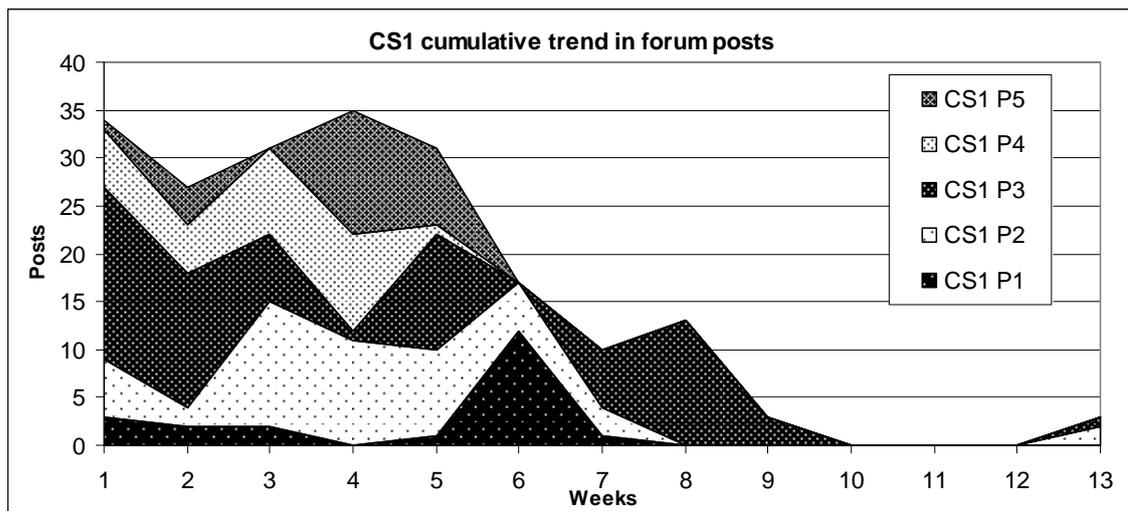
Figure 14. Case Study One Cumulative Trend in Forum Posts

When comparing Figures 13 and 14 it is clear that a higher volume of site requests than other participants does not necessarily mean that they will also have more forum posts than the other participants. Nevertheless each individual's number of site requests and forum posts over time followed the same general trend. That is, when a participant made more site requests they generally also made more forum posts. Similarly, in the weeks they made less site requests they also tended to post less. However, it should also be noted that the volume of posts is only one indicator of course participation, and that a high volume of posts does not necessarily reflect the length or quality of each post (or participation). Nevertheless, it is argued that any forum post necessarily requires the participant to engage with the community, although not necessarily at a complex level. Writing a forum post means that the teacher must consider the context, purpose and audience. The post face-to-face questionnaire supports this argument in that all of the participants indicated that they were conscious of the other participants and course facilitator when writing their discussion forum posts (Question 10, Appendix J).

Before discussing the site requests and forum posts any further, the issue of quality should be addressed. This research does not intend to evaluate the quality of participation in terms of engagement with content. Indeed, engagement with content is an incidental aspect of this research which aims to investigate the role of community in sustaining participation.

Consequently, the value of discussion forum posts in this research is not because they could be used to categorise the cognitive, academic, practical or other engagement. Rather, they are valuable for this research because they are easily observed reflections of the community's practice. They are both the means by which the teachers can participate in, and are the reified objects of, mutual engagement, joint enterprise and shared repertoire. By considering the ways in which the participants used the discussion forums it will provide a valuable context for later discussion of CoP.

Participating in the Discussion Board

Based on the number of site requests and forum posts it is evident that the teachers engaged variably with the materials and with each other for six to thirteen weeks. While this data is suggestive of sustained participation, it does not help us to understand the role of community in that sustained participation. On the other hand, data on the discussion forum requests and posts is much more valuable. This is the locus of the communal participation and reification. As such, it is the key to observing and understanding this community's development.

At this point it is worthwhile making a distinction between discussion board, forum, thread, and post. A "discussion board" is the term used to identify a section of the website where participants can post messages. A discussion board is made up of one or more "forums", which are categories of conversations. In Case Study One, the participants used ten forums (see Appendix K for details). Each forum contained one or more threads of conversation. Each "thread" can be considered the beginning of a new conversation within the forum to which other participants can respond. A "post" is the individual message left by a participant.

Table 12 provides some insight into the way in which the participants used the discussion board. Most significantly it shows that an average of 37% of forum requests were in the social forum (in contrast with content forums; see Appendix K for details of the content forums). The social forum was used as a place to post non-content related messages such as

talking about the holidays, a discussion of what participants should be doing in their PD that week, requests for help in both personal and professional spheres and apologies for not keeping up with the others. In some regards, the use of the phrase "social forum" could be confusing as some of the messages still referred to the PD course. Similarly, many of the messages in the content forums, so called because they related directly to the PD course content, refer to the personal lives of participants. However, the categories are generally robust in that the social forum contains posts which may refer to the course but do not discuss the content. In this respect the social forum appears to be a communal tool for maintaining community rhythm (e.g., clarifications of what they should be doing and who is going on holiday and when) and interconnectedness (e.g., apologies and sharing of personal stories). On the other hand the content forums may refer to personal lives but in the context of the course content (such as anecdotes) or as incidental community maintenance messages (e.g., making a deprecating comment about themselves in order to mollify a possibly contentious argument).

Table 12

Case Study One Discussion Board Access: Forums and Index Page

Participants	Social Forum		Content Forums		Subtotal	Index page	Total
	n	%	*n*	%			
CS1 P1	66	43%	86	57%	**152**	336	488
CS1 P2	155	42%	216	58%	**371**	652	1023
CS1 P3	153	28%	394	72%	**547**	332	879
CS1 P4	129	36%	226	64%	**355**	1001	1356
CS1 P5	112	46%	131	54%	**243**	230	473
Total	**615**	**37%**	**1053**	**63%**	**1668**	**2551**	**4219**

Table 12 also highlights that participants accessed the index page of the discussion forum numerous times. Indeed, P1, P2 and P3 accessed the index page significantly more times

than accessing the forums. Furthermore, even though P3 and P5 accessed the index page fewer times, the number of requests were still significant. To some extent, the volume of index page accessions can be explained by participants moving back and forth between forums and thereby passing through the index page. However, it should be noted that the discussion board index page not only lists the forums but also indicates the number of messages which the participant has not yet read in each forum. In the semi-structured interview, the participants cited using the index page as a tool to seek participant interaction. Indeed, several of the participants indicated that when they logged into the system they not only first accessed the Discussion Board index page to see if someone had posted a message but also that they had an emotional reaction (excitement or disappointment) depending on whether there were any unread messages waiting for them. On the other hand, P1 and P5 also pointed out in the semi-structured interviews that when they had been off-line for some time and there were multiple unread posts, they felt some frustration and a sense of falling behind. These issues will be further explored later in this chapter.

The way in which the participants seemed to value the social forum is further supported by the number of posts made in the social forum as opposed to the content forums (see Appendix K for details of the content forums). Table 13 shows the distribution of messages between the social and content forums. It is significant that an average of 32% of all posts were in the social forum. Furthermore, the participants' distribution of posts across the social and content forums is similar to the distribution of forum requests as seen in Table 12.

Table 13

Case Study One Discussion Board Postings

	Social Forum		Content Forums		
Participants	*n*	%	*n*	%	Total
CS1 P1	7	33%	14	67%	**21**
CS1 P2	17	33%	34	67%	**51**
CS1 P3	19	25%	56	75%	**75**
CS1 P4	12	39%	19	61%	**31**
CS1 P5	11	42%	15	58%	**26**
Total	**66**	**32%**	**138**	**68%**	**209**

There is a risk in placing too much value on the volume of site requests and message posts in the social forum. While the data in Tables 12 and 13 indicate a common pattern, the mere use of a social forum does not *ipso facto* indicate the formation of a community, especially a CoP. However at the very least, it does indicate that there is something more going on than participants simply engaging with PD course content. Further analysis of the discussion forum posts, especially with regard to community cohesion, will be considered later in this chapter.

Participating through chats, emails and announcements

The participants interacted primarily through the discussion forums. However, they also infrequently communicated via email, announcements and, on one occasion, by chat. These forms of communication were less frequent and the content often of an administrative nature. However, they were referred to in the semi-structured interviews as being significant in a number of ways.

During the face-to-face training the participants were encouraged to use the discussion forum as opposed to email as the primary means of communication. Nevertheless, the participants and facilitator still used email for two primary reasons, it was private and it was delivered directly to the participant without having to rely on them to log into the online system. Table 14 shows the frequency of emails and announcements sent by the course stakeholders. During the semi-structured interview, the participants were asked if they communicated with each other privately and only one participant indicated that she had emailed another regarding a professional question not associated with the PD course. Consequently, Table 14 represents a robust image of digital communication outside of the discussion board.

Table 14

Frequency of sent emails and announcements

Participant	Type of communication	Weeks													Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	
CS1 P1	Email to facilitator				1	2	1			1	2	1		1	9
	Email to group														0
	Announcement					1									1
CS1 P2	Email to facilitator		1	1	1	2	1								6
	Email to group				1	1									2
	Announcement				2										2
CS1 P3	Email to facilitator	2	3			2	1	1	2		1				12
	Email to group						2		1						3
	Announcement					1		1							2
CS1 P4	Email to facilitator	1		3			1		2						7
	Email to group														0
	Announcement		1		1										2
CS1 P5	Email to facilitator		4		1				2	1	1				9
	Email to group														0
	Announcement														0
Facilitator	Email to individual	3	6	3	5		6			1	1	1		1	27
	Email to group	1	1	1	1	1	1	1			1	1		1	10
	Announcement	3	1	1			1	1	1					1	9
Total		10	17	9	13	10	14	4	8	3	6	3	0	4	101

Two of the participants emailed the entire group on five occasions to notify everyone of an event, such as the online chat. They used this method because they felt that email afforded fewer delays than discussion forums. This was a strategy they applied to support the others in their participation as well as maintain a certain level of rhythm which the asynchronous nature of the forums threatened. Similarly, the facilitator sent 10 group emails as a community

maintenance strategy in providing signposts for what was happening in the online course, what needs to be done and how the participants can get started on it. Group emails afforded both immediacy and community rhythm. The facilitator as a broker of community rhythm will be discussed at the end of this chapter.

In 13 weeks the five participants sent 43 emails to the facilitator as sole recipient. The majority of these emails were requests for administrative or technical guidance. For instance, at the beginning of week two, P5 emailed the facilitator: "Oh Michael I am really in a mess! I can't even remember how to get to where I need to go – I can log on but then what? I am so sorry but please help!" (P5 Email 12/07/2005). Clearly P5 needed some guidance and felt that she could not post her request to the discussion forum. The facilitator provided some guidance to P5 including where she should start, with a particular suggestion that she should read the conversations in the discussion forum. Shortly afterwards, P5 posted three messages to the discussion board and demonstrated a synthesis of both the course content and the ongoing conversations. She also posted an apology to the entire group on the discussion board for her absence from the online environment. In this instance, the email correspondence with the facilitator facilitated his role as a community broker by providing ways in which P5 could legitimately participate in the practices of the community. It is also worth considering that P5's apology on the discussion forum was a means by which she could renegotiate her legitimacy, and act as a reification of her projected identity and understanding of what the community valued.

Towards the end of the course and, as the interaction decreased between participants, P1 and P5 used email to finalise and negotiate what they needed to do to complete the course (and the certificate). For instance, in the sixth week P1 sought to negotiate the main task for Layer 4 of the course: "I know that I have not put assessment into my site but I hate the things [the software has] to offer. If I have to though, I will bodge up an assessment item. Would a rubric do instead? Help!" In this email and several others, P1 indicated that while she was capable of completing the task she was not motivated and even resistant to doing so because the software's assessment tools did not support what she felt was good pedagogy. After a two week

absence, P5 emailed the facilitator: "I know I haven't finished the course but would still really like to if it is at all possible." In both cases, email served as a way in which the participants could privately seek help in completing the course. However, both P1 and P5 can be characterised as being less engaged with the community. Both participants felt less comfortable with the group than the others (see Appendix J). P5 cited her illness in the first few weeks while P1 cited time constraints as being the main reason for their respective lack of engagement.

In addition to emails, Table 14 also shows the frequency of participants posting announcements to the online course. An announcement is shown on the first page when participants log into the system. As part of the course design, the participants had full administrative rights and were encouraged to facilitate each other's participation, especially in accessing and using the resources which they added to the course. Although announcements do not provide an avenue for participants to reply, they do represent a community maintenance strategy employed by four of the five participants.

In week three P2 organised and ran an online chat. This was one of several practical activities that were suggested in the PD course (Layer 3). P2 investigated the technology, synthesised the pedagogical implications from the theoretical component of the course, devised facilitation strategies and implemented the chat. However, in order for her to be able to demonstrate these skills and her synthesis of course information, two of the other participants and the course facilitator organised to be online at the specified time, learned how to access the chat system and participated in the synchronous conversation. This is a clear example of how the course design allowed participants to collaborate in authentic ways. However, participation was not mandated, like the rest of the course the participants came together responding to the course demands and sharing ideas without step-by-step direction on what they should be doing. How they interpreted the course design directive, "support each other", was a communally negotiated enterprise. Indeed, in this instance the chat organiser indicated that she felt much closer to the other participants who went out of their way to support her: "The support I felt … when [they] made the effort to participate, yeah … that was really important because [they]

made an effort to make mine work" (P2 Interview, 22/08/2006). This synergism between CoP and participation will be further explored in part two of this chapter.

Participation outside of the online learning environment

The site request and forum logs which have been referred to in the above Tables and Figures are not a complete representation of the teachers' participation. It has already been established in Chapter 3 that participation in a CoP is not always characterised by members visibly engaging with each other. Indeed, members are still participating in the CoP when they interact with reified objects, reflect on their practices and draw on their communally negotiated understanding of the world in order to interact with that world. In Case Study One, the participants continued to engage with the materials and ideas and, from a CoP perspective, continued to make meaning of the world and negotiate and reify their identities by implementing the PD in their classrooms as well as referring to the PD domain in other parts of their lives.

Although membership of a CoP extends beyond the observable interaction online, it is reasonable to argue that the online interaction in this case study is both representative of, and a core process in, the CoP. The online interaction is the locus of practice and identity (trans)formation. It is the post face-to-face environment in which individuals explore and negotiate mutual engagement, joint enterprise and shared repertoire. As a result, the focus of analysis from the perspective of CoP resides in understanding sustainability of PD through the face-to-face and online interactions.

Accordingly, this research did not attempt to directly observe or investigate participant engagement in the CoP outside of the online course environment. It was reasoned that to do so would reap limited benefit in understanding the role of CoP in sustainable PD. It was also clear that to do so would require considerable resources in collecting data on any discussions with colleagues (and others), implementation of knowledge or skills in class or other spheres, as well as general reflection.

However, while these forms of participation were not a focal point of the current research, they were not ignored. Participants mentioned activity outside the online course in the discussion forums or via email. Also the semi-structured interview was designed to provide opportunity for the researcher to gather data on participation outside of the course. If such participation appeared to be a significant influence in community cohesion, the semi-structured interview allowed for further investigation.

Based on participant comments via the discussion forum, email and the semi-structured interview the teachers participated in the CoP domain in several ways. First, it is not surprising that the participants tried to implement their understanding of the PD in their teaching practice. However, for two of the participants engagement outside of the online environment contributed towards an identity of non-participation and had implications for both their successful completion of the course and their sustained participation. Second, the teachers reported that their online participation was accompanied by an ongoing reflective and planning process while off-line. These two issues are explored in the following sections.

Implementing the PD: Integrating Online Learning.

The PD course was not isolated from teaching practice. While participating online in the PD course, the teachers were encouraged to begin developing materials and implementing online learning strategies in their classrooms which, of course, was the focus of their PD. To enable this, each participant was provided with their own teaching space (Blackboard course). In addition, all of the participants had guest access to each others' online teaching space. The intention was to support the principles of situated learning and, from a CoP point of view, provide opportunities for members to explore their practices and encourage shared repertoire.

All of the participants to some extent used their online space. One of the final tasks suggested that the participants create an online assessment tool in their own areas. This partially accounts for some of the drop in site requests from week five onwards (see Figure 12). In order to complete this task the participants had to create the assessment tool (such as an online quiz) and, as per the course design, needed to solicit the others to test the tool and give them

feedback. This culminated in a short discussion on the validity of online assessment. In this example, the participants demonstrated their competency in the community of practice, moreover they indicated community cohesion through their investment in mutual engagement, joint enterprise and shared repertoire.

However it is interesting to note that participants P1 and P5 who were less active in the online course (Figures 13 and 14) had developed more resources in their own teaching spaces. Both participants had indicated in the discussion forums, post face-to-face questionnaire and semi-structured interview that they felt on the periphery of the community. Specifically that due to time constraints (P1) or illness (P5) they were not as connected with the others, were not as involved in the conversations and were out of synch with the activities.

> I'm not moving at the same pace and it's always difficult when you're doing something that requires everyone to participate at the same level… So, in that way, I haven't assisted them in extension or challenge… I mean I still get along well with them and they've been really patient and explaining things and so forth but, yeah. Oh, now I feel awful. … you struggle to challenge or extend their knowledge [but] if you don't have the basis, you can't become the expert or an expert. (P5 interview, 23/08/2005)

Both participants seemed to take on an identity of non-participation or peripherality (Wenger, 1998b). That is, they were still mutually engaged in the joint enterprise but did not generally participate in the core practices. P1 explained her lack of interaction in the PD course in week four:

> I was motivated by what I'd seen in your course to do stuff in my course but I wouldn't say that I participated as much as I could have in your course, but I was using your course to feed, I was feeding off your course and putting that enthusiasm into what I wanted to do. (P1 interview, 23/08/2005)

It is not surprising that this made the completion of the course requirements more difficult as both P1 and P5 were not able to as easily share their repertoire, that is, engage in the negotiated discourse and reified tools. This resulted in an increase in reliance on direct contact between

facilitator and participant (partially indicated in the frequency of email between the facilitator and P1 and P5 as shown in Table 14).

Reflecting and planning.

The participants also engaged in reflecting on the PD and planning for implementation. These are forms of participation in, and reification of, the community's practices. During the semi-structured interview (see Appendix H for schedule) the participants were asked to describe the time they spent offline, in planning and reflecting. Invariably the participants indicated that despite limited online participation they felt they were engaged in planning and reflecting outside of the PD course between a moderate to high level. P1 explained:

> Even though I wasn't on line doing things all the time, I was thinking about how I could do these things and how I could bring some of it in [to my teaching]. … I would think about things, you know, when I was driving the car home or those sorts of things, about how I could do things and what I needed to do. (P1 interview, 23/08/2005)

P3 describes a similar situation:

> On the way to class, after class, I was often thinking about how I could have taught that [lesson] through an on line set up or how could I get my students to contribute ... because I found my own course felt like it was taking forever to put things together. … Even during the lull times when I wasn't on line much, you'd be adding, I don't know, half an hour each day easily. (P3 interview, 23/08/2005)

She goes on to explain that even though she wasn't creating online materials she was committed and was planning what she was going to do in her holidays:

> I've got a week and, of that, two days will actually be down in Bundaberg with my parents. I'll be able to get on line and I'm planning on taking photos on the way down to be able to do the travelling buddy [online activity]. I'm still intending to do that. It's just that at the moment, there hasn't been the time to do it or the resources or whatever, so I'm keeping that going in the back of my mind as well. (P3 interview, 23/08/2005)

The online activity called, "travelling buddy", was introduced to the participants in week one of the course. The interviews were conducted in week eight. P3 had been planning to implement the online activity with her students and had even raised the topic at the end of week one in the discussion board outlining her plan to use a travel buddy and asking for everyone's thoughts.

Summary

Up to this point, this chapter has used the research data to describe the way in which the teachers participated in the PD course. The teachers attended the face-to-face training and engaged with the materials, each other and the facilitator electronically for a period of between six and thirteen weeks. The participants also indicated that, even when they were not actively engaged in the course online environment, they continued to engage with the PD through their own implementation, reflection and planning. Even though the course design encouraged the participants to support each other, it was considered significant that they also showed a high level of activity in the social and non-content based discussion forums. This was also reflected in the social opportunities in the face-to-face training day. Nevertheless, as participants completed the course requirements, the rate of participation decreased and the final two participants increasingly relied on the facilitator for support to complete the certificate requirements.

So far, the intention has been to provide the reader with a sense of the case study outcomes in terms of participation. The following section will reflect on this information and use further data from the post face-to-face questionnaire, semi-structured interviews, participant forums and email messages to explore how their participation can be understood in terms of CoP. In particular, what role does CoP have in the sustainability of participation in a small-scale blended PD course?

Part Two: Community of Practice

The PD course was intentionally designed to facilitate the participants' investment in the key dimensions of CoP. It was reasoned that a cohesive community is one that is characterised by sustainability. As a result, the course design gave particular attention to what I have labelled, the "community cohesion model" (see Figure 1, Chapter 3). Fundamentally, the model proposes that a community is sustained when its members invest their practice and identity in mutual engagement, joint enterprise and shared repertoire. The remainder of this chapter will explore how these dimensions were manifested in Case Study One, if community cohesion was evident and its relationship to sustainability of participation. Consequently, part two of this chapter is organised according to the following main themes:

- Designing for community cohesion

- The role of mutual engagement

- The role of joint enterprise

- The role of shared repertoire

In addition to these dimensions of community cohesion, the data also highlighted the significance of the course facilitator as a community broker. As a result this chapter spends some time exploring his role in sustainability of participation. The chapter then concludes by drawing these themes together and raising issues to be considered in the following chapters.

It is important to reiterate that this research is not evaluating the course design *per se*. The focus is on the role of CoP in sustained participation, of which the course design is just one contextual feature. This is not to say that the course design and other issues such as individual histories, technological skills, and motivation should be ignored. Simply, these contextual issues will be raised when they appear significant in helping to understand the connection between CoP and participation.

It was pointed out in Chapter 3 that sustained participation is a characteristic of a cohesive CoP. Consequently, the community cohesion model (see Figure 1, Chapter 3) was used as the core framework in both the design of the PD course and in the analysis of participation. The model proposed that a cohesive CoP is one where its members are invested in mutual engagement (doing things together), joint enterprise (responding together) and shared repertoire (resolving problems together). The model suggested that if a PD course could facilitate these dimensions of cohesion then, in addition to situated learning, it would result in sustainability. Thus from a design point of view, if facilitating CoP cohesion is the focus, the rest will take care of itself. However, the role of these dimensions in sustaining participation was still unknown. Furthermore, until now, it has been unclear whether a small-scale, blended PD course could facilitate the cohesion of a CoP.

It will be argued in the remainder of this chapter that Case Study One has demonstrated evidence of a localised, coherent CoP. Furthermore, that investment in mutual engagement, joint enterprise and shared repertoire are processes which afford and even stimulate ongoing participation. It is also argued that, in Case Study One, sustained participation was not simply a product of community cohesion but was itself a centripetal practice of that community. Furthermore, that the facilitator acted as a community broker, providing ways in which the participants could centripetally participate in the practice of sustained participation. Finally, it is argued that sustained participation as a centripetal practice of a community is one that is characterised by social relations. As Lave and Wenger (1991) point out, CoP describes the process of "learning through participation in social practice" (p. 50). Simply put, unless we design for social participation then sustained participation will flounder.

The methodology chapter has already described the course design. However there is one key design decision which was repeatedly shown to be significant in facilitating community cohesion and, consequently, should be described it in greater detail. That decision was to base all aspects of the course design, including the time-line, content, goals and assessment, on a single unifying philosophy: support your fellow community members. This guiding principle was based on the community cohesion model (see Figure 1, Chapter 3); it aimed to set the tone of engagement, become a core enterprise, and establish the need and authority for shared repertoire (see Table 3, Chapter 3 for a useful summary of the community cohesion model).

Accordingly, a central precept of this course was that in order to complete it, participants had to engage with each other, respond to common challenges and share practices. For instance, the teachers were provided with a considerable range of pedagogical content with links, activities, and practical applications. The course aimed to be a smorgasbord of ideas from which the participants could choose what they wanted to spend time on, research, discuss and practice. This was explained to the participants in the introduction of the course:

> In order to complete this course you must rely on your fellow teachers. There is too much information to individually cover in the 20 hours allocated to this course. … Throughout this course you will be asked to prepare materials, join discussions and even write small quizzes for us all to participate in and learn from. … Each of us has a valuable and unique professional history. Together, we can sift through the variety of ideas and scrutinise those most relevant to you / us / our community. (Appendix C)

The participants were positioned so that they can see their role as not being an individual learner but rather as a discerning professional whose input is crucial to everyone's success.

Because of the breadth of topics covered (see Appendix D for a site map of the course content) many of them were not described or demonstrated in detail. Consequently, the participants were encouraged to research and explore those topics they felt were of greatest interest to them. The facilitator also indicated several areas which he thought would of great

value, such as a complex theory which was mentioned but not explained due to the limited time available in the course. The facilitator also suggested a range of practical applications such as running discussion forums, creating quizzes, etc. The participants could choose to do any of these activities or something of their own choosing: "[the facilitator] never imposed requirements on us that says oh you have to do this, this, this and this" (P1, Interview, 23/08/2005). This freedom to explore pathways of interest was well received by all the participants. For example, P4 said: "[In] a lot of professional development, you sit there and you wonder what you're doing there but this was very much a constructive way of learning things. You could participate and get into it. You could go wherever it was good" (P4, Interview, 24/08/2005). The participants' energies were not only driven by personal interest but also an authentic need to support each other. They were encouraged to conduct independent research and exploration, raise important issues, highlight useful strategies and demonstrate valuable tools to the rest of the group. These contributions were valued by all of the participants. This is explained by P5 who says "Oh, if they hadn't talked about the readings and stuff, and set up the chat and discussion forums … I wouldn't have gotten there … If they hadn't have done it, then I could not have finished. They were my explanation of what was going on" (P5, Interview, 23/08/2005). This support flowed in both directions as the participants raised issues, they also valued the discussions that would arise as a way of both validating their ideas as well as gaining a multiplicity of perspectives:

> I needed the other participants there to even act as a sounding board; you know, to sort
>
> of get there. Often I'll read something, like if it's a task, I'll read something and just
>
> having that other person's point of view, helps me look at it in a different light or
>
> understand it better, so no, I learn better that way. (P4, Interview, 24/08/2005)

Clearly, supporting one another was more than an edict by the course facilitator; it was an authentic, important activity in making sense of the course content.

An example of participants supporting each other can be found in Layer 3 (Communication and Collaboration) of the PD course (see Appendix D for a course outline). This layer included a short description of the five stage model of e-moderation by Gilly Salmon

(2000a). Some links to the theory were provided as well as a general comment that this theory could be useful for teachers interested in moderating student discussions over an extended period of time. As a result, one of the participants (P4) chose to research Salmon's work. She proceeded to develop a set of notes and links to summarise the theory which she uploaded to the course environment for all the other participants.

Her summary of Salmon's theory ended up being 1037 words in length and included an illustration of the theory as well as hyperlinks for further research. She then began a new discussion forum and posted the following message:

> Dr Gilly Salmon stated in her article, *Learning Submarines: Raising the Periscopes*
> (2000b), that it is common for e-moderator recruits to come from face-to-face teaching
> situations. She stated that they are therefore used to relying on their "personal charisma
> to stimulate and hold their students' interest". With this statement in mind, becoming an
> e-moderator is quite a challenge when we go from our classroom situation to an online
> situation. How can we as future e-moderators ensure that we still get across that
> personal charisma that stimulates and holds our students when we deliver face-to-face
> lessons? (P4, Discussion Board Post)

It is important to point out that P4 has not attempted to tell the others what she thinks. She finishes her post with a question that draws on both the theory and an understanding of teaching practice. Her position has been to unpack the theory and raise what she sees as a crucial question for the other participants. She is not trying to demonstrate how much she knows, rather she is trying to support the others engagement with the implications of the theory.

It is significant that P4's discussion forum entry inspired a conversation between all of the participants as well as the course facilitator and included 30 messages spread over three discussion forum threads. Despite the apparent success, P4 felt that she could have helped the participants engage with the content better: "The quality of that could have been better if I had given more time to it. Yeah, I just don't think that it was sort of up to scratch, up to what it should be" (P4, Interview, 24/08/2005). Through this engagement, the participants grappled

with issues of importance to their practice including sharing ideas of how they can deal with it in their classroom.

Both P4 and the other participants were invested in the course rule: support your fellow community members. Engagement in P4's discussion forum was not mandated or assessed. Indeed, all of the participants were in accordance with P5 who explained why she participated in the discussions: "You're accountable to them as well and their learning is reliant on your participation so if you haven't participated then you know you've let them down" (P5, Interview, 23/08/2005). Furthermore, this expectation was communally negotiated as explained by P1: "What's really funny is that I don't think anyone imposed expectations on us in this course, I think we imposed expectations on ourselves about what we were going to do" (P1, Interview, 23/08/2005). The participants had clearly invested in a joint enterprise of supporting each other.

In this example it is clear that the task of supporting each other had become a form of centripetal participation of the community. It was not just a by-product of CoP but was itself a valued community practice. The participants were demonstrating mutual engagement in a joint enterprise of support, and in the process they were sharing repertoire. In other words, the teachers' participation displayed the characteristics of a localised, coherent CoP. This will be further explored in the next section but will be revisited throughout the remainder of this chapter as each of the community cohesion dimensions are considered in detail.

A localised, coherent CoP

A localised, coherent CoP is one where the members of a larger CoP have formed a local or sub-community to mutually engage in a joint enterprise and share repertoire. Although the teaching profession could be described as a CoP, individual teachers do not mutually engage with the teaching profession at the global level (see Chapter 3). Instead, they engage with localised versions of the CoP, which could be at the level of their school, department, interest group, etc. Case Study One is an example of a localised, coherent CoP. While firmly situated in

the larger teaching CoP they clearly demonstrated a localised coherent CoP with its own unique understanding of the world. The five teachers were invested in mutual engagement, joint enterprise and shared repertoire of the core practice of supporting each other.

The participants were mutually engaged. Their participation was made meaningful by reference to each other. Apart from engaging with the content of Salmon's theory the participants were also engaged in supporting each other. This mutual engagement made the act of participation valuable, for example: "If you haven't participated then you know you've let them down" (P5, Interview, 23/08/2005). In this way it can be seen that simply posting a message to the discussion forum had a greater significance and meaning than simply the content of the message.

In addition to mutual engagement, the participants were invested in the joint enterprise of supporting each other. This can be seen in the way in which the participants were mutually accountable, that is, they had a socially negotiated understanding of what was valuable. In the above example P4 indicated a sense of failure in providing high quality resources and participation: "I just don't think that it was sort of up to scratch" (P4, Interview, 24/08/2005). The other participants expressed similar concerns; they felt that they were lacking in providing quality participation in support of the other participants. For example, P2 states that if she did not participate regularly then she would be "letting the side down" (P2, Interview, 22/08/2005). This is also reflected by P1: "I thought I haven't really done as much as I could have and I felt as though you know I'd let people down" (P1, Interview, 23/08/2005). The participants valued participation. They were mutually engaged in a joint enterprise of supporting one another.

Shared repertoire is a process of using and creating communal resources in negotiating meaning. It is a unique understanding of the routines, tools, language and actions that a community uses. While mutually engaged in the joint enterprise of supporting one another, the participants created resources, processes and even a discourse that helped them in supporting one another. An interesting example of this can also be found in the context of P4's summary of Salmon's theory. In one of the threads in P4's discussion forum P2 referred to Salmon's use of

types of animals to describe different kinds of online participation.[6] This sparked a series of posts which included statements, such as: "I have to curb my mole tendencies!" (P2, Discussion Board) and "today I am definitely a wolf" (P1, Discussion Board). This is more than an example of participants engaging with content; it is not only conveying a competency in understanding the domain (which is, in itself, a form of community membership) but is also used as a way in which the participants demonstrate they understand what is valued participation. For example, P3 signed one of her final discussion forum posts in the course with the line, "P3, the Squirrel who tried to be an Elephant, but failed" (P3, Discussion Board). The shared repertoire persisted even in the semi-structured interviews where P1 commented: "I felt guilty because I hadn't been doing as much as I probably should have. I did the squirrel" (P1, Interview, 23/08/2005). No attempt at explanation was made.

In order to participate in this community you needed to be able to not only use the language but also understand its unique meaning. In these examples, the anthropomorphic labels were used to not just connote a set of characteristics. They were also used to convey a negative self-image and understood in reference to the core practice of supporting one another. In other words, the participants were not simply describing themselves as infrequent participants, but also that they were not as supportive as they felt they should have been. This is an example of shared repertoire, which, as a historical reflection of mutual engagement in a joint enterprise, provides a way in which members can participate in and reify those core practices of the community. Indeed, Wenger (1998b) points out that "spontaneous creation of metaphors is a perfect example" of a renegotiated history of engagement (p. 83).

The relationship between engagement, enterprise and repertoire in community cohesion can also be seen in the following quote:

> As we got to know each other better, I think through the [social forum] and through you know everything we had to do on the course and how we had to support each other, I think we all became okay with admitting or asking for help. (P4, interview, 24/08/2005)

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[6] For instance, Salmon (2002) described a squirrel as someone who was always catching up, and who completed two weeks in one session and then was not seen again for some time.

In this example, both social and other engagement combined with joint enterprise to facilitate shared repertoire. It is also important to note the temporal references: "as we got to know each other … everything we had to do … we all became okay" (P4, interview, 24/08/2005). This supports the community cohesion model which argues that sustained mutual engagement in a shared enterprise leads to shared repertoire.

In this section I have revisited the community cohesion model and suggested that the participants were not only invested in mutual engagement, joint enterprise and shared repertoire but also that they were mutually engaged in the joint enterprise of supporting each other and consequently sharing repertoire that facilitated the participation in, and reification of, that core practice. The following sections develop these propositions further by exploring in greater detail each of the components of community cohesion.

The role of mutual engagement

It has been consistently argued that Case Study One is an example of a localised, coherent CoP. In substantiating this claim I have provided some evidence of mutual engagement, joint enterprise and shared repertoire. Even so, these dimensions need to be explored further to understand their role in sustaining participation. The participants in Case Study One were mutually engaged in the professional development, but more significantly in terms of this research, they were mutually engaged in supporting one another. This includes valuing and engaging in community maintenance. It is argued that, mutual engagement affords sustained participation because it values reciprocity of investment. The participants in Case Study One indicated that through mutual engagement they established relationships of commonality and came to understand and value the others' participation. Their shared actions took on a greater significance because of their community membership.

At this point it may be helpful to revisit the definition of mutual engagement as provided in Chapter 3. At its most simplest it is defined as doing things together. However, it has a greater significance than just collective activity. It includes an element of reciprocity;

recognition of other members and how actions have socially negotiated meaning within the community. Mutual engagement is the basis on which relationships between the members is formed. Mutual engagement includes negotiating the diversity of members as well as understanding their partiality. In this sense, it defines the community's membership. Mutual engagement is to understand and value other members' engagement, including the work of community maintenance, that is, the formal and informal work that enables engagement. When members are mutually engaged they are not only taking action but also making sense of that action by reference to the social environment. Actions take on a unique significance which the members of the CoP understand and competently manage. In this way mutual engagement is both a way of making sense of the world as well as being an agent for community cohesion. It is argued that sustained participation, a characteristic of community cohesion, is afforded through relationships of mutuality, that is, reciprocity of engagement.

Reciprocity of engagement

Mutual engagement affords sustained participation because it values reciprocity. This is highlighted by P2 who commented: "The support I felt … when [they] made the effort to participate, yeah … that was really important because [they] made an effort to make mine work" (P2, Interview, 22/08/2005). This is further explained by P3 in regards to what helped sustain her participation:

> I felt support in that regard … just simple things that like being acknowledged by your questions being answered or your question leading onto someone else's question or something … Whereas, if all your posts were being ignored by everyone, then you'd feel unsupported. … I did actually feel supported because conversations were taking place and my posts were being acknowledged … They might not have answered my question directly but something else was said and it still continued the conversation on. … I didn't feel like I was being left out. (P3, Interview, 23/08/2005)

In this quote P3 indicates that she felt she was valued; a part of something important. Her membership of the community, that is, legitimate participation in the community, was being

acknowledged. This is also a good example of how mutual engagement is a socially negotiated understanding of the actions of others. Here, the actions of the other course participants in responding to P3's discussion forum posts were understood to be an act of support.

All of the participants valued the participation of others. However, they also understood that it was reciprocal in nature. Unless they supported the others, then they were not participating in what was valued. P1 explained: "If one person posts something on a discussion forum and no one responded to it, then it would be like, well, there's no team effort" (P1, Interview, 23/08/2005). Furthermore, all of the participants indicated that they felt at one time or another as if they had not participated as fully as they would have liked, and that as a result their perceived membership in the community suffered. This is explained by P1: "The fact that I didn't personally engage with [the others] as much as I could have, probably hindered the fact that I didn't form as many bonds … I didn't participate as much as I could have" (P1, Interview, 23/08/2005). Reciprocity of engagement means that participants understand that, in order to be a member of the community and be able to negotiate the centripetal practices of that community, they need to invest in mutual engagement. For instance: "Due to illness I was somewhat disengaged from the group participants for the first week and a half. However, I have actively tried to 'catch up' and pull my own weight in the group and now feel better able to have a voice in the group" (P5, Questionnaire). Here, P5 demonstrated her understanding of what was valued, and what constituted core membership.

It is not sufficient to simply post messages. This is indicated by P4 who noted that P3 posted a number of apparently disconnected messages to the discussion forum:

> Sometimes I was thinking, gee, I wish she'd participate more or, you know, get on board with us or have a joke … But then I changed my opinion, at the beginning I was thinking P3 was just doing this as an individual, not as a group but then she changed and, you know, was corresponding with us and so it all changed. (P4, Interview, 24/08/2005)

In this example, P4 equated participation with interaction. The example also points out that P4 was aware of P3's behaviour and had formed an opinion of what constituted community. Mere

posting was not enough. This is echoed by P5 who suggested that the course participants "moved from group to community, depending obviously on … the level of connectedness and that is direct participation" (P5, Interview 23/08/2005). Clearly, their sense of community was more than engagement; it involved mutuality that came from reciprocity of engaging with each other.

Reciprocity of engagement in supporting one another means that continued participation is valued in the sense of one action deserves another. However, it also plays a role in disengagement. An example of this is where P5's participation levels dropped in week six (see Figure 13) and was explained in terms of the other teachers' levels of participation also dropping: "that was the time when one of the girls had to run home for a funeral, one of the girls was about to go over to England, they also had Year 12 classes, they've also got marking" (P5, Interview, 23/08/2005). This downward effect on participation is also commented on by P3: "Sometimes I never bothered to post something concerning it even though the thoughts were going through my mind because I don't know whether they're going back again [to read the forums] anyway" (P3, Interview, 23/08/2005). The important point here is that mutual engagement is a process of reciprocity. When the members are mutually engaged it facilitates relationships and sustains participation. The participants found the interaction of others to be encouraging: "It was exciting. It was really exciting …getting on and seeing other people's responses and like looking at their questions" (P4, Interview, 24/08/2005). In regards to this research, mutual engagement provides some understanding of the synergistic relationship CoP has with sustained participation.

An example of reciprocity: a synchronous event

Mutual engagement is the basis on which relationships are formed and to some extent sustained. This was particularly evident in Case Study One when some of the participants (P2, P4, P5), as well as the facilitator, joined in a synchronous chat. The chat participants reported that they felt much more connected to each other. Furthermore, they also reported that this feeling persisted through to the end of the course. It is particularly worth noting that this "bond"

(P2, Interview, 22/08/2005) was reported by the participants as being due to the reciprocity of engagement rather than the synchronicity of the chat environment.

During the course P2 organised and managed a synchronous chat. She emailed all of the participants as well as the facilitator with an invitation to join her in exploring the functions of the chat environment while discussing whether technologies, like chat, can actually facilitate learning. In order to support the chat session P2 wrote and uploaded instructions (Figure 15) into the course content area. This is significant as it suggests P2 had taken ownership of the content as well as a lead role in coordinating the participants.
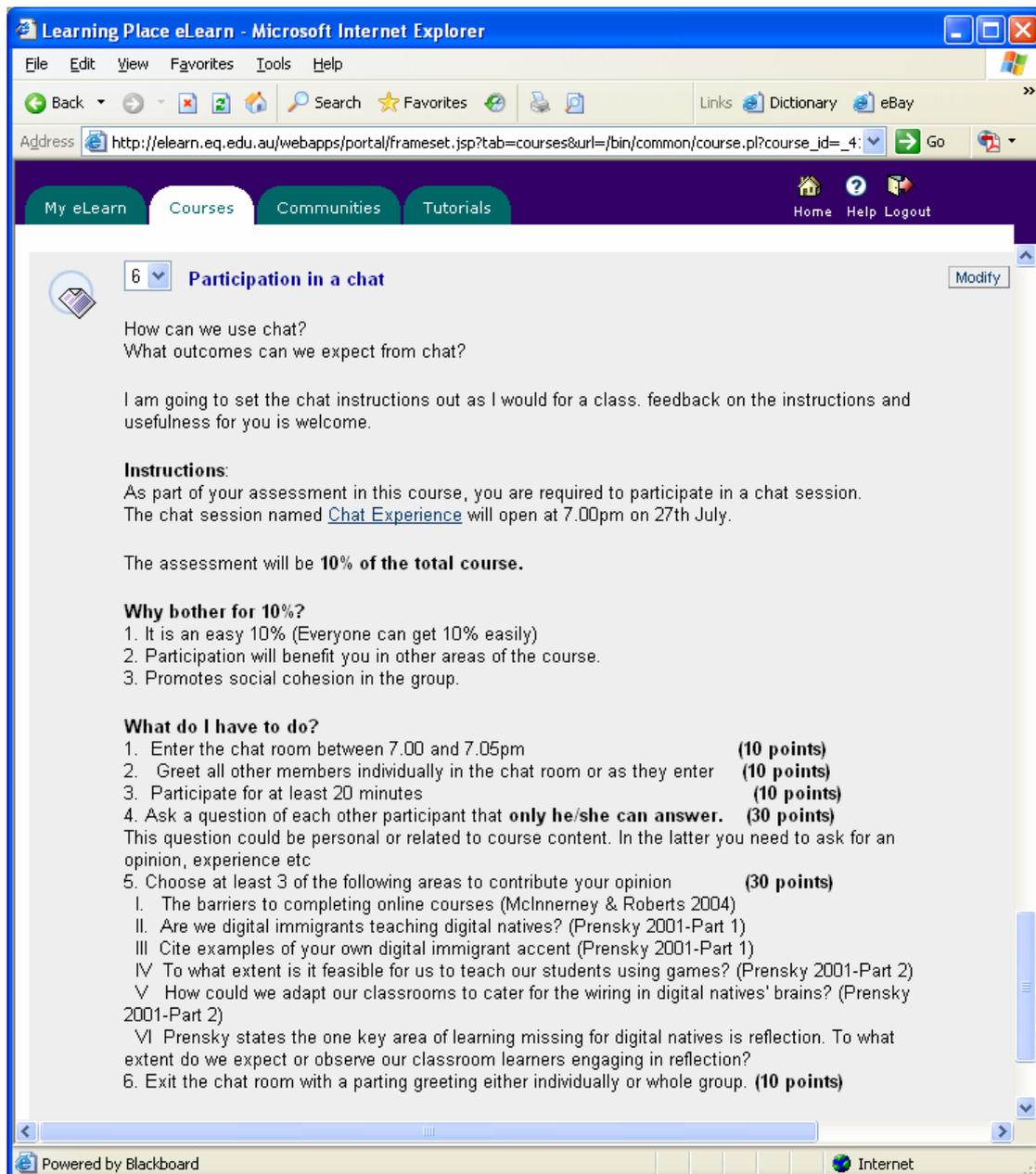
Figure 15. Instructions from P2 for participating in the chat session

From the facilitator's point of view, the instructions demonstrated an awareness of the

strategies and theoretical understanding of the application of synchronous tools in online

environments. However, it is also worth noting that P2 set up the chat so that the other

participants also learned about pedagogical issues surrounding the chat tool. She required the

participation of the others in her chat so that she could experiment with the technology but she

was also supporting the others by scaffolding the task so that they too would become

knowledgeable chat users. Appendix L includes an extract of the chat session, it should be viewed keeping in mind the high level of social or personal interaction as well as P2's efforts to steer the conversation to include pedagogical issues.

P2 explained that she felt considerable self-imposed pressure to make sure the chat session went smoothly: "I was the one who had to make it work. If I didn't have the chat set up it would stop everyone [from participating]" (P2, Interview, 22/08/2005). In the process of setting up the chat, P2 enlisted the aid of P4 the night before to practice using the chat tool, she also posted two messages on the discussion forum asking if anyone knew of a way to fix a technical problem she had encountered. It is interesting to note that she did not specifically call on the facilitator to help: "Sometimes I felt like emailing [the facilitator] directly because I knew [he] would always respond, but I thought 'No! I'll keep it out there so that everybody else can see the question as well'" (P2, Interview, 22/-8/2005). P2 was invested in mutual engagement. She placed value in both engaging with others, as well as their feedback.

Her efforts were recognised by P4: "P2 was quite nervous and I was nervous for her in setting up this chat. … She really wanted it to go well" (P4, Interview, 24/08/2005). P5 also commented on P2's efforts: "She's battled with it … and really worked hard" and that as a result P5 felt "appreciation that … P2 did that, all that work!" (P5, Interview, 23/08/2005). From a CoP perspective, both P4 and P5 had an understanding of what P2's efforts represented. However, this was also reciprocated by P2 who valued the participation of the others: "When [the facilitator], P4 and P5 made the effort to participate, in other words help me to succeed, I felt a much closer social bond" (P2, Interview, 22/08/2005).

Indeed, all three of the chat participants (P2, P4 and P5) reported that they felt a stronger connection with each other than any of the other participants. In addition the three participants cited the chat event as the reason for their connection. When asked why they felt closer they did not mention the synchronicity as being the cause. Rather, they felt the others had made a commitment, and as a consequence also felt a greater responsibility to support them through continued participation:

They're teachers; they still have the same demands [but] different levels and different times, they give it at night, I didn't want to, they didn't want to, [the facilitator] didn't want to, … none of us wanted to but, gee, it was fun. You know if you made that effort and got on, it was appreciated (P5, Interview, 23/08/2005)

The participants also commented that the informal conversation style of the chat session encouraged them to make personal connections:

I really got to know P5 because there was a time when she wasn't participating at the beginning … [But] the time I really got to find out who P5 was, was during the chats, you know, when she got on line for P2's chats and that's when we started just asking normal sort of questions you know, "How are you going?" And she came across as very caring and concerned and full of praise all the time. You know, she was 'good on you, this is really good'. (P4, Interview, 24/08/2005)

Both P2 and P4, who had high levels of participation in the discussion forum (see Figure 14), felt a stronger connection with P5, who had a comparatively low level of participation in the forums. P2 commented:

P5 participated in the chat … That's what's made me closer to her. … Whereas P3 and P1, because they were just all coming in bursts, [pause] I mean it's just that … instinctively, it was because she chatted … It took me so much effort to set up but P5 and P4 supported [me] … she sort of added that extra communication level and therefore seemed closer. (P2, Interview, 22/08/2005)

P2, P4 and P5 were convinced that their connectedness was because of the level of personal interaction afforded by the chat event.

Certainly, the extract from the chat session included in Appendix L indicates a high level of non-content orientated communication. Furthermore, this communication was of a supportive nature, including a question from P4 asking if anyone knew whether P1 and P3 were able to join the chat. The significance of the chat event in forming relationships was also noticed by P3 who stated: "I didn't partake in the chat which I think made a difference as well because there was sort of a cliquey thing happening for a little bit afterwards" (P3, Interview,

23/08/2005). Despite P3's high level of participation in the course (see Appendix I) she lacked this shared repertoire, that is, a history of mutual engagement in the chat, especially the social interaction it afforded.

The importance of the social or personal connection in mutual engagement was also pointed out by P4 who felt most connected with P2 and P5 because of the social forum and the chats. "You know, I think those two things were where you really got to know people. I mean, the others I'd love to work with as well, but [with] those two, I seem to have a stronger connection" (P4, Interview, 24/08/2005).

The chat event was an example of mutual engagement. It demonstrated the reciprocal nature of mutual engagement, where participation itself was seen as a valued commodity. Participation in the chat session was given meaning in terms of the support that the participants afforded each other. Furthermore, the ability to make social connections and participation at a more personal level were felt to be significant contributors to community membership.

Social engagement

The above example of the chat session highlights the value placed on engagement at a personal level by the participants. This kind of engagement was referred to by all of the participants as "social" and was used to describe interaction which did not have a course content focus. The term, "social engagement", has been used in this chapter in accordance with the participant's usage. However, from the CoP perspective the term "social" would apply to any mutual engagement because it necessarily involves the recognition of other members as the context by which actions are interpreted. While not forgetting this wider definition of "social", this chapter uses the term "social engagement" to particularly highlight the significance of non-content related, non-directed, and informal communication. However, it should also be pointed out that none of the participants defined "social" nor were they asked to do so. The reason for using the term social engagement despite its potential confusion is because all of the participants used the term "social" throughout the questionnaire, interviews and discussion

forums. It was reasoned that this communally-understood term should be used rather than try to adapt the participants' data to suit some other construction simply because it has a wider definition.

Sustainable relationships.

In Case Study One, all participants placed considerable value on social engagement in both the face-to-face day and in the online environment. This is reflected in participant engagement in the forums where 37% of all accesses and 32% of all posts were in the social forum (see Tables 12 and 13). Furthermore, I have argued that social engagement affords sustainability. This has been demonstrated by the way in which the synchronous chat event forged a persistent relationship, described as a "bond" (P2, Interview, 24/08/2005) or "connectedness" (P5, Interview, 23/08/2005), and which was sustained through to the interview which was approximately five weeks after the chat event (Interviews: P2, 22/08/2005; P4, 24/08/2005; P5, 23/08/2005). Clearly, the three participants of the chat indicated that they felt there was a connection between social engagement and sustained relationships and, by association, sustained participation. This finding is significant and is further supported by P4 and P3. For instance, P4 commented that she felt the social forum was valuable because,

you can support each other. … I think it's important that you get to know each other and that's, again, back to the [social forum] it's important to have something like that where you can because, in this instance, we weren't at the same schools and so we needed a way to get to know each other … I think that's very important. At the beginning, especially, … just as you would in the classroom, you spend time getting to know your students … and it's the same in a virtual learning environment, you've got to get to know your students and build that rapport and it will just keep going. (P4, Interview, 24/08/2005)

Here, P4 pointed out that social engagement builds rapport but also has an element of sustainability: "It will just keep going". This was also suggested by P3 with regard to the face-to-face training and, in particular, when the participants met at a coffee shop for lunch:

something that helped to build the relationship was definitely the face-to-face

beforehand, meeting these people beforehand because then you actually felt that there

was a connection … at the coffee shop, we'd just start chatting about whatever and then

that formed into a conversation, so you've got something to bond with because that is

then ongoing. It just sort of continued to exist … it seemed to still continue on through

the [discussion board]. (P3, Interview, 23/08/2005)

Clearly, both P4 and P3 argued that social engagement affords sustainable relationships. The

role of social engagement is further clarified by P3:

I mean, if you've got a connection with the person, it's easier to keep going with your

forum. It's good that you care about them, whereas if you've met them once for a little

bit and then make some sort of bond with only half of them, there's less of a care factor

involved so that way there's a chance of me dropping out completely as opposed to

actually trying to pick back up at the end. Make sense? Because if we walked out and

not done the lunch thing, there wouldn't have been much of an understanding. (P3,

Interview, 23/08/2005)

According to P3, social engagement facilitates a "connection" or "bond" which not only makes

interaction in the forum easier but also acts as a deterrent to "dropping out". This example

highlights again the significance of the social engagement during lunch on the face-to-face

training day.

Belonging and identity formation.

As explained in the methodology chapter, the face-to-face training day was designed to

facilitate "mutual relations of engagement" (Table 3, Chapter 3), that is, relationships based on

members doing things together. Certainly the interview and questionnaire data support the face-

to-face day and, in particular, the lunch break, as significant in establishing mutual relations of

engagement. All of the participants echoed P1 who stated with regards to the lunch: "[We] got

to see not only the teacher side of people but you also get to see the sharing side of people and

what's been happening in people's lives and that sort of thing and there's that camaraderie

that's established" (P1, Interview, 23/08/2005). In this example it supports the idea that social engagement leads to a deeper understanding of the participants and because of that generates a sense of belonging. Belonging, or membership, is an element of mutual engagement. Furthermore it reflects a perception of identity. In this regard mutual engagement is both an investment of practice as well as identity.

The lunch break provided an intensity of social engagement that was particularly powerful in impacting on identity formation. This process can be seen when P3 related one event during the lunch:

I definitely think having the lunch made a big, big difference [in our relationships]. Someone ducked outside to make a phone call so they missed most of the [initial] conversation and actually came in sort of half way through and you could sort of see by the look, I can't remember who it was, but the look on their face said, 'I've missed something haven't I?' and it was like, 'Yeah!' Something happened, but we don't know what, but there was some sort of connection that sort of happened there between the four of us who were sitting there. (P3, Interview, 23/08/2005)

Here P3 described a situation where one of the participants was perceived as being on the periphery of the community simply because she did not have the same history of social engagement. It is important to point out that P3's perception is not necessarily the same as that of the other participants. However, it does indicate that the social engagement during lunch was a significant contributor to her sense of membership. In addition, P3 goes on to argue that this membership or "community type feel" would facilitate the "on line discussions and things [to] develop a lot easier" (P3, Interview, 23/08/2005). In this sense social engagement has an important role of community maintenance.

Community maintenance through social engagement.

Community maintenance refers to the informal and formal work that members do which enables continued engagement. Wenger (1998b) argued that this investment in the well-being of the community itself is "the kind of coherence that transforms mutual engagement into

a community of practice" (p. 75). Wenger (1998b) cited an example of a worker whose selfless provision of snacks helped make the working environment more bearable and consequently contributed to building and sustaining the community. However, he also argued that community maintenance, which is the "specific coordination necessary to do things together, requires constant attention" (p. 75). In Case Study One the facilitator played a significant role in community maintenance as will be discussed later in this chapter. However, it was also clear that the participants were invested in community maintenance, particularly through social engagement.

Examples of community maintenance in Case Study One can be found throughout the discussion forums. For instance, P4 set up a discussion forum so that the other participants could discuss the next topic in the PD course without the conversation getting confused with other topics. This was work that benefited the mutual engagement of participants and was not solicited by the facilitator. Another example can be found in many of the forum post valedictions, such as: "Keep smiling- we are all good at what we do!" (P1, Discussion forum post) and "we all have our own methods that work for us and our students" (P3, Discussion forum post). These valedictions are inclusive, affirm participant identity within the community, and are overt attempts at maintaining relations of mutuality. In terms of community maintenance, they specifically mollify more academic and critical discussions of content.

However, community maintenance also refers to the work of social engagement in helping to sustain relationships of mutuality. An example of this can be seen where P5 pointed out that "the social forum helps [sustain relationships] because it gives us that okay to say, 'Hi, how are you?' and actually respond" (P5, Interview, 23/08/2005). Here, P5 felt that the social forum (a design feature and a community tool) legitimised community maintenance work. Social engagement provided an avenue for the community to respond and sustain its members' relationships. In the first seven weeks of the course, participants experienced bereavement, illness, school excursions, school holidays, as well as the full gamut of work demands including marking and moderation. However, through the support provided by the social engagement they could (re)negotiate their membership of the community as seen in this extract:

Um, when one of the girls had to fly out for a funeral … everybody made sure that they

had posted and … when I said I'd been ill, everyone [asked] "Are you okay?" And I

expressed at one stage that, um, I felt very intimidated and so forth by [their]

knowledge levels and everybody came on and tried to reassure that I would cope. And I

think I have coped. (P5, Interview, 23/08/2005)

In this quote P5 has perceived the PD course to be emotionally supportive and sustaining

participation. Her membership in the community was threatened by the barriers to mutual

engagement: her illness and lack of confidence. However her membership was renegotiated and

even legitimated by the supportive responses from the other participants. It is valuable to

remember that community membership is a characteristic of mutual engagement. It is

dependant on doing things together and being involved in what matters (see Table 3, Chapter

3). Consequently, barriers to participation risk membership. However, in Case Study One the

work of community maintenance through social engagement provided ways in which the

participants could continue to be a part of the CoP.

The PD course facilitated this, as indicated by P5 above, by providing spaces for social

engagement, and though legitimating the practice of supporting each other. The fact that

deadlines and tasks were driven by this design principle allowed P4 to be able to negotiate the

demands of her personal life with that of the course and still maintain her membership:

we did become close and I think that was evident … when I wanted to set up the chat

and then because of the family funeral and I had to cancel … just the support you know.

I was getting emails, you know, "Are you okay?" and "Is there anything we can do?"

That support, it was different from just, we weren't just course participants, we were

like a team and you know offering to help each other and I think P3 had to have

[experienced] the same sort of thing and you know we were all giving support and I

thought that was cool, I thought that was good. And that's more [like] a team, that's

what you do in a team. (P4, Interview, 24/08/2005)

Perceiving herself as part of a team indicated that P4 felt her membership legitimated despite

not being able to mutually engage in the course content. In this quote P4 also referred to the

support given to P3 for the "same sort of thing". This is a reference to a message posted to the social forum by P3: "(I don't wish to elaborate) I will be in need of a compassionate flight either to Brisbane or Sydney in the next couple of weeks. Can anyone suggest the best means to find one?" Her post did not include a salutation or valediction. Within four hours P3 was answered by P2 and P5, neither of them asked about the problem but both of them gave a practical suggestion. P3 posted a message of thanks the following day. Even though P4 and P1 did not post a message to P3 they both mentioned how they felt thankful that at least some of the participants had been online to support P3. This example of setting up a problem, finding a solution and understanding the significance of actions are characteristics of a CoP (see Table 3, Chapter 3). It is argued that in this example as well as those above, legitimated social engagement facilitated support of participants and was a key to community maintenance in Case Study One.

Although all of the participants engaged in community maintenance, P2 reported that she felt particularly conscious of the need to be proactive in supporting the others:

> I think I always participated so that, in terms of that, when somebody got on there'd be a new message because I find there's nothing worse than getting on with no message and no one there. It's like going to a party and no one's there! Um, so I did always try to participate so a message appeared but the quality of that, a lot of it was searching what I'm thinking. … Whether that made a lot of sense to other people, [pause] I mean some things might have been so trivial to them, so I don't know that that added much except that **my presence was there and hopefully helped keep the community together.** (Emphasis added; P2, Interview, 24/08/2005)

Although P2 thought the other participants may perceive her messages as being "trivial", P1, P3 and P4 commented on her messages, each saying they valued them for their academic insight as well as supportive tone. P2's awareness of others and community maintenance work was mentioned by P1, "I think she also showed a genuine interest in what people were doing. The fact that she said, 'P1 we haven't heard from you for a while' showed that … she'd paid particular attention to who'd been signing in and everything" (P1, Interview, 23/08/2005).

In this example P1 is referring to a message posted by P2 in week five with the subject heading: "We are missing you P1" (Discussion board). The body of the message went on to read: "P1, We haven't heard from you for a few days. Are you just snowed under or have you been unwell?" When asked why she posted this message, P2 said:

> Just to let her know, because she hadn't been in it for a while, she might think "Well no one even notices that I'm not there" but we still know that she's there and would like to hear something from her. And well, the obvious reasons are [being] snowed under which is probably more the case but P5 had been unwell and a lot of flu going around, she might have been unwell and then because she had something to come back with and be able to re-enter the conversation because it was directed at her. … It just gave her an in, something she could respond to straight away without having to think. (P2, Interview, 24/08/2005)

This demonstrates an understanding of the nature of social engagement as being both less effortful and as a means of legitimately participating in the community. In this way sustained participation is afforded by "the opening of peripheries that allow for various degrees of engagement" (Wenger, 1998b, p. 184).

In this instance, although P1 had been accessing the site (see Figure 13) she had not posted any messages in week four (see Figure 14). However,

> In response to P2's message entitled "We are missing you P1" (Discussion board), P1 posted an explanation that she was swamped with family and work responsibilities. She ended her message with, "Oh, and I am also snowed under with school (but who isn't). I promise to make more of an effort." The reference to school work, and the recognition that all the participants would have the same pressure, is an attempt to negotiate legitimacy within the community. Her promise to "make more of an effort" is also an indication that she understood the value placed on mutual engagement. Indeed several days later in week six, she made a significant contribution to the discussion board (Figure 14). In P1's interview she reflected on this series of events and commented: "[I] thought 'Oh God, people are noticing that I'm not in here,' I haven't done anything for a while so [I went] into this big frenzy of I have to do

something" (P1, Interview, 23/08/2005). Clearly, P1 valued the perception of the other participants and knew that mutual engagement was an important part of her membership. This also highlights the role of community maintenance through social engagement in sustaining participation.

Summary

Mutual engagement is one of the three dimensions of community cohesion which is characterised by sustained participation. Case Study One has supported the argument that mutual engagement affords sustainability. In particular, it has been argued that in this case study the participants valued reciprocity of engagement as well as worked to maintain the community through social engagement. Nevertheless, mutual engagement is not independent of the other two dimensions of community cohesion: joint enterprise and shared repertoire. Indeed, the discussion of mutual engagement has already touched on the way in which participants had a communally negotiated understanding of what was valued, and a sense of accountability to each other. These are characteristics of joint enterprise and are discussed in the following section.

The role of joint enterprise

Joint enterprise is one of the dimensions of community cohesion and has been described in Chapter 3. Since it is shown to play a key role in sustaining participation, it is worth taking a little space to recap some of its more salient features. Joint enterprise is defined as responding together to challenges, expectations, and goals that are usually prescribed by external forces. Joint enterprise does not mean that the community members must accept those goals but that they negotiate commonalities in their response to those demands. The enterprise is labelled "joint" because it is a socially negotiated understanding of what matters, what is important and what needs to be done. It describes a situation of mutual accountability, where members have a responsibility to each other and, as a result, both focuses and spurs

engagement. In Case Study One the participants reported a sense of accountability for each other's success. They felt a commonality of purpose in supporting one another and, consequently, this joint enterprise focussed their engagement and facilitated sustained participation.

Mutual accountability

In both the enrolment activity and post face-to-face questionnaire the teachers' individual reasons for participating in the PD course were consistent across data collection tools. For instance in both the enrolment activity and the questionnaire P1 stated that she was doing the course because it was a school priority and that it would benefit her career. In contrast, P2 indicated in both instances that she felt the course would be useful in tackling student retention. The full range of responses can be found in Appendix J, Question 1. The variety of responses is not remarkable, however, when the participants were interviewed in week eight they all confirmed their original motivations for doing the course but cited a sense of accountability to each other as the ongoing motivation for participation.

The participants had invested themselves in "supporting their fellow community members." However, this joint enterprise was not imposed. Rather it was encouraged by careful course design and facilitation. For instance, all the participants cited the initial face-to-face day as having a significant impact on establishing "commonality":

> We got to have a chat and got to see not only the teacher side of people but also … the sharing side of people and what's been happening in people's lives and that sort of thing and there's that camaraderie that's established, that commonality of purpose. (P1, Interview, 23/08/2005)

It has already been argued that the face to face training day helped to establish mutual relations of engagement. In order to succeed in the course the participants needed to support each other. Consequently, they found common ground and a common response expressed as a professional ethic in dealing with one another:

I guess it's something that you impose on yourself.… There's an unspoken etiquette … as to how you deal with things and how you support one another … to make something work.… It is, to a certain extent, a team thing. Like, if one person posts something on a discussion forum and no one responded to it, then it would be like well there's no team effort. (P1, Interview, 23/08/2005)

Another teacher commented that their main priority was, "keeping up and keeping on track and not letting everyone down" (P4, Interview, 24/08/2005). This sense of accountability to each other was a joint response to the tasks facing them.

Rather interestingly the same teacher, P4, also related how at one point she felt guilty about participating too much when she realised that she may be prioritising engagement in the PD course at the expense of her school work:

There was a time there that I looked on the discussion board and I looked at the task and nothing had been added and I remember feeling that really deflated sort of feeling thinking well, where is everybody? And that, because when I looked at it, I think at this stage I was the last person to have put, you know added on, there was only my messages on there that were new and I thought no one's answered, everyone's busy. And actually that made me start feeling a little bit guilty because I was thinking gosh they must all be doing school work and then you'd read the [social forum] and eventually there'd be someone saying it's pretty hectic at school and I'd think maybe I'm giving too much time to this. You know because there's just my messages there and maybe I should be doing school work instead like these other teachers. (P4, Interview, 24/08/2005)

Being a part of a CoP is having an understanding of the joint enterprise of that community, in terms of what is valued and what needs to be done. In this example, P4's membership has been threatened by a misjudgement of the joint enterprise. Consequently, by appraising other members' actions (or in this case, lack thereof) she renegotiates her sense of what is needed.

This highlights the point that joint enterprise is a socially dynamic process being constantly renegotiated by the community members. Consequently, community cohesion is

partly governed by a consensus of what is important and what is an appropriate response. This has a significant implication for course design and facilitation. In other words, the curriculum, pathways and outcomes cannot be completely prescribed. In itself, this is a fundamental challenge to all PD designers, trainers and funding bodies.

It has already been pointed out that all of the participants indicated an investment in the joint enterprise of supporting each other. In the case of P4 she felt that she was perhaps putting too much effort into the PD course, reconciling her understanding of what was needed, and what was an appropriate response. Another example of this is described by P1 who felt that her response was equally incongruous with the others and as a result realigned her sense of what is required:

> Week six, my motivation … was probably guilt fuelled more than anything … I felt as though I had to do something because I was letting people down and then, I mean, I'm aware of the fact that, when I read people's discussion forums, they'd been in there so many times and I thought, "Haven't these people got lives?" Get a life, what are you doing, spending 24 hours a day, seven days a week on the computer? So, of course, then I went oh I have to do something. I'd seen how much other people had put into it and I thought, "Well I can put in this too!" I can do this so, again, it did spur me along a little bit to be a little bit more motivated. (P1, Interview, 23/08/2005)

This example shows that P1 felt accountable to the others. In addition, P1's joint enterprise was re-negotiated by her perception of what the others were doing. Clearly, P1 felt overwhelmed by the others' response. However, P1 also showed a willingness to renegotiate her response. Her investment in the joint enterprise both focussed ("I can do this!") and engendered participation ("it did spur me along").

It is worth emphasising this point as it provides an explanation of the role of community cohesion in sustaining participation. Indeed, Wenger (1998b) argued that joint enterprise is both a source and direction for members' energy. This was certainly true for P1 and P4. It can also be seen in the mutual accountability of P3:

I mean, I knew in the end that the reason we were putting the posts up in the first place

[was] because they wanted to receive feedback from it. So if you look at the fact that

P1's put in that and then P4 has put in that and you've got all these people who are

making a serious commitment to this or, at least, trying to and then I've put in nothing.

It's like 'mm, feeling bad' you know and 'Hey, I'm not going to get my certificate

without it' so I guess, in the end it was, let's get these nailed … A bit of 'Hey, I'm

supposed to be part of this', better duck off and do the readings and actually participate

and a bit of personal obligation anyway. (P3, Interview, 23/08/2005)

P3 felt that she was not sufficiently invested in the joint enterprise, as indicated by her level of

providing feedback. She felt accountable to the others and consequently was motivated to

participate. It should also be noted that P3's joint enterprise of providing feedback reflects the

PD course design principle of "support your fellow community members".

The adoption of the course design principle as a joint enterprise is also highlighted by

P2 when she describes how she felt about the participation of some of the other teachers:

I could sympathize with them because I know what it would be like … P3 didn't have a

computer at home so [she] could only do it at school so it's just going to be right off

and she would have set aside time to do it. P5 [was] sick and P1 came in late. I don't

know what happened with P1. But obviously, they said to themselves, "I'm going to put

this on" and so it was a conscious effort, I feel, on their part to try to participate. … well

I've got to say something so I'll put something down … I'll put that there to say I've

taken part. (P2, Interview, 24/08/2005)

A sense of mutual accountability persisted for P2, despite the lack of participation by some of

the participants. Indeed, P2 interpreted the participation of the others as being more significant

because of the hurdles they faced and, consequently, she felt that she had to "keep it going so it

would work for them". However she was also clear that she was accountable "to myself and the

other people, not the instructor." P2 explained that the participation of the facilitator is

independent of what the participants do because a facilitator "would be there anyway, I mean

being a teacher myself, that's what I'm set up to do. So my commitment was to the others in the

course certainly more than the instructor" (P2, Interview, 24/08/2005). This suggests that the joint enterprise of supporting fellow community members did not pertain to the facilitator even though it will be argued later in this chapter that the facilitator was a community broker and, by definition, claimed at least peripheral membership in the community.

Mutual accountability is an understanding and a commitment to what matters and what needs to be done in order to achieve the joint enterprise. In Case Study One, all of the participants were mutually accountable to each other. For instance, P1 felt that she "had to do something because [she] was letting people down" and P2 argued that "you need to keep it going so it would work for them." P3 felt the others were aware of her level of contribution and it motivated her to continue: "It was almost like they were checking up on me." P4 commented that the most important motivation was "keeping up and keeping on track and not letting everyone down" Finally, P5 pointed out: "You're accountable to them as well, and their learning is reliant on your participation, so if you haven't participated then you know you've let them down" (P5, Interview, 23/08/2005).

The way in which the participants in Case Study One adopted the course design principle as their joint enterprise is partially explained by Wenger (1998b) who pointed out that mutual accountability includes a responsibility to not make life for the others any more difficult, "because they all understand that making their work … bearable is part of their joint enterprise" (p. 81). However, in this case study, the participants not only sought to avoid causing problems for each other but also actively supported each other.

Based on the data, it is argued that the participants were invested in joint enterprise. Moreover, the joint enterprise was characterised by mutual accountability in supporting each other and as a result both focused and motivated further engagement. This highlights the interdependence of mutual engagement and joint enterprise. While mutual engagement is the basis of community relationships, the work that is undertaken by the members is given meaning and purpose through the joint enterprise. Both mutual engagement and joint enterprise have been shown to afford sustained participation. The third dimension of community cohesion, shared repertoire, will now be considered.

The role of shared repertoire

Shared repertoire is defined as members resolving problems together (see Chapter 3). It is a set of shared resources that have evolved from mutual engagement in a joint enterprise and can be called upon to help further negotiate meaning (Wenger, 1998b). Shared repertoire is a socially negotiated and therefore profoundly unique understanding of routines, words, tools, ways of doing things, discourse, stories, gestures, symbols and actions of the community. Shared repertoire also includes the way in which members express their membership and identity. For instance, when a member relates an experience or explains a solution they are negotiating the legitimacy of their practice as well as their identity. To be able to competently use the shared repertoire to make meaning and to engage with each other is to demonstrate membership. Consequently shared repertoire is also a process of socially negotiated boundary formation.

This section will examine how a shared repertoire of engagement facilitated ongoing participation and how repertoire, as a reification of identity, acted to both encourage as well as debilitate member participation. In other words, boundary formation was shown to be both an aid as well as a risk to sustained participation.

The discussion board as object and medium of shared repertoire

The participants of Case Study One revealed that the discussion board was not only the place where most mutual engagement occurred but also a referential resource with which they made decisions, such as appropriateness of engagement. The mutual engagement of participants has already shown that the teachers as members of a localised CoP were invested in reciprocity of engagement as well as valued social engagement. In both cases the discussion board was a significant medium of this engagement. Similarly the discussion board has been shown to be the primary medium of the members' joint enterprise, that is, mutual accountability for supporting each other. Therefore it is not surprising that the discussion board is also a locus of shared

repertoire. It is important to point out that the messages on the discussion board were not erased, merely archived after several weeks. Consequently, the discussion board represented an enduring record of engagement, thereby becoming a powerful referential tool; a shared repertoire of the CoP.

Members could, despite lapses in engagement, use the discussion board to vicariously experience mutual engagement and re-establish centripetal participation. This can be clearly seen in the case of P5. After her initial illness, P5 used the discussion forum to begin to establish a sense of the community practices and re-establish her legitimate peripheral participation. Firstly, she used the social forum to apologise to everyone for her lack of participation:

> Hi to everyone, firstly I would like to apologise for not participating before this. As you may remember I was rather ill when we all met and have taken a while to recover. I hope the worst is behind me (only the dreaded cough remains). I must have been terribly out of it by the time we left the Uni because I couldn't even remember how to log on! The first week of school was a complete blur, even though I had spent most of the first week of holidays planning. My seniors have been in assessment, ATSIAP is next Wednesday (I will be away for three days) and my HOD decided to change my program for 10 SOSE (not happy but that's ok). Anyway I will try to get through as much as I can over the next day or so and catch up with everyone else. Again I am sorry for being absent. Hope you are all well and that the start of school has been a little more successful for you all. (P5, Discussion Board)

In addition to her apology, P5 attempted to re-establish her membership within the CoP by referring to their mutual engagement of the face-to-face training day. She also identified herself as the same as the others through her description of commonality in pressures on teachers. Secondly, her next post was in one of the content discussion forums and shows how she refers to the discussion board messages as a way of establishing further commonality.

> How ironic that I have just finished posting how 'dumb' I feel in the [social forum] to then find this [topic on social presence] in the next discussion forum. I have really

enjoyed coming online and reading posts from everyone - yes I feel quite disconnected but also connected at the same time (makes little sense I know). Reading posts in the coffee pot reminds me that I have met everyone here and that you are all actually really good people with a passion for learning and teaching - but you are all human too. I agree that there is no better feeling than seeing that someone has replied to your post (thanks P4 you made my day!). In the content discussion forums I have to admit to being overwhelmed - it just reminds me of how little I know. (P5, Discussion Board)

Although P5 does not heavily deal with the theory of social presence (the topic of the discussion) her reference to 'disconnected' and 'connected' shows some understanding as well as establishes a link to the previous message. This shows a level of competency with the content and, combined with her references to posts in the social and content forums, indicates that she has used the discussion board as a shared repertoire, using it to come to an understanding of the community practices and, in this example, has masterfully used it to project her identity as a peripheral participant of the community.

P5's self-deprecating comment, "it just reminds me of how little I know", may be considered a statement of lack of competency. However, I contend that, when it is taken in context of the entire message it shows an investment in the joint enterprise of the PD course: to support each other's endeavours. In the above quote, P5 supports the others with positive reinforcement such as "thanks P4" as well as acknowledges her limited content knowledge and, thus, also acknowledges the importance of being able to engage with the content.

During the semi-structured interview, P5 explained that she apologised because she knew both interaction and knowledge were essential to effective participation in the community:

Whether it's lack of interaction, whether it's lack of knowledge, it's just a natural guilt thing that you're letting someone down … You're accountable to them as well and their learning is reliant on your participation so if you haven't participated then you know you've let them down. So of course, you have to start with an apology because you feel guilty about it. (P5, Interview, 23/08/2005)

Nevertheless, despite P5's significant lack of participation in the PD course in the first two weeks she was able to re-engage with the legitimate peripheral practices of the community. The discussion board provided her with access to shared repertoire of the community. She confirmed this in the semi-structured interview:

> They were my explanation of what was going on. In the first two weeks, the first thing that I did was go to [the discussion forums] and go backwards that way so they were the first readings that I did. Anything that was mentioned in a forum, then I went back and of course, that's a stupid way because you're chasing your tail but I found that that at least gave me that link into well what are they talking about. (P5, Interview, 23/08/2005)

The discussion board, by providing that "link" to the mutual engagement in the joint enterprise of the community afforded P5 the opportunity to sustain her participation.

P5's strategy of using the discussion forum to guide her in addressing what was most important to the community was not as "stupid" as she suggested. After all, it seemed to work for her. In addition the same strategy was employed by P3 and P4. For instance, P3 claimed: "generally I'd end up looking at the discussion board going 'what have people read?', read those ones and then flicking back through the other summaries to find the things that interest me, and read those up" (P3, Interview, 23/08/2005). Her strategy clearly values the community members over the course content. This strategy was also used by P4: "I found that the first place I'd go to would be the discussion board" (P4, Interview, 24/08/2005). The discussion board, or more accurately the mutual engagement it reified, provided the shared repertoire by which the PD course requirements were achieved. This strategy is clarified further by P3 when she described a typical session of working on the PD course:

> Sunday morning eight o'clock, eyes barely opened, [check the] discussion forum: who has said what about what? Okay here's the perspective, here's the features that they were most interested in or wanted to discuss the most … I then went, I found the notes on that … got the main points out of it for now, copied off any topics that I wanted, followed the links that interested me, made my comments in the forum, then went back

and checked out okay these are the other ones that interest me … oh okay I get the

general gist of it, follow a few more links, oh yeah I'm getting a bit side tracked, let's

come back to [the discussion board] again. (P3, Interview, 23/08/2005)

Clearly the instructional content of the course is not the focus of P3's attention. She starts by

trying to gauge what the other participants feel is important through the discussion board. She

then goes to the content section of the course but returns to make her own forum contribution.

She then explores other topics of interest but finishes by returning to the discussion board,

presumably to contribute further.

The PD course participants and not the content design became the regime by which

mutual engagement was governed. This is shown by P5's ready acceptance of the value of co-

participant posting in the discussion board: "I enjoy the forum part because that really does spur

me like literally if someone said 'so and so said this', I would go and find so and so or try and

search for it so that I could catch up, or so that I could say oh okay, that's who he is and

understand their posting and try and [post a reply]" (P5, Interview, 23/08/2005). Both P2 and P4

agreed that they not only looked forward to seeing other participants' posts but also that those

posts directed their efforts in making meaning of the PD course.

P1 did not specify whether she first accessed the discussion board or the content,

however, she did highlight the way in which the discussion board was a focal point for her in

gauging the community practices before she attempted to participate herself: "It certainly gave

me an idea of the level of commitment that people were putting in. It gave me an idea of where

people were coming from … I like to see where people are coming from before I actually go

'Hey, how about this?'" (P1, Interview, 23/08/2005). Here the discussion board was used as a

reification of the community's values and allowed P1 to decide on how best to engage the other

community members.

The role of the discussion board as a medium of shared repertoire was further

highlighted by P1 who pointed out that:

I know I can keep going back in … that's where the value lies in that you can

continually refresh what you are doing by going back and having a look at what's in

there and what some of the feelings are behind it … you can remind yourself about

these things. (P1, Interview, 23/08/2005)

The discussion board provided a communal resource in understanding the content but also the "feelings" of the community members. In other words the discussion board is a reification of mutual engagement. Furthermore, P1 pointed out that this could be used to "refresh" practices. This certainly agrees with Wenger's (1998b) notion that shared repertoire as a history of mutual engagement is not immutable, but rather can be re-applied to make new meaning and new practices.

With regards to sustained participation, the discussion board as a locus of shared repertoire helped participants to maintain their mutuality of engagement through vicarious experience despite the asynchronicity of the medium.

Since the discussion board is asynchronous in nature and everything which the participants contribute is permanently recorded, the distinction between mutual engagement and shared repertoire is unclear. Members are making meaning of their world through engaging with each other but are also constantly creating communal resources through that meaning making process. The moment they post a message the community members are creating a record which simultaneously demonstrates their competency in using the share repertoire, and thereby reflecting their identity and membership within the community. This helps to explain that in Case Study One the participants found that posting messages to the discussion forum was not a risk free activity. This is further explored in the next section.

Reification of Identity

The participants of Case Study One necessarily had to use the discussion board for the majority of their online interaction. It has already been pointed out that the discussion board as a locus of mutual engagement has a unique characteristic of also being a permanent record of that engagement and consequently is also a process of engaging with and creating shared repertoire. This has a simple ramification, in order to participate in the course the participants

were forced to demonstrate their ability to use the shared repertoire as well as mutually engage with the entire community. Furthermore, the joint enterprise of supporting each other meant that they needed to interact online and could not lurk at the periphery. Indeed, it could be argued that using a discussion forum which reified every action forced participants to engage with the centripetal practices of the community. This also means that in every discussion forum message the participants were re-negotiating their membership and reifying their identity. As a result, in Case Study One, the participants reported some hesitation in participating and, consequently, it posed a risk to sustainability. However, this perceived risk also afforded a greater investment in the quality of participation.

This dual risk and affordance can be seen when one teacher described how she sometimes posted messages on the discussion forum but then immediately deleted them, she explained, "I didn't want to come across sounding silly and some of the things that were written [by the others] were really good" (P4, Interview, 24/08/2005). Consequently the P4 developed a strategy: "Often, I'd think really carefully before [posting]. I'd do a bit more reading and back myself up and then stick something on the [forum]" (P4, Interview, 24/08/2005). This also highlights the issue that shared repertoire is not only about negotiating practice but also membership. For instance, P1 explained:

> You feel as though you have to meet a certain standard and if you don't meet that standard then you could be judged as lacking and I don't like to ever feel like that. That's why I always like to go on and do the readings thoroughly and know what I'm doing before I go on and do something because I don't want anyone to ever think oh she's knows absolutely nothing. (P1, Interview, 23/08/2005)

Clearly, posting a message was perceived by P1 as a risk to her identity as a competent member of the CoP. Furthermore, all of the participants expressed their concern about posting messages which could show them to be less competent.

For instance, P4 explained how she felt that her participation in the discussion board decreased because of her growing lack of confidence in being able to mutually engage with the other participants:

There wasn't many responses there at the beginning and I felt quite confident in [adding my own posts], as people started responding to the content and the tasks and I was reading what they were writing, which sounded really, really good, I was thinking 'ooh, okay' you know and I backed off a little… I didn't feel as competent as they were coming across. (P4, Interview, 24/08/2005)

When there was little shared repertoire by which she could judge the level of participation, P4 felt comfortable in producing forum posts. However, she eventually gauged her participation by reference to the growing archive of mutual engagement, that is, the shared repertoire. It was a resource or benchmark by which she could judge her own participation. Instead of perceiving the discussion forum as an opportunity to participate at the periphery such as by testing out ideas and exploring the PD content she felt that she needed to engage at the same level as the other participants.

This is echoed by P1 who pointed out that she felt "fraudulent" if she made a comment in the discussion board which she could not defend: "I needed to have that information and do extra readings and everything so I was really confident about what I was going to say and why I was saying it" (P1, Interview. 23/08/2005). Indeed, P5 commented that she found herself constantly "trying to think of ways not to sound stupid … I tried but [but] how smart! They all know what they're doing and I know that they said they don't but they do and … I don't like being dumb" (P5, Interview, 23/08/2005). She goes on to explain:

I was scared to do it [post a message] … because you've got no one to pass it around to and say 'Is this okay?' before you publish it, because once it's on that site it's published. Yes we can access it, yes we can go back and we can change it but it's published. In order for it to be changed, somebody's looked at it and noticed that something needs to be changed so it's putting a bit of yourself out there. (P5, Interview, 23/08/2005)

In this quote from P5, as in the previous quotes from P1 and P4, competent participation in the discussion forum is shown to be personally significant. Their participation reflected on their competency and as a result their membership of the community. With regards to sustaining

participation P1 pointed out: "I think it can be a positive in that you can feel spurred to meet a certain standard but I think it can be a negative in that you're a bit hesitant about how you put yourself forward and what you say about things" (P1, Interview, 23/08/2005).

This hesitancy can also be seen in the way the participants expressed their doubts about their reading of the shared repertoire. That is, they were concerned that when they did post messages they would be misunderstood or be revealed as being inappropriate. For instance P1 shared her concern: "if there were things I wanted to comment on, you know, do other people see them the same way or would other people see them as valuable?" (P1, Interview, 23/08/2005). Similarly P2 commented:

> You'd think, 'Well what are people going to think of this?' … You sit at home and you think, 'Mm, have they read this or will they understand this?' … You don't know where they're at with the reading and what their understanding is and, because it's not synchronous then they might read it who knows when. (P2, Interview, 24/08/2005)

Both P1 and P2 were concerned that they could not competently draw on the shared repertoire to make meaning of their engagement for all of the participants. Furthermore, P2 went on to point out that as a consequence she was more likely to respond to others than explore her own interests. Here, not only does the use of the discussion board as a means of shared repertoire risk disengagement, and thereby sustainability of participation, but also it also threatens the independence of the participants.

The reification of identity by posting to the discussion forum threatens sustained participation but also affords greater investment in mutual engagement. All of the participants agreed that although they felt concerned and sometimes hesitated in posting messages they also went out of their way to post messages that would be valued and meaningful to the other participants. For example:

> We always felt that it was our fault if we didn't get many responses in the discussion group, in the discussion forum. You know maybe I've worded my question wrong or maybe they don't understand what I'm raving on about and then, after a while, if you didn't see any responses, you'd think, maybe I wasn't even supposed to write that. I

know I felt like that with the there was one I'd read in the readings too, you know now

I've posted a thread or something about this topic I can't remember what it was and

you know, when I didn't get many responses I was thinking maybe I wasn't really

supposed to do that and so I re-read everything. (P4, Interview, 24/08/2005)

In this example, when P4 did not receive any posts in response to her own then she doubted the

legitimacy of her engagement. Instead of disengaging she invested more effort. It is interesting

to point out that in this quote P4 did not seem to consider the possibility that the other

participants were at fault.

Indeed, P4's perception of the other participants as being more capable than her is a

common theme which presented itself in all of the participants' semi-structured interviews. This

is a good example of how the standard or legitimacy of practice is negotiated by the community

members themselves as opposed to being defined by the course facilitator or course designer.

For instance, all of the participants thought that P3 was already highly skilled because of her

computer experience:

I actually felt a little bit intimidated by her to start off with because she knew so

much… and, in the first couple of weeks, she was really in there and she was making

all these comments and I thought, "Oh my God! I feel like a real dunce in comparison

to what she said!" (P1, Interview, 23/08/2005)

Similarly, P5 argued that "P3 knows the ins and outs, she knows the technical components and,

if she doesn't, then she knows enough of the language discourse to fool everybody else into

believing she does" (P5, Interview, 23/08/2005). In addition P2 and P4 also felt that P3 had

greater knowledge than they did. However, this perception was not limited to P3. Throughout

the interviews all participants made general statements such as:

Sometimes I'd put my response on the discussion board or I'd do my task and then I'd

worry about what the other people thought because you know sometimes they'd use

these you-beaut academic words and I'd think "Wow!", you know my stuff isn't that

good really. (P4, Interview, 24/08/2005)

Based on their statements it is apparent that the participants respected the others' contributions and were concerned that their own postings would not be similarly received. The discussion board was a source of shared repertoire and raised the stakes in participation through reification of identity. This is despite a general awareness by the participants that those identities reified through the discussion board were selective representations of the people. This was explained by P5 who compared her relationship with the PD course participants and her school colleagues:

> I do like my peers at work but I do think that [the discussion board] doesn't allow that personality stuff to get in the road and so it's like any relationship on the net, **you only get to see the good stuff**, **the stuff that people want you to see** … it just allows you to be nice to people all the time and see the good things. (Emphasis added; P5, Interview, 23/08/2005)

In this example P5 pointed out that she was aware of how the discussion board was used by participants to selectively re-present themselves and consequently reify their identities. The participants judged and interacted with each other based on that reification. They each worked to present themselves as supportive and knowledgeable colleagues (as shown throughout this chapter) and this participation was then reified through the discussion forum. In this way they socially negotiated their identities as well as boundaries of membership. In order to be able to mutually engage the participants needed to establish their identities, use the shared repertoire to project their identities, that is, legitimate their participation.

Since all participation in the discussion board was recorded it meant that every posted message risked participants' identity and competency as members. For instance, it was apparent that the participants considered the postings of others to be of high quality and in comparison that their own postings were at risk of not meeting that standard. Indeed, all of the participants mentioned how they were reticent to simply agree with the others' comments, but instead they had to contribute something more to the discussion. For instance:

> You'd read people's comments and sometimes some of the comments they'd put were things that you would have said yourself so what's the point in repeating the same

thing? You know because then it sounds as though oh well she's just repeated the same thing that so and so had said so you know you don't want to sound as though well yes, I think the same thing as you. (P1, Interview, 23/08/2005)

All of the participants felt that it was inappropriate to simply agree with a previous posting. The participants had a socially negotiated understanding of what is appropriate in participating in the community. Indeed, the reification of identity in Case Study One was a key element in setting the tone and standard of engagement. This was emphasised by P4 who stated: "you'd be worrying about what the other people think more than anything" (P4, Interview, 24/08/2005). The approval of others was a significant driving force: "They're really important in the same way that peers are important in anything else; they give you validation" (P5, Interview, 23/08/2005). This was made all the more critical because the majority of mutual engagement was recorded and became shared repertoire through the discussion board.

The facilitator as community broker

This chapter has mainly focussed on the interaction between the PD course participants with limited commentary regarding the role and impact of the course facilitator. This was not to suggest that the facilitator should not be considered when examining the role of CoP in sustaining participation. The discussion of the facilitator's role has been left to the end because it is distinct from the role played by the other participants. As this chapter has already shown, the participants were invested in each other. Their reciprocity of engagement, social engagement, mutual accountability, and reification of identity were reported in relation to each other and not in relation to the facilitator. It will be shown that while the facilitator had a significant impact on their practices he remained at the periphery of the community.

The peripherality of the facilitator was evidenced in a variety of ways. For instance, in the post face-to-face questionnaire P1, P2, P3, and P4 indicated that they considered the participants more than the facilitator when posting messages to the discussion board. While P5 had a different perspective in that she considered the facilitator when posting messages she

nevertheless thought of him as another course participant and felt obligated to all the participants to interact and learn (see Appendix J). During the semi-structured interview P5's perspective was further clarified. She pointed out that she felt the facilitator "answers everybody regardless [trying to] integrate all of us" (P5, Interview, 23/08/2005). This suggested that the facilitator acted as a broker of mutual engagement.

Through the facilitator's participation P5 found a way in which she could relate to the others. Indeed, on three occasions during the interview she pointed out that she felt the facilitator acted as a "common friend that keeps us together" (P5, Interview, 23/08/2005). However, as has already been discussed P5 like all of the participants felt accountable to the other participants, not to the facilitator. This was explained by P2 who said she felt accountable "to myself and the other people, not the instructor … [because he] would be there anyway" (P2, Interview, 24/08/2005). The facilitator's engagement was not dependant on mutuality, nor was his investment the enterprise a socially negotiated response. The facilitator had his own agenda and the participants were aware of it. The facilitator was a peripheral member of the community, supporting its cohesion through participation but not seen as mutually engaged in the joint enterprise.

According to Wenger (1998b), brokers are members of multiple communities of practice who help members of one community engage with the practices of another community. They are participative agents working with CoP members, influencing mutual engagement, joint enterprise and shared repertoire. However, Wenger (1998b) also pointed out that brokers generally remain at the periphery of a CoP since they cannot engage in core practices while at the same time forming bridges between communities. It precludes the broker from becoming a full member; he cannot fully invest in mutuality of engagement, nor can he fully understand the joint enterprise or equally share in the repertoire. However, brokering "requires enough legitimacy to influence the development of a practice, mobilise attention, and address conflicting interests" (Wenger, 1998b, p. 109). It has already been shown that the facilitator in Case Study One participated at the periphery of the CoP. However, it is also argued that he had enough legitimacy within the CoP to act as a broker.

In Case Study One the facilitator acted as a broker of new practices in the CoP. For instance, the facilitator as a member of both the global teaching community as well as the sub-community of teaching online introduced Salmon's (2000a) types of online users as a useful framework by which teachers could understand and respond to student online behaviour. However, it was the participants of Case Study One who then used this information to form their own practices, beyond the intention of the broker. Salmon's (2000a) types of online users was adapted by the participants to reflect on their own behaviour and became a shared repertoire of identity when interacting with each other. This is an example of how the facilitator acted as a community broker of online teaching practices. However, the focus of this research is on the role of CoP in sustaining participation. Consequently the remainder of this section will focus on how the facilitator brokered practices that afforded community cohesion.

The course facilitator brokered not only online teaching practices but also ways in which participants could establish mutual engagement, joint enterprise and shared repertoire. In particular, the facilitator legitimated their participation which provided the context by which they could mutually engage in the joint enterprise. The facilitator also brokered mutual engagement, joint enterprise and shared repertoire through facilitating community rhythm.

Legitimating participation

In order to engender mutual engagement between the participants the facilitator needed to ensure that the participants not only did things together but that they were empowered to negotiate meaning from that engagement. In other words, the participants needed to feel that they were sharing in a meaningful activity rather than simply doing things for the facilitator. Consequently, the facilitator needed to legitimate the participants' engagement but at the same time remain at the periphery.

One way in which the facilitator legitimated participation was by accepting and responding to all participant engagement in a supportive and peer-like fashion. In other words, valuing participant contributions as a fellow learner rather than commenting upon them as an

expert. It has already been pointed out that P2 and P5 felt that the facilitator was a constant supportive presence throughout the course. Indeed, this was a view held by all of the participants and was valued for the encouragement they derived from it, for instance: "[He was] always there to give feedback, to give support, to just motivate people and keep them going" (P1, Interview, 23/08/2005). The facilitator was seen as a motivational force, maintaining participant engagement, he kept, "the course going [by] providing the information, supporting, [and] helping" (P2, Interview, 22/08/2005). However, the facilitator as broker did more than afford sustained participation through supportive feedback. He actively worked to broker mutuality of engagement.

It has already been pointed out that the course was designed to provide opportunities for participants to mutually engage. The PD course tasks were designed so that they could only be completed by negotiating meaning through the engagement of others. However, the course design also relied on the facilitator to reinforce this emphasis on mutual engagement. For example, during the face-to-face training the facilitator explained that it was important that all of the participants interacted as only through articulation and sharing of ideas would they be able to help each other sift through the content to find what was most useful to their teaching contexts. The facilitator's understanding of the practices could not be directly applied their identities and contexts. From a CoP perspective it was important that they engaged with each other to make meaning of the new practices. As a result the facilitator explained that he would purposely limit his participation in the discussion board and it was up to the participants to support each other. Consequently, the facilitator did not create content forums or threads. He limited himself to posting messages only when several participants had already participated or when the rhythm or focus of the discussion required support.

Not only did this purposely marginalise the facilitator but it also meant that he did not have to respond to each posting, resulting in a sustainable pattern of engagement which the facilitator could maintain over the weeks. Consequently, while the facilitator's participation was assured, the focus was firmly placed on the teachers to engage with each other. The frequency of participant and facilitator discussion forum posts is illustrated in Figure 16.
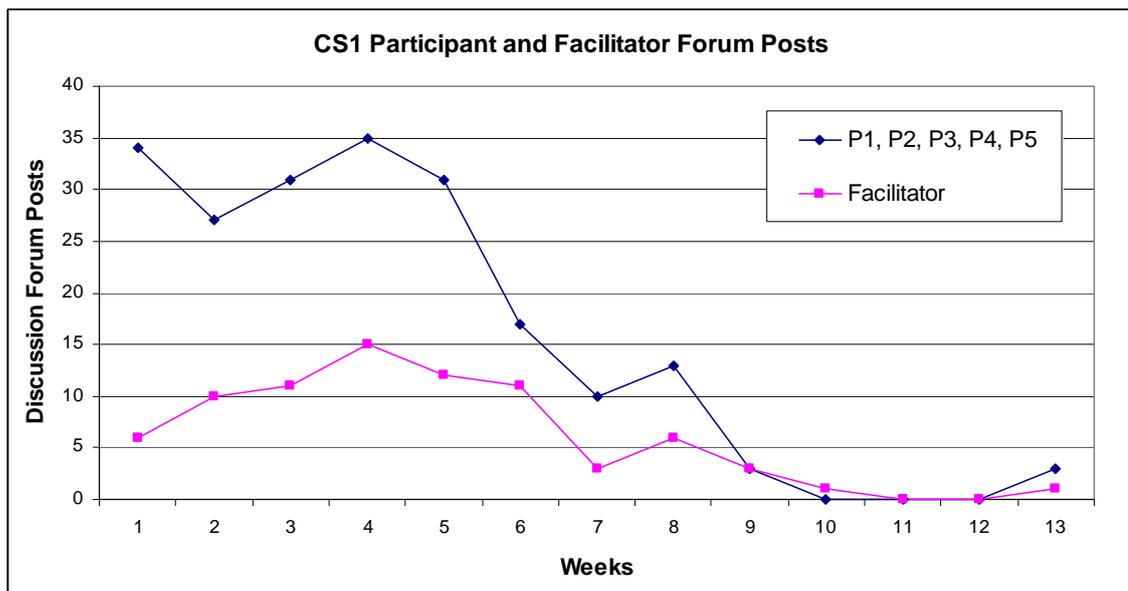
Figure 16. CS1 participant and facilitator forum posts over time.

Figure 16 shows a similar pattern of forum posts over time between the participants and the facilitator. It is important to point out that the facilitator's frequency of posts was a result of the frequency of the participants' posts, and not the other way around. The reason for aggregating the participants' forum posts was a reflection of the role of the facilitator in supporting the community's engagement, rather than supporting individuals.

The similar pattern is indicative of the facilitator's role in being supportive but also remaining at the periphery of the community. When P2 was asked if she felt the facilitator dominated the course she answered: "No! The [facilitator] has to give you the materials and has to try to keep it flowing, but [he] certainly didn't dominate" (P2, Interview, 22/08/2005). This quote also refers to the facilitator's role in maintaining community rhythm which will be discussed later in this section.

When the facilitator did post messages they were inclusive and tried to relate different perspectives. This was commented on by P5 who pointed out that the facilitator, "Answers everybody regardless, [trying to] integrate all of us" (P5, Interview, 23/08/2005). The practice of being inclusive was adopted by the participants as indicated by P2 who stated: "Sometimes I felt like emailing you directly because I knew you … would always respond but I thought no,

I'll keep it out there so that everybody else can see the question as well" (P2, Interview, 22/08/2005). The investment in mutuality of engagement was also confirmed by P4 who stated:

> If I was having problems, I would ask … other participants in the course, not [the facilitator], when it would have been easy to say, 'Michael, you know, I can't seem to make it do this' but I found that I'd ask P2 or I'd … send an email to P1 … that was happening to a couple of us. (P4, Interview, 24/08/2005)

In these quotes P2, P4 and P5 recognised the facilitator's legitimacy of participation in the community's practices but also clearly positioned him at the periphery of membership. One participant stated: "Although [the facilitator] was very approachable we still felt that… we could do this, we could do it ourselves" (P4, Interview, 24/08/2005). P4's comment specifically excluded the facilitator from the rest of the community ("ourselves"). Nevertheless P4 also recognised the legitimacy of his peripheral participation and in the following quote indicates how the facilitator's participation legitimised her own participation.

> I've talked to … others participating in the course and they also liked [how] you would say, 'us teachers' … and like you are so much like higher than us really … but you never let us feel that. Like you never put yourself above us, you'd always go 'us ordinary teachers' and … that relaxed us all … I never felt silly, you never criticized what we wrote … that made us I think more confident, … that we could do this and we always felt that we were going to succeed, we were going to do this. (P4, Interview, 24/08/2005)

In this example, P4 felt that her contributions were legitimated. The course facilitator acted as a broker, providing a bridge between the global teaching community and the community of course participants. By supporting, rather than criticizing, P4's contributions she felt that her membership was legitimated, and that she could better understand and engage with the community's practices.

According to Wenger (1998b) community rhythm is the means "by which communities and individuals continually renew themselves" (p. 263). A constant rhythm of engagement affords a sense of purpose, however if the rhythm is too fast people can stop participating because they feel overwhelmed (Wenger et al., 2002). On the other hand if the rhythm is too slow individuals can feel "out of sync" and the community "can easily slip from people's consciousness" because of the lack of mutual relations (Wenger et al., 2002, p. 129). As pointed out in Chapter 3, distributed communities are at particular risk of members feeling disjointed because of the reliance on asynchronous communication. For instance, it can be days before a discussion board post is answered. Consequently one of the tasks of the facilitator was to maintain a community rhythm.

An example of community maintenance was when the facilitator posted a weekly summary of what had occurred and what needed to be done. In the following email (Figure 17), sent by the facilitator, it is interesting to note that the need for continued engagement is justified in terms of supporting one another, and not in terms of appeasing the facilitator or meeting course requirements.

Dear P1, P2, P3, P4 and P5,

It is amazing how long it takes to get things done in a virtual environment. Because we work asynchronously we can never guarantee that someone will pick up our message and reply before we next log in. However, don't despair if you feel left out. Here is a summary of what's been happening and what you need to do:

Layer 2 is nearing completion. Please make sure you have scanned the following excellent content by:
- P5 - Structure: Consistency and Flexibility
- P3 - Cognitive Load Theory
- P2 - PARC principles

They have made a superhuman effort to summarise some very detailed theories.

Also make sure you do the Content Usability test created by P4. I got one question wrong!

And finally, join in P1's discussion about which of the strategies are most valuable.

Keep giving each other support. We (and I mean 'we') are learning so much more about learning online than we could ever achieve by simply doing a few tasks in a computer lab. I like what I see! Many of you are already part way through Layer 3 and there are some very interesting discussions, both in terms of content and tangential conversations.

Regards
Michael

Figure 17. An email from the facilitator to the participants at the end of week 2.

In the above email the participants were encouraged to engage with the content and activities produced by the participants themselves. The content provided by the facilitator and course designer was not mentioned. The weekly email was a mechanism by which the facilitator encouraged community rhythm but also mutuality of engagement. P3 commented: "Having it coming through email, for me, was a really big thing … It reminded me that they were out there" (P3, Interview, 23/08/2005). The weekly emails reminded P3 of the community, preventing it slipping from her consciousness. This was helped by the fact that the emails were sent directly to the participants who accessed their emails on a daily basis. Indeed, P3 explained that checking her email was the first and last thing she did each day and as a result the weekly email was something that she couldn't easily ignore.

Email was a particularly useful tool in community maintenance. It was used to address individuals as well as the entire community, encouraging engagement, brokering mutual accountability and sharing repertoire. For instance, the facilitator sent the following email to P1:

> Hey P1, I notice that you've added a discussion forum. Now use the email function in Blackboard to email all the others that the discussion forum is ready. Otherwise they may not notice it for a few days. Kick them off with a clear question. Michael.

This brief email indicates an expectation that P1 needs to support the others engagement by also letting them know about the forum as well as giving them a way in which to start engaging with the forum through a "clear question". The facilitator tried to support community rhythm by not only encouraging individual participants to engage, but also by helping them engage the others.

During the course the facilitator monitored participant engagement by using the online records of participant access. He also maintained a record of what tasks participants had completed and what they had yet to do. When participants were absent from the course for a period of time the facilitator would email them in an attempt to help them rejoin the community. For instance:

> P5, how are you? I hope your cold has not worsened. I notice that you have not logged onto the IOL course since last Monday. I am concerned that you may be experiencing some problems. By the middle of this week you should have started Layer 2 of the course. The discussion forums are filling up and I don't want you to feel left out. (Email from the facilitator to P5)

After several days, when P5 had not replied or participated in the discussion board, the facilitator then sent the following email:

> Hi P5, I hope you are well. I am concerned that you have not logged into the course since the 16th. The others would benefit greatly from your participation. (Email from the facilitator to P5)

After these emails P5 replied to the facilitator that she didn't know where to begin and that she felt too far behind the others. However after an encouraging email from the facilitator with the advice that she should post a message to explain her absence and ask for help in picking out the

most important issues so that she could catch up. She not only took this advice but, as already shown, felt considerably supported by the response:

> I expressed at one stage that, um, I felt very intimidated and so forth by [their] knowledge levels and everybody came on and tried to reassure that I would cope. And I think I have coped. (P5, Interview, 23/08/2005)

In this example the facilitator's suggestion that P5 post a message about why she was absent emphasised how mutuality of engagement was important. Furthermore, it was an example of shared repertoire, that is, by posting an apologetic message P5 encouraged responses and as a result could renegotiate her identity within the community.

During the semi-structured interviews P1, P3, and P5 mentioned that the individual emails sent to them by the facilitator spurred them to re-engage with the community. For example:

> The emails that you were sending out: 'Hello are you still alive?' Well …. having those emails out there, [and] me being, I can't remember what the character was for that animal that sort of made me the sort of shy type person. Was it the mole or gopher? Something like that yes, that burrows themselves away and you've got to drag them by the tail back by sending emails and stuff like that. (P3, Interview, 23/08/2005)

Here P3 points out that despite her tendency to burrow herself away the emails sent by the facilitator spurred her to re-engage with the community.

Even though P2 and P4 did not refer to these emails in the semi-structured interview, it should be noted that when they were sent similar emails during the course they immediately acted upon the facilitator's advice. For instance, at one point it became apparent that P4 had not completed a task and risked being out of sync with the other participants, as a result the facilitator needed to get P4 to not only re-engage with the community but also to complete her task so that the other participants could benefit from it. If she left the task too late then it would be less likely that the other participants would engage, and as a consequence threaten mutuality. As a result the facilitator sent the following email:

Hey P4, how are you going with creating the quiz? It would be great for the others to be able to complete it around now since they should be finishing the Layer. Regards, Michael. (Email from the facilitator to P4)

In response P4 clarified that she had created the quiz but put it in her own virtual space. This resulted in her notifying all of the other participants where the quiz could be found. In this example, the facilitator's email helped to maintain the community's rhythm.

It should be noted that the emails sent by the facilitator emphasised the need to engage with each other. Even when reminding participants about unfinished tasks the facilitator emphasised the importance of the tasks in terms of supporting each other. Indeed, all of the participants reported in the semi-structured interview that they felt the tasks were something valued by the community and not simply an exercise in "jumping through hoops" (see Question 15, Appendix H).

The facilitator also helped to maintain the community rhythm by brokering shared repertoire in engagement. It has already been mentioned that the facilitator encouraged P5 to post a message to the social forum explaining that she had been absent due to illness and to ask for help. The practice of fore-warning and apologising for absences was adopted by the participants and helped to maintain a sense of rhythm. This was explained by P3:

Because I saw the other guys doing it … I also felt obliged … P5 started it because she was crook at the face-to-face and then for like the week afterwards, she didn't join in or anything like that and then came back and went, "Sorry I was sick." So I just kind of went "Well yeah" and I guess she set the precedent that, if you're away, you apologise and give some sort of reason for it. It's the same with [the facilitator], I mean we wouldn't have noticed if [he'd] ducked off for a week and didn't put any posts up. Because [he was] continually telling us "Oh I'm going to be away, I won't be able to communicate over the next three days" … it was sort of like, oh well, we need to tell each other when we're actually going to be available. So I guess between [the facilitator] and P5 they sort of set the precedent of yeah, something needs to be said and I was just following that generic structure that had been set. (P3, Interview, 23/08/2005)

All of the participants used these simple community maintenance practices. They supported continued engagement by providing an understanding of the community's rhythm. The pace of engagement varied from week to week but through the facilitator's efforts the community did not slip the participant's consciousness.

Conclusion

Part one of this chapter described the teachers' participation in the PD course. It was shown that the teachers attended the face-to-face training and engaged with the materials, each other and the facilitator electronically for a period of between six and thirteen weeks. This is of particular interest since the course was designed to be completed in four weeks. Not only did all of the participants successfully complete the course but their participation was sustained over time. However, the participants were also shown to have varied in their participation levels, with some participants not interacting online for extended periods of time.

The participants were shown to have valued the relationships forged during the face-to-face training day. In particular, they reported that the lunch break was effective in establishing a sense of commonality and was the ground work for mutual accountability. During the remainder of the course the participants engaged with each other primarily through the discussion board. They also used email and, in one instance, chat. A common theme was the high value they placed on social engagement. Approximately one third of all discussion board posts were in the social forum. Clearly social engagement was significant. The participants also indicated that, even when they were not actively engaged in the course online environment, they continued to engage with the PD through their own implementation, reflection and planning.

Part two of this chapter devoted itself to applying the theory of CoP to understanding this pattern of sustained engagement. In particular, it was argued that since a cohesive community is characterised by sustainability that the model of community cohesion should be used to structure the analysis of data. As a result, part two of this chapter spent time reviewing the community cohesion model and then closely examined data from Case Study One in terms

of mutual engagement, joint enterprise and shared repertoire. Finally, the chapter also considered the role of the facilitator as a broker in community cohesion.

It has been argued that Case Study One demonstrated the characteristics of community cohesion. The participants were members of a localised CoP; mutually engaged, accountable to a joint enterprise and competently making meaning through shared repertoire. Furthermore, their investment in mutual engagement, joint enterprise and shared repertoire were shown to be processes which afforded and even stimulated ongoing participation. It was posited that this localised and coherent CoP was supported by the design decision to base the course on the need to "support your fellow community members". It was also argued that in Case Study One, sustained participation was not simply a product of community cohesion but was itself a centripetal practice of that community. The participants were mutually engaged in the joint enterprise of supporting each other and consequently sharing repertoire that facilitated the participation in, and reification of, that core practice.

Mutual engagement as a dimension of community cohesion was shown to play a valuable role in sustaining participation. The participants in Case Study One displayed a keen awareness and emphasis on reciprocity of engagement. The participants valued the effort that other members invested in participating in the course and were encouraged to continue participating for that same reason. They had a communal understanding that participating in the course was an affirmation of their membership. Reciprocity of engagement was synergistically linked with sustained participation. When participants engaged with each other they encouraged reciprocal engagement. However, when the rhythm of the community slowed and participation was irregular or sparse the participants also felt less driven to participate.

Mutual engagement was also shown to be driven by social engagement. The participants indicated that they felt there was a connection between social engagement and sustained relationships and by association sustained participation. An example of this was described where the relationships formed in the synchronous chat activity were reported five weeks after the event to still be significant in defining participant relations of mutuality. It was shown that throughout the course the participants used the social forum to negotiate

membership and demonstrate belonging by supporting one another through illness, bereavement and other problems. It was argued that in Case Study One social engagement played an important role in community maintenance.

Joint enterprise is the second component of community cohesion, and has been shown to have had a significant role in sustaining participation. In particular, the joint enterprise of the Case Study One participants was characterised by mutual accountability in supporting each other and as a result focussed their engagement and facilitated sustained participation. Mutual accountability is an understanding and a commitment to what matters and what needs to be done in order to achieve the joint enterprise. In Case Study One all of the participants were shown to be mutually accountable to each other. Examples were given of participants feeling guilty when they had not participated for some time and, as a result, were not only motivated to keep participating but also were focussed on engaging with each other and thereby demonstrating their support.

This highlights the interdependence of mutual engagement and joint enterprise. While mutual engagement is the basis of community relationships the work that is undertaken by the members is given meaning and purpose through the joint enterprise. Both mutual engagement and joint enterprise have been shown to afford sustained participation.

Shared repertoire is the third dimension of community cohesion and was shown to have both afforded and threatened sustained participation in Case Study One. Since the majority of engagement was via the discussion board, which is permanently recorded, it afforded ways in which the participants could maintain their community membership despite periods of inactivity through vicarious experience of mutual engagement. Indeed, the discussion board represented an enduring record of engagement and thereby becoming a powerful referential tool, in other words, it was a shared repertoire of the CoP. In addition to being a resource in understanding centripetal practices the discussion board also served as a medium by which participants' identities were reified. This was shown to both encourage as well as debilitate member participation.

The discussion board, as a locus of mutual engagement, has a unique characteristic of also being a permanent record of that engagement and consequently is also a process of engaging with and creating shared repertoire. This has a simple ramification, in order to participate in the course the participants were forced to demonstrate their ability to use the shared repertoire as well as mutually engage with the entire community. Furthermore, the joint enterprise of supporting each other meant that they needed to interact online and could not lurk at the periphery. The discussion forum reified every action and thereby forced participants to engage with the centripetal practices of the community. This also means that in every discussion forum message the participants were re-negotiating their membership and reifying their identity without the opportunity to participate at the periphery. As a result, the participants reported some hesitation in participating and in this regard shared repertoire posed a risk to sustainability. However, it should be pointed out that despite the participants' hesitancy in posting messages they nevertheless participated for a sustained period of time and successfully completed the course.

Finally, this chapter considered the role of the facilitator in community cohesion. Although the participants clearly indicated that they were mutually engaged in a joint enterprise of supporting each other and that they shared repertoire, they also reported that the facilitator helped them to engage with each other, focus on the joint enterprise and use the shared repertoire. In this regard the facilitator acted as a community broker, providing ways in which the participants could centripetally participate in the practice of sustained participation. It has been argued that the facilitator remained at the periphery of practice but retained enough legitimacy to help participants engage with new practices and centripetally shift their trajectories. It has been shown that the facilitator supported sustained participation by brokering a supportive and inclusive environment for participation. By remaining at the periphery the facilitator ensured that his participation did not dominate the engagement but at the same time he supported and encouraged participants to mutually engage, relying on each other to guide the community's practice. Consequently the facilitator legitimated participant engagement in the joint enterprise of supporting one another.

In addition to legitimating participation the facilitator was shown to support sustained participation through maintaining community rhythm. Because the pace of engagement varied each week (due to participants being ill, away, or not engaging for other reasons) the community's cohesion was threatened. It was shown that participants felt less motivated to participate if they thought their efforts would not be reciprocated. However, through careful monitoring of the teachers' participation the facilitator worked to maintain the community's rhythm and thereby sustain participation over time. In addition, it was shown that the community rhythm strategies used by the facilitator such as individual reminders, summaries and forewarning absences were also adopted by participants as shared repertoire of community maintenance. In this way the facilitator helped to ensure that the community did not slip the participant's consciousness.

In this case study it has been argued that the participants were members of a localised cohesive CoP. They were mutually engaged in a joint enterprise and shared repertoire in that pursuit. It has also been argued that these components of community cohesion were shown to have a role in sustaining participation over time. Indeed, there appeared to be a synergistic relationship. For instance, the more the participants were mutually engaged the more they felt drawn to continue participating, while at the same time the longer they participated the more they seemed to be aligned in a joint enterprise and share repertoire. However, it was also argued that this synergy was founded in the centripetal practice of supporting one another. In this regard to be a successful member of the community is to be one who supports each other's engagement. Furthermore, the data supports the contention that sustained participation as a centripetal practice of a community is one that is characterised by social relations. Participants unanimously agreed that the main force which drove them to continue participating in the course was an awareness of each others' needs, a sense of accountability to them and a rhythm which supported their irregular engagement. Their social relationships were the key to both community cohesion and to sustained participation. This point is critical for future development of PD and we are given some insight into the matter by one of the participants:

Just try and get more of that social sort of thing and build up that whole community

type atmosphere … [which would increase] my participation of the course, yes which

would then enrich my professional development side of things because I would

probably be more inclined to go in and check out the posts and respond to other

people's and want to do the readings and become generally more involved in it. Instead

of it being a casual thing or a part time thing, make sense? (P3, Interview, 23/08/2005)

Based on this case study and from a CoP perspective it is important that we facilitate a socially

meaningful environment in order to support sustained relationships which by association

support sustained participation in the practices of the community. As P2 said, "You know,

because it's hugely just people, the simple little things that hold you up."

This chapter has been based on the data and findings from Case Study One. It has

already been pointed out that the findings of a case study approach are limited in its

generalisability. Nevertheless, some indication of the robustness of the findings will be tested

by comparing them with the data from Case Study Two which replicated the PD course and

data collection methods. In addition Case Study Two raised new issues which need to be

considered in the role of CoP in sustaining participation.

CHAPTER SIX: CASE STUDY TWO

Introduction

In the previous chapter it was argued that Case Study One was a localised, cohesive CoP. The participants were invested in mutual engagement, joint enterprise and shared repertoire. In comparison Case Study Two was not characterised by the same kind or level of investment and consequently its cohesion as a community was less defined. Nevertheless, Case Study Two confirms some of the findings from Case Study One in addition to highlighting some new issues when considering the role of CoP in sustaining participation.

In order to strengthen the external validity of this research, Case Study Two was conducted as a literal replication of Case Study One (see methodology chapter). The course materials, course requirements, online environment, face-to-face training, data collection tools and the trainer were the same in both case studies. The main difference between cases was the context of the participants. Case Study One was based in Australia while Case Study Two was based in the United Kingdom. This was a purposeful choice driven by a sense of exploration to see if the findings converged despite potentially significant differences in teaching contexts (see methodology chapter for more details regarding case selection).

This chapter focuses on Case Study Two but also highlights where it converges and diverges with regards to Case Study One. In an attempt to support ease of comparison this chapter uses the same two part structure as the previous chapter.

Part one describes how the teachers in Case Study Two participated in the PD course over time. This part of the chapter is organised according to the modes of participation: participation in the face-to-face training day; participation in the online learning environment; and participation outside of the online learning environment.

Part two of this chapter explores how the teachers' sustained participation can be understood in terms of CoP. This part of the chapter is organised according to the main components of community cohesion model: Mutual Engagement (doing things together); Joint Enterprise (responding together); and Shared Repertoire (resolving problems together). In addition to these components of community cohesion the role of the facilitator as a community broker is also considered.

In both parts of this chapter the convergence and divergence between cases are also raised. A result of this process is the identification of gender differences and identities of competence as possible contributing factors to CoP sustainability in these case studies. This chapter finishes by drawing together the main findings. The following chapter, Chapter Seven, uses the findings from both case studies to suggest implications for policy, PD and further research.

Part One: Teacher Participation

Case Study Two originally comprised four participants (P6, P7, P8 and P9) who attended the face-to-face training. However, only P6, P7 and P8 subsequently continued interacting online and successfully completed the PD course. In contrast P9 failed to migrate to the online learning environment after the face-to-face training day and consequently did not complete the PD course. The reasons for P9's lack of participation and the implications for the other participants are explored later in the chapter. The following sections describe the different modes of teachers' participation, including participation in the face-to-face training day, participation in the online environment and participation in the PD domain but outside of the online environment.

The face-to-face training day followed the running sheet outlined in Appendix B and mirrored the experience of Case Study One. As already mentioned in the methodology chapter, I was unable to record observations during the training day due to managing the PD as well as the breaks. However, at the end of the day I made notes on participant interaction and other potentially significant incidents. In addition P6, P7 and P8 completed the post face-to-face questionnaire which asked them to reflect on the training day. Consequently, this section will use data from the researcher observations and the questionnaire data to describe the way in which the four participants interacted.

The training day was hosted by P8's school. The participants met in the foyer of the school and after a brief tour by P8 were shown to a computer laboratory which he had arranged for our exclusive use. On the way to the laboratory it was evident that P8 and P6 had met each other previously at a recent meeting about online learning systems. This in turn caused P7 to ask several questions. P9 did not interact. When we arrived at the laboratory I suggested that P8 demonstrate the online system he was using at his school and talk about his hopes in doing the PD course. This seemed like a good opportunity to get participants to share stories about their schools, work and ambitions. As the participants introduced themselves they were able to use P8's demonstration as a common reference point in explaining their own contexts. This appeared to be quite successful with the introductions turning into an interesting conversation. It is interesting to note that none of the participants, like in Case Study One, referred to the information they emailed to the group as part of the enrolment activity (see Figure 11, Chapter 4).

Unlike Case Study One, all of the participants were familiar with using computer systems and were unafraid to explore. Indeed, it became evident during the tour of P8's school that P6, P7 and P8 had significant roles within their schools in terms of implementing online teaching and learning systems. In contrast P9's introduction highlighted that his role was vastly

different from the others. He was a part-time teaching assistant with the task of mentoring students who were using an online learning environment.

> I was quite concerned when I realised that P9 was not a classroom teacher. P9's enrolment had been arranged by P7 who worked at the same school and no mention was made of this anomaly. In addition P9's enrolment activity email had not alerted me to the fact. In hindsight, I had not specifically stated that the participant had to be a classroom teacher but, from a research point of view, the different context could prove to be interesting … It will be interesting to see if P9 becomes a full member of the community. Certainly, based on today's experience I think this may be difficult as he rarely interacted and, when I attempted to include him in discussions, he only made short statements. This problem was compounded by the fact that the other three participants would often talk about how each online tool could be implemented across the school whereas P9's job seemed to focus on dealing with just a selection of students. (Researcher Observations, 07/09/2005)

My concerns about P9's different context and its implications seemed to be vindicated as he did not continue to participate after the face-to-face training day.

However, P9 was not the only participant whom appeared at risk of not making significant connection with the rest of the group. Since it was also the first day of school after the summer holidays, P8, as the Director of ICT at the host school, was called on to answer several student enquiries as well as resolve two staff issues during the day. This resulted in him popping in and out of the training on several occasions, including being absent on two occasions for approximately 20 minutes. He explained:

> [The course] coincided with the beginning of a year back at school. [There is] a very large workload that's involved with actually going back, [plus] we had a completely new six million pound building at the school in which I was in charge of not three computer rooms any more but six, I [also] … had a new member of staff, I had to oversee the new installation of hardware and software, and we [had] developed new

courses in some of the years so I think the course coinciding with the beginning of the

year was not great. (P8 Interview, 04/12/2005)

One of P8's prolonged absences was very early in the day when the course justification and

structure was being explained. At the end of the day I wrote:

When the other participants had left P8 confided in me that he didn't see the relevance

I felt out of control. I couldn't in all fairness demand that P8 not attend to the student

and staff problems. However I felt that his absence was significant and that it

threatened the group bonding. (Researcher Observations, 07/09/2005)

Whenever P8 left the room I had to repeat what he had missed, and inevitably the instructions

became a series of technical directions. This may have been one of the reasons why at the end

of the day:

When the other participants had left P8 confided in me that he didn't see the relevance

of the training day. He explained that he was confused why we spent the entire day

learning how to use the Blackboard system when all of their schools had something

different. I explained that the course was run on Blackboard but that the pedagogical

skills and theory included in the course was transferable. It struck me that P8 was

surprised by this and had assumed that the rest of the online course was all about

learning Blackboard. Either I had not been clear about the course structure and aims or

he had missed this connection during the day. At the time I remember thinking the

latter. However this may be a conceit. (Researcher Observations, 07/09/2005)

Based on the post face-to-face questionnaire it is clear that P8 did not have the same experience

of the face-to-face training as P6 and P7. While P8 felt that the training was only partially

relevant, the other two participants could clearly see the application to their teaching and

student learning (Question 3, Appendix M). Also, P6 and P7 felt prepared and were looking

forward to continuing with the course, but P8 felt a little under-prepared and was ambivalent

about continuing (Questions 6 and 7, Appendix M). He stated:

The face to face session seemed more to do with the technical side of the course and did

not seem to address some key issues such as what exactly we were expected to do on

the course and how it would the benefit our teaching. (Question 7, Appendix M)

P8's experience of the face-to-face training left him confused about the purpose of the course. He clearly missed the explanation that the Blackboard technical training was to equip them to engage with the pedagogical content. This is not necessarily P8's fault, but rather it is a warning for future training that the goals should be reiterated throughout the day.

It is argued that P8's experience had a knock on effect on his relationship with the other participants and consequently his sense of community. Although this will be more fully discussed later in this chapter, it is worth pointing out that even by the end of the face-to-face training P8 felt that he had a connection with only P6 because "I have met him before and was responsible for getting him involved in this course" (P8, Question 9, Appendix M). In contrast P6 and P7 felt that they had some connection with all of the participants.

Despite the difference in experiences P6, P7, and P8 agreed that the face-to-face training day could not have been effectively replaced by online delivery. It is significant for this research that in justifying their position they do not refer to increased access to technical support, speed of delivery, less reading or any other characteristic of face-to-face delivery. Instead, they argued that the effectiveness of the face-to-face training lay in its ability to make connections between the participants. Evidently P6, P7 and P9 saw that the face-to-face mode was indispensable because it facilitated a social environment which they felt sustained their participation.

P6 argued that the face-to-face training "encourages persistent relationships" and that online delivery cannot "develop the necessary relationships that encourage, challenge and support the learner" (P6, Question 5, Appendix M). Similarly, P7 argued that the face-to-face training supported ongoing participation by making them feel "more at ease responding online to those they had met" (P7, Question 5, Appendix M). He went on to argue that "the face-to-face meeting facilitates social bonding. You get a better feel for the character of the person and the context in which they teach" (P7, Question 9, Appendix M). Even P8 who felt less connected than the others pointed out that:

> The face-to-face gives people identities [which] is necessary to maintain relationships
> in an otherwise 'faceless' environment. I feel a commitment to the group now that I

have met them. It also increases feelings of guilt about not participating fully. (P8,

Question 5, Appendix M)

Despite P8's ambivalence towards continued participation in the course he felt "a commitment

to the group" to participate fully. From this early stage P8 is hinting at understanding the value

of reciprocity of engagement and an investment in mutual accountability.

It has been shown that the participants valued the face-to-face mode as a way of

establishing supportive relationships. However, this seems incongruous with their participation

during the day. Unlike Case Study One the participants did not noticeably increase in their

support of each other nor did they show significant signs of connectedness or increased

familiarity.

In Case Study One it was found that the morning break marked a slight increase in the

interaction between participants. However in Case Study Two the morning break did not appear

to be significant in affecting participants' relationships. In Case Study Two the morning break

was held in the school's staff room:

> P8 gave me the option of either having morning tea in the computer laboratory or to go
>
> to the staff room. I opted for the later since I wanted to get away from the work oriented
>
> environment and facilitate the social engagement. I also wanted to replicate the
>
> previous case study conditions. Unfortunately it was a whole campus staff room and
>
> there were enough staff around to make the environment quite daunting. (Researcher
>
> Observations, 07/09/2005)

In Case Study One the participants had the staff room to themselves, however in Case Study

Two the participants sat together around a coffee table which they shared with a small number

of the school staff. In addition, P8 excused himself from the group to talk with a colleague for a

short period of time. The result was less than satisfactory from the facilitator's point of view:

> The seats were arranged so that while we could talk at ease with the person next to us
>
> we had to raise our voices to talk with the people opposite us, this meant that the
>
> unfamiliar school staff could also hear and I felt the participants were less vocal
>
> because of this. I tried to get the participants to interact and to establish a sense of

commonality by beginning several conversations such as: "Do you think the discussion

forums would work with your students?" Then drawing in other participants into the

conversation: "I know you have started this already at your school, what do you think?"

I was trying to get the participants to share stories as well as establish their identities.

However, the conversations seemed to quickly cease if I did not maintain a high level

of participation. In my mind I blame the physical environment; the staff room was not

conducive to open discussions. Unless I was participating the teachers did not seem

confident enough to interact with each other. (Researcher Observations, 07/09/2005)

The apparent impact of the physical environment in the morning break was similar to that

reported by P3 in Case Study One who claimed that the larger staff room used for the morning

break "felt very hostile" (P3, Interview, 23/08/205). In both case studies it appears that the

physical environment of the morning break impacted on the participants' opportunity to

legitimately participate at the periphery of the CoP and begin to establish their identities within

the group.

After the morning break the interaction between participants in Case Study Two,

according to the researcher's observation notes was not noticeably different. They followed

instructions and were more likely to call upon the facilitator to help them with a problem rather

than ask each other. The only exception to this was P9 who seemed to be more at ease asking

P7 for help than the facilitator. The researcher noted:

All of the participants were confident computer users but P9 was clearly less confident

in interacting with the group. This may be because the others were significantly more

experienced, more senior in career and were older. Throughout the day P9 relied on P7

who had clearly taken on the role of mentoring him. (Researcher Observations,

07/09/2005)

While P7's mentoring could have, over time, resulted in a brokering of practices providing

ways in which P9 could increasingly participate in the community the immediate result of the

mentoring was that both P7 and P9 interacted less with the other participants.

In Case Study One the lunch break has been shown to be a pivotal moment in making social connections and a sense of commonality between participants. However, in Case Study Two the participants did not make any comment regarding either of the breaks in either the questionnaires or the semi-structured interviews despite several opportunities. This is quite different from the participants of Case Study One who all commented on the lunch break in the interview or questionnaire if not both. Since it has been argued that the lunch break had a significant impact on community cohesion in Case Study One it is important to investigate this issue further in Case Study Two.

One glaring discrepancy between the case studies was the physical environment of the lunch break. The host school was not in close proximity to a café or other location in which we could replicate the conditions of Case Study One. The only option was to either take a break in the computer laboratory or the crowded staff room. Neither option was desirable from the facilitator's point of view especially after the difficulty experienced in the morning break. Nevertheless the staff room offered the only avenue to escape the computer environment and to give the participants a chance to socially engage with each other.

The lunch break was similar to the morning break. Although the researcher's observation notes reported the participants as more freely interacting with each other without the facilitator's prompting, the conversation did not often extend beyond work related topics. The increased discussion may have been influenced by the familiarity of the staff room and the knowledge that they had a longer period of time to converse. However, as already indicated, none of the participants reported the breaks as being significant in their relationship formation. This is supported by the observation that the participation was still not significantly different after the lunch than before:

> The participants were more vocal after the lunch break, however, the pattern of interaction remained the same. The majority of comments and questions were directed at me. It just seemed that, if anything, they were more comfortable in speaking in front of the rest of the group but were still hesitant to call upon the others. This was particularly obvious when I had to answer similar questions several times. Instead of

working together they preferred to work independently. (Researcher Observations, 07/09/2005)

The researcher's observation suggests that there was a change in participation that hinted at mutuality, that is, a sense of familiarity and a legitimacy to participate. However, it also suggests that the participants were unsure of their joint enterprise. Although they had an enterprise in trying to complete the tasks and come to grips with the new ideas, they did not have a commitment to each other's participation.

In Case Study One it was noted that the participants demonstrated a sense of community while interacting with the comic chat facility. It was argued that this was a significant moment in establishing the participants' sense of community membership. They were doing something meaningful, responding together to the pressures of the environment, and finding a resolution through clever manipulation of the communal tool. In contrast, Case Study Two showed some signs of social engagement in the chat session but did not indicate a sense of community.

In Case Study Two the comic chat session provided participants with an opportunity to engage with each other socially. Like Case Study One the participants, especially P8, chose to mix humorous comments within their chat messages. All of the participants, including P9 seemed more at ease in making personal comments and directly interact with each other, albeit through the medium of chat. This was commented upon by P6 who argued that, during the face-to-face day, he felt most connected with the entire group during the chat session:

> I think that rather fun exercise you gave us [the comic chat] that's where we were busy
> but being a bit rather silly weren't we? But we were having lots of fun but that really
> was good in the sense that it was overcoming various barriers and saying that it didn't
> matter what you put on there, we were just having fun playing. I think when people
> play they relate much better than when they work. Take my school, my Science
> Department, the first time I've been there now three years, three and a half years but the
> first time I really felt part of the group was when we went out for a meal together. (P6,
> Interview, 03/12/2005)

P6 valued social engagement in the formation of relationships. A similar investment in social engagement was found in Case Study One. However, neither P7 or P8 referred to the chat session.

As per the running sheet (see Appendix B), the face-to-face training finished within an hour after the chat session. Like those in Case Study One, the participants did not linger after the wrap-up session. P7 and P9 explained that they had to drive two and a half hours to get to their homes. Their imminent departure led to a general consensus that the day had come to a close.

Although the face-to-face training followed the same structure as Case Study One, it is clear that the participants had not made the same connection. At the end of the day the researcher reflected on the outcomes of the face-to-face training:

> I have mixed feelings about today. Unlike the previous case study the participants are more technically skilled and have a greater awareness of using virtual learning environments. I think this may result in some interesting discussions and perspectives. It may help them interact more readily online. However they are also more independent; they don't seem to have made a significant connection with each other. I have yet to see any indication of community cohesion. (Researcher Observations, 07/09/2005)

Despite this observation, P6, P7 and P8 reported in the post face-to-face questionnaire that they felt the face-to-face training day was important in establishing relationships between participants. P7 went so far as to say the face-to-face session "was pretty critical to the success of the course" (P7, Interview, 04/12/2005). Nevertheless, P6 pointed out that he felt "there was not a lot of time to get to know each other" (P6, Question 9, Appendix M). Similarly both P7 and P8 commented in their interviews that they thought that more face-to-face sessions would have improved the depth of relationships.

Despite the differences between case studies in the level of interaction, the participants of both case studies clearly valued the face-to-face mode. In addition, all of the participants valued it because of its role in establishing and sustaining relationships. Furthermore, social

engagement appeared to be a core element in this process in both case studies. Admittedly the impact of social engagement as seen in the breaks and chat session were minimal, however they still marked the most noticeable change in interaction.

The face-to-face training day in Case Study Two was best characterised by P8 who pointed out that his level of interaction was not solely constrained by his absences:

> I had to concentrate on a few other things at once so perhaps I might have got to speak to them a little bit more but I mean the atmosphere on the actual face to face day itself was quite quiet, almost quite reserved from all of us. (P8, Interview, 04/12/2005)

The participants were reserved in their interactions. They appeared to rely heavily on the facilitator for direction and had shown no sign of coalescing as a community. Unless they could begin to rely on each other and share meaningful experiences in the online environment, then they were unlikely to become a community. This was made more problematic when it became obvious that only P6, P7 and P8 had decided to continue with the course after the face-to-face training day.

Migrating to the online learning environment

P9 failed to migrate to the online learning environment after the face-to-face training. When P9 did not begin to participate online by the end of the first week the facilitator emailed the following message:

> Hi P9, I notice that you haven't logged in since the training day. The others have engaged in an interesting discussion online and I am concerned that you will miss out. They would also benefit from your perspective. Kind regards, Michael. (email sent by the facilitator to P9)

This email was constructed to both reflect the context and to be similar to the emails sent to participants of Case Study One when they had not accessed the system for some time. Consequently, the email focused on the need to engage with the other teachers and did not ask the participant to explain himself to the facilitator.

However, P9 did not respond to this email nor did he respond to two more emails over the following three weeks or a single phone message left with his school. In addition, the facilitator sent two emails to P7 who worked at the same school. The first email was to confirm P9's email address just in case it had changed since the course enrolment. The second email was to ask if P7 knew whether P9 was still at the same school.

In week six P7 confirmed that P9 was no longer employed at the same school but could not offer any further details. Indeed, it would not have been ethical to gather such data about P9 without his consent. Consequently, it is unknown if P9 continued working at another school or did something else completely. The length of time P9 continued working at the school after the face-to-face training day is also unknown.

It is important to point out that in addition to P9's lack of participation and communication after the face-to-face training day he also did not do the post face-to-face survey or the semi-structured interview. It is frustrating that P9, as the only participant whose engagement was not sustained over an extended period of time, did not provide any explanation for his lack of participation. It raises the question; was the course no longer relevant due to his change in employment or was there something else which failed to sustain his engagement from the face-to-face to online mode? Certainly, out of the four participants his demographic details were the most dissimilar. Table 8 (Chapter Four) shows that the other participants in Case Study Two were experienced teachers who held positions of authority but that P9 was a part-time, unqualified, teaching assistant with no teaching experience. It is possible that no connection or sense of 'commonality' was made during the face-to-face training and as a result his participation was not sustained beyond that first day. However, it is important to stress that without any corroborating data such arguments can only remain as mere speculation.

The remaining three participants did successfully migrate to the online learning environment and demonstrated sustained engagement with the PD for a period of up to thirteen weeks. However, as will be shown later in this chapter the small number of participants appeared to increase the difficulty of maintaining mutuality of engagement.

The three remaining teachers in Case Study Two participated in the PD course in different ways. P6 regularly accessed the course for thirteen weeks but in contrast P7 and P8 were more erratic in both their accessing and frequency of discussion board posts. Nevertheless all of the participants continued to engage with the online course environment longer than the minimum requirement of four weeks. This participation over time is represented in the Figure 18 which graphs the total number of site requests and forum posts made by the three participants each week.
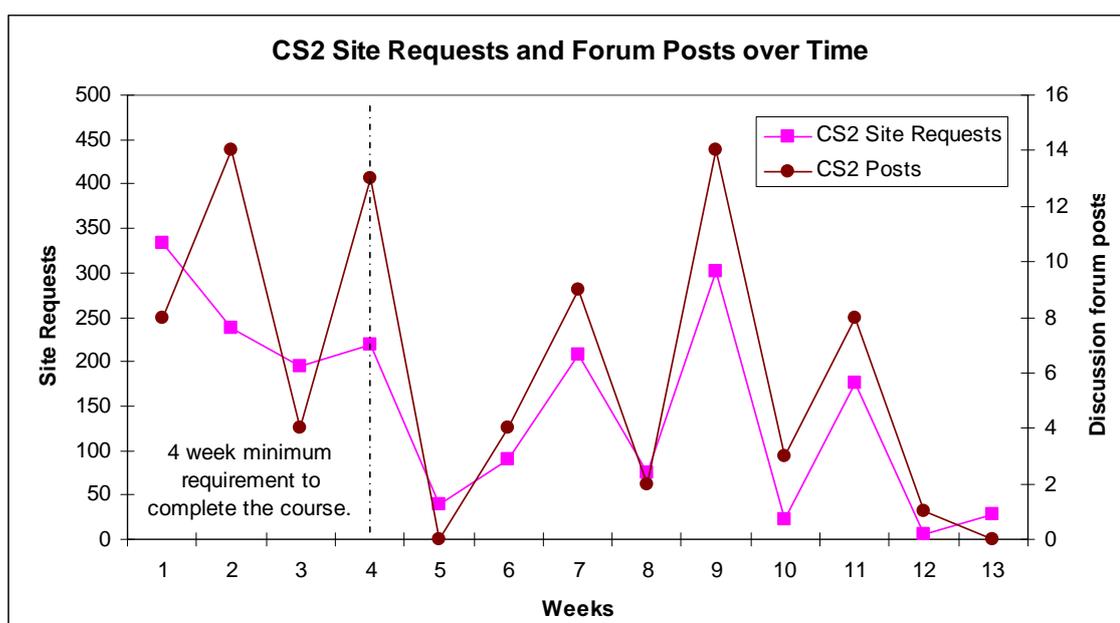
Figure 18. Case Study Two site requests and forum posts over time.

Site requests included any requests by the teachers' web browsers to view a web page. This included any information in the online PD course, including content materials, announcements, participant profiles and the discussion forums. Forum posts refer to the number of messages the teachers posted to the discussion forums. In reading this graph it is important to note that each series of numbers uses a different scale. The site requests use the primary Y axis

(on the left) and the forum posts use the secondary Y Axis (on the right). The reason for graphing both series was to explore if there was an overall trend by the teachers in engaging with both the content and with each other.

Figure 18 indicates that the participants as a group both accessed and posted messages for up to 13 weeks. It also shows that the frequency of posts varied considerably from one week to the next, and that from week five the number of site accesses mirrored the extreme peaks and troughs of the discussion board posts. Later in this chapter the individual participants' level of site requests and discussion board posts will also be reviewed. However, as a group trend, what appears to be significant fluctuations in participation are shown to have an overall pattern of persistence when compared with Case Study One, as shown in Figure19.
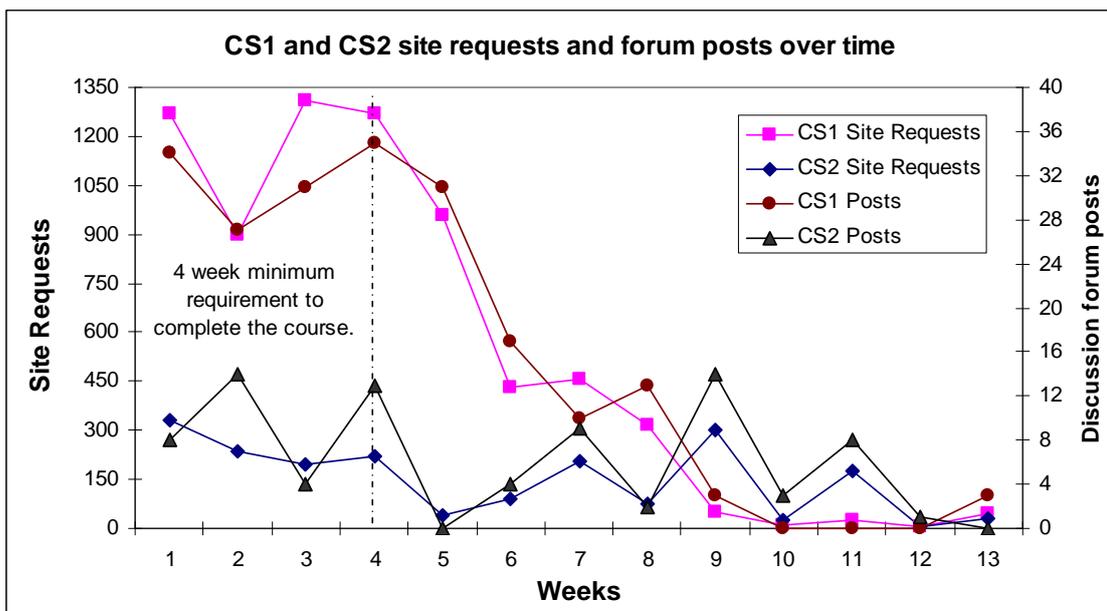
*Figure 19.* Case Study One and Two site requests and forum posts over time.

Figure 19 indicates that Case Study One had a significantly greater number of site requests and forum posts in the first six weeks than did Case Study Two. However, the difference was not sustained. In fact, Case Study Two showed greater participation for weeks nine through to twelve. The perseverance of Case Study Two is striking considering the smaller

group size and the obvious difficulty they faced in maintaining consistent engagement with each other through the discussion forums.

Also notable is the proportional difference between the case studies in the first six weeks. Case Study One had five participants whereas Case Study Two had three participants. However the number of site accesses and forum posts made by Case Study One was significantly greater than the proportional difference in participant numbers. It is important to note that direct comparisons between case studies are problematic due to the significant variation in contextual features and small numbers of participants. However, the disproportion of participation levels between case studies in the first six weeks is significant and is made all the more noteworthy because of the way in which Case Study Two continued to maintain, albeit unsteadily, its participation levels while Case Study One dropped significantly.

On four occasions after the thirteenth week P6 and P7 accessed the PD course. The system records showed that the participants accessed the discussion board area but also accessed the content area of the site (it is unknown which areas were accessed first). Since P6 and P7 made these visits after the interviews, there was no opportunity to explore this further. However, their accessing of both the discussion board and content of the course is in contrast with Case Study One where similar post-course visits only resulted in accesses to the discussion board. Keeping in mind the risk of making generalisations based on small case studies, it is nevertheless yet another example of how the participants of Case Study Two seemed to be less invested in mutuality of engagement and more concerned with the content. This tenuous point will be revisited throughout this chapter.

When viewing the trends of the case studies as a whole, this argument is hard to substantiate. For example, both case studies showed that the total number of site requests in the discussion board were significantly more than requests made in the content area of the course. Based on this data it could be assumed that the participants of both case studies placed considerable value on interaction. However, a more startling difference is apparent when individual participant accesses are compared. In Case Study One, all of the participants accessed the discussion board more frequently than the content, varying from 66% to 148%

more often (see Table 13, Chapter 5). However, as shown by Table 15, in Case Study Two the frequency ranged from 56% *less often* (P7) through to 376% more often (P8). These extreme variations are suggestive that the participants in Case Study Two were not using the same strategy in engaging with the course or with each other. It should be pointed out that mutuality of engagement does not demand homogeneity, but it is founded on members doing things together.

Table 15

Case Study Two Participants' Site Requests According to Online Application

Participants	Content Area	Discussion Board	Our Community	Announce-ments	Email function	Other	**Total**
CS2 P6	310	600	17	74	14	11	**1026**
CS2 P7	304	171	7	19	7	2	**510**
CS2 P8	51	243	15	15	0	1	**325**
Total	**665**	**1014**	**39**	**108**	**21**	**14**	**1861**

Note. "Other" refers to pages such as "Resources" which includes links to software manuals as well as "Communication Tools" which includes links to email and other communications options.

It is surprising to note that P8 only accessed the content area 51 times throughout the course. This includes the face-to-face training day which would account for approximately one third of that number[7]. Since there were 61 content area folders it is clear that P8 did not access all of PD course content. However, it is important to remember that the course did not require participants to read every section. They could invest their time in the areas that seemed most important to them. Nevertheless it is surprising that P8 did not access the areas even out of curiosity. When P8 was asked about this in the interview he explained that he spent considerable time on a small selection of pages which seemed particularly relevant:

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[7] The system records showed that P9 made 17 site requests in the content area. Since P9 only accessed the course on the face-to-face training day and that all of the participants would have done the same kind of tasks, it is reasoned that his statistics are representative for all of the participants during the face-to-face training.

I spent an awful long time going through [those pages], digesting it, copying and

pasting into my own documents and then whittling it down to the essentials and then I

took that away and was able to use it in class the very next day. So yeah, the [site

requests] probably wouldn't actually give a fair representation of what I was necessarily

getting out of something. And … quite a few of the links took me off the site where I'd

probably spent quite a lot more time. (P8 Interview, 04/12/2005)

P8's comment about following the various hyperlinks to related website highlights one of the

limitations of the course records. The Blackboard environment only recorded site requests

within the course. If a participant clicked on a hyperlink and browsed another website then the

statistics would not register even a single site request. Therefore P8's small number of content

area site requests, as indicated in Table 15, does not reflect the significant amount of time he

reportedly spent exploring the content related links. According to the course requirements, the

participants could explore areas of interest to them; they were not limited to the content

provided in the course, although they were encouraged to share their insights and discoveries

with the other participants. As will be shown later, P8 did share some of his independent

research and insights in the discussion forum although during the semi-structured interview he

apologised for these divergences which highlights P8's continuing misunderstanding of the

participants' role in the course.

Table 15 is limited in value as it does not show the frequency of site requests over time.

Nevertheless it indicates the proportion of site requests each participant made in the main areas

of the course. This information is helpful when trying to understand the cumulative impact of

the participants' site requests over time (Figure 20).
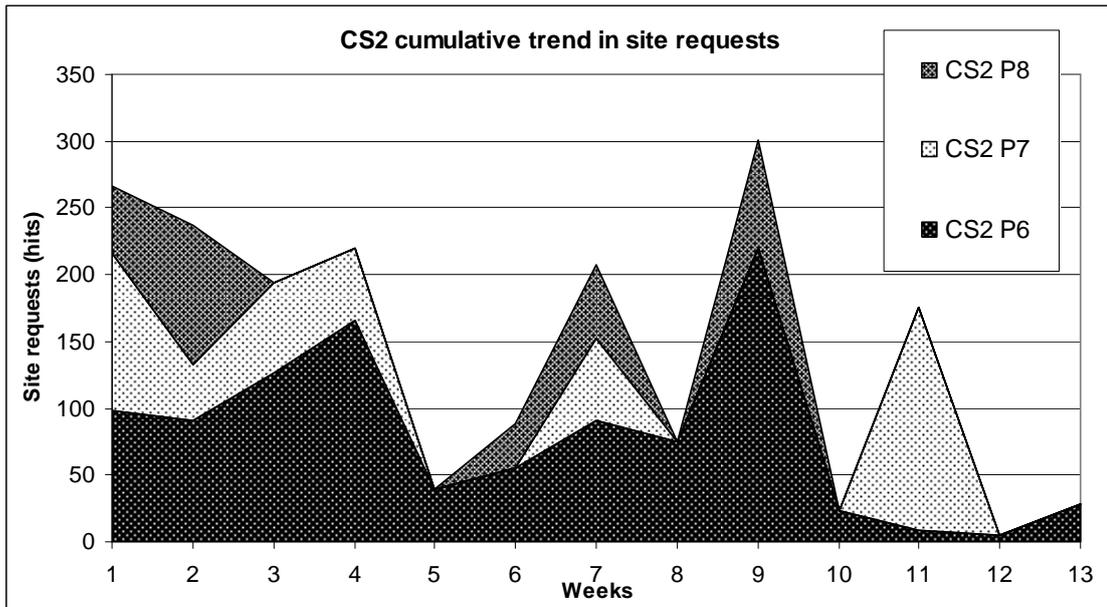
Figure 20. Case Study Two Cumulative Trend in Site Requests

Figure 20 shows that P8 and P7 were inconsistent in logging into the site. Furthermore, the volume of site requests, which includes browsing in the content area as well as the discussion board, was not consistent with each other or with P6. This pattern is supported by Figure 21 which delineates the cumulative effect of the participants' discussion board posts (see Appendix I for numerical data for Figures 20 and 21).
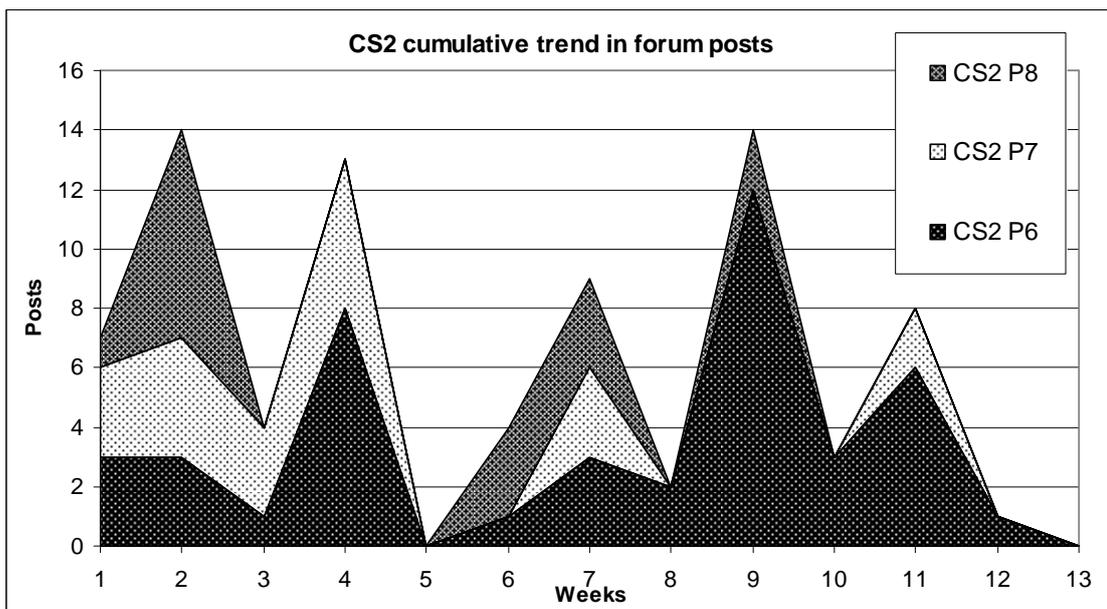
Figure 21. Case Study Two cumulative trend in forum posts.

When reading these graphs, it should be noted that P8 was on a residential professional development course in weeks three and four and was away from home on a holiday in week eight. During the semi-structured interview, P8 confirmed that he was either unable to participate or was trying to catch up on his teaching duties when he returned from the residential course. In addition to his unavailability, P8 reported in his interview that throughout the PD course he felt constantly tired and unable to catch up with any work at school or other commitments such as the PD course. He reported that in week 10 he was diagnosed with a serious thyroid condition which had been affecting him for some time:

> I fall asleep all the time. I don't have the energy to work. I can't concentrate… so that has had a very big impact because obviously I have quite a demand on my time as it is and, to take part in the course was also well, at one point, it could have been the straw that broke the camel's back. (P8 Interview, 04/12/2005)

P8's participation and the significance of his absence and illness on community cohesion will be considered in part two of this chapter.

P7 like P8 was absent from the online course for several weeks, which he explained as being due to school commitments, and that unless he had a specific task to complete or a prompt that something was unfinished, then he did not feel the need to access the course (P7, Interview, 04/12/2005). As will be shown in the following section on participation in the discussion board, this reflects P7's focus on the course content rather than interaction with fellow participants.

In contrast with P7 and P8, Figures 20 and 21 show that P6 not only logged into the site every week but also had posted messages every week except for weeks five and thirteen. In both of those weeks, none of the other participants or facilitator posted messages either. It is especially interesting to note that, in contrast with the other two participants, he made more posts in the second half of the course than he did in the first half. Indeed, Figure 21 clearly indicates that P6 continued to post messages to the discussion board even when the other

participants were not. The reason for this sustained participation in the discussion forum primarily relates to the role of the facilitator and is addressed in part two of this chapter.

As pointed out with Case Study One, the value of discussion board posts in this research is that they are easily observed reflections of the community's practice. They are both the means by which the teachers can participate in, and are the reified objects of, mutual engagement, joint enterprise and shared repertoire. By considering the ways in which the participants used the discussion forums, it provides a valuable context for later discussion of CoP cohesion.

Participating in the Discussion Board

The discussion board is the locus of community engagement. As the primary means of communication between participants, it is the medium by which they can engage in the community's practices, negotiate their identity, establish a sense of belonging and make meaning of the world around them. Consequently, as was shown in Case Study One, the way in which the participants use the discussion forum to interact with each other can lead to significant insights into the process of community cohesion and its role in sustaining participation.

In Case Study One, the participants accessed the social forum between 28% to 46% of their total forum accesses (see Table 13, Chapter 5). In contrast Table 16 shows that Case Study Two participants varied in their social forum accesses between 15% and 62% of their total forum accesses. It has already been explained that making statistical comparisons between small case studies is problematic. However, it is a useful tool in suggesting issues that need further investigation.

Table 16

Case Study Two Discussion Board Access: Forums and Index Page

Participants	Social Forum		Content Forums		Subtotal	Index page	Total
	n	%	n	%			
CS2 P6	57	35%	106	65%	163	437	600
CS2 P7	19	15%	110	85%	129	42	171
CS2 P8	54	62%	33	38%	87	156	243
Total	130	34%	249	66%	379	635	1014

Like the participants of Case Study One the majority of participants frequently accessed the index page. The index page not only lists the forums but also indicates if there are any new or unread discussion board messages. Both P6 and P8 noted in their interviews that the first thing they would do when they logged into the system was to check the discussion board for new messages. This explains their relatively higher use of the index page in comparison with P7 who explained that his strategy when accessing the online course was to first access the course content and tackle the tasks and readings. Nevertheless P7, like P6 and P8, felt frustrated if he accessed the discussion board index page and found that there were no new messages (P6 Interview, 03/12/2005; P7 Interview, 04/12/2005; P8 Interview, 04/12/2005).

Another notable feature of Table 16 is that P7 accessed the social forum much less frequently than the other participants. This observation is confirmed in Table 17 which provides the number of discussion board posts made by the participants. Here, P7s lack of engagement in the social forum is particularly striking. In his interview, P7 unequivocally argued that he did not value engaging in non-content based discussions and that he was quite sceptical of forums set up for purely social purposes (P7 Interview, 04/12/2005). This scepticism of the purpose of the social forum was also expressed by P8 despite his relatively high frequency of accesses and posts in the social forum.

Table 17

Case Study Two Discussion Board Postings

	Social Forum		Content Forums		
Participants	n	%	n	%	Total
CS2 P6	14	33%	29	67%	43
CS2 P7	2	10%	18	90%	20
CS2 P8	11	69%	5	31%	16
Total	27	34%	52	66%	79

Both P7's and P8's perspectives are in direct opposition to the participants of Case Study One as well as P6 who believed that the social forum was a supportive and in some cases motivating environment. The implications of these perspectives in terms of community cohesion will be more fully addressed in part two of this chapter.

The number of posts made by P6 and P7 in the content forums is similar to the participants in Case Study One (see Table 13, Chapter 5). However, P8 posted only five messages to three of the five content forums (see Appendix K). The low number is partially explained by the fact he was absent for three weeks and was suffering from a serious illness. In addition, it should be pointed out that the last two discussion forums were optional because they were either not as relevant to the UK participants (Layer 4) or was simply a space for reflections on the course (Conclusion). Indeed, P7 also did not post to the Layer 4 discussion forum (see Appendix K).

As the significance of these differences will be explored later in this chapter, it is suffice to mention here that, although the participants of both case studies were shown to have participated for a longer period of time than the minimum four week requirement, the participants of Case Study Two differed significantly from each other and from the participants in Case Study One in their patterns of site requests and frequency of discussion forum postings.

The participants of Case Study Two were urged to interact with each other and the facilitator primarily through the discussion board. However, as in the first case study, both the participants and facilitator used emails and announcements to communicate with each other. Unlike the first case study the participants of Case Study Two did not participate in a chat session although all three participants indicated in their interviews that they would have liked to have engaged in synchronous communication such as chat or web conferencing.

Table 18 shows the frequency of emails and announcements sent by the participants and facilitator over the 13 weeks. During their interviews the three participants indicated that they had not directly emailed each other. From a CoP perspective the most interesting pattern in Table 18 is that P7 and P8 did not attempt to communicate with the group either through email or announcements despite having been encouraged to notify the group by either of these processes when they had produced something, such as a summary of a theory.

Table 18

Frequency of Case Study Two emails and announcements

Participant	Type of communication	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
		Weeks													
CS2 P6	Email to facilitator		1	1	1		1	1		1					6
	Email to group									1					1
	Announcement				1										1
CS2 P7	Email to facilitator	1		1			1								3
	Email to group														0
	Announcement														0
CS2 P8	Email to facilitator	1	2	1			1		2	3	1	1			11
	Email to group														0
	Announcement														0
Facilitator	Email to individual	1	2	7	1		1		3	2		1			18
	Email to group	1	1		1		1	1	1	1		1	1		9
	Announcement	3	1	2		1		1	1	3					12
Total		10	6	12	2	1	6	3	4	6	2	1	1	0	54

Table 18 does not indicate the quality or type of email being sent. In Case Study One it was pointed out that the 43 emails the five participants sent to the facilitator were primarily of a technical or administrative nature. Any requests for assistance in terms of understanding the content was replied with an exhortation by the facilitator to post a message to the rest of the participants. However, towards the end of the course in Case Study One it was shown that the two most laggard and disengaged of the participants, P1 and P5, required greater email support from the facilitator in helping them to engage with the content. This was also the case with P8 in Case Study Two. As the course progressed, especially after P8's absence in weeks four and five (a residential professional development course), he increasingly became sporadic in his engagement requiring several emails reminding him of what was required of him to complete

the course. For instance, when P8 and P9 had not logged into the system and completed the first activity by the second week, the facilitator sent the following message:

> Hi P9 and P8, the discussion regarding the Planning Layer is getting interesting. I hope you can graze the materials and join in very soon. But for now, touch base with the others and tell us about your week. Let me know if you are having any problems. Best regards, Michael. (Email from facilitator to P8 and P9, Week 2)

This resulted in an immediate email response by P8 as well as an engagement in the task and discussion forum. As the course progressed the facilitator sent several more emails of this nature primarily to P8 but also some to the other participants. This was in addition to the group emails which suggested what the participants should be trying to achieve each week. It is interesting to note that the weeks where the facilitator did not send out emails to the group or to individuals the number of discussion forum posts from the entire group also dropped. This was especially obvious in week five when the facilitator did not send any individual or group emails and when there were no participant posts (see Table 18).

This raises the issue of the role of the facilitator. As in Case Study One, the role of the facilitator will be discussed at the end of this chapter. The aim here is to present data regarding participant interaction which is of particular relevance when considering CoP and in particular community cohesion. Although the role of the facilitator is potentially important as a community broker, as shown in Case Study One, it is argued that from a CoP perspective the core practices of a community are negotiated by the members, not the broker. As a result, if a coalescing CoP is to be discovered it will be found in the interaction of the course participants.

Nevertheless, as the data unfolds it is clear that the participants relied on the facilitator to a greater extent than in Case Study One in both the discussion forums and through direct email support. Further evidence to substantiate this claim will be provided later in this chapter in the section dealing with the facilitator as community broker. However, interacting with the facilitator or even with each other through the online learning environment was not the only way in which P6, P7 and P8 engaged with the PD.

The site request and forum posts are only one indicator of teachers' participation in the PD course. As demonstrated in Case Study One the participants continued to engage with the materials and ideas and, from a CoP perspective, continued to make meaning of the world and negotiate and reify their identities by implementing the PD in their classrooms as well as referring to the PD domain in other parts of their lives. In Case Study Two the participants also reported instances of reflecting on the course and implementing ideas in their classrooms. Indeed, it was reported by all of the participants that, because their schools were using other online learning software, they tended to spend their time working on these systems but using the content and strategies learned during the PD course.

Since the researcher did not have access to these online systems it was not possible to collect data on the way the participants were implementing the PD. Furthermore, it was reasoned that to try to observe all of the ways in which the participants could engage with the PD course, and the practices of what was hopefully a coalescing community was beyond the resources of this research. Consequently the data in this section is limited to what has been reported by the participants in terms of discussion with colleagues in their schools, their implementation of knowledge or skills in class or other spheres, and their reflective processes.

Implementing, planning and reflecting on the PD

The PD course provided each participant with their own course area within the virtual learning environment (Blackboard). They could create resources, run discussion forums, and implement any of the skills or strategies discussed in the PD course. In addition, each participant was given guest access to all the other participants courses so that they could see how the others were implementing the ideas and given them feedback. The intention was to support the principles of situated learning and from a CoP perspective provide opportunities for members to explore practices and share repertoire.

However, the participants pointed out that the Blackboard software was of limited relevance to their context. Consequently, their use of their Blackboard course area seemed to be mainly limited to evaluating it in comparison with their own systems. For instance, P6 stated:

I did spend some time, not a great deal of time admittedly, but I did try to use Blackboard to set up a few pages on Chemistry just to give it a go and [the facilitator] had a look and I think P7 did but, again, no major feedback from anyone apart from [the facilitator] … I wanted to see how Blackboard worked so I could compare it with other e-portal systems … [and] to see whether that would be appropriate for [my school].

As a result the three participants preferred to implement the PD in their own virtual learning environments which they felt were more relevant. For instance, P7 stated:

A lot of my energies had been directed at using [my] school's virtual learning environment and to design stuff on that but when it came to using Blackboard … I suppose I thought well if I'm going to spend my time doing something, it seems from my point of view it was more worthwhile doing it in terms of the school virtual learning environment. (P7 Interview, 04/12/2005)

Clearly, even though P7 did not use the Blackboard system, he did implement the ideas and strategies from the PD course in his own virtual learning environment. P8 felt the same way and pointed out that while he did use ideas from the PD course, he was more likely to use his school's virtual learning environment rather than the Blackboard system:

So rather than actually get on there, on line and actually go on to the course, I'd be doing things in my own virtual learning environment or doing things which were more productive as far as I could tell. So that would have explained the [lack of participation] towards the end. (P8 Interview, 04/12/2005)

As a consequence, P8 indicated that his participation level in the PD course was less because he spent more of his time implementing ideas in his own virtual learning environment.

Similarly P7 pointed out that instead of being engaged in the online discussions he was reflecting on the PD course in discussions with colleagues at his own school:

I found the content useful in my own context in school. You know where I'd been having discussions with the staff about the way that we design on line content in school so maybe while I wasn't getting involved in those conversations [in the PD course], there was certainly a lot of conversations taking place in a face to face set up in school you know where I'd accessed that information [from the PD course] and then used it with staff in school. (P7 Interview, 04/12/2005)

Both P7 and P8 clearly indicated that they engaged with the PD course by implementing ideas in their own virtual learning environments as well as reflecting on the course with colleagues. However, they also suggested that their participation levels in the PD course were inversely proportionate to their engagement outside of the PD course. Furthermore, based on the P7 and P8's interviews it seems that the reason for greater engagement outside of the PD course was because the Blackboard system was not relevant to their needs.

In contrast P6 argued that he increasingly spent more time implementing and reflecting on the PD outside of the online learning environment, not because of the lack of relevance, but because of the lack of engagement by P7 and P8. He stated:

[The lack of interaction] did lead, in the end, to me trying to find ways of setting up communities in other areas. So, for example, just this week at school … through what I've been learning on this course, I've been able to set up a share point document … So, you know, [the PD course is] still having its impact and, before I did that, I popped back to see what advice was there so that I could try and get it right. (P6 Interview, 03/12/2005)

It would appear that P7 and P8's greater investment in engaging with the PD outside of the online environment influenced P6's own behaviour. This resulted in a positive outcome for P6, for instance:

I was able to set up an anti bullying Discussion Forum for youngsters at my school … and that proved to be hugely successful. So the feedback on that was really very encouraging, very positive and it's led to more staff wanting to try that out. But I

wouldn't have done that as successfully if I hadn't been playing the game initially with

this course. (P6 Interview, 03/12/2005)

Clearly P6 was able to engage with the PD to a greater extent by implementing it in his own

context than solely relying on the interaction in the PD course. The impact of this sense of

relevance is discussed in Part Two of this chapter.

An outcome that was not envisaged was the application of their PD in this project to

contexts other than online learning. For instance, P8 stated in an email to the facilitator:

The course has had some really useful aspects in it; PARC principles, inverted pyramid,

etc. [It has] already had an impact on my teaching. I used the PARC principles in

several lessons last week and they were very useful indeed. (P8 Email to facilitator,

15/11/2005)

In this example P8 used some of the content from the course in adapting his face-to-face

teaching. He had synthesised the content and come to an understanding of how it could be used

in ways other than in the online learning context of the PD course.

In terms of professional development outcomes, this PD course appears to have

successfully enabled the participants to apply the content to their own work environments.

However, in terms of sustained participation, this course had varied results. While the teachers

engaged with the PD for an extended period of time, it was increasingly in their own contexts

and less through interacting with each other.

Summary

Up to this point, this chapter has used the research data to describe the way in which the

teachers participated in the course. It was shown that during the face-to-face training day the

participants did not appear to make the same kind of connection with each other as did the

participants in Case Study One. During the face-to-face training the participants did not

significantly increase in their support of each other nor did they show significant signs of

connectedness or increased familiarity. This is despite the fact that they reportedly valued the face-to-face day as a way of establishing supportive relationships.

Unlike Case Study Two, the morning and lunch breaks did not appear to be significant milestones in participant social engagement. Participant engagement was also shown to have been threatened by the fact that the training day was held on the first day of school after the summer holidays which not only caused significant disruption for P8's participation but also meant that the remainder of the course had to compete with all of the participants' heavy workloads. In addition P9 did not continue with the course after the face-to-face training.

Despite these hurdles, the three remaining participants continued to access the course and post messages for up to thirteen weeks. However the individual participants varied considerably in the frequency and consistency of their online participation. It had been shown that, unlike Case Study One, the participants of Case Study Two did not interact in the same way via the discussion forum and in particular, varied in their investment in social engagement. Indeed, although the participants shared an enterprise of completing the course, they did not demonstrate a commitment to each other's participation.

Instead of supporting, as well as relying on, each other's participation to successfully complete the PD course the participants increasingly engaged with the PD in contexts outside of the online learning environment. It was reported that P6, P7 and P8 successfully implemented the PD in a variety of work contexts including face-to-face lessons and planning with colleagues. This is made all the more interesting when it is noted that none of the participants in Case Study One reported that they implemented the PD in their teaching during the PD course.[8]

So far, the intention has been to provide the reader with a sense of the case study outcomes in terms of participation. The following section will reflect on this information and use further data from the post face-to-face questionnaire, semi-structured interviews, participant forums and email messages to explore how their participation can be understood in terms of

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[8] Although it is not relevant to this discussion or to this research as a whole, P1, P4 and P5 have emailed me since the semi-structured interview saying that they were implementing the PD in their classrooms. It is interesting that P1, who was particularly disengaged within the course had since successfully applied for a position as a teacher of virtual schooling.

CoP. In particular, what role does CoP have in the sustainability of participation in a small-scale blended PD course?

<div style="text-align:center">Part Two: Community of Practice</div>

The PD course was intentionally designed to facilitate the participants' investment in the key dimensions of community of practice. It was reasoned that a cohesive community is one that is characterised by sustainability. As a result, this research used the community cohesion model (see Figure 1, Chapter 3) in both designing for CoP as well as analysing participation. Fundamentally, the model proposes that a community is sustained when its members invest their practice and identity in mutual engagement, joint enterprise and shared repertoire. The remainder of this chapter will explore how these dimensions were manifested in Case Study Two, if community cohesion was evident and its relationship to sustainability of participation. In addition, the discussion will also include a comparison with the findings of Case Study One. Consequently, part two of this chapter is organised according to the same themes identified by Case Study One:

- Designing for community cohesion

- The role of mutual engagement

- The role of joint enterprise

- The role of shared repertoire

- The facilitator as community broker

Although this chapter on Case Study Two mirrors the structure of Case Study One, several new issues of significance are raised. In addition, not all of the findings of Case Study One are supported or indicated in Case Study Two.

It is important to once again point out that this research is not evaluating the course design *per se*. The focus is on the role of CoP in the sustained participation of the teachers, of which the course design is just one contextual feature. Consequently the following section

discusses those course design elements which have been shown to be significant in influencing community cohesion. The intention is not to evaluate a model of professional development but rather find those characteristics which facilitated or impeded community cohesion.

<div align="center">*Designing for community cohesion*</div>

Community cohesion is where the members of a CoP are invested in mutual engagement (doing things together), joint enterprise (responding together) and shared repertoire (resolving problems together). It has been argued in Chapter 3 that sustained participation, the focus of this research, is a characteristic of a cohesive CoP. Consequently, the community cohesion model (see Figure 1, Chapter 3) was used as the core framework in the design of the PD course. However, the role of these dimensions in sustaining participation was still unknown. Furthermore, until now, it has been unclear whether a small-scale, blended PD course could facilitate the cohesion of a CoP.

In Chapter 5 it was argued that Case Study One had demonstrated evidence of a localised, coherent CoP. Furthermore, that investment in mutual engagement, joint enterprise and shared repertoire afforded and even stimulated ongoing participation. It was argued that in Case Study One, sustained participation was not simply a product of community cohesion but was itself a form of centripetal participation in that community. The participants clearly valued social engagement and were sensitive of the others' needs, supporting each other through their own continued participation. In addition, it was shown that the facilitator also had a significant role as a community broker, remaining at the periphery of the practices but providing ways in which the participants could continue to engage with each other.

In contrast, Case Study Two did not demonstrate significant cohesion as a CoP. The participants were not invested in the same way as Case Study One in mutual engagement, joint enterprise and shared repertoire. Their sense of belonging was limited and their identities within the group poorly defined. Although the participants legitimately participated in the peripheral practices of online pedagogy (the topic of the PD course), they did not appear to sufficiently

engage with each other in making sense of those practices and thereby share in a repertoire that would define their membership in a CoP.

In Case Study One a significant level of participant investment in mutual engagement, joint enterprise and shared repertoire was linked to the PD course philosophy: "support your fellow community members". In Case Study Two the participants clearly did not make this philosophy their core enterprise although they did demonstrate some commitment to each other as professionals and to the course facilitator which will be further explored in this chapter.

A key design decision: Support your fellow community members

All aspects of the PD course design, including the time-line, content, goals, and assessment were based on a unifying philosophy: support your fellow community members. Using the community cohesion model (see Figure 1, Chapter 3) as a design framework it aimed to set the tone of engagement, become a core enterprise, and establish the need and authority for shared repertoire (see Table 3, Chapter 3 for a useful summary of the community cohesion model; see Chapter 4 for a detailed description of the course design). Indeed, this design decision was shown in Case Study One to be significant in facilitating community cohesion. However, Case Study Two responded in a remarkably different way. It was hoped that, as was shown in Case Study One, the participants would invest themselves in this philosophy, making it a core practice of their community.

Although the participants claimed that the face-to-face day provided the basis of supportive relationships (Questions 5 and 9, Appendix M) they were "quite reserved" (P8 interview, 04/12/2005) and did not appear to make the same kind of connection as the participant in Case Study One (Researcher Observations, 07/09/2005). Indeed, despite early feelings of support they reported an increasing sense of isolation. For instance, at the beginning of the PD course P8 was quite optimistic: "I think the idea of … belonging to the community and we're all doing this together, that was quite a big motivation for me to actually get on line and do things" (P8 interview, 04/12/2005). However, shortly after the face-to-face training, P8

reported that he was already feeling "estranged" (P8, Question 11, Appendix M) and as the course progressed he posted the following message to the discussion board:

> For my own (somewhat sporadic, I admit!) involvement in this community I have one main reason - a desire to improve my effectiveness as a teacher and facilitator. All the while this community meets my needs, I'll stick with it. In an online community I think that the need for company and a need for being made to get committed are minimal. (P8 Discussion Board)

In this discussion board post P8 publicly declared that he was motivated by a desire to learn. However, it is also clear that he saw the community's purpose was to meet his needs and not the other way around. In addition, he disputed the value of 'company', that is, social engagement and its role in facilitating commitment. Overall, the quote indicates that P8 was not invested in the philosophy of supporting each other. Indeed, it is suggestive that he is rebelling against the implications of the philosophy, "being made to get committed".

The other participants also reported beginning the course with a feeling of optimism at being involved in a supportive environment. However, like P8, they felt an increasing sense of detachment apparently due to a lack of participation. For instance, "It doesn't feel like the others are present" (P6, Question 12, Appendix M) and "it was a bit of a disappointment … half way through the course when I suppose I did wonder if there were a sufficient number of people actually taking part in the course" (P7 Interview). The issue of critical mass will be explored later in this chapter when it will be argued that the lack of participation was not solely due to lack of numbers. Indeed, while P6 and P7 lamented the lack of participation it was predominately P6 who began forum threads, asked questions and replied to posts. In other words P6 actively sought to engage and support the others. However, by the time of the post face-to-face questionnaire he had already become disenfranchised:

> I try hard to imagine that I am setting up a conversation with a group of people. Of course, I hope that Michael is also 'listening in' and gaining encouragement from my interest and contributions, but, in some ways, it feels that there is a game to be played for the sake of the course. (P6 post face-to-face questionnaire, question 10)

In the semi-structured interview at the end of the course P6 clarified this statement to say that the online forum and tasks no longer felt authentic, and that he was participating online, trying to be supportive because it was expected of him by the course requirements. Clearly he didn't feel that his response was a joint enterprise. Although P6 tried to maintain the community by supporting the other participants, their lack of reciprocity eventually meant that a joint enterprise of support was untenable.

By not supporting each other the participants threatened not only community cohesion but additionally their ability to successfully engage with the PD. It has already been pointed out that the course was purposely designed so that the participants needed to support each other to make sense of the content and activities in terms of their own contexts. The course provided the teachers with a considerable range of pedagogical content, links to further readings, activities, and practical applications and aimed to be a smorgasbord of ideas from which the participants could choose what they wanted to spend time on, research, discuss and practice as explained in the course outline:

> In order to complete this course you must rely on your fellow teachers. There is too much information to individually cover … Throughout this course you will be asked to prepare materials, join discussions and even write small quizzes for us all to participate in and learn from. … Together we can sift through the variety of ideas and scrutinise those most relevant to you / us / our community. (Appendix C)

In this extract the participants were legitimated as discerning professionals whose input was crucial to everyone's success. Instead of predetermining what was useful or what was valuable, the course was designed so that participants could engage with what was important to their contexts and, through interaction with each other, they could more easily negotiate their understanding of the community of practice in which they were participating. However, for this to work they needed to support each other.

In Case Study One the participants explored topics of interest to them and supported each other by engaging in discussions, researching the topics raised and providing resources, including summaries and quizzes. They all reported in their interviews that the flexibility of the

course was meaningful to them, and that they felt they were helping not only themselves but also the others in understanding the PD (see Question 15, Appendix H).

In contrast, the participants of Case Study Two predominantly worked through the course materials independently and interacted in the discussion board when it seemed relevant to them. The exception to this was P6 who continued to try and engage with the others:

> When I started putting the messages in, I thought maybe this was what we were waiting for so I'd have a go at trying to get things running as guided in the course materials. So I thought 'well let's just give it a go' but then, there was [sic] the disappointments. Well, it was a semi-disappointment because [the facilitator] always did respond with some terrific insights and very much appreciated but I wasn't getting anything from anyone else. And I couldn't respond to them because there wasn't anything to respond to! I tried to when I could but if there wasn't anything there, I couldn't respond to it.
>
> (P6 Interview, 03/12/2005)

According to this quote it appears that P6's engagement with the PD was threatened because the other participants were not supporting his efforts and nor were they raising new ideas themselves.

This is supported by a scan of the discussion board posts. For instance, P6 created 17 forum threads, starting new conversations in both the social and content forums. This is significantly different from the P7 who created 5 threads and P8 who created 2 threads. In addition, in almost every discussion board post P6 either asked questions or overtly sought feedback on what he felt were relevant and important issues in their contexts. An example of this can be seen in P6's message:

> Having read the useful summary on constructivist learning (in Layer 1), I find myself asking, 'Am I willing to go against the trend?' What strikes me most of all is that this theory lies behind 'coaching' (so it seems to me) in which the learner is encouraged to understand not only new material, but how he or she 'learnt' that material. In other words, the journey is as important as the destination. This has huge ramifications … for

instance, how can we balance the tension between exam preparation and preparing for

life-long learning? (P6, Discussion board)

In this example P6 relates a part of the course to his personal context. He doesn't explain the

theory but he provides a way in which it can be tackled.

However, less than half of P6's questions or requests for feedback were directly

addressed by the other participants. P7 and P8's failure to understand the nature of the course as

explained in the face-to-face training is particularly striking when it is pointed out that in all of

their posts, P7 only asked one non-rhetorical question and P8 asked none. Their posts were

statements of fact without providing the others with a legitimated opportunity to negotiate

meaning. This is not to say that conversations did not progress. However, P7 and P8 did not

make it any easier by writing long descriptions of what they had done, thought or proposed to

do without also offering ways in which the others could participate in that discussion. It is

interesting to note that P7 and P8's messages were contrary to the advice offered by the PD

course that they should refrain from overly long messages and instead offer opportunities for

others to discuss topics by highlighting key issues. An example of this can be seen in P7's

response to P6's above post:

Hi P6, I used the following source during a staff INSET on this topic. *'In his thesis on*

ICT capability amongst 14-16 year olds, Roger Crawford sums up the current

approaches to teaching and learning as 'behaviorist' and 'constructivist' (Crawford,

2001)[i]. The features of a behaviorist approach are teacher control of the learning

process, where pupils are expected to demonstrate what they have learnt. In the

constructivist model much more emphasis is placed on the collaborative learning

process and pupil construction of 'new knowledge'. Crawford says of the application of

ICT in the classroom, "The traditional and most common approach in secondary

schools is 'behaviorist', however, there are general characteristics of ICT (Inge, 1996)

and features of teaching and learning ICT in English secondary schools that make a

'constructivist' approach the only workable methodology." (Crawford, 2001)[ii] Most

teachers struggled with the concept of constructivism when applied to ICT in the

classroom. (emphasis added; P7, Discussion board)

The final sentence even has a hint of condescension. P7's statement not only fails to address the

key question in P6's post but also does not provide a way in which the others could easily

continue the conversation. However, in this instance the conversation did continue but it was

subverted from P6's original focus to swapping definitions and examples. While still a positive

outcome in terms of participants engaging with the PD content, the tone of engagement was

more academic and less contextualised. The exception was P6's persistent attempts at

engendering greater interaction, for instance: "We must be bold and DO it, rather than cower.

Who's with me lads?" (P6 discussion board).

There seemed to be a misconception or lack of investment in the philosophy of the

course: support your fellow community members. P7 and P8 in particular seemed to have

difficulty in understanding that the course did not tell them what to do, but rather expected them

to be proactively supportive of each other's learning. P8 struggled to see the relevance of this

approach: "I like to know what I'm doing something for and why I'm actually putting time into

doing it ... Leaving it fairly open ended, I think probably doesn't really make me work hard for

it" (P8 Interview, 04/12/2005). Similarly, P7 was not invested in the need to support each other,

and as a consequence, he didn't feel a need to access the course unless there was "a specific

task that needs to be done" (P7 Interview, 04/12/2005).

As already pointed out, the course design allowed the participants to engage in the

topics that were most relevant to them, supporting situated learning and the formation of a

localised community of practice. However, P8 felt that he was subverting the PD course when

he raised issues not covered in the PD content:

There were some instances where I actually went a little bit off track with the actual

course content and started talking about other things. For instance, when I did come

back from San Francisco, what I'd found and what is used in other particular skills, was

quite useful and certainly, getting some feedback from P6 for some of the resources that

I was actually trying to show him and how I was trying to develop an on line content myself, that was quite useful. (P8 Interview, 04/12/2005)

He felt that he was "off track" despite the course design having not only legitimated but encouraged this behaviour. Furthermore, P6's feedback was clearly valued, and yet P8 failed to realise that by himself not engaging in these supportive practices he was limiting his own sense of satisfaction.

This section has argued that the participants of Case Study Two, as a group, did not adopt the course philosophy as a core practice. Despite P6's efforts at community maintenance, the participants increasingly felt estranged from each other and the course goals. In comparison, in Case Study One the task of supporting each other was shown to be a form of centripetal participation in the community. It was not just a by-product of CoP but was itself a valued community practice. The participants demonstrated mutual engagement in a joint enterprise of support, and in the process they created a shared repertoire of community maintenance strategies. In other words, Case Study One displayed the characteristics of a localised, coherent CoP. In contrast, the Case Study Two group floundered in its mutual engagement and was seemingly unable to find a joint enterprise in meeting the course needs. Certainly, they did not all invest themselves in the enterprise of supporting one another.

A localised, coherent CoP

A CoP is a site of authentic learning where participants make meaning of their environment and find solutions to problems through socially negotiating the ambient curriculum (see Chapter 3). While the teaching profession could be described as a CoP, individual teachers do not usually mutually engage with the teaching profession at the global level (see Chapter 3). Instead, they engage with localised versions of the CoP, which could be at the level of their school, department, interest group, etc. A localised, coherent CoP is one where the members of a larger CoP establish relationships of mutuality unavailable at the global level and thereby

providing a means by which they can negotiate a joint enterprise and share repertoire in dealing with the world around them.

Consequently the formation of a localised, coherent CoP is dependant on the participants doing things together and forming a sense of belonging by which their perspective on the practices around them take on new meaning (mutual engagement). This common frame of reference is then the basis of understanding how problems can be resolved, what is important and what should be done (joint enterprise). As the participants engage with each other, responding to problems, they form a unique social history that includes not only a communal memory of action but also a raft of tools, concepts and language that helps them in engaging with the core practices, and thereby also defining the boundaries of the CoP (shared repertoire).

Although the participants of Case Study Two came together to engage with the practices of online teaching and learning (the topic of the PD course) they struggled to cohere as a localised CoP that would have, among other things, sustained their participation. This is seen in a statement by P6:

> I didn't get any sense of community at all. We didn't seem to be pulling together … no sense of we all want this to happen and make the most of it. … I just think everyone did their little bit or, if they did something, it was just part of sticking to the course but not doing more than that … because others were in a similar position to me in that we didn't put the time in and commit ourselves as fully as we might from the beginning.
> (P6 Interview, 03/12/2005)

P6 has identified both the lack of mutual engagement, "… everyone did their little bit… we didn't put the time in", and the poorly defined joint enterprise, "We didn't seem to be pulling together." The impact on shared repertoire is also evident when he stated, "… if they did something, it was just part of the sticking to the course but not doing more". Clearly, according to P6 there was a sense of 'us' but little coherence in their participation in the community.

This is supported by P7 who claims that he felt they were "part of something" but that they lacked a "common purpose" by which they could "forge ahead" (P7 Interview, 04/12/2005). He goes on to explain that this could have been different "if we knew each other

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just a little bit better, you know, and maybe if there was just that one common task" (P7 Interview, 04/12/2005). P7 acknowledged that mutual engagement (understanding each other) was important but he also shows that he felt they were not given a task through which they could engage. This is a reflection of the confusion about the core philosophy of the course and the roles of the participants to support each other. Like P6 he felt that while he had a sense of belonging, he had a poorly defined sense of who the others were and what they were trying to achieve. Consequently, there was little coherence of the localised community.

In both P6 and P7's quotes it is clear that they knew that the community lacked mutual engagement in a joint enterprise. This is also supported by P8 who indicated that he felt his lack of participation to be linked with the lack of cohesion: "We never really developed a sense of community with the other people using it. That was probably actually my fault for not actually being on board at the early stage in all the details" (P8 Interview, 04/12/2005). He went on to say that without a sense of community the "main impetus for actually getting things done was emails from the facilitator suggesting that we should be making comments and getting involved" (P8 Interview, 04/12/2005). Since the community lacked mutual engagement, and a clear sense of direction, it necessarily relied more heavily on the facilitator. Indeed, it will be shown later in this chapter that the lack of coherence meant the facilitator as a community broker had a more significant role in sustaining participation.

In chapter 5 it was argued that Case Study One formed a localised, coherent CoP. While firmly situated in the larger teaching CoP, they clearly demonstrated a localised coherent CoP with its own unique understanding of the world. The five teachers were invested in mutual engagement, joint enterprise and shared repertoire of the core practice of supporting each other. In comparison, Case Study Two has been shown to have floundered in mutually engaging in a supportive joint enterprise. This is not to say that a localised CoP was not formed, but it is suggestive that its coherence as a nexus point in making meaning of the world was less defined. The implications of this lack of coherence on the role of CoP in sustaining participation will be the focus of the remainder of this chapter.

Case Study Two lacked coherence as a localised CoP. In supporting this argument, I provided evidence as to how the participants' mutual engagement, joint enterprise and shared repertoire were poorly defined. Not only did they have difficulty in finding ways to mutually engage but they also could not come to a communal understanding of their role in the community. In terms of this research focus, their failure to cohere as a community had implications for their sustained participation.

At this point it should be reiterated that the lack of coherence is not an indictment of the participants, nor is it suggested that the PD was not successful. The participants were able to successfully complete the course. As in Case Study One their levels of understanding and skills were different but they all satisfied both the facilitator's and Education Queensland's requirements for the Learning Place Course Developer award. It has already been pointed out that, in order to achieve this outcome in Case Study One, both P1 and P5 required additional assistance from the course facilitator. In Case Study Two, all of the participants required similar assistance (see below). The point is, the failure to cohere as a CoP does not mean participants fail the PD. However, as already mentioned it does have significance in terms of this research focus on the role of CoP in sustaining participation.

In Case Study One the participants were mutually engaged in the PD, but more significantly in terms of this research, they were mutually engaged in supporting one another which sustained their participation over time. It was argued that the participants valued reciprocity of engagement, that is, a recognition of others' participation as a commitment to them and to the community. In Case Study One the participation of each individual was understood to be an effort deserving reciprocal effort and consequently sustained participation over time. In addition, the participants of Case Study One were shown to have valued social engagement which enabled them to engage in community maintenance strategies sustaining individual participants despite illness, grief and absence.

This section will show how Case Study Two differed from Case Study One by examining the issues of reciprocity of engagement and social engagement and their role in sustaining participation.

Reciprocity of engagement

Mutual engagement affords sustained participation because it values reciprocity. This was supported by Case Study One. The participants of that case study felt that their discussion board posts were valued and consequently valued the responses for the effort of participation. Moreover, the participants felt that unless they reciprocated they were not fully participating in the community. In other words, to be a member and to legitimately participate in what matters, they needed to make the effort to engage with each other. When the participants had not engaged as much as they felt they should, they also felt their membership in the community suffered which was usually expressed as a sense of disengagement. In addition, the evidence indicated that simply posting messages was not enough; they had to directly interact with each other, asking questions, and making an overt attempt to engage with the others' perspectives.

In Case Study Two the participants valued feedback from each other. However, they also pointed out that the feedback was limited due to a lack of participation. Participants became disenfranchised because they had a high expectation that their posts would not be reciprocated. For example, P7 commented on his relationship with the other participants and his desire to continue participating online:

> I think what hindered things was when, three weeks or four weeks into it, when you posted a comment, and that comment stood there for however long, you know, a day, two days, a week or whatever, but you know there was no participation from other people, that tended to make you feel well, hold on a minute, you know, what was the value of this? Or why bother going on line doing this? (P7 Interview, 04/12/2005)

This effect was reported by all of the participants in the interview at the end of the course but had already been highlighted as a significant issue by P7 and P8 in the post face-to-face

questionnaire. P7 succinctly pointed out that "the course lacked critical mass" (P7 Interview, 04/12/2005). The implications of this lack of reciprocity meant that the participants could not mutually engage, and as a consequence the coherence of the community was threatened.

Critical Mass.

The participants of Case Study Two felt that the rhythm was not sufficient to maintain their participation. They felt that this was due to a lack of critical mass in the interaction. Although this can, in part, be explained by the low number of participants it will be shown that the participants failed to adopt reciprocity as a core practice and, as a consequence, the community entered a downward spiral of disengagement. Critical mass is not simply about the volume of interaction; it refers to the rhythm of the community, and the need for members' participation to be reciprocated in meaningful ways. Without a sense of critical mass, that is, without a rhythm of meaningful participation the community loses coherence and sustained participation suffers.

The issue of critical mass was apparent shortly after the face-to-face training. Indeed, the participants had already sensed a need for more interaction and expressed their concern in the post face-to-face training questionnaire. P6 commented that "It doesn't feel like the others are present, only the course facilitator. I have started a few threads but still no response!" (P6, Question 12, Appendix M). Apart from the facilitator's responses, P6 felt that he was alone. He explained that he felt there was no real reason why there shouldn't be more participation from the others:

> I don't think the expectations were at all outlandish when you look at the amount of time you're asking us to spend in each week. Really it wasn't a huge amount. It's just a case of getting yourself organized to do it. … The thing only works when there is proper participation, when you do make the effort. (P6 Interview, 03/12/2005)

P6 felt that making an effort was the key to making the PD course work. However, P8 seemed to suggest that it was not the lack of commitment but rather the lack of numbers which impacted on the rhythm of the community: "The discussions have been interesting, but with

such a small group it is difficult to maintain momentum" (P8, Question 13, Appendix M). This argument is further supported by P7 who pointed out in the post face-to-face questionnaire: "There is not enough critical mass or critical response to issues. The course needs more participants. … You need more participants on the course for online interaction to take off" (P7, Questions 12 and 18, Appendix M). According to P7 and P8, three participants were not sufficient to generate enough interaction.

Although the small number of participants would have meant that there were fewer people to interact with, it was not that alone which resulted in a lack of critical mass. It has already been shown in the first part of this chapter that P7 and P8 did not participate in the discussion board as much as P6 and were not invested in the course philosophy of support your fellow community members. They did not seem to value reciprocity. As P6 pointed out: "I wasn't getting anything from anyone else. And I couldn't respond to them because there wasn't anything to respond to. I tried to when I could but if there wasn't anything there, I couldn't respond to it" (P6 Interview, 03/12/2005). Clearly P6 felt that his effort was not reciprocated but also that he could not demonstrate that he valued the other participants because he felt that they interacted online so little. It was argued in Case Study One that when the participants felt that their efforts were being reciprocated they also had a greater sense of mutuality and, consequently, were inclined to also reciprocate. In this way reciprocity helped to sustain their participation.

The implication of lack of reciprocity in Case Study Two was that the participants increasingly found themselves less motivated to interact online. For instance, P7 commented:

> What made me want to stop [participating] was when there was something posted on
> line and there was one reply to it and then it was maybe a week later or seven or eight
> days later, before there was another response to that. You know, I know you want time
> to reflect on things, and I've made that point already, but I think also for certain things,
> there needs to be a speedy response as well and, if you don't get that response, you
> know … it's just very frustrating when you post something up and there is limited or no

response to it and I think that can make you feel well, what's the point? (P7 Interview, 04/12/2005)

The rhythm of the community was insufficient to maintain P7's participation. In addition it is clear that P7 did value reciprocity in so far as he valued responses to his own posts. This is particularly clear when he talked about the early stages of the PD course: "When you post something on line, you then had that response pretty quickly from them, that did kind of gee you up you know" (P7 Interview, 04/12/2005). However, as shown in part one of this chapter, it was not enough to sustain his participation in the discussion board. Indeed, he has already been quoted as saying that he felt inclined to participate only when there was a task to be completed. Obviously he was not heavily committed to reciprocity of engagement.

Similarly, P8 stated that he was less inclined to interact online and instead preferred to observe: "I don't get my energy from communicating with other people. I was fairly keen on actually getting opinions but it was basically just to judge my own position on the course" (P8 Interview, 04/12/2005). This preference to lurk at the periphery is still legitimate participation in the community; however, with so few participants, it also reduces the mutual engagement of the community. Nevertheless, P8 did point out that when he did participate in the discussion forums he felt a greater level of satisfaction: "The more time that I was able to put into it, the more I got out of it" (P8 Interview, 04/12/2005). He went on to indicate that during the course his illness and school duties forced him to not put as much time into the course and, as a consequence, his level of satisfaction also reduced. Although P8 did not demonstrate a high level of reciprocation in the discussion board, his comments in the interview suggest he valued reciprocation and understood that it required an investment of effort. Nevertheless, P8's comment should also be taken in light of a message he posted to the discussion board about the community: "All the while this community meets my needs, I'll stick with it" (P8 Discussion Board). In this post he seems to argue that the community's purpose was to meet his needs and not the other way around. The implication was that P8 was not invested in helping others. Reciprocity for P8 was not a requirement for participation in the community.

It will be shown later in this chapter that the facilitator attempted to spur greater interaction between the participants and, as in Case Study One, modelled reciprocity of engagement. However, the facilitator was not the only person to try and increase reciprocity. P6 pointed out that he understood that: "For the course to work, you need others to respond to what you contribute" (P6, Question 13, Appendix M). Consequently, he frequently asked participants for their opinions, advice, and feedback. At one point when participation from P7 and P8 was particularly low he posted the following message: "I am enjoying the two-way conversation with Michael, but is there anyone else out there?" (P6, Discussion Board). To which P6 responded after two days: "No" (P8, Discussion Board). The lack of participation, and P8's response in particular had a negative effect on P6's sense of mutuality: "To be quite honest with you, I was rather upset with the response from P8 on that one. I think he was trying to be funny there but that didn't work too well" (P6 Interview, 03/12/2005). P8's lack of participation coupled with his rather dismissive email not only lacked a sense of reciprocity but also had an impact on P6's confidence as a centripetal member of the community:

> There didn't seem to be very much at all happening and I just wanted to try and make things happen but I think, possibly, I was a little bit [pause] Maybe that wasn't the right way of doing it and I got it wrong. You know, you sort of say it and perhaps think afterwards, 'perhaps I shouldn't have done' [sic]. (P6 Interview, 03/12/2005)

P6 was no longer sure if he was doing the right thing. The legitimacy of his participation was in question. Certainly, if he was the only community member to engage in this kind of community maintenance then it is not surprising that he questioned whether his actions were appropriate and his own membership or even the cohesion of the community. This is evident in his statement:

> I didn't get any sense of community at all. We didn't seem to be pulling together … no sense of, 'We all want this to happen and make the most of it'. … I just think everyone did their little bit or, if they did something, it was just part of sticking to the course but not doing more than that. (P6 Interview, 03/12/2005)

P6 felt that the community lacked reciprocity of engagement. Because they did "their little bit" to complete the course, they were disregarding a community's need for shared activity. Mutual engagement is not only doing things together but it is also the context for belonging. The lack of reciprocity meant that community cohesion suffered.

Up to this point it has been shown that the participants of Case Study Two all sensed that there was a lack of participation and that such low levels were insufficient to sustain a sense of community. The participants increasingly felt disengaged with each other and with the course. On one hand, P7 and P8 suggested that there were too few participants while, on the other hand, P6 argued that there needed to be greater reciprocity from the participants. It is interesting to point out that in the interview both P7 and P8 conceded that they may not have participated as much as they should. P7 went further; while reflecting on why the "levels of participation of everybody waxed and waned" he admitted "I think to a certain extent visible participation is important to sustaining the community" (P7 Interview, 04/12/2005). In Case Study Two there was not enough visible participation to sustain the community and, more importantly in terms of this research, not enough reciprocity of engagement to sustain participation.

Social engagement

Social engagement, as used in Case Study One, refers to those instances of mutual engagement which were non-content related, non-directed and informal. Once again it should be pointed out that, from a CoP perspective, all mutual engagement is social because it necessarily involves the recognition of other members as the social context by which actions are interpreted. Consequently, some care should be taken to distinguish the broader theoretical understanding of social from the participants own application which relates to what they perceive as non-content or informal communication. Although this term is potentially confusing it was deemed significant in Case Study One as a way of highlighting the way in which the participants of that case study valued and, in some cases, relied on social engagement to

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maintain their community membership, sustain their relationships and ultimately sustain their participation.

In Case Study One all of the participants were shown to place considerable value on social engagement in both the face-to-face day and online environment. Furthermore, their participation online as well as their interview data indicated that there was a connection between social engagement and sustained relationships and, by association, sustained participation. For instance, it was reported that the social engagement in the face-to-face day facilitated their participation online. In addition, those participants who engaged in the social forum and in the online chat reported a stronger connection with their co-participants and consequently felt a greater sense of 'commonality'. In these ways their participation was sustained by their relationships of mutuality.

In contrast, the participants of Cast Study Two demonstrated a low level of social engagement in both the face-to-face and online modes. When the participants mutually engaged they were predominantly focussed on content or skill issues. They did not tend to engage in off-topic conversations, community maintenance strategies, or share personal details. Even though P6 did attempt to engage the others socially, his attempts were frequently unsuccessful due to a lack of reciprocity.

Although social engagement was not required in order to complete the PD course certificate requirements, the course design did facilitate this kind of mutual engagement. It did this through providing social breaks in the face-to-face training as well as a social forum. In addition, social engagement was legitimated by the course design which encouraged communal support. This design decision was based on the CoP cohesion model which indicates that mutual engagement is not only doing things together but also is a process of building relationships of mutuality between members.

This combination of action and awareness of each other defines the context of belonging. Consequently, it becomes clear why the participants valued the face-to-face mode. It provides a great deal of information about the other members and consequently facilitates the sense of mutuality. For instance, P6 claimed that face-to-face training "encourages persistent

relationships" and that online delivery cannot "develop the necessary relationships that encourage, challenge and support the learner" (P6, Question 5, Appendix M). Similarly, P7 argued that face-to-face training supported ongoing participation by making the participants feel "more at ease responding online to those they had met" (P7, Question 5, Appendix M). He elaborated: "The face-to-face meeting facilitates social bonding. You get a better feel for the character of the person and the context in which they teach" (P7, Question 9, Appendix M). Even P8 who felt less connected than the others pointed out that, "the face-to-face gives people identities [which] is necessary to maintain relationships in an otherwise 'faceless' environment" (P8, Question 5, Appendix M). Clearly, the participants valued the face-to-face mode as a way of establishing supportive relationships.

However, P7 and P8 were not convinced of the value of online social interaction in maintaining these relationships. For instance, P7 pointed out that:

> While day one was a good day in terms of getting to know people, I suppose I did find it difficult to go on line in the [social forum] to try and push, I don't know, whatever, something that's social, something that would move things along at that level. Um, I've just got a great suspicion of those kind of online forums you know where socialization has a purpose, to be honest with you. (P7 Interview, 04/12/2005)

P7's uncertainty about online socialization helps explain why he only posted two messages to the social forum. Even though P7 felt that the face-to-face meeting was essential to form a social bond he was clearly not committed to social engagement in the online environment. P8 had a similar perspective. He enjoyed the face-to-face mode as a way of establishing relationships with the other participants but also rejected the role of the online environment as a means of social engagement. He stated: "In an online community I think that the need for company and a need for being made to get committed are minimal" (P8 Discussion Board). Although both P7 and P8 could see the value of social engagement in the face-to-face mode, they certainly did not feel online social engagement was required, or of benefit.

However, both P7 and P8 suggested that if they had participated more in the face-to-face day then they may have been more inclined to interact outside of the boundaries of the course content. For instance P7 commented:

> Maybe if I'd gotten to know the candidates on day one just that bit better, it would have then made my access to the [social forum] that bit better as well. But, I'm sorry, I just didn't see the purpose to be honest with you, I just thought, 'Oh, hold on a minute, this is, you know, life's too busy to go into the [social forum] and post social comments'.
>
> (P7 Interview, 04/12/2005)

This suggests that P7 did not feel the face-to-face day had made him comfortable enough to engage with the other participants in ways other than what he felt was proscribed by the course content. Similarly, P8 commented that due to the interruptions to his participation on the face-to-face day he felt "a bit on the side lines" and was less comfortable in engaging with the others and, especially, not with P7 whom he had not met before (P8 Interview, 04/12/2005). Although both P7 and P8 valued the face-to-face mode in establishing relationships of mutuality, it did not have a bonding effect. This has already been pointed out in part one of this chapter; during the face-to-face day the participants did not noticeably increase in their support of each other, nor did they show significant signs of connectedness or increased familiarity. Indeed, their interaction was reported as hesitant (Researcher Observations) and reserved (P8 Interview, 04/12/2005).

P7's reticence to interact in the social forum had an impact on his relationship with P8. P8 commented that he felt a positive relationship with P6 who had responded "so positively" to his posts in the social forum: "[He is] quite similar to me. He wants to do things differently. He wants to explore the possible strategies for improving his own practice" (P8 Interview, 04/12/2005). However, P8 reported that he felt P7 was "remote" because he had not participated in the social forum. This statement should be treated cautiously as P7 also explained, in hindsight:

> I think, probably, I was slightly biased because I was really using the [social forum] rather than the [content forums]. I think I discovered those quite late really and,

certainly, to see some of P7's responses in those [content forums] I realized I probably

missed out on quite a lot of information from him. (P8 Interview, 04/12/2005)

Nevertheless, P8's characterisation of P6 as 'positive' and P7 as 'remote' reinforces the need to

be seen as doing things together in order to sustained relationships of mutuality. Indeed, P8

went on to say that he felt connected with P6 because he "was always the one avidly posting

things inside the [social forum] area" (P8 Interview, 04/12/2005). When P6 was asked why he

felt committed to participating in the social forum he answered:

> I know we're all under pressure but if we're using online learning purely to work, in
>
> other words you're doing it because it's got to be done, then there's no room for the
>
> community to grow. You have to have time to play, to be entertained, to get to know
>
> each other. Otherwise there's no real enthusiasm. (P6 Interview, 03/12/2005)

The community's growth (or coherence) is dependant on the participants engaging in more

ways than simply doing the required tasks. This was shown in Case Study One where the

participants' sense of membership was maintained by a commitment to social engagement.

It is interesting to note that P7, despite his limited attempts at establishing mutuality

was quite adamant that social engagement was a requirement for ongoing participation:

> I've rabbited on a bit about the social element, Michael, but I think in some way that
>
> [it] is really critical to the development of a course and the participation in it. And,
>
> however you affect that social meeting and that social feeling, you know, I think that's
>
> the key thing that's going to make sure the course proceeds. (P7 Interview, 04/12/2005)

According to P7 the course development and sustained participation was dependent on a social

element. Yet he also pointed out that he could not engage as effectively via the online

environment:

> In my experience of using other on line forums … it's the social aspect that's the thing.
>
> It just doesn't quite work to be honest with you because I just can't simply relate to
>
> people like that electronically, you know there needs to be something, there needs to be
>
> something a bit more to it. (P7 Interview, 04/12/2005)

Clearly, for P7, face-to-face meetings provided the social element that was needed for sustained participation. However, P7's reference to himself does suggest that this is a personal preference and that he recognises that others may have a different response. This was similar to P8's response when asked if video or chat conferencing could have sustained the participants' relationships:

> I don't really like the idea of actually getting together, the setting aside a video conference time or a Chat time. … As I said, I'm not particularly a good social communicator as far as I'm concerned so I do tend to take a bit of a back seat and I wouldn't really like the focus to be put on me. (P8 Interview, 04/12/2005)

P8 felt uncomfortable being forced to interact in non-proscribed ways, preferring to participate at the periphery. However, with so few participants in the course the non-participation of both P7 and P8 had a significant impact on mutual engagement.

Even though all of the participants agreed that social engagement was important, it is clear that P7 and P8 were reticent to engage at that level in a public forum such as the discussion board. When P6 was asked what he felt could have sustained their participation, he responded: "The [social forum] could have supplied that social cohesion but there wasn't a lot going on in there was there? … Again, it comes down to people wanting to be committed" (P6 Interview, 03/12/2005). Whether it was an issue of commitment or confidence is perhaps beside the point. In terms of this research, it is clear that Case Study Two as a whole were not invested in social engagement in the online environment and that as a consequence their participation suffered.

Furthermore, a single face-to-face day meeting at the beginning of the course was not felt to be sufficient by the participants to sustain their sense of mutuality. For instance P8 explained that the sense of social connection and as a consequence his motivation decreased as time went by:

> It's just [a matter of] time from the actual face to face itself. As the time goes past, you just feel less a part of that group and less a part of that sort of dynamic. (P8 Interview, 04/12/2005)

This suggests that in order for P8 to have sustained his sense of mutual engagement over time he required more than one face-to-face meeting. This was supported by P7 who stated:

> I think at some point along the way if there is another opportunity for participants to meet in a face to face setting, I think that, to a certain extent, is what binds a course together and holds it together and increases the interaction on line. (P7 Interview, 04/12/2005)

Once again it is clear that the participants felt that social engagement was an important part of sustaining relationships and, by association, sustaining participation. However, P7 and P8, in contrast with all of the participants of Case Study One, did not feel the social forum could maintain what was established in the face-to-face day. This evidence suggests that the number of participants and/or their personal preferences in interaction may be significant in CoP cohesion.

Community maintenance

It has been shown that Case Study Two indicated a lack of investment in reciprocity of engagement as well as social engagement. Obviously these issues are not independent of each other. A lack of reciprocity meant that participants' attempts to form relations of mutuality through social engagement were destined to fail. Similarly without social engagement the participants felt that their connection with the others decreased and were consequently less committed to reciprocity.

Wenger (1998b) pointed out that mutual engagement requires an active investment by members to engage with each other in establishing relations of mutuality. By sharing in an activity and being included in what matters the members can form a sense of belonging that becomes the context by which they make sense of the practices of the community. Mutual engagement does not simply happen. It requires constant attention through, what Wenger (1998b) calls, community maintenance.

Community maintenance refers to the informal and formal work that members do which enables continued engagement. It is an investment in the well-being of the community itself, and is "the kind of coherence that transforms mutual engagement into a community of practice" (Wenger, 1998b, p. 75). In Case Study One the participants were shown to have been invested in community maintenance, particularly through social engagement. Examples were given of participants caring for others' welfare and inclusive valedictions in their messages. In contrast, Case Study Two demonstrated little commitment to community maintenance. In particular P7 and P8 have already been shown to not value reciprocity or social engagement, consequently it is not surprising that they did not support each other's engagement through community maintenance nor respond to P6's attempts.

P6 overtly attempted to maintain a sense of community cohesion by starting discussions, asking questions, responding to posts, and generally trying to give the online interaction a focus. For instance, in the social forum he finished a message about some of the difficulties he was facing implementing the PD in his classroom with: "I've given up coffee during the day – made me too edgy! What keeps you going?" (P6 Discussion board). This is both an example of social engagement as well as community maintenance. It provided an opportunity for the others to easily respond and thereby maintain a rhythm. However, no-one replied to his attempt at social engagement, or to his problems in implementing the PD.

Other examples of community maintenance can be found in P6's responses to other participants. For instance: "Greetings, P8. Thanks for the report – some fascinating stuff here. I'm particularly interested in…" (P6 Discussion board). His positive response legitimated P8's participation in the community. In comparison, P7 and P8 usually posted their opinion without engaging in this kind of community maintenance. For instance, "I used some of the ideas from the course materials…" (P7 Discussion board) and "The personality type testing is based on…" (P8 Discussion board). These messages neither affirmed nor denied the legitimacy of the messages they were responding to, although just posting indicates a sign of reciprocity. However in both these instances P7 and P8 did not use salutations; they did not ask questions or

offer the legitimacy of alternative views. These messages were posted to the discussion board without an attempt to maintain mutuality of engagement.

In both the social and content forums P7 showed no sign of engaging in community maintenance practices. Nevertheless, as will be shown later in this chapter, P7 seemed to engage with the other participants as a community content broker. Certainly, he had some experience in online teaching and had completed some research in the area as part of his Masters degree. However, while he seemed to provide knowledgeable opinions, he failed to also provide ways in which the participants could respond to his posts. In one instance P6 finished a message with a humorous exhortation: "Who's with me, lads?" (P6 Discussion board). However, in response P7 wrote: "Hello P6, not too sure about this one. Success in our curriculum clearly leads to…" (P7 Discussion board). Clearly P7 had an opportunity to engage in community maintenance but failed to respond with similar enthusiasm. Indeed, not only was his response non-committal, it could be read as having a tone of condescension. In either case, P6 did not continue participating in this discussion forum thread.

P7 saw the role of the discussion board as a means of engaging with the content and not the participants. He was either unaware of the need for community maintenance or he did not value it. When he was asked about his low participation in the social forum, he offered the following statement as part of his explanation:

> I suppose, from a teaching point of view … I just wonder if you know people are that finely honed in terms of what they want to get out of a course. You know in fact that whole thing about precious time and all that, if they're there simply to get x, y and z like a number of people I know, that's what they tend to do. You know, they focus on getting the x, y and the z out of it and a lot of the other stuff just goes by the way. (P7 Interview, 04/12/2005)

Perhaps P7 was so committed to getting the job done that he failed to invest time in community maintenance. Regardless, as has been shown already, his lack of community maintenance work certainly impacted on P6's participation and, as will be shown later, P6's sense of legitimacy or participation in the community.

Community maintenance is work that helps participants to continue engaging with the community's practices. In Case Study One it was shown how participants who were absent from the course would apologise or otherwise indicate that they are trying to re-engage. In response they were greeted with supportive messages that not only legitimated their participation but also provided a way in which they could immediately respond and participate. In Case Study Two, P8 had been absent twice for extended periods of time. When he returned he did finished his messages with "Sorry it's late!" and "I can only beg your humblest forgiveness for abandoning the [social forum] for so long!" (P8 Discussion board). In these quotes P8 indicated that he had a responsibility to the others, and that regular participation in the discussion board was a part of being a member of the community. In response to the later humorous plea for forgiveness, P6 thanked him for his posting and requested more information about a topic P8 raised in his post. This then sparked a conversation between P6, P8 and the facilitator over two discussion threads and was commented upon by P6 and P8 in their interviews as examples of engagement which gave them a sense of satisfaction.

In this example, the participants felt satisfied because they had engaged in a dialogue that was more than simply sharing information. It included a personal connection that was established through P8's expression of vulnerability and P6's supportive response. Both participants had applied community maintenance strategies. They had not only done something together, but also actively reinforced the relationships of mutuality. However, this example of mutuality was certainly not the norm in Case Study Two.

Summary

Mutual engagement is when participants do things together that are meaningful, build relations of connectedness, and provide a context by which they can make sense of the world. In Case Study One it was shown that, through reciprocity, social engagement and community maintenance, the participants actively sustained their relationships and by association their participation. However, in Case Study Two the participants indicated a lack of reciprocity.

Whether through a lack of commitment to supporting each other or through a lack of numbers, the failure to reach a critical mass, that is, a rhythm of meaningful participation in the community, meant that the community's coherence was threatened and sustained participation suffered. In addition, it has been shown that, in comparison with the first case study, the participants of Case Study Two were not invested in social engagement. Although all of the participants valued face-to-face contact, P7 and P8 infrequently engaged in online social interaction. Nevertheless, they both indicated that they felt more of a connection with P6 than each other, for both his reciprocity as well as supportive, social engagement.

The participants of Case Study Two did not engage in practices that supported relationships of mutuality. Without reciprocity and social engagement, including community maintenance, the participants were doing things together but without a sense of mutuality. Consequently, it is not surprising that their sense of joint enterprise was also poorly defined and lacked coherence.

The role of joint enterprise

Community cohesion is when community members are invested in mutual engagement, joint enterprise and shared repertoire. It has been argued that a cohesive community is one that is characterised by sustained participation over time. In Case Study Two it has been shown that participation levels were significantly less than in Case Study One. Moreover, the limited participation that did occur did not support a sense of mutuality of engagement. In providing evidence to support this argument I have already indicated that the participants, especially over time, did not have a sense of commonality, shared goals, a sense of working together or a responsibility to each other. This is considerably different from Case Study One where the participants reported a strong sense of accountability to each other and their joint enterprise was shown to have both directed and spurred their sustained participation.

Joint enterprise is defined as responding together to challenges, expectations and goals, such as those of the PD course requirements. Joint enterprise does not mean that the community

members must accept those goals, but rather they negotiate commonalities in their response to those demands. The enterprise is labelled "joint" because it is a socially negotiated understanding of what matters, what is important and what needs to be done. It describes a situation of mutual accountability, where members have a responsibility to each other and as a result both focuses and spurs engagement.

In Case Study Two, the participants' joint enterprise was ill-defined and, coupled with the participants' lack of mutual engagement, was not sufficient to direct or sustain their participation. The participants showed a commonality in their desire to engage with the content. However, without maintaining their relations of mutuality their enterprise could not coalesce into a communal understanding of what was valued, what mattered, and what they should be doing. Without a sense of mutual accountability, community cohesion suffered and sustained participation was increasingly dependant on the intervention of the course facilitator.

An ill-defined joint enterprise

The participants had an ill-defined joint enterprise. Although they felt a sense of belonging to the group, they did not feel that they were responding together to the demands of the course. This is not surprising considering that it has already been shown in this chapter that the participants reported decreasing levels of mutual engagement over time. The lack of mutual engagement meant that the participants' ability to negotiate a joint enterprise also decreased. Indeed, without a clear sense of the other participants they could not clearly judge what would be a communally acceptable response. Consequently the participants increasingly had a sense of independent action, isolation and disengagement. This section describes how the participants began the PD course with a sense of commonality but ended the course with a sense of disengagement.

The participants of Case Study Two reported that at the beginning of the course they felt a shared purpose and that they were responding together to the demands of the course. For instance, P8 noted: "Well, initially … after the initial face to face meeting we, well certainly I,

had in my mind's eye a sense of the group working together towards the great unknown" (P8 Interview, 04/12/2005). Both P6 and P7 made similar comments about an initial sense of common purpose. However, it is noteworthy that P8 rephrased his statement from "we" to "I". It suggested that, although he felt they had a common purpose, he was uncertain if the others shared the feeling. This concern was, in itself, an indication of a poorly defined joint enterprise and reflected the increasing sense of disengagement as the course progressed. This was further clarified by P8:

> I got more and more dislocated from the group because of [my absence] and just lagging behind, I got more and more, yeah disconnected. So I felt there was still the community there but I really didn't think that I was as much as part of it as I should be, I felt like a bit of an outsider. By the end of it, because I hadn't, sort of like, got into [the tasks] and really felt like I wasn't getting anything out of it and other priorities loomed. No, it didn't really feel as much community any more. (P8 Interview, 04/12/2005)

It has already been pointed out that P8's absence from the course due to commitments and illness led to a sense of disengagement. The above quote demonstrated that he no longer felt that he was participating in the centripetal practices of the community. He no longer felt connected to the group or shared in their sense of purpose. The ill-defined sense of joint enterprise meant that he was unsure of his place in the community or what he should be doing.

In addition to P8, the other participants also felt an initial sense of commonality followed by a process of disengagement. P7 stated:

> I'd say definitely after that first day … you do come away and you do think well; one, these are real people I'm going to be working with on line; and number two, there is a kind of a sense of whatever it is shared by you, shared commitment in terms of the course content and you know we wouldn't be there if we didn't have an interest in online learning and ways that you could use it in the classroom. Obviously after, when you come away from that first kind of event, you think, 'Wow, this is going to be

good'. But I think, you know, as you get back to work and two weeks, three weeks into

it, in terms of other priorities, it maybe takes second place. (P7 Interview, 04/12/2005)

It is worth noting that P7 referred to a commitment to the course rather than to each other. This

once again highlights a misunderstanding or lack of commitment to the course design principle:

support your fellow community members. Nevertheless, P7 had indicated that he felt he had

something in common with the others and that, at least initially, they shared a commitment. For

him, the joint enterprise was a socially negotiated understanding of what needed to be done.

However, he also pointed out that over time, like P7, the PD course became less of a priority.

While all of the participants maintained that they had a common interest in the PD

topic, they also pointed out that after the face-to-face training day they no longer felt they were

working together in a joint response to the course requirements (see Appendix M). Instead, they

seemed to be independently working through the course. P6 stated: "I didn't get any sense of

community at all. We didn't seem to be pulling together … no sense of we all want this to

happen and make the most of it" (P6 Interview, 03/12/2005). According to P6, there was a

sense of 'us' but little coherence in their participation in the community. This was supported by

P7 who claimed that he felt they were "part of something" but that they lacked a "common

purpose" by which they could "forge ahead" (P7 Interview, 04/12/2005). Like P6, he felt that

while he had a sense of belonging, he had a poorly defined sense of who the others were and

what they were trying to achieve. This argument is further substantiated by P8 when he tried to

describe the way in which the participants worked together:

> We never really developed a sense of community … If I talk about community, I'm
>
> talking about a group of people with shared ideals and shared goals and I don't really
>
> get that sense. "Team", definitely not, there's even more of a sense of purpose
>
> associated with that. "Group", yeah, you start getting to be slightly looser. "Course
>
> participants" is just too cold. … it implies far too little sense of an idea about who the
>
> other people are. (P8 Interview, 04/12/2005)

All of the participants felt that they had a connection with each other, but that it was not

sufficient to give them a sense of joint enterprise. Their connection with each other was

minimal. When P6 was asked if he felt that he had anything in common with the other participants he answered: "Apart from being involved in education, um, from the [online] course to be quite honest with you, no" (P6 Interview, 03/12/2005). P7 and P8 replied to the same question in similar ways, pointing out that by the end of the course they maintained their sense of having a common interest but they omitted to refer to a common commitment to each other.

Mutual accountability

In Case Study One the participants were invested in the joint enterprise of supporting each other. They demonstrated mutual accountability. They had a clear idea of what the community valued as a joint response to the PD course requirements. All of the participants felt guilty if they did not participate, interact, or support each other. Their mutual accountability focussed and sustained their participation. In contrast, the participants of Case Study Two had a poorly defined sense of joint enterprise and, as a consequence, their sense of accountability to each other was also unclear. Although they reported that they felt a responsibility to participate in the group, they also indicated that their motivation in continuing to participate was derived by a sense of personal commitment to meeting the course requirements rather than as a socially negotiated response.

An example of this can be found in the following statement by P8:

Probably what stands out the most is the fact that I was really feeling guilty about not being able to commit the time that I really should have done because of other constraints. … As far as the actual way it was actually delivered, it was interesting but it never really developed a sense of community. (P8 Interview, 04/12/2005)

Unlike the participants of Case Study One, P8's guilt was not derived by a sense of failing to meet the communally negotiated response but rather a failure to meet the commitment which he made to the course requirements of three hours per week. All of the participants of Case Study Two reported a similar commitment to completing the course but, when they were asked to

clarify their commitment, they referred to the amount of time or the tasks. Clearly the participants had a common sense of what they needed to do, but it was not founded in mutual accountability.

This was not surprising since without mutual engagement in a joint enterprise they could not easily negotiate what was valued, and what they needed to do to participate in the localised community. Consequently their sense of commitment reflected their identity as a member of the wider teaching community rather than a socially negotiated response within their localised community. This argument is supported by P7 who pointed out that:

> By enrolling in the course, you know, I think there's a whole range of unwritten things that you're agreeing to as a teacher. You know one of the things, obviously, is if you make that commitment in the first place to go on line then you should live up to that commitment. You know you have to recognize that other commitments get in the way but, ultimately, yeah, it is voluntary, you signed up to do it so you should do it. (P7 Interview, 04/12/2005)

P7's response to the demands of the course was established without negotiation with the other participants. His commitment was intimately linked with his identity as a teacher. His sense of what he needed to do and what was appropriate was based on his membership of the teaching community of practice. Unlike the participants of Case Study One, and based on the evidence, he did not negotiate joint enterprise at a local level.

Both P6 and P8 also demonstrated that their commitment was a function of their identity as teachers, rather than a result of their localised community membership. For instance, P8 commented: "I committed myself to actually doing the course. It's a commitment that I'd made, and I felt that I wasn't able to actually fully address that commitment, hence guilt to some extent that I hadn't done my job" (P8 Interview, 04/12/2005). P8 felt his continued participation was part of his "job" that is, his identity as a member of the teaching community. P6 felt the same way: "I don't like letting other people down. If I commit myself to something, I do want to be as committed as I can but I do have a family and I do have other engagements outside of school" (P6 Interview, 03/12/2005). Although P6's comment suggested that he was

committed to the success of the other participants, it also indicated that he saw his commitment as part of his school duties. This is further supported when P6 stated:

> I felt guilty because I wanted to be part of it and I wanted to get the most out of it, if I hadn't participated and I'd given an undertaking at the beginning of the course that I'd put in three hours a week at least, then, if I hadn't done so, then there would be a sense, a feeling that I'd let other people down and really I wasn't getting as much out of it as I could so I would try and find that extra time. (P6 Interview, 03/12/2005)

P6 indicated that he felt unless he spent three hours a week then he was not meeting what was required of him and was not providing himself with the best opportunity to "get the most out of it" . His reference to letting the others down should not be ignored but did seem to be of less consequence. Nevertheless, it is noteworthy that P6 was the only participant who indicated even some small sense of mutual accountability without being specifically prompted.

The difference between case studies in this regard was striking. In Case Study One the participants were shown to have a strong sense of mutual accountability and in their interviews they frequently referred to having to participate so that the others could participate. However, in Case Study Two both P7 and P8 required specific prompting before they clarified their relationship with the others and any sense of responsibility to them. When they were asked, they replied that they did feel responsible or accountable in some way. This is remarkable because it contradicts what they had previously reported. The participants seemed to either not have a clear sense of mutual accountability or perhaps were negotiating their answer in response to the interviewer's questions. Certainly, it should be pointed out that by openly questioning the participants' commitment to each other, the interviewer could have been seen as questioning their identity within the community of teaching practice. If we assume that the joint enterprise of the global teaching community is a shared sense of purpose founded on relationships of mutuality then, by questioning their sense of commitment within the localised community, it could have threatened their identity. However, this is speculation. All of the participants did indicate a sense of responsibility, but also were clearly less invested in, or motivated by, that commitment than the participants of Case Study One.

It is perhaps not surprising that P6, who has already been shown to have invested in reciprocity of engagement, was also the most invested in mutual accountability:

I'm conscious that in order, for example, the Discussion Forum to work, there needs to be more than one person and, during the course, [the facilitator] did raise that [issue] and I began to realize that unless I had a go at putting something into the discussion, then no one else would be able to have a discussion with me. As it turns out, occasionally from P7, and very often from [the facilitator], thank you very much, things would be responded to and I do understand the sense of frustration that you put something onto the system and get nothing back from it. But the driving force was that if I didn't have a go, would anybody else? (P6 Interview, 03/12/2005)

When P6 was specifically asked about his responsibility to the others he had noted that the course depended on participant interaction. Unless he participated he could not support the others and could not expect the others to support him. Unfortunately this enterprise was not shared by the others.

Even though P8, when specifically asked if he felt responsible to the others, indicated that he was "committed to the group", he went on to say that he did feel some guilt about not interacting with the other participants but that "I had to try and shuffle responsibilities and get my own work done. … I didn't want to make the other participants feel like they were in second place when, in fact, really they were" (P8 Interview, 04/12/2005). Supporting the other participants was not a high priority for P8. Nevertheless it should be noted that his comment indicated some sense of joint enterprise in that he recognised the others would "feel like they were in second place". He was making a socially negotiated judgement about what was valued by the community.

When P7 was asked about his commitment to the other participants he commented "Um, yeah to a certain extent" (P7 Interview, 04/12/2005). After further prompting he explained that his commitment to the other participants was not particularly significant. He suggested that would have been more significant if there was greater social interaction:

You know, I'm willing to bet that the more social interaction that there is … I think, the more people buy into each other's kind of values, beliefs or whatever and … I mean it sounds a bit like moral blackmail here, [but] because you know somebody socially, you know, morally, you will go back on line and participate more. (P7 Interview, 04/12/2005)

This highlights the interdependency of joint enterprise and mutual engagement. P7 felt that he was not committed to the others because he did not have strong relationships with the other participants. Moreover, this lack of commitment meant that he was less likely to "go back online and participate more".

However, P7 and P8 were not completely without mutual accountability. They both indicated that they felt they had to continue participating in the course because the small number of participants would mean that their absence was particularly noticeable.

P7 explained that although the course became less of a priority and that he did not have a strong connection with the other participants, he continued with the course because it would have been too noticeable otherwise:

And, again, it's back to the small number of people taking part. You know, if you actually dip out and don't take part in the course that has a bigger impact on things than if it's a course where there are 10, 15 or 20 people taking part. … I think once you move over maybe 14, 15 people on line I think it can be very easy for, you know, candidate number 16, 17 and 18 to either just lurk and not take part or in fact actively disengage themselves from the conversation without many people noticing, to be honest with you. (P7 Interview, 04/12/2005)

According to P7, a larger group could have resulted in participants disengaging from the course. It is also clear P7 felt some responsibility in at least not causing a big "impact" by his lack of participation. This indicates that he not only understood the need for participation but also that he was invested, albeit minimally, in satisfying that mutual accountability.

P8 also felt that a larger group would have resulted in him lurking more. Although he felt that the course needed more participants he also admitted that he would have participated even less. He said:

> It did feel a bit bare in the discussion forums at times and I think a larger group would have made it feel better. I think, also, that the guilt I referred to would have been lessened because I would have known that my lack of participation would not have been quite as noticeable. So I think, yeah, it would have had some effect. … I think probably it would have had a negative impact on it. I would have been more likely to lurk, read other people's opinions and less likely to get involved, because you can hide in a large group … whereas the impetus to give up a Friday night was really driven by the fact that it was such a small group and I did feel that connection, that almost partial responsibility to the other members of the group. (P8 Interview, 04/12/2005)

It has already been shown that the lack of critical mass caused the participants to feel increasingly disengaged from the course and the other participants. However, it also appears that the small number of participants was a reason for continued engagement.

This is not to say that the participants were committed to the success of the other participants as was seen in Case Study One. Instead the participants of Case Study Two seemed to be concerned that they would be thought of less kindly if they were seen to not participate. Nevertheless, this shows that their sense of what was important, and what needs to be done, was socially negotiated. Their limited mutual engagement provided a context in which they came to understand what was needed in order to participate legitimately within the community.

This section has demonstrated that the participants of Case Study Two did not have a clearly defined joint enterprise. Although they began the course with a sense of common purpose they finished the course with little sense of shared goals or commitment. The participants, especially P7 and P8, were shown to have been primarily committed to completing the course requirements rather than supporting each other. This commitment seemed to be a reflection of their identities within the larger CoP of teaching rather than a socially negotiated response to the course demands. Nevertheless, the participants did indicate some mutual

accountability, particularly in a common understanding of the need to participate. However, while P6 actively pursued his commitment to reciprocity and social engagement, the other participants seemed only committed to meeting a minimal standard that would preserve their identities. In Case Study Two, unlike the first study, the joint enterprise was poorly defined, and the lack of mutual accountability meant that the participation was not focussed or sustained.

The role of shared repertoire

Shared repertoire is defined as members resolving problems together (see Chapter 3). It is a set of shared resources that have evolved from mutual engagement in a joint enterprise and can be called upon to help further negotiate meaning (Wenger, 1998b). Shared repertoire is a socially negotiated and, therefore, profoundly unique understanding of routines, words, tools, ways of doing things, discourse, stories, gestures, symbols and actions of the community. Shared repertoire also includes the way in which members express their membership and identity. For instance, when a member relates an experience or explains a solution they are negotiating the legitimacy of their practice as well as their identity. To be able to competently use the shared repertoire to make meaning and to engage with each other is to demonstrate membership.

It is important to note that shared repertoire is a historical reflection of mutual engagement in a joint enterprise. This is critical for the current case study since it has already been shown there was a general lack of mutual engagement or joint enterprise. As a result, it is not surprising that there was limited shared repertoire. That is, the discussion board did not clearly indicate that the participants were using or creating socially negotiated strategies, discourse, or other communal resources.

Before proceeding, it should be re-emphasised that shared repertoire is not simply swapping information, such as can be found in most of the 79 discussion board posts in Case Study Two. Shared repertoire refers to the socially negotiated understanding of the objects and actions within a CoP.

In Case Study One, all of the participants had employed socially negotiated strategies and discourse to sustain their participation. For example, they were able to renegotiate their membership within the community after absences by using communally understood strategies such as apologising and asking for help. When Case Study One participants engaged in such strategies the other participants responded with supportive comments, help, or advice (see Chapter 5). Another example is the way in which the participants used words and phrases that they had adopted and given an extra layer of meaning such as in the application of Salmon's (2002) animal descriptors to signify participant membership and competency (see Chapter 5).

However, in Case Study Two there were limited examples of participants engaging in these kinds of socially negotiated strategies. Indeed, since the participants did not overly invest in mutual engagement or have a well defined joint enterprise and consequently it is not surprising that there is little evidence of shared repertoire. However, after analysing the discussion board posts and the participant interviews it became apparent that the participants did share at least one socially negotiated understanding: to participate in the discussion board was to reify their identity as competent members of the teaching community. Despite their limited sense of mutual accountability to each other they still expressed a keen sensitivity that their posts would be perceived by the other participants as appropriate to their identity as members of the wider teaching community. This also highlights the fact that they were not invested in a localised CoP had not formed.

Reification of Identity

The participants necessarily had to use the discussion board for the majority of their online interaction. The discussion board as a locus of mutual engagement has a unique characteristic of also being a permanent record of that engagement, and consequently, is also a process of engaging with and creating shared repertoire. This has a simple ramification: in order to participate in the course the participants were forced to demonstrate their ability to use the shared repertoire as well as mutually engage with the entire community. This also means that in

every discussion forum message the participants were re-negotiating their membership and reifying their identity.

In Case Study One, the participants were shown to have reported some hesitation in posting to the discussion board for fear of appearing incompetent. However, this perceived risk was also shown to have afforded a greater investment in the quality of participation. Hence, the use of the discussion board as a shared repertoire of identity maintenance both threatened and afforded sustained participation. This was also shown to be true in Case Study Two.

The participants of Case Study Two clearly felt that the discussion board posed a risk to their identity in terms of being seen as competent members of the community. For instance, P6 explained that he felt there was a pressure to post messages that were meaningful or else the others would think, "What an idiot that person is!" (P6 Interview, 03/12/2005). However, because of the lack of participation in the discussion forums, he found it difficult to judge if "what I'm about to put into cyberspace is something that other people really want to know" (P6 Interview, 03/12/2005). He went on to say: "The old humility comes into play in that you think, 'well is that going to be of any value to anyone else?' " (P6 Interview, 03/12/2005). This lack of confidence in being able to participate competently in the community "negatively impacted" (P6 Interview, 03/12/2005) on his participation.

In this example it is clear that the lack of mutual engagement meant that P6's identity as a community member was threatened because he could not competently negotiate a repertoire of engagement: "I suppose it made me wonder whether there was something I was doing wrong or whether it was worth the effort" (P6 Interview, 03/12/2005). His confidence as a centripetal member of the community was further shaken when he tried to motivate the other participants and was either ignored or received unexpected replies:

> I just wanted to try and make things happen but I think, possibly, I was a little bit [pause] Maybe that wasn't the right way of doing it and I got it wrong, you know, you sort of say it and perhaps think afterwards perhaps I shouldn't have done. (P6 Interview, 03/12/2005)

Certainly, in this case P6 reported that his attempts to interact with the other participants decreased as his feelings of competency decreased. Participating in the discussion forum was not a risk free activity and as result he spent more time on considering his posts: "I do think the off-the-cuff remark can sometimes be quite insightful although … people can click the button and regret they've done it" (P6 Interview, 03/12/2005).

This concern was also shared by P7 who stated: "The last thing you want to do is make an idiot of yourself when you're posting things on line" (P7 Interview, 04/12/2005). The discussion forum was more than simply a place to post information. It reified the participants' actions so that every attempt at communication was a public engagement with the community's practices. The participants could not lurk at the periphery and legitimately participate in a less public mode. P7 explained that, "Whether it's one sentence, two or three sentences you're posting on line, it's there and it's evidence" (P7 Interview, 04/12/2005). Consequently, P7 noted that he felt uncomfortable commenting on topics unless he had done some background reading. However, P7 also pointed out that this same concern also encouraged high quality posts: "I think the nice thing … is that it does give you that bit of time to think and reflect before you actually post on line" (P7 Interview, 04/12/2005). He argued that the nature of the discussion board "gave you a kind of focus" that resulted in pressure to get it right (P7 Interview, 04/12/2005). This pressure both afforded and threatened participation over time.

This pressure was also felt by P8 who pointed out, "When you're posting information you tend to be fairly brief, fairly concise, [and] very focused" (P8 Interview, 04/12/2005). He went on to say that he felt pressure when interacting to participate at a level of competency displayed by the others:

> A lot of the time I was quite daunted by a lot of the discussion that was going on because it certainly did seem to me that I was the intellectual lightweight and everybody else was having fantastic discussions about all sorts of things that I really didn't understand in great detail. (P8 Interview, 04/12/2005)

This also highlights the way in which the discussion board as a history of mutual engagement allowed participants to come to a socially negotiated understanding of what was acceptable. In

this case, P8 felt that he was unable to participate due to being an "intellectual lightweight". This self-branding is an example of establishing an identity of non-participation.

Through this identity of non-participation, P8 could still engage in the practices of the community such as post messages to the discussion forum, but was able to disengage from the implications of centripetal membership. He explained that he used the discussion forum to: "Judge my own position on the course … and see if there was anything I could actually respond to" (P8 Interview, 04/12/2005). In other words, since P8 could not lurk at the periphery of the community because every message was a public utterance, he realigned his identity so that he did not have to engage in aspects of the community in which he felt incompetent.

The facilitator as community broker

This chapter has mainly focussed on the interaction between the PD course participants with limited commentary regarding the role and impact of the course facilitator. This was not to suggest that the facilitator should be ignored when examining the role of CoP in sustaining participation. The discussion of the facilitator's role has been left to the end because it is distinct from the role played by the other participants.

The participants in Case Study One were invested in each other. Their reciprocity of engagement, social engagement, mutual accountability, and reification of identity were reported in relation to each other and not in relation to the facilitator. Although the facilitator had a significant impact on their practices he remained at the periphery of the community.

In contrast, the Case Study Two participants floundered without the facilitator's support. Indeed, the facilitator played a critical role in the participants' successful completion of the course. Since the community lacked mutual engagement and a clear sense of direction, it necessarily relied heavily on the facilitator to provide the context, rhythm and direction. An implication of this study is that a community without coherence can not establish its own regime of participation. In Case Study Two the facilitator was required to act as a broker: helping the members to engage with the centripetal practices and with each other.

In Case Study One the participants reported that the facilitator legitimated their participation in the community. Through inclusive and supportive feedback the facilitator helped the participants to recognise the validity of their contributions. In addition it was shown that the participants' relations of mutuality were brokered by the facilitator actively facilitating opportunities for participants to work together and negotiate meaning.

However, in Case Study Two only P6 reported that he felt a need for his participation to be legitimated. In addition, he pointed out several times that the facilitator was the only member of the community who engaged in supportive practices and that this gave him confidence as a competent member of the community. For instance, he said: "Your comments really kept me going … because you would say, 'That's very useful, thank you for that' … It made me feel that [the] things I'm saying can be of great value to other people" (P6 Interview, 03/12/2005). He explained that there was "no major feedback [on my contributions] from anyone apart from you" (P6 Interview, 03/12/2005). This had a significant impact on his participation: "It made me wonder whether there was something I was doing wrong or whether it was worth the effort. Again, your responses were what kept me going" (P6 Interview, 03/12/2005).

The lack of reciprocity from the other participants led P6 to doubt his own legitimacy. However the facilitator as a community broker provided P6 with confidence and helped to sustain his participation. This was a persistent message throughout P6's interview. For instance:

Researcher: Do you feel that your engagement with this Professional Development course has been sustained longer than any other Professional Development course that you've done?

P6:   Oh yes, oh yes! I think though that one of the reasons for that is because of you and because you were always there dropping in suggestions and making me feel that my contributions were worthwhile even if they may

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have been naff. Nevertheless you always gave a very positive response

to them and that was great. I wanted then to be able to do more.

(P6 Interview, 03/12/2005)

The facilitator played a critical role in sustaining P6. It is important to note that P6 refers to how he felt more confident because of the facilitator's interactions. His confidence was the key to continued participation. It was not simply because it was the facilitator, but that the interaction helped to legitimate his identity:

I came to think of [the facilitator] as another person to have the dialogue with, not simply as the course facilitator. Part of me acknowledged that you had a vested interest in this course but, at the same time, as the weeks went by, it was just simply that you were another person who was willing to engage in dialogue … because you were genuinely interested in what I had to say and there to help me move along. (P6 Interview, 03/12/2005)

It seems clear that the lack of mutual engagement with the other participants meant that P6 relied heavily on the facilitator to provide the social activity by which he could negotiate meaning. Without the facilitator, P6's participation was not legitimated. This highlights the role of mutual engagement in supporting sustained participation. It also emphasises the need for a community broker to help participants engage with the community's practices.

P6's need for legitimation is not surprising since it has already been shown that, unlike P7 and P8, he was invested in the process of mutual engagement. Without interaction his ability to engage with the community was threatened. In contrast, P7 and P8 were not as invested in reciprocity or social engagement. They did not report a need for validation, although they did show a desire not to look incompetent while interacting online. During their interviews both P7 and P8 did not refer to the role of the facilitator in terms of legitimating their participation, but rather as a broker of community rhythm.

In Case Study One it was shown that the facilitator played an important role in maintaining the community rhythm. However, his role in Case Study Two was critical, especially for P7 and P8. A constant rhythm of engagement affords a sense of purpose, however if the rhythm is too fast people can stop participating because they feel overwhelmed (Wenger et al., 2002). On the other hand if the rhythm is too slow individuals can feel "out of sync" and the community "can easily slip from people's consciousness" because of the lack of mutual relations (Wenger et al., 2002, p. 129). As pointed out in Chapter 3, distributed communities are at particular risk of members feeling disjointed because of the reliance on asynchronous communication. For instance, it can be days before a discussion board post is answered. Consequently one of the tasks of the facilitator was to maintain a community rhythm.

An example of community maintenance was when the facilitator posted a weekly summary of what had occurred and what needed to be done. In Case Study One this was shown to have helped participants engage with each other. In Case Study Two such emails became the central focus of the community rhythm as pointed out by P8:

> The main impetus for actually getting things done was emails from the facilitator suggesting that we should be making comments and getting involved and setting appropriate deadlines. (P8 Interview, 04/12/2005)

It is noteworthy that P8 referred to the facilitator's role in "setting appropriate deadlines". Clearly P8 felt that the weekly emails sent by the facilitator were directions for participation as opposed to suggestions or encouragement. The lack of mutual engagement and reported feelings of isolation and estrangement meant that P8 increasingly relied on the facilitator to act as a barometer of course activity: "It seemed like it was just you with the emails sending me, pulling me, reminding me what I'd volunteered to do rather than community" (P8 Interview, 04/12/2005).

P8's reaction to the facilitator's emails was also mirrored by P7 who argued that not only did the emails remind him to participate online but that he felt the entire community's rhythm was determined by these emails:

> It would be interesting to track the return [discussion forum participation] against the emails that you sent out to see if, in actual fact, you know when you jog people's memories if that's the thing that makes people then come back on line. I suspect that's what did it, Michael, to be honest with you. … An email from you meant that I then did go back on line to participate. (P7 Interview, 04/12/2005)

Certainly, this was the case for P7 and P8. Moreover, their continued participation reflected a level of accountability to the facilitator: "Mostly out of commitment to you personally. I didn't really want to let you down and certainly your emails kept prompting me to actually go back and do it again" (P8 Interview, 04/12/2005).

The heavy reliance on the facilitator to broker the community rhythm meant that he could no longer remain at the periphery of the community. The facilitator could not limit his participation without also negatively impacting on the teachers' participation in the PD course. As a result, and in contrast with Case Study One, the facilitator increasingly interacted in the online discussion forums to try and ensure that the rhythm did not slow to such an extent that it "slip[ped] from people's consciousness" (Wenger et al., 2002, p. 129). The role of the facilitator in maintaining the dialogue was referred to by P7 who noted that the lack of critical mass meant that the:

> E-moderator has then come on to try and gee up the conversation and make sure that the one comment or the two comments aren't just floating in limbo. (P7 Interview, 04/12/2005)

The implication of this was that the facilitator had a more centripetal identity within the community. The facilitator's frequency of engagement in the discussion board is shown in Figure 22.
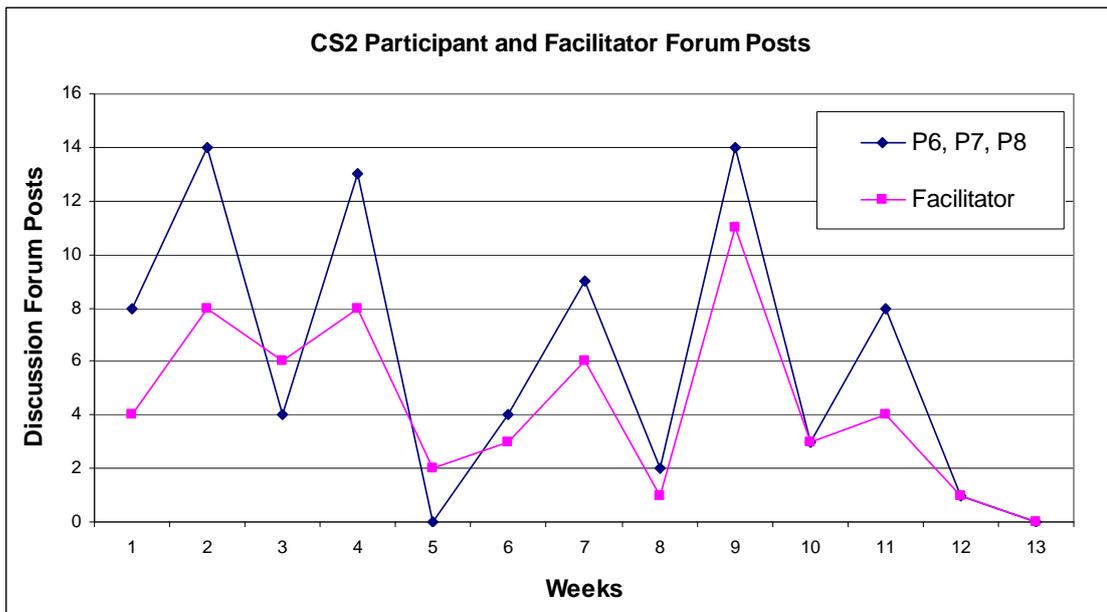
Figure 22. Frequency of Case Study Two participant and facilitator forum posts.

In the first two weeks the facilitator tried to remain at the periphery by only contributing after several discussion board contributions had already been made by the other participants. This strategy had been employed in Case Study One. However, as the participants in Case Study Two failed to regularly engage online it became necessary for the facilitator to post messages more regularly. This is a considerably different pattern to that of Case Study One (see Figure 16, Chapter 5). Table 19 highlights the significant difference between the case studies in terms of the percentage of discussion board posts made by the facilitator as opposed to the participants.

Table 19

Facilitator and Participant Forum Posts in Case Study One and Case Study Two

	Facilitator		Participants		
	n	%	*n*	%	Total
CS1	79	28%	204	72%	283
CS2	57	42%	80	58%	137

In Case Study Two the facilitator's messages constituted 42% of the discussion board activity. This was considerably more than the 28% in Case Study Two.

The role of the facilitator as a broker of community rhythm in Case Study Two was critical in sustaining participation. All of the participants indicated that they would have not continued to participate in the course if it was not for the facilitator either legitimating their participation (P6) or actively maintaining their engagement (P7 and P8). Both of these roles were apparent in Case Study One; however, they were shown to have aided the participants in mutually engaging in a joint enterprise. In comparison, it is argued that in Case Study Two the facilitator became so central to the community's practices that the coherence of the community was jeopardised.

In this way the facilitator as a community broker both encouraged sustained participation but also threatened community coherence. Too much reliance on the facilitator reduces the participants' ability to socially negotiate community practices. However, in Case Study Two it was also apparent that without the facilitator's increasingly centripetal role the participants would not have completed the PD course.

Gender differences

Until this point the discussion of both case studies' findings has been limited to emergent themes relating to the role of CoP in the sustained participation of teachers. It has already been pointed out that because of this, gender and other socio-cultural influences were not a specific focus of this research. However, due to the way in which the case studies were coincidentally differentiated according to gender, it seems a serendipitous opportunity to spend some time considering this line of inquiry. Indeed, this is particularly valuable as it is apparent that the community cohesion outcomes of the two case studies seem to correlate with the gender differences represented by their membership. In other words, the ways in which the participants of the two case studies interacted appear, at first glance, to follow well documented patterns of

behaviour in the research literature on gender difference (Guzzetti & Fey, 2001; Herring, 1994a, 1994b, 2000; Kendall & Tannen, 2001; Monroe, 1999; Tannen, 1990).

The purpose of this section is to acknowledge that some of the differences between the case studies could have been influenced by gender differences in social interaction. However, it is also important to contextualise this discussion of gender difference in three ways. First, the research design was not specifically created to study gender difference and consequently data collection and analysis processes often associated with gendered language and behaviour were not targeted. Second, the case studies are small and significantly differ in a number of other variables including country, professional experience, ICT competency, etc. Consequently, the data cannot be generalised. Third, the focus on CoP cohesion is not diminished by possible influences of gender. Indeed, CoP is a social learning theory that is fundamentally a condition of power relations (Contu & Willmott, 2003).

Gender is a part of CoP as much as culture, class, or any other socio-economic or phenomenological condition. The possibility that Case Study One formed a cohesive community more easily due to gendered abilities in language and relationships (Fletcher, 1999) does not negate the way in which CoP cohesion influences sustained participation. Indeed, the way in which the participants mutually engage, negotiate a joint enterprise and share repertoire is part of their ongoing negotiation of their personal socio-cultural histories, identities and multi-memberships.

The idea that gender identities, and especially gendered language, is a form of CoP is a growing field of interest in the research literature (for example, Eckert & McConnell-Ginet, 1992; Holmes & Marra, 2004; Paechter, 2006a; Parker, 2006). These studies focus on how feminine and masculine identities, language and other socially constructed characteristics are adopted by members moving from peripheral to centripetal participation. From this perspective, CoP is a way to understand the process of socialisation. For instance, Paechter (2006b) argues that a CoP framework helps social scientists to explain the variations of gender performance that a single individual might demonstrate across different communities.

However, in a wide review of the literature on CoP using Wenger's 1998 framework, I could not find any research literature which discussed possible gender differences in the way in which participants invested in the dimensions of community cohesion (i.e., mutual engagement, joint enterprise and shared repertoire). In other words, there is no research literature which focuses on whether men or women more easily form a cohesive CoP. Despite this omission in the research literature, there is a well established body of evidence regarding gendered behaviour, and a rapidly growing literature base in behaviour in online environments, which could help us to recast the differences between Case Study One and Case Study Two.

The most obvious difference between cases is that Case Study One indicated a greater investment in social engagement, community maintenance and mutual accountability to a joint enterprise of helping each other. These CoP cohesion behaviours could be seen as reflections of gender difference. For instance, Blum (1999) and Rovai (2001) found in their research that, when interacting online, men predominantly adopted an independent voice while women predominantly adopted a connected voice which emphasised understanding, empathy, acceptance and collaboration. Certainly, Case Study Two could be characterised as having an element of disengagement when compared with Case Study One, although to summarise them as being independent could be dangerous since all of the participants clearly valued establishing relationships with each other as seen in their comments regarding the face-to-face day, as well as reporting a sense of risk in posting public messages (see earlier this chapter).

In a quantitative study of 193 graduate students, Rovai and Baker (2005) concluded that females were more "socially engaged" (p. 41), seeking both increased knowledge and interpersonal relations.[9] In their research they also pointed out that, as a group, the female students posted more messages online than the males (Rovai & Baker, 2005). Similar findings by Shea, Fredericksen, Pickett, Pelz, & Swan (2001) suggest that females have a higher level of learner to instructor and peer to peer interaction. This seems to fit with the way in which Case Study One also had a higher total and frequency of discussion board posts, especially in the

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[9] Rovai and Baker (2005) use the terms "social community" and "interpersonal community". These terms have not been used in the text to avoid being confused with CoP.

social forum. However, it should also be pointed out that the male case study had fewer participants, but when they did post messages they were frequently over a page in length, in comparison with the female participants who would often write one or two paragraphs which was also the recommended length as suggested by the PD course instructions. Clearly there are a number of variables which need to be accounted for and suggest themselves as future research foci.

Given this, it is useful to draw attention to the work of Holmes and Marra (2004) who used 1,500 recorded interactions in a mixed gender workplace to consider the kinds of relational work which are usually ascribed to women within communities of practice. Although they do not explicitly use Wenger's 1998 framework of CoP, they use the terms in a way which is consistent with the theory. In their research they categorised a variety of relational practices, including: team building, small talk, off-record approval, and mitigating (self-depreciating) humour. These practices bear a striking resemblance to the community maintenance strategies which are particularly prevalent in Case Study One and are also displayed by P6 in Case Study Two. In their analysis they argue that the women and men engaged in these practices in different ways but that relational practices are "by no means the sole prerogative of women" (Holmes & Marra, 2004, p. 390). However, it is important to note that they do not clarify the frequency of relational practices according to gender. Instead they simply point out that most of the research subjects "skilfully made use of subtle and off-record strategies to "create team" and to pay attention to face needs, to reduce face threat, and to manage potential conflict, while furthering their work team's objectives" (p. 393). However, they go on to point out that the relational practices displayed in different teams of both genders were not always what we would first assume to be relational work:

> In one team … there was scarcely any conventional small talk, for instance, and the humour was predominantly aggressive and sarcastic, directly face-threatening rather than supportive or attenuating in its effect. And as mentioned, in the factory team the humour consisted predominantly of aggressive jocular insults and verbal abuse. Both these communities of practice were perceived as very "masculine" in their style of

interaction. Their workplace discourse was often confrontational and aggressive, with

frequent challenges and disagreements. (p. 393)

Holmes and Marra (2004) conclude that our gendered notions of relational practices need to be

reconsidered and further research needs to be conducted. In the current research it is important

to note that while the participants of Case Study One engaged in more supportive practices and

consequently fit a harmonious image of community, it should be noted that a CoP does not

require harmony or homogeneity. A community's practices can be aggressive, competitive, and

emotionally detached and yet they can still find a way to be cohesive (Wenger, 1998b).

This section has not attempted to be a comprehensive review of research on gender

differences. It has aimed to highlight that some of the differences between Case Study One and

Case Study Two can be considered from the perspective of gender difference. However, it

should also be pointed out that based on these small case studies it would be irresponsible to

argue that community cohesion was a function of "women's work". Like Holmes and Marra

(2004), I conclude that further research needs to investigate the ways in which male and female

community members invest in the dimensions of CoP cohesion.

Conclusion

This chapter was divided into two parts. The first part described the teachers'

participation in the PD course over time. The second part considered the data from the

perspective of CoP and made comparisons with the findings of Case Study One. In particular, it

highlighted themes that addressed the research question: What role does CoP play in the

sustained participation of teachers in a small-scale blended PD course?

In addressing this question, the community cohesion model (Figure 1, Chapter 3) was

used as a framework by which the data could be analysed. A coherent CoP is one where the

members establish relationships of mutuality and thereby provide a means by which they can

negotiate a joint enterprise and share repertoire in dealing with the world around them. Of

particular interest to this research is that community cohesion describes a complex social condition which sustains participation in a CoP (Wenger, 1998b).

In Case Study One it was argued that the participants demonstrated characteristics of community cohesion which, in turn, played a role in supporting their continued participation in the PD course. In contrast, the participants of Case Study Two were shown to have had significant difficulty in mutually engaging in a clearly defined joint enterprise or sharing repertoire. Nevertheless, in analysing the data from Case Study Two it has been argued that the failure to cohere as a CoP helps to explain some of the difficulties the teachers faced in sustaining their participation.

One of the key differences between the case studies was that the participants of Case Study Two, as a group, did not adopt the course philosophy (support your fellow community members) as a core practice. Despite P6's efforts at community maintenance, the participants increasingly felt estranged from each other and the course goals. The group floundered in its mutual engagement and was seemingly unable to find a joint enterprise in meeting the course needs. Certainly, they did not all invest themselves in the enterprise of supporting one another.

The formation of a localised, coherent CoP is dependant on the participants doing things together and forming a sense of belonging by which their perspective on the practices around them take on new meaning (mutual engagement). This common frame of reference is then the basis of understanding how problems can be resolved, what is important and what should be done (joint enterprise). As the participants engage with each other, responding to problems, they form a unique social history that includes not only a communal memory of action but also a raft of tools, concepts and language that helps them in engaging with the core practices, and thereby also defining the boundaries of the CoP (shared repertoire).

Mutual engagement is when participants do things together that are meaningful, build relations of connectedness, and provide a context by which they can make sense of the world. In Case Study Two the participants indicated a lack of reciprocity. Whether through a lack of commitment to supporting each other or through a lack of numbers, the failure to reach a critical mass, that is, a rhythm of meaningful participation in the community, meant that the

community's coherence was threatened and sustained participation suffered. In addition, Case Study Two indicated a low level of social engagement and other community maintenance strategies that supported relationships of mutuality. Without reciprocity, social engagement and an investment in community maintenance, the participants were doing things together but without a sense of mutuality.

Joint enterprise is defined as responding together to challenges, expectations, and goals such as those of the PD course requirements. In Case Study Two, the participants' joint enterprise was ill-defined and, coupled with the participants' lack of mutual engagement, was not sufficient to direct or sustain their participation. The participants showed a commonality in their desire to engage with the content, however, without maintaining their relations of mutuality their enterprise could not coalesce into a communal understanding of what was valued, what mattered, and what they should be doing. The participants did indicate some mutual accountability, particularly in a common understanding of the need to participate. However, while P6 actively pursued this enterprise as shown in his commitment to reciprocity and social engagement the other participants seemed only committed to meeting a minimal standard that would preserve their identities. This disjuncture in their mutual accountability meant that community cohesion suffered and sustained participation was increasingly dependant on the intervention of the course facilitator.

Shared repertoire is a historical reflection of mutual engagement in a joint enterprise. In Case Study Two the lack of mutual engagement and a poorly defined joint enterprise resulted in limited instances of using or creating socially negotiated strategies, discourse, or other communal resources. However, it has been shown that the participants were sensitive to the way in which the discussion board reified their identity as competent members of the teaching community. It was shown that this communal understanding of the significance of discussion board messages both afforded and threatened continued participation.

It was also shown that the participants of Case Study Two floundered without the facilitator's support. Indeed, the facilitator played a critical role in the participants' successful completion of the course. Since the community lacked mutual engagement and a clear sense of

direction, it necessarily relied heavily on the facilitator to provide the context, rhythm and direction. The implication of a community without coherence was that it could not establish its own regime of participation. It needed the facilitator to act as a broker: helping the members to engage with the centripetal practices and with each other. In particular, the research revealed that the facilitator played a crucial role in legitimating P6's participation and maintaining community rhythm, especially for P7 and P8.

CHAPTER SEVEN: CONCLUSION

This research project arose from my experience as a Departmental Head of ICT with the responsibility of training staff in the pedagogical applications of technology. In that role I noticed considerable entropy or resistance to training, and I began to ask the question: How can I help sustain teachers' professional development when it is not possible to extend the face-to-face training? The use of a pronoun in this question was considered valuable as it contextualised this research in terms of a local, as opposed to a systemic, approach to sustaining the PD experience. Within this pragmatic lens, I shifted the focus from issues of systemic support, administrative leadership, technology, and other wider constraints to one of a professional contract between myself and the PD participants. In other words, how could a PD course with limited resources and budget sustain teacher PD?

After considering the research literature on PD, it became clear that sustained participation was commonly accepted as a key element in effective PD. However, the PD literature did not clarify how sustained participation could be achieved within the pragmatic lens of this research. Indeed, sustained PD was found to be generally lacking in current models of PD and generally unsuccessfully addressed by the trend towards multiple session PD. A blend of ePD and face-to-face modes was thought to have a number of advantages including social support structures and being flexible in time and place. This was felt to be important because the literature clearly showed that teachers' PD needs required more than technical skill acquisition and were best supported through social activity responsive to their complex professional contexts. The literature also indicated that a community based approach addressed these needs.

Situated Learning and, in particular, CoP argue that learning is a personally transformative experience where practice and identity are negotiated over time. This was thought to help explain why sustained participation was important. Moreover, CoP provided a

lens by which the complexities of sustaining teachers' PD could be understood and *designed for*. In particular, sustained participation was shown to be a characteristic of community cohesion, that is, an investment of practice and identity in mutual engagement, joint enterprise and shared repertoire.

However, the nature of the relationship between CoP and sustained participation remained unclear, especially in the context of a small-scale blended PD course. As a result this research was driven by a single research question: What role does CoP cohesion play in the sustained participation of teachers in a small-scale blended PD course?

In addressing this research question a case study methodology was applied to two groups of teachers participating in a blended PD course which had been designed to provide opportunities for participants to mutually engage in a joint enterprise and shared repertoire. However, the design and its impact on the participants were not the research focus *per se*. The focus lay in trying to understand the sustainability of participation in terms of CoP cohesion.

The role of CoP cohesion in the sustained participation of teachers

Although the case studies had similar outcomes in terms of participant completion, they were significantly different in the way in which the teachers' interacted with each other. From a CoP perspective, these differences were critical for both community cohesion as well as sustained participation. Case Study One indicated characteristics of a localised, coherent CoP. In contrast, Case Study Two demonstrated little coherence in mutual engagement, joint enterprise and shared repertoire. In both case studies it has been argued that community cohesion or lack thereof helped to explain issues of sustainability of teacher participation.

It should be noted that the generalisability of these findings is limited. The case study methodology inherently means that conclusions drawn from one case study cannot be assumed to be true of the wider population. However, case studies can be used to expand theoretical propositions (see Chapter 4; see also Yin, 1991).

The following propositions further clarify the role of CoP in professional development. Although there is a growing body of research on PD and other training contexts which uses the phrase "community of practice" the literature review could not identify any research which applied Wenger's (1998b) theory of CoP to exploring issues of sustainability in PD. This is partially explained by the fact that CoP as described by Wenger is a complex socio-cultural process of situated learning which resists operationalisation as a PD model. Consequently researchers have developed several variations, or have simplified the concepts to meet their needs (for example, Clarke, 2006; Wallace, 2003). However, this research has attempted to use Wenger's (1998b) theory without alteration and in its full complexity. Even when researchers have attempted to explain PD or training according to CoP they have shown CoP to be a relevant framework but have not clarified the role of CoP in the sustained participation of its members (for example, Brosnan & Burgess, 2003; Goos & Bennison, 2005)

According to Wenger (1998b), the formation of a localised coherent CoP is dependant on the participants doing things together and forming a sense of belonging by which their perspective on the practices around them take on new meaning (mutual engagement). This common frame of reference is then the basis of understanding how problems can be resolved, what is important and what should be done (joint enterprise). As the participants engage with each other, responding to problems, they form a unique social history that includes not only a communal memory of action but also a raft of tools, concepts and language that helps them in engaging with the core practices, and thereby also defining the boundaries of the CoP (shared repertoire).

Although Wenger (1998b) agued that these dimensions of cohesion sustain a community, he gave little indication of how this occurred. This research has addressed this gap in the literature and not only indicates the appropriateness of a CoP approach in small-scale, blended PD (which has not previously been addressed in the PD literature) but also helps to explain the role of CoP cohesion in the sustained participation of its members.

While not forgetting the context of this research and the limitations on generalisability, the findings support the following propositions:

1. **CoP** *cohesion affords sustained participation* **of teachers in a small-scale blended PD course**. When participants mutually engage in a joint enterprise and share repertoire they also support each other's ongoing participation as well as are drawn to continue participating themselves. The regime of participation is socially negotiated within the community. A lack of CoP cohesion, that is, limited mutual engagement in a poorly defined joint enterprise with little shared repertoire, threatens sustained participation and results in the participants relying more heavily on the facilitator to provide the regime of participation.

2. **CoP cohesion has a** *synergistic relationship* **with sustained participation**. CoP cohesion is a social process which actively encourages (e.g., through reciprocity, mutual accountability, etc.) sustained participation. However, sustained participation is also a condition which facilitates mutual engagement, the negotiation of joint enterprise and creation of shared repertoire.

3. **Mutual engagement sustains participation because it establishes** *relations of mutuality*, that is, an awareness of a connection to the other participants that is more profound and binding than simply completing tasks together. The participants' sense of belonging arises from, and their identity is defined by, their engagement with their fellow community members.

   a. **Mutual engagement sustains participation because it involves an** *investment in reciprocity.* Members recognise that participation itself is a valuable commodity and an expression of community membership.

b. **Mutual engagement sustains participation through** *social engagement.* Social engagement plays a significant role in establishing relations of mutuality and *engenders persistent relationships* that afford continued participation. These persistent relationships are also supported through participants' engagement in community maintenance strategies.

c. **Mutual engagement sustains participation through** *community maintenance practices*. Members engage in formal and informal practices which help make the community a welcoming and supportive environment. Community maintenance strategies are closely linked with an investment in social engagement.

4. **Joint enterprise sustains participation because it both** *focuses and spurs social energy*. When the joint enterprise is clearly defined, the members understand their role in the community and what they need to do to maintain their identity as a member. Joint enterprise leads to *mutual accountability* where members are committed to each other. Mutual accountability includes a clearly defined sense of what they need to do to support each other or, at least, not to make the working environment any worse. Consequently, joint enterprise provides a focus for social energy but also motivates members to continue participating.

5. **Shared repertoire both** *affords and threatens* **sustained participation**. Discussion forums provide a way in which members can vicariously experience mutual engagement despite asynchronous rhythms. This allows participants to socially negotiate their practices and identity and continue to find ways to participate in the community. However, the way in which discussion forums reify participant identity also threatens participation due to the risk it poses to an individual's sense of

competency within the community. Participating online, even in the social forum, is not a risk-free environment.

6. **The facilitator acts as a *community broker* and *legitimates members' participation* in centripetal practices of the community**. A community broker provides ways in which members can mutually engage, define a joint enterprise and competently share repertoire. By remaining at the periphery the facilitator ensures that his or her participation does not dominate the engagement but, simultaneously, the facilitator retains enough legitimacy to support and encourage participants to mutually engage, and to rely on each other to negotiate the community's practice.

7. **The facilitator also supports sustained participation through *brokering community rhythm*.** Participants feel less motivated to participate if they believe their efforts will not be reciprocated. However, through careful monitoring of the members' participation, the facilitator can work to maintain the community's rhythm and thereby sustain participation over time. In this way the facilitator helps to ensure that the community does not slip from the individual participant's consciousness. The implication of a community without coherence is that it cannot establish its own regime of participation. It needs the facilitator to act as a broker helping the members to engage with the centripetal practices and with each other.

The above theoretical propositions help fill the research gap in the role of CoP in sustaining participation. Although the concept of a CoP has been used extensively in terms of PD or other training (for example, see literature reviews: Dede et al., 2005; C. Johnson, 2001), it has not been rigorously applied according to Wenger's 1998 framework to explore the issue of sustainability, let alone in small-scale blended PD. The contextualisation of this research underlines that, while the propositions add to the theoretical understanding of CoP, it also does not lend to generalisation to wider population.

Implications for PD design are drawn from the research findings and from the above propositions. While not forgetting the limited generalisability of the research, the implications consider how the research may impact on PD design and serve to contextualise the theoretical outcomes.

1. PD design needs to *focus on relationships*. This research has clearly shown that relationships built on mutual engagement sustain participation. Supportive relationships between members of the community (including the facilitator) can leverage individuals to continue participating. Consequently, PD design needs to include social activity that values and legitimates meaningful relationships. It is something more significant than merely adding a social discussion forum or buying lunch for the course participants. It requires a re-consideration of who has control over negotiating meaning in the course. Relationships of mutual engagement mean being involved in what matters. Thus a central aim of PD courses is to make relationships a core enterprise.

   a. PD within a CoP framework therefore inherently *values tools, discourse, objects and activity* that support members engaging with each other in profound ways.

   b. *PD design cannot be prescriptive*. There is no clear path in engendering persistent relationships, let alone creating CoP cohesion. (This is amply demonstrated in the differences between the two case studies in this research.)

   c. Participants need to feel connected and a *face-to-face meeting* as part of a blended PD can be significant in achieving this.

   d. A *blended PD course promotes connectedness* through the face-to-face and ongoing computer mediated communications, thereby supporting a rhythm of meaningful interaction,

e. The sense of connection needs a *rhythm of meaningful interaction* - an investment in reciprocity - for it to be sustained over time in the virtual learning environment.

f. In terms of that rhythm, the *size of group* is potentially important, and certainly the implication of this research is that fewer participants in a PD course require more facilitation in terms of that rhythm.

2. One way in which PD design can support social activity in what matters is through *re-examining the goals, curriculum and assessment*. (For example, the PD course in this research made the primary goal for the participants to be socially responsive of each other.) Making the curriculum a collective tool in negotiating something valuable to the group and redefining the idea of assessment from being predetermined tasks to an emergent discourse supports Wenger's (1998b) CoP Learning Architecture. PD which has detailed assessment criteria and learning outcomes potentially restricts opportunities for participants to socially negotiate meaning since the tasks generally require a product according to the course designer's conceptions.

a. Redefining assessment as a socially negotiated discourse does not mean that there is no quality control. The facilitator, as a legitimate peripheral member of the community, provides *quality assurance by brokering competency* in the community's core practices.

3. Another issue arising from the research is that *participant engagement through discussion forums is not a risk free activity*. The nature of online discussion forums means that mutual engagement is a process of identity reification. The implication is that when designing online PD courses even the social forum needs to be considered in light of constant identity negotiation. (In both of the case studies in this research the participants were hesitant to add to the discussion forums because there was a potential threat to their identities of competence.) A PD course should aim to facilitate participants' understanding of what is valid behaviour in discussion forums. A lack of participation may indicate significant issues in terms of identity reification. Facilitators

may need to broker a rhythm of participation in the social forum as much as in the content forums. (Certainly this appeared to be a beneficial practice in Case Study One.)

Recommendations for future research

It is obvious that all of the above theoretical propositions and design implications need to be further researched because of, for instance, the limited generalisability of this study. The theoretical propositions make broad connections between CoP and sustained participation and the PD design implications are relevant extensions of those theoretical propositions. Clearly, there are several other areas which should also be highlighted for future research.

Firstly, research needs to occur with respect to the size of the participant groups. Although the literature review (see Chapter Three) indicated that there was no specified limit to the size of a CoP, a group of five participants in Case Study One demonstrated characteristics of a localised CoP. However, Case Study Two with only three participants indicated little cohesion as a localised CoP although they did appear to demonstrate investment in a wider CoP of teaching. Furthermore, Case Study Two seemed to link size of group with increased reliance on the facilitator to provide a regime for the community rhythm. Consequently it would be valuable to conduct further research into the implications of size of group in CoP cohesion. For instance, based on the current research it could be hypothesised that the smaller the group of participants the greater the level of external (e.g., facilitator) rhythm setting is required. It would also be valuable to replicate this study with a larger group of participants. Among other things a larger group of participants would test a point raised by P8 that a larger group would have allowed participants to lurk or disappear from the course altogether. Additionally, research into group size could also further clarify the type, timing and amount of facilitation required in engendering CoP cohesion and sustained participation.

Secondly, it has already been pointed out in Chapter Six that there appears to be no research literature on gender differences in CoP formation. The different types of practices engaged in by the female and male participants in this case study could be perceived as

gendered discourse and role adoption. Consequently, it would be worthwhile to conduct research to examine the role of gender in CoP cohesion. For instance, are female members more likely to invest in reciprocity and community maintenance strategies than males?

Thirdly, this research focussed on sustained participation as a description of engagement over time. It did not attempt to make a judgement of the participants' quality of participation. However, the participants in both case studies, particularly in Case Study One, indicated that they felt pressure to post messages that showed they were competent. It would be valuable to conduct research that investigated quality of participation and CoP cohesion.

Fourthly, CoP as a theory describes a process of peripheral members becoming centripetal members and who, in turn, help new members engage with centripetal practices. Community of Practice is essentially a theory of generational learning, which suggests another reason why it is difficult to operationalise as a strategy in short-lived environments, such as PD courses. Consequently it would be valuable to conduct research in the way in which a PD course, such as the one used in this research, could be the nexus point for one generation helping another take on centripetal practices. For instance, the graduates of a PD course are encouraged to continue participating in the CoP while new cohorts or individual participants are introduced to increasingly centripetal practices of the community. This could be both sustaining for the new and old members.

Fifthly, further research needs to be conducted in the literature of CoP. The research findings of a large proportion of the literature review in Chapter Three were brought into question by the way in which "community", "community of practice" and similar terms were used interchangeably or without clear definition. Consequently, there is a need for a comprehensive review of the literature and theories in the area of community with goal of clarifying their differences and similarities. The later in particular would be useful as it would provide a basis upon which the growing body of literature in CoP could be used to support arguments despite different theoretical foundations. Future research needs to be rigorous in the way it uses such terms as CoP.

Concluding Statements

This thesis has addressed gaps in the current research literature. In particular, it has made seven main theoretical propositions and three implications for PD design that warrant further research. Furthermore, five (5) participants (plus facilitator) demonstrated characteristics of a localised, cohesive CoP. This is the smallest community reported in literature.

It crucially adds to the theoretical understanding of CoP cohesion. In particular, the way in which it affords and threatens sustained participation. Based on a comprehensive review of the literature, this is the only application of Wenger's 1998 CoP framework in researching sustained participation in PD.

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Dear Colleague,

You are invited to participate in this FREE course.

*Learn how to create **powerful online learning activities** for your students!*

This course will introduce you to the world of instructional design. It is a practical 'hands on' approach to planning, creating and managing online materials, discussion forums, chats, tests and more! The course will give you ideas on, not only what you can do online, but also how you can enhance your classroom teaching and assessment.

What will you learn?

This course is made up of four layers. Each layer includes some theoretical and technical elements. However, all of the content is practical and can be applied to your classroom. By the end of the first day you will have created several pages online and have a web site ready for students. The following weeks will give you a chance to explore the skills in detail, collaborate with other participants, and to create your own materials.

1. Planning for integration	**2. Content Design**
The types of online activities available for different learning outcomes, including how to create WebQuests and other PBL activities. This topic also briefly explores some learning theory as well as how you can use your online activities as part of student formative and summative assessment.	This topic gives you hands on experience in instructional design principles, including practical applications of semantic chunking and image redundancy.
3. Communication	**4. Programmed Interaction**
You will have hands on experience in using email, discussion forums, chat and data conferencing and learn how to use them to increase the quality of student participation. You will also learn how to facilitate online communications to minimise your effort and maximise student learning.	You will create online tests, surveys and other interactions (e.g., crosswords and cloze exercises) for formative and summative assessment. You will also explore when to use programmed interactions for scaffolding.

What are the course requirements?

You simply need to have a familiarity with using the internet and a desire to create something online for your students! You will also need easy internet access.

How long does the course run?

The course begins with one day of face-to-face training (i.e., we are all in the same room) and then continues for four weeks via the internet. During the four weeks you will need to dedicate up to 3 hours per week to complete the collaborative activities as well as work on your own online materials. There are NO assignments or essays. The work load is designed to be minimal; however, you may find that you get so excited about developing your online materials that you forget to eat. I take no responsibility for that.

When is it?

[this information varies according to the case study]

What do you get at the end of the course?

- ✓ A certificate from Education Queensland, Australia, certifying you as an Online Course Developer
- ✓ A certificate from James Cook University, Australia, certifying your completion of the Integrating Online Learning training.
- ✓ 12 months access to Education Queensland's Learning Place discussion forums and Comic Chat software, for you and your students!
- ✓ 12 months access to the world's premier course management software (Blackboard) to create courses and learning activities for your students (this software is so expensive only universities and educational consortiums can afford it)
- ✓ An armament of theory and practical skills that can be used no matter what online writing software you use, whether it is Blackboard, Ramsys, Moodle or even FrontPage.
- ✓ My undying gratitude and a place in the annals of academic history

This course is free but similar courses would normally cost around $400/£160.

Why is this course FREE?

This course is a central part of my PhD research. My research has won both federal and state government funding which includes travel to the UK and special concessions for my course participants, such as, access to Blackboard. As part of agreeing to participate in this research, you will need to commit to completing the course as well as being interviewed.

About the trainer: Michael Henderson

I have ten years teaching experience in both Australia and England. During my last post in England, I was the Head of ICT at Queenswood School, Hertfordshire. I am now a Lecturer and Postgraduate student in the School of Education at James Cook University in Australia. My current lecturing position includes teaching instructional design to 300 first year students over a 600 kilometre radius using a mixture of face-to-face and online technologies. I have been researching, publishing and lecturing in the field of multimedia and online education since 1994. I am also an educational consultant to several institutions and have produced interactive CD-ROMS, websites, Intranets, Extranets, and online courses for virtual learning environments.

Are you interested?

Please contact me with any queries. Use the 'expression of interest' form to grab one of the limited places.

Michael Henderson, James Cook University, Australia, michael.henderson@jcu.edu.au

APPENDIX B: FACE-TO-FACE TRAINING DAY RUNNING SHEET

Time	Session topic	Activity	Resources

ORIENTATION			
9:45	Getting started • Coffee and Introductions (including: schools, teaching areas, goals) • Technical set-up • Getting your hands dirty	1. Log into LP-Bb 2. Name the social forum *Participants decide on what to call the social forum – this is the first opportunity for them to take ownership of the course.* 3. Add a message to the social forum *Participants introduce themselves by saying something about their week/weekend/holiday. This is intended to establish the legitimacy of social interaction.*	JCU passwords Learning Place Logon
10:00	Understanding how the Learning Place is organised. • LP Blackboard • LP Communication • LP Admin	1. See how students can be managed in your course using the LP Admin system. *Maintain the relevance of the course by grounding everything in terms of their students.* 2. Briefly compare Bb to the LP-Com tools.	*Handout:* Navigating the Learning Place

MANAGING BLACKBOARD			
10:30	Setting up Bb: design your site	1. Banner, colour and buttons (p. 4) 2. Course Menu (p. 7) 3. Add an announcement (p. 11) Extra: • Add a staff/community profile (p. 14) *If time allows, get participants to create their community profile. This will reinforce the legitimacy of them making changes to the course, i.e., Ownership.*	*Guide:* Setting up your subject site
11:00	**Break** – same as with lunch (see details below) but with the main intent being sharing goals of attending this course and teaching areas/interests. This will hopefully establish a sense of commonality.		
11:30	Setting up Bb: add content	1. Create a folder (p. 16) *Introduction to basic instructional design principles. This will also allow us to briefly explore layer 2 of the IOL courseware.* 2. Add a content item (p. 18) 3. Add a document (p. 21) or media file (p. 23) 4. Add a web link (p. 25) or course link (p. 26) *Extra:* • *Add website (p. 27)* • *Modify, copy, remove content (p. 30)* • *Download docs (p. 31)*	

1:00	**Lunch** - During the morning break and lunch make sure the participants sit together. Facilitate discussions both related and unrelated to the course. Aim to get at least several of the participants to elaborate on their expectations from the course. Act as a community broker by facilitating discussions of online learning strategies and referring to own teaching experience. Facilitate the sharing of stories, ideas, goals, and problems.

COMMUNICATION TOOLS

2:00	Compare the Blackboard and LP-Communication tools.	1. Create a Playground project room 2. Add members and change their permissions 3. Join the IOL course project room 4. Participate in a chat *Discuss the learning potential of synchronous and asynchronous environments.* 5. Receive emails from the HELP forum	*Handout:* Communication tools comparison *Guide:* Managing Discussion Forums *Guide:* Managing Groups

ASSESSMENT TOOLS in Bb

2:45	Explore the difference between tests and surveys. Understand the three stage process of: • Creating a pool • Creating a test/survey • Deploying the test/survey	Create a test or survey in Bb. 1. review the types of questions (p. 3) 2. create a test (p. 4) 3. write the questions (p. 6) *4. deploying a test/survey (p. 22)* *Discuss the pedagogical implications of the online assessment tools.* 5. using the gradebook (p. 26) *Extra:* • *create a pool (p. 12)* • *import and export a pool (p. 14)* • *importing questions from a text file (p. 17)* • *common problems (p. 32)*	*Guide:* Using online tests & surveys manual

3:30	**Wrap-up** – make sure the session is finished before people have to leave. The wrap-up should summarise what we have covered, and what the participants need to do next (i.e., contribute to the social forum in the next few days). It is important that participants don't feel hurried so that they can ask questions, and chat to each other before leaving.

APPENDIX C: IOL INTRODUCTION AND COURSE STRUCTURE

The below introduction and course structure outlines have been taken from the online IOL course.

INTRODUCTION

Welcome

Welcome to Integrating Online Learning. Over the next four weeks we are going to collaboratively explore the fundamental layers of theory and skill surrounding online learning. Everyone will learn something different. It's the confidence to explore that makes the difference. This course is about you, your confidence, and your identity.

In this section I will:
- ✓ describe the philosophy behind this course,
- ✓ give you your primary task,
- ✓ introduce you to a definition of Virtual Learning Environments (VLEs)

Philosophy

I have designed this course for other teachers who want to integrate online technologies into their teaching strategies. In particular, this course focuses on the opportunities provided by Virtual Learning Environments (VLEs) such the *Learning Place.*

Teachers are busy people. We are pragmatic professionals. We like strategies which help us achieve our goals. A **successful** strategy is where a teacher says to another teacher, "Hey, check this out."

Hey, check this out!

This course is a practical "hands on" approach to planning, creating and managing online materials, discussion forums, chats, tests and more! It has been designed as a smorgasbord of theories, strategies, resources and ideas which you can sample, pile on your plate, or pass in favour of the sweets and coffee.

I have found them useful and have used many of them in my own teaching. However, this course is more than a show and tell. It is designed to be a collaborative experience.

In order to complete this course you must rely on your fellow teachers. There is too much information to individually cover in the 20 hours allocated to this course. I could be more selective but, as you will soon learn, that is the antithesis of flexible online learning. This is your first maxim: ***online learning should be a scaffold to wider resources, not a textbook***.

Throughout this course you will be asked to prepare materials, join discussions and even write small quizzes for us all to participate in and learn from. Together, we are a localised learning community. Each of us has a valuable and unique, professional history. Together we can sift through the variety of ideas and scrutinise those most relevant to you / us / our community.

Your task/role is to:

- ✓ **support your fellow community members.**

Together we will:

1. sift through the mountain of potentially relevant theories and strategies
2. identify and scrutinise those most relevant to us, and
3. become knowledgeable online teachers.

COURSE STRUCTURE

IOL uses a mixture of face-to-face and web based learning. This is also called a **blended** or **flexible** model of delivery. The face-to-face training is at the beginning of the course and is followed by approximately four weeks of web enabled learning.

The content of the course is conceptualised as four layers:
- **Planning** for online teaching
- **Content design**
- Facilitating C**ommunication & Collaboration**
- **Assessment & Feedback** design.

Each layer offers a set of pedagogical and technical skills that can be applied to achieving your learning outcomes.

Each layer also reflects on the constructive alignment of the various tools in being able to assess the learning outcomes.

1. Planning for online teaching	2. Content Design
It involves types of online activities available for different learning outcomes, including how to create WebQuests and other PBL activities. This topic also briefly explores some learning theory as well as how you can use your online activities as part of student formative and summative assessment.	This topic gives you hands on experience in instructional design principles including practical applications of semantic chunking, image redundancy, etc.
3. Communication & Collaboration	**4. Assessment and Feedback**
You will have hands on experience in using email, discussion forums, chat and data conferencing and learn how to use them to increase the quality of student participation. You will also learn how to facilitate online communications to minimise your effort and maximise student learning.	You will create online tests, surveys and other interactions (e.g. crosswords and cloze exercises) for formative and summative assessment. You will also explore when to use programmed interactions for scaffolding.

F2F: Technical fast-track

By the end of the face-to-face training you will have created several pages online and have a web site ready for students. The f2f training will establish:
- our learning community,
- your roles, and
- the key concepts of teaching online, as well,
- spend significant time on "how to" (e.g., how to: set up your site; upload a

page; create an online test; and create a discussion forum).

After the f2f training you will explore these skills in greater detail, collaborate with other participants, and create your own materials.

COURSE ASSESSMENT

Goals:	to prepare teachers, both technically and pedagogically, to integrate online learning activities into their teaching strategies.
	the graduates to be accredited as a Learning Place Course Developer (through direct accreditation or RPL)
Objectives:	Graduates will be able to **use** management, content, communication and assessment tools offered by the Learning Place, in particular the Blackboard system. *Expert knowledge and mastery of all the tools is not expected.*
	Graduates will demonstrate a **synthesis** of the planning, content, communication and assessment theory/layers through participation in the discussion forums, creation of materials including assessment items and other collaborative tasks.
Limitations:	The course is designed to be 20 hours in length.
	Participants are expected to engage with all parts of the course individually but are also encouraged to work with other participants and focus on the sections that best meet their needs and interests. For instance, some participants may not significantly engage with the chat tools. This necessarily means that the assessment is flexible to measure for a synthesis of the layers and a demonstration of using management, content, communication and assessment tools.
Participants will:	Attend the face-to-face training and participate in the tasks.
	Collaborate with the community through the discussion forums and other communication tools.
	Develop and edit course content, manage a discussion forum and create an online quiz.
	Develop part of their own virtual classroom demonstrating an application of the pedagogy and technical skills.
Assessment:	The flexibility of assessment negates the design of a detailed rubric. However, the course facilitator will monitor participant engagement and work with them to meet the learning objectives.
	Assessment will be based on observable outcomes including discussion forums, emails, and participants' own virtual classrooms.

Integrating Online Learning
- **Our Community**
  - Participant A
  - Participant B
  - Participant C
  - Participant D
  - Michael Henderson
- **Announcements**
- **Our Calendar**
- _____
- **Introduction**
  - In this section I will:
  - Philosophy
  - Your task/role is to:
- **Course Structure**
  - F2F: Technical fast-track
  - COURSE ASSESSMENT
- **f2f day**
  - Face-to-face
  - The faces!
  - ORIENTATION
  - MANAGING BLACKBOARD
  - COMMUNICATION TOOLS
  - ASSESSMENT: tests and surveys
- **1 Planning**
  - PLANNING for ONLINE TEACHING
  - Theories and Concepts
    - Constructive Alignment
      - A case study
      - What are your learning objectives?
      - Writing effective learning objectives
    - Scaffolding: a constructivist strategy
      - Scaffolding: a social constructivist perspective
      - A case study
      - Scaffolding balances challenge and frustration
      - Did the earth move for you?
      - Find out more:
    - Problem & Inquiry Based Learning
      - Introduction
      - PROBLEM BASED LEARNING
      - INQUIRY BASED LEARNING
      - The Art of Questioning
    - Are these concepts relevant to you?
  - Online Teaching Strategies & Events
    - Role Plays, Soap Operas, and Debates
    - WebQuests

- References
- Online tests and surveys
- Assessing discussion forums
  - Using Rubrics
    - Example 1: simple rubric
    - Example 2: rubric template
    - Example 3: discussion forum rubric
    - Further reading - Scan at least one of these
  - Using peer and self assessment
  - Further reading
- Blackboard assessment tools (OPTIONAL)
- Creating Interactions (OPTIONAL)
  - Creating Interactions
  - Adding interactions to your pages
  - Linking to interactions and simulations
- _____

Discussion Forum
- Watering hole
- Layer 1: PLANNING: Theories and Strategies
- Layer 2: Content Design
- Layer 3: Communication and Collaboration
- Layer 4: Assessment & Feedback
- Developing a new model - evaluating IOL

Email

Group Tools

Resources
- Technical support line!
- User Guides and manuals
  - Navigating the Learning Place
  - LEARNING PLACE resources
  - Blackboard resources from JCU
- Major problems?

Student Tools

APPENDIX E: PARTICIPANT INFORMATION PAGE

This Information page was printed on JCU letterhead and given to each participant.

Research Title: Investigating how a Virtual Learning Environment can sustain the professional development of teachers: Promoting effective teaching with ICT.

Research literature and government reports indicate/demonstrate clearly that current models of professional development of teachers in the use of ICT are not significantly changing teaching practices. The same research identifies a variety of reasons for this lack of change. One of those reasons, and the focus of this research, is the lack of sustained engagement. In order to address this issue, this research proposes to utilise a blend of face-to-face and computer based training. Furthermore, this research draws on the concept that professional development must address teachers' complex professional needs and perspectives. Effective ICT training cannot be achieved with mechanistic content and delivery.

Over the course of the study, PD will be delivered to small groups of teachers. The PD will consist of a face-to-face training component of one day. The face-to-face training will consist of technical skills, community development activities and accessing the VLE. Following the face-to-face training you will be expected to participate via the VLE for a minimum of one month. This should take around two to three hours per week. Activities via the VLE will include such things as completing ICT exercises, sharing your experiences, uploading examples of your work in progress, participating in discussion forums and reading articles. There are no essays or significant research activities. Assessment is via coursework. The intention of this professional development is to engender a supportive community environment where learning is authentic. At the end of the course you will be able to create courses within a VLE. Furthermore, Education Queensland teachers will have the opportunity to apply for 'prior recognition' which allows them to create courses within the EQ's Learning Place.

Costs : The training is free, although participants may incur some travel and internet costs.
Travel: The location of the face-to-face component of the training is dependent on the location of the participants. As a result it cannot be identified from the outset. However, participants can withdraw from the study if the travel is not viable. It is expected that due to Education Queensland's push in training staff in the use of VLEs that staff will be able to claim travel expense from the school's training budget.
Internet: The VLE is accessed via the internet. It is expected that the participants will access the VLE from their workplace. However, participants also have the opportunity to access the VLE via the internet from home. Any internet related costs are the participants.

The results of this research will be used in the ongoing development of theories of VLEs and professional development and will contribute to Michael Henderson's PhD thesis. The data may also be used in relevant academic and professional publications and conferences. This research will be conducted by Mr. Michael Henderson (School of Education), under the supervision of Dr. Neil Anderson and Dr. Colin Baskin. Please contact any of these people if you have questions about the research. The research project has been approved by the JCU Human Ethics Sub-Committee, and you are encouraged to contact the Ethics Administrator (Tina Langford) if you have any questions or complaints about the conduct of the research.

At any time you can seek further information from the contacts below.

CONTACTS						
Michael Henderson	Principal Researcher		School of Education, JCU, Townsville Qld 4811			
	Mb:	0409 760 639	**Fax:**	(07) 4725 1690	**Email:**	Michael.Henderson@jcu.edu.au
Dr. Neil Anderson	Research Supervisor		School of Education, JCU, P.O. Box 6811, Cairns Qld 4870			
	Ph:	(07) 4042 1189	**Fax:**	(07) 4042 1312	**Email:**	Neil.Anderson@jcu.edu.au
Dr. Colin Baskin	Research Supervisor		School of Education, JCU, P.O. Box 6811, Cairns Qld 4870			
	Ph:	(07) 4042 1343	**Fax:**	(07) 4042 1312	**Email:**	Colin.Baskin@jcu.edu.au
Tina Langford	Ethics Administrator		Research Office, JCU, Townsville Qld 4811			
	Ph:	(07) 4781 4342	**Fax:**	(07) 4781 5521	**Email:**	Tina.Langford@jcu.edu.au

You should retain this page for your records. If you do not understand anything on this information page you should seek clarification from the person who handed you the page before you sign any consent form.

This Consent Form was printed on JCU letterhead and given to each participant.

PRINCIPAL INVESTIGATOR   *Michael Henderson*
PROJECT TITLE: *Investigating how a Virtual Learning Environment can sustain the professional development of teachers: Promoting effective teaching with ICT.*
SCHOOL   *JCU School of Education*
CONTACT DETAILS   *Ph: 47814911*

DETAILS OF CONSENT: The accompanying information page describes the nature and purpose of the research. Please do not complete this consent form without reading and understanding the information page.

As a participant of this research, you will undergo a professional development training programme. It will involve one day of face-to-face training. You may need to discuss time release with your principal prior to committing to this research. In addition to the face-to-face training the professional development programme requires you to participate in activities via a Virtual Learning Environment each week for a minimum of one month. It is expected that this will take approximately two to three hours per week. In order to access the Virtual Learning Environment **you will need to have access to the internet**.

During the research you will be asked to complete two questionnaires as well as participate in an individual interview. The interview may be recorded on video or audio tape. Throughout the training programme other sources of data will also be recorded, including researcher observation notes, emails, discussion forums, telephone calls, screen dumps, VLE activity logs, and uploaded files. Any and all communications with the trainer/researcher may be recorded. In addition any or all communications via the VLE may be recorded. Course materials developed by participants will remain their intellectual property and will not be shared with others. However, these materials may be referred to and extracts used by the researcher for the purpose of this research.

Confidentiality: The research is based on a case study methodology which requires some contextualisation of the data (e.g. the school, location, people, students, etc.). However, identifying details such as names of schools and participants will be omitted or changed prior to the writing process. Confidentiality of participants' personally identifying details is assured. Nevertheless, anonymity cannot be guaranteed as the research is conducted in small groups (i.e. four teachers per case study) and the participants in each group will know each other. During the research some teachers may mention their students. Indeed, part of the data gathered will inevitably include anecdotal evidence regarding students. All teachers are asked from the outset not to use real names of their students or any other personally identifying descriptions of their students.

Publication: The results of this research will be used in the ongoing development of theories of VLEs, communities of practice and professional development and will contribute to Michael Henderson's PhD thesis. The data may also be used in relevant academic and professional publications and conferences.

TEACHER'S CONSENT	
The aims of this study have been clearly explained to me and I understand what is wanted of me. I know that taking part in this study is voluntary and I am aware that I can stop taking part in it at any time and may refuse to answer any questions. I understand the conditions of confidentiality as explained above.	
Name: *(printed)*	
Signature:	**Date:**

PRINCIPAL'S CONSENT	
I have read the accompanying information page and this consent form. I am aware of what is expected of the above signed teacher and support their participation in the professional development and research. I understand the conditions of confidentiality as explained above.	
Name: *(printed)*	
Signature:	**Date:**

Integrating Online Learning
Post face-to-face questionnaire

Instructions:
1. Please answer all questions.
2. **Please share your thoughts, perceptions, feelings, motivations and reactions in as much detail as you can**. This is very important as it will provide rich data for my research.
3. This questionnaire should take 30 minutes to complete.

Statement of anonymity:

For the purposes of this research it is necessary to know your identity so that the interview at the end of the course can make comparisons and be informed by this data. The questions will ask you to reflect on the other participants, including the trainer. **Your anonymity is assured according to the research information statement provided to you prior to the research.** Your comments may reflect positively or negatively on the face-to-face trainer. I encourage you to separate the researcher from the trainer and feel free to express your thoughts without concern for reprisal or hurt feelings.

Please direct any queries to michael.henderson@jcu.edu.au or the contacts listed in the research information sheet.

Your name: _____

1. Explain your motivations for doing this course?

2. Was the face-to-face training challenging for you?

Not challenging at all	Not enough challenge	Just right	Quite challenging	Far too challenging

3. Was the face-to-face training relevant to your teaching?

I could not see how this applies to my teaching and student learning	Not very relevant	Partially relevant	Fairly relevant	I could clearly see the applications to my teaching and student learning

4. To what extent was the face-to-face training flexible?

No flexibility	Limited flexibility	Sufficient flexibility	Quite flexible	Very flexible

5. Do you feel that the face-to-face training could have been delivered effectively online? Please provide a detailed explanation.

_____

_____

_____

_____

_____

6. Do you feel that the face-to-face training has adequately prepared you to engage with the virtual component of the course?

I am confused and don't know where to start	I feel a little under-prepared	I'm not sure	I feel prepared	I am confident about what I have to do.

7. How do you feel about the prospect of completing the course over the next four weeks via the VLE?

Very negatively	I am not looking forward to it.	Ambivalent	I am looking forward to it.	Very positively

Please explain your answer

_____

_____

_____

_____

_____

8. To what extent has the face-to-face training made the online course more welcoming?

It has had a very negative impact on my perceptions	It has had a negative impact on my perceptions	It has made no difference to my perception of the online environment	It has had a positive impact on my perceptions	It has had a very positive impact on my perceptions

9. To what extent do you feel connected with the other participants in the course?

I feel no connection with the other participants	Little connection with them all	I feel connected with some participants but not others.	Some connection with them all	I feel a strong connection

Please explain your answer

---

10. SINCE the face-to-face training do you picture or consider the other participants when you add a discussion forum message?

I primarily consider Michael when I write my message.	I consider Michael foremost but also consider the others when writing the message.	I write my messages with no-one in mind	I consider the other participants foremost but also consider Michael when writing the message.	I strongly consider the other participants when I write my message.

Please explain why you think this is the case

---

11. Do you consider yourself to have an active voice in this course or do you feel estranged or distanced from the course, its activities and it's participants?

Passive participant Estranged	Partially estranged from the course gaols and participants	No particular sense of empowerment	Moderately empowered. Have a voice and feel that I am collaboratively involved.	Active voice Active collaborative involvement

12. To what extent do you feel that you are working with the rest of the participants towards a shared goal?

Not at all	Not much	Somewhat	Considerably	Very much

Please explain

_____

_____

_____

_____

13. If you had to describe this course to a colleague what are the key things you would say?

_____

_____

_____

_____

_____

14. Circle the most appropriate answer

I perceive myself as a slightly different teacher than I was before   **Yes / No**

15. Describe yourself in terms of how you think the others perceive you.

_____

_____

_____

16. Explain why this is accurate or not accurate.

_____

_____

_____

17. Do you feel comfortable with the group?

Not at all	Not much	Somewhat	Considerably	Very much

18. Please make any comments about the face-to-face training or course in general. Any thoughts, observations or suggestions will help my research.

Thank you for participating in my research. The information you have provided me is extremely valuable.

Michael.

Integrating Online Learning
Semi-structured interview schedule

Date: _____ **Name:** _____

Time: _____ **Location:** _____

Notes:
- Set up one or two voice recorders.
- State the name of the participant, the date and time.
- Bullet points represent possible prompts.

INTRODUCTION:

"Thank you for agreeing to participate in this interview.

The confidentiality of what you say is assured as your name will not be used. However, due to the small size of the group I cannot guarantee anonymity. Are you happy for us to continue?

The interview will last approximately one hour. If, at any time, you feel that you need to take a break please let me know. I will be recording this interview and may from time to time check the recorders. I will also be making notes and using a checklist of items that I want to cover. At these times please continue with what you are saying.

I may interrupt to further clarify points or to keep us focused. Sometimes I will use very general questions, please answer as best you can."

GENERAL / OPENING QUESTION

1) Please comment about your experience with regards to the PD course
   - compare this PD to other PD you have done?
   - have you done other online courses?
   - compare/comment on the amount of time you spent
   - comment about the course expectations
   - comment about the social interaction / content / tasks

notes for further comment:

WHAT, WHERE, WHEN and WHY

2)   Use the graph just handed to you, to plot the **amount of time spent on this course**

Participation over time

- please explain any trend, peaks, troughs
- does this take into account the **time you spent working offline**, e.g., thinking about the course?
- does this take into account the time spent working on or thinking about your Virtual Classroom?
- *use the **Blackboard statistics** to prompt further clarification, e.g. the data may indicate a continued online presence but limited forum participation. The participants' use of the above graph may weigh one above the other, find out why or why not.*

3)   on the same graph above plot the level of **quality of your participation**
- please explain any trend, peaks and troughs
- *encourage participants to **explain the different ways they participated** in the course and their relative value (i.e. sense of quality)*

4)   what was your **level of motivation/commitment** to participate in the course?
- Do the plotted lines on the graph reflect your motivation/commitment? In what ways?
- If not, use a different coloured pen to plot your level of motivation/commitment to participate. Please explain the difference.

5)   *The interviewer provides a table of data drawn from the VLE software showing the frequency of the participant accessing the site both in terms of days and hours within days.*
Consider these statistics of your online access. Can you explain what is going on here? (e.g. worked from home, had little workload on Tuesdays, etc.)
- Where did you do most of your work? Why?
- Did this location or the ability to choose a location affect: your level of access? Your engagement?
- What do you see as being the dis/advantages?
- *The researcher may prompt the interviewee to compare the statistics with their drawn graphs*

IDENTITY & PRACTICE
[shaping practice and identity through mutual engagement, joint enterprise and shared repertoire]

6) Do you feel that you have anything in common with the other participants?

7) How would you describe the other participants – feel free to use names.
   - Describe their strengths and weaknesses
   - Did (do) you **feel closer** to some more than others. Please explain..
   - Who do you feel was the most/least **supportive** of you. Please explain.

8) Which of the following are **terms you would use to describe yourself and the others**: *community, group, team, course participants?* Please explain.

9) Do you feel that your relationship with these participants was different from other PD?

10) What helped or hindered your formation of relationships? Please explain.

11) Did you feel that you were working together?
   - Towards what goal?

12) Prior to the course you said you were interested in doing the course because… [from pre-course email], then you said in the survey… [from the post f2f survey]. Now, at the end of the course, what do you feel have been the reasons for continuing with the course?

13) I notice that you / others sometimes apologised if you had not posted a message on the discussion forum for a few days. Why do you think you/others did this?
   - Do you feel accountable to each other?

14) How did you resolve problems in the course?
   - Did you receive any help from the others or from people outside of the course? Please elaborate.
   - Did you give any help to others in the course? In what ways?

15) When you created content, quizzes and discussion forums did you feel that you were helping yourself and others understand the PD or simply jumping hoops?
   - Was it important to share ideas? Why or why not?
   - Did you value others content, quizzes, and discussions? In what ways?

16) Do you feel that you have contributed to the community for following generations? Please elaborate. *Note: generations is a name used in the course to refer to this group of people.*

DATA DRIVEN QUESTIONS
This section is unstructured because questions will be specific to the individual arising from observed participation, their interactions and the post face-to-face survey.

17) *Possible question stimulus include:*   *Initial email prior to the course*
                                                Face-to-face training day
                                                Post-f2f survey
                                                Discussion forum entries (initiation and
response)

                                                Blackboard statistics

SPECIFIC QUESTIONS ABOUT SUSTAINED ENGAGEMENT

18) Do you feel that your engagement with this PD course has been sustained longer than other PD courses? Why or why not?
     - Possible prompts regarding the role of: f2f, VLE, participants, instructor, external goals (eg certificate), internal goals, institutional pressure, etc.

19) Do you think you might continue accessing the site? Please elaborate.

20) What made you keep working on the course?

21) What were the things (in and out of the course) that made you want to stop or slow down?

22) Did you feel a commitment to continue? Why / why not / what was that commitment?

23) How important were the other participants in sustaining your engagement in the course?
     - Would the course be the same if there were no interaction between participants?

24) *Explain a version of the research focus which the participants will be able to address without having to understand CoP theory:* **Can an online community sustain your participation in PD after the face-to-face training?** What is your opinion/experience?

APPENDIX I: PARTICIPANT SITE REQUESTS AND FORUM POSTS

CS1 Site Requests

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
P1	178	60	95	13	196	162	48	0	0	11	10	0	0	773
P2	338	221	343	308	190	123	49	74	0	0	9	0	36	1691
P3	346	57	211	96	238	0	358	181	42	0	0	0	8	1537
P4	333	472	662	503	188	135	0	52	0	0	0	0	0	2345
P5	75	88	0	351	149	12	0	11	9	0	6	4	0	705
Total	1270	898	1311	1271	961	432	455	318	51	11	25	4	44	7051

CS1 Forum Posts

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
P1	3	2	2	0	1	12	1	0	0	0	0	0	0	20
P2	6	2	13	11	9	5	3	0	0	0	0	0	2	40
P3	18	14	7	1	12	0	6	13	3	0	0	0	1	72
P4	6	5	9	10	1	0	0	0	0	0	0	0	0	31
P5	1	4	0	13	8	0	0	0	0	0	0	0	0	26
Total	34	27	31	35	31	17	10	13	3	0	0	0	3	189

CS2 Site Requests

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
P6	98	91	126	166	39	55	91	75	220	23	9	5	28	1026
P7	118	42	68	54	0	0	61	0	0	0	167	0	0	510
P8	50	104	0	0	0	34	56	0	81	0	0	0	0	325
P9	67	0	0	0	0	0	0	0	0	0	0	0	0	67
Total	333	237	194	220	39	89	208	75	301	23	176	5	28	1928

CS2 Forum Posts

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
P6	3	3	1	8	0	1	3	2	12	3	6	1	0	43
P7	3	4	3	5	0	0	3	0	0	0	2	0	0	20
P8	1	7	0	0	0	3	3	0	2	0	0	0	0	16
P9	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	8	14	4	13	0	4	9	2	14	3	8	1	0	80

APPENDIX J: SUMMARY OF CASE STUDY ONE POST FACE-TO-FACE

QUESTIONNAIRE

	Question	P1	P2	P3	P4	P5
1	Explain your motivations for doing this course?	School priority, Career development	Student retention	Career development	Student learning	Teaching skills
2	Was the face-to-face training challenging for you?	Quite Challenging	Just Right	Just Right	Just Right	Just Right
3	Was the face-to-face training relevant to your teaching?	Clearly Relevant	Clearly Relevant	Fairly Relevant	Clearly Relevant	Clearly Relevant
4	To what extent was the face-to-face training flexible?	Very Flexible	Sufficiently Flexible	Sufficiently Flexible	Very Flexible	Very Flexible
5	Do you feel that the face-to-face training could have been delivered effectively online? Please provide a detailed explanation.	No. The face-to-face provides immediate support, and is flexible.	No. The face-to-face speeds up learning and has an element of immediacy in resolving problems. It is also something which cannot be ignored.	No. The face-to-face provides heightened personal contact.	No. The face-to-face allows you to get to know each other. It also provides immediacy in resolving problems.	Yes, however, it would be very difficult without the social interaction and immediacy of problem resolution.
6	Do you feel that the face-to-face training has adequately prepared you to engage with the virtual component of the course?	I feel prepared	I'm not sure	I feel prepared	I am confident.	I feel a little under prepared
7	How do you feel about the prospect of completing the course over the next four weeks via the VLE?	Ambivalent	Very Positively	Ambivalent	Very Positively	I am looking forward to it.
	Please explain your answer	"Keen" but concerned that there is not enough time.	Concerned that there is not enough time.	While "eager" and enjoy interacting online the reading is quite difficult.	It is relevant and the goals are very clear.	Concerned about time restrictions. Also felt that preparedness was affected by illness.
8	To what extent has the face-to-face training made the online course more welcoming?	Positive	Very Positively	Positive	Very Positively	Very Positively
9	To what extent do you feel connected with the other participants in the course?	Little connection with them all.	Some connection with them all	I feel connected with some but not others	I feel a strong connection	Some connection with them all
	Please explain your answer	Time constraints. I feel that I could be more engaged but not having the time to reply to everything is frustrating and at times off putting/ discouraging.... making me feel as though I am not pulling my weight.	It was this face-to-face that was an enormous boost to feeling of support. When Michael, P4 and P5 made the effort to participate, in other words help me to succeed, I felt a much closer social bond.	We were all high school teachers – there was a kind of natural affinity.	We all helped each other and there was a great atmosphere amongst the group. No-one felt embarrassed about their lack of knowledge or about their competence. It was great.	The face-to-face component allowed me to interact with each participant on a personal and professional level. It also enabled me to recognise that other educators shared a passion for online education
10	SINCE the face-to-face training do you picture or consider the other participants when you add a discussion forum message?	I consider the other participants foremost but also consider Michael when writing the	I strongly consider the other participants when I write my message.	I consider the other participants foremost but also consider the facilitator when writing	I consider the other participants foremost but also consider the facilitator when writing	I consider Michael foremost but also consider the others when writing the message.

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#	Question					
		message.		the message.	the message.	
	Please explain why you think this is the case	face-to-face makes you sensitive to others	sensitive to upsetting people	It depends on who I am replying to.	Considers the others but is always worried that might not be doing what she is supposed to	I feel an obligation to them to interact and learn. I also consider Michael because he seems more like a fellow participant who also happens to be a great facilitator!
11	Do you consider yourself to have an active voice in this course or do you feel estranged or distanced from the course, its activities and its participants?	Moderately empowered. Have a voice and feel that I am collaboratively involved.	Active voice. Active collaborative involvement.	Moderately empowered. Have a voice and feel that I am collaboratively involved.	Active voice. Active collaborative involvement.	Moderately empowered. Have a voice and feel that I am collaboratively involved.
12	To what extent do you feel that you are working with the rest of the participants towards a shared goal?	Not Much	Considerably	Somewhat	Considerably	Somewhat
	Please explain	We have our own subject content and therefore different goals.	We are all working for kids.	Same career	We have empathy for each other. We have the same goals but have to balance our commitments with the time available.	Disengaged due to illness.
13	If you had to describe this course to a colleague what are the key things you would say?	Described the content and application of the course	Described the effort of the course but that it was worth it.	Described the content and application of the course	Described the content and application of the course	Described the application of the course.
14	I perceive myself as a slightly different teacher than I was before: Yes/No	Yes	No	Yes	Yes	Yes
15	Describe yourself in terms of how you think the others perceive you.	That we have common interests	reliable, genuine, friendly, helpful	as a computer expert	not academic, but devoted to students	innovative in my teaching practices
16	Explain why this is accurate or not accurate.	Not answered	Aspire to these	This is not accurate	This is true	This is true
17	Do you feel comfortable with the group?	Somewhat	Very Much	Considerably	Very Much	Somewhat
18	Please make any comments about the face-to-face training or course in general.	Time frame is not realistic	keep face-to-face which enhances the social bond	keep face-to-face and provide more direction and prompting in the online component. Keep anecdotes.	Keep face-to-face, especially sitting together at lunch. The facilitator was essential.	Keep face to face but need more direction.

APPENDIX K: DISCUSSION BOARD ACCESSES AND POSTS

CS1 Discussion Board and Forum Access

| Participants | *Social Forum* | Content Forums | | | | | **Subtotal** | Forum index | Total |
		Layer 1	*Layer 2*	*Layer 3*	*Layer 4*	*Final*			
CS1 P1	66	26	7	40	8	5	**152**	336	488
CS1 P2	155	82	42	81	5	6	**371**	652	1023
CS1 P3	153	195	69	90	13	27	**547**	332	879
CS1 P4	129	121	33	51	15	6	**355**	1001	1356
CS1 P5	112	70	15	40	4	2	**243**	230	473
Total	**615**	**494**	**166**	**342**	**18**	**33**	**1668**	**2551**	**4219**

Note: CS1 contained 9 content related forums. However, these forums all aligned with one of the four layers (modules) of the course or the final (conclusion) topic. As a result the eight forums have been aggregated according to these content categories to facilitate cross case comparison.

CS1 Discussion Board Posts

| Participants | *Social Forum* | Content Forums | | | | | **Total Posts** |
		Layer 1	*Layer 2*	*Layer 3*	*Layer 4*	*Final*	
CS1 P1	7	3	1	9	1	0	**21**
CS1 P2	17	13	8	9	2	2	**51**
CS1 P3	19	24	11	12	3	6	**75**
CS1 P4	12	9	4	5	1	0	**31**
CS1 P5	11	8	2	4	1	0	**26**
Total	**66**	**52**	**19**	**41**	**4**	**7**	**189**

Note: CS1 contained 9 content related forums. However, these forums all aligned with one of the four layers (modules) of the course or the final (conclusion) topic. As a result the eight forums have been aggregated according to these content categories to facilitate cross case comparison.

CS2 Discussion Board and Forum Access

| Participants | *Social Forum* | Content Forums | | | | | **Subtotal** | Forum index | Total |
		Layer 1	*Layer 2*	*Layer 3*	*Layer 4*	*Final*			
CS2 P6	57	22	31	23	11	19	**163**	437	600
CS2 P7	19	52	32	16	0	10	**129**	42	171
CS2 P8	54	18	10	5	0	0	**87**	156	243
Total	**130**	**92**	**73**	**44**	**11**	**29**	**379**	**635**	**1014**

CS2 Discussion Board Posts

| Participants | *Social Forum* | Content Forums | | | | | **Total Posts** |
		Layer 1	*Layer 2*	*Layer 3*	*Layer 4*	*Final*	
CS2 P6	14	3	6	7	4	9	**43**
CS2 P7	2	7	4	5	0	2	**20**
CS2 P8	11	2	2	1	0	0	**16**
Total	**27**	**12**	**12**	**13**	**4**	**11**	**79**

19:19:	P2	Absolutely - my accent isn't as thick as some however
19:19:	P2	Now [Facilitator]- did you see my whisper to P4 - I am not sure you just found the sound or saw the whisper
19:19:	P4	So, are you both Digital Immigrants?
19:21:	Facilitator	P2, a very nice move to the more serious topic (Happy)
19:21:	P4	I think I am a smart Digital Immigrant as I just love it when the kids are teaching me something new
19:22:	Facilitator	BTW I didn't see any whisper (Happy)
19:22:	P2	P5 is trying to log on and needs the password so I hope she arrives soon.
19:22:	P4	Hi P5
19:23:	P2	[Facilitator] have you any suggestions to help
19:24:	P5	Hi everyone, sorry I am late
19:25:	Facilitator	Hi P5! (Happy)
19:25:	P4	Ok, who goes next (laughing)
19:26:	Facilitator	Excuse me everyone - my house guests need a hand - I'll be back in 2 minutes (Happy)
19:26:	P4	I agree P5, I have the same problem
19:26:	P5	I can see this is going to be a long process without broadband...
19:27:	P2	Hi P5 - glad you could make it
19:28:	Facilitator	I'm glad you have all tried this... (Happy)
19:28:	P2	I'm back - Just sorted out another student issue
19:28:	P4	Has anyone heard from P3?
19:28:	P4	Or P1?
19:28:	P5	thanks P2, hi P4...hope you are both well and happy
19:29:	Facilitator	imagine how our students would react to all this... or am I being too much of a digital immigrant? (Happy)
19:29:	P2	I have two daughters who work in Broadband in Telstra and still don't have access to broadband
19:29:	P4	I think a lot of scaffolding would need to be done with students
19:30:	P2	I think the students would have no trouble - they are used to this
19:30:	P2	P4 to your question what scaffolding are you specifically meaning?
19:30:	P4	I was thinking that what I would do would be to have the students all sign in and have the projector up so we can learn to take turns
19:30:	P5	I checked that I could get broadband before I moved...and still haven't got it 19mths later
19:31:	P4	This way we could recognise the possible problems
19:32:	P2	According to the wiring of the digital native brain we have taken away the parallel processing
19:32:	P2	P4 I think we are forcing the kids back to linear learning -Prensky
19:32:	P4	P2, I was referring to [Facilitator]'s comment about how our students would react to this
19:32:	P4	Yes I guess we are P2
19:33:	Facilitator	P3 and P1 have not logged in for several days so i don't think we should expect them
19:35:	P2	P5 - if you are like me just be able to log into the chat would have giving a sense of achievement
19:37:	P2	Back to the learning styles of today's digital natives - I had students in my Maths A class (struggling with Maths A) as soon as I took them to the internet room in the library, they had managed to use the computer text to voice software to say "Miss I need help"

	Question	P6	P7	P8
1	Explain your motivations for doing this course?	School priority	Personal knowledge, networking	Student learning
2	Was the face-to-face training challenging for you?	Quite Challenging	Just Right	Just Right
3	Was the face-to-face training relevant to your teaching?	I could clearly see the application to my teaching and student learning	I could clearly see the application to my teaching and student learning	Partially relevant
4	To what extent was the face-to-face training flexible?	Sufficiently Flexible	Sufficiently Flexible	Sufficiently Flexible
5	Do you feel that the face-to-face training could have been delivered effectively online? Please provide a detailed explanation.	No. The face-to-face encourages persistent relationships. It is not possible for online delivery to develop the necessary relationships that encourage, challenge and support the learner.	No. The face-to-face helps support participation. Students feel more at ease responding online to those they had met.	No. The face-to-face gives people identities that is necessary to maintain relationships in an otherwise 'faceless' environment. I feel a commitment to the group now that I have met them. It also increases feelings of guilt about not participating fully.
6	Do you feel that the face-to-face training has adequately prepared you to engage with the virtual component of the course?	I feel prepared	I feel prepared	I feel a little under-prepared
7	How do you feel about the prospect of completing the course over the next four weeks via the VLE?	I am looking forward to it.	I am looking forward to it.	Ambivalent
	Please explain your answer	There is a huge amount of material to digest and the discipline of skimming and being selective will be important. I look forward to being able to continue accessing the site when and where I like.	I believe online discussions lead to improved understanding of topics. I like the flexibility of online learning, especially in being able to access the materials at any time.	The face to face session seemed more to do with the technical side of the course and did not seem to address some key issues such as what exactly we were expected to do on the course and how would the benefit our teaching.
8	To what extent has the face-to-face training made the online course more welcoming?	Positive	Positive	Positive
9	To what extent do you feel connected with the other participants in the course?	Some connection with them all	Some connection with them all	I feel connected with some but not others
	Please explain your answer	During the face-to-face there was not a lot of time to get to know each other. Since the face-to-face day I have had little contact with them. This could be helped with the use of video conferencing.	The face-to-face meeting facilitates social bonding. You get a better feel for the character of the person and the context in which they teach.	I have more affinity with P6 than P7 as I have met him before and was responsible for getting him involved in this course by sending him information about it.
10	SINCE the face-to-face training do you picture or consider the other participants when you add a discussion forum message?	I consider the other participants foremost but also consider Michael when writing the message.	I strongly consider the other participants when I write my message.	I strongly consider the other participants when I write my message.
	Please explain why you think this is the case	I try hard to imagine that I am setting up a conversation with a group of people. Of course, I hope that Michael is also 'listening in' and gaining encouragement from my interest and	Knowing you are responding to someone you have met alters (maybe not for the better) your response online to that person.	Although the discussions are facilitated by Michael, I am invariably replying to one of the other participants because … they are in a similar position to myself - at the 'chalkface' in my area.

		contributions, but, in some ways, it feels that there is a game to be played for the sake of the course.		
11	Do you consider yourself to have an active voice in this course or do you feel estranged or distanced from the course, its activities and its participants?	Active voice. Active collaborative involvement.	Moderately empowered. Have a voice and feel that I am collaboratively involved.	Partially estranged from the course goals and participants.
12	To what extent do you feel that you are working with the rest of the participants towards a shared goal?	Not Much	Somewhat	Not Much
	Please explain	It doesn't feel like the others are present, only the course facilitator. I have started a few threads but still no response! Michael, however, has replied and moved me on. His chivvying is very welcome!	There is not enough critical mass or critical response to issues. The course needs more participants.	At times, I have struggled to see the practical relevance of the course. There was no agreed shared goal, just a path that we have been expected to follow. The academic focus has left me particularly estranged because I have extreme difficulty fitting the course into a hectic work schedule, and I have lagged behind some of the other participants. [Also,] a nagging sense of intellectual inferiority has led to a certain amount of estrangement.
13	If you had to describe this course to a colleague what are the key things you would say?	You must be committed to it. There is a lot of scope for trying out new ideas and for getting a suitable balance between study and the rest of life. However, for the course to work, you need others to respond to what you contribute.	Described the content of the course, e.g. "it will improve your knowledge of online learning".	It is time consuming. It has some practical application but you have to sift through a great deal of waffle. The discussions have been interesting, but with such a small group it is difficult to maintain momentum.
14	I perceive myself as a slightly different teacher than I was before: Yes/No	Yes	Yes	Yes
15	Describe yourself in terms of how you think the others perceive you.	Honest, intelligent, a good listener, organised and at time lacking in self-confidence	Expertise in the design and use of online learning tools	Lacking in commitment but producing some sporadic threads of interest
16	Explain why this is accurate or not accurate.	True	True	False, because of other demands on time and failing health I have been unable to physically contribute more. It is a matter of prioritisation.
17	Do you feel comfortable with the group?	Somewhat	Very Much	Somewhat
18	Please make any comments about the face-to-face training or course in general.	The first week of the new academic year was not necessarily the best time to start the course, and I have found it hard work to keep on schedule - in fact, I have dropped behind by a few days. Don't drop the face-to-face training. We are humans, and human interaction is, in my opinion, essential. And the course is great - I mean it!	The issue of critical mass needs to be dealt with. You need more participants on the course for online interaction to 'take off'. Also, you would get very different responses from a group of teachers who had limited experience of online learning or a VLE.	The first two layers of the course have informed my teaching but the third layer looks to be too academic.

It should be noted that P9 did not complete a post face-to-face questionnaire and as a result has not been included in this Appendix.