

**Learner Engagement in Computer-Supported  
Collaborative Learning Environments:  
A mixed-methods study in postgraduate education**

Andriani Piki

Thesis submitted to the University of London for the degree of  
Doctor of Philosophy

Royal Holloway University of London

September 2011

## **Declaration of Authorship**

I hereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the work of others this is always clearly stated. This work has not been submitted for any other degree or award in any other university or educational institution.



Andriani Piki

September 2011

## **Acknowledgements**

First and foremost, I want to thank my supervisor Prof. Duska Rosenberg for believing in me from the very first instance. I deeply appreciate her contributing ideas, project opportunities, and funding which helped to make my PhD experience both stimulating and productive. I am especially thankful for her help during the final stages of the PhD which I had to complete at a distance. Likewise, I would like to thank Prof. Yiannis Gabriel, Dr. Edward Bernroider, and Dr. Simon Foley for their support and guidance. Their suggestions have contributed towards my development both as an educator and a doctoral researcher.

I owe special thanks to Dr. José-Rodrigo Córdoba-Pachón for being both a mentor and a friend throughout this challenging journey, and for being an inspiration through difficult times. His commitment and determination as a lecturer and as an esteemed academic were truly inspirational. To my colleagues at the School of Management, iCOM research centre, and Kingswood Hall, thank you for all the shared experiences. Having you as co-travellers made the journey much more enjoyable. Merle, Maria, Christina, Christian, Pierre, Liz, Ray, Mirja, Endrit, and Mushal, I will cherish the special moments we had together and all the enlightening moments we experienced. I am also deeply grateful to all the BIS students who devoted some of their hectic time to share their experiences and for allowing me to learn with them and about them.

Finally, I would like to thank my family and friends for all their love and encouragement during this life-changing experience. To my parents, who raised me with a love for learning and for supporting me in all my pursuits. To my sisters Vasso, Dina, and Irene for being part of my life. And especially, a great thanks to my loving, supportive, and remarkably patient fiancé Evagoras whose faithful support and everlasting encouragement is so deeply appreciated. Thank you.

Andriani Piki

September 2011

## **Abstract**

The thesis draws on a mixed-methods study which empirically and theoretically investigates the ways in which postgraduate students engage in collaborative learning activities facilitated by technology. The research is both significant and distinct in its approach towards understanding how learners engage in real-life computer-supported collaborative learning (CSCL) settings; what enables or hinders learner engagement; and how engagement shapes the learning outcomes. The ensuing findings indicate that learner engagement is embodied in human behaviour, emotions, and reflection and therefore it is described as a multi-dimensional concept. Learner engagement also appears to be a socially distributed phenomenon – rather than a stable student characteristic – influenced by various personal, group-level, and other situational factors, the most prominent of which are captured by the Hierarchical Model of Enablers and Barriers. The study also reveals that learner engagement presupposes purposeful interaction which is presented as an integrative theme capturing the impact of pedagogical design on engagement. Another observation is that particular combinations of student actions, perspectives, and characteristics tend to resurface and therefore may be considered as strong predictors of potential engagement (or disengagement). This finding led to the development of the WISE Taxonomy of Learner Engagement Archetypes which portrays the most universal engagement approaches that emerged within the studied context. Finally, findings seem to suggest that the way students envisage their learning outcomes is driven by the engagement approach each student adopts, and vice-versa. When combined, the proposed model, taxonomy, and conceptualisation of learner engagement collectively define a holistic analytical framework labelled Distributed Engagement Theory. The purpose of this mixed-methods study is to explore, understand, and subsequently explain learner engagement aiming at making an original contribution to existing CSCL literature as well as informing the design of pedagogical models for enhancing learner engagement in CSCL environments within postgraduate education.

## Table of Contents

Declaration of Authorship.....	2
Acknowledgements .....	3
Abstract .....	4
Table of Contents .....	5
List of Figures .....	10
List of Tables.....	11
List of Abbreviations.....	12
Chapter One – Engaging in the Study of Learner Engagement .....	13
1.1. Introduction .....	13
1.2. Background to the study – Setting the wider context of the study.....	13
1.3. Central research concepts .....	15
1.3.1. Collaborative learning.....	15
1.3.2. Collaborative Technologies (CTs).....	16
1.3.3. Computer-Supported Collaborative Learning (CSCL) .....	17
1.3.4. Learner engagement in CSCL.....	18
1.4. Problem definition – Gaps in the literature .....	19
1.5. Key research questions .....	23
1.6. Research purpose – Research aims and objectives .....	23
1.7. Motivation for the study – Research rationale .....	25
1.8. Methodology – Research strategy .....	27
1.9. Importance of study – Expected contributions.....	29
1.9.1. Empirical contribution .....	30
1.9.2. Theoretical contribution.....	30
1.9.3. Methodological contribution.....	31
1.10. My role as a researcher – Assumptions .....	32
1.11. Structure of the thesis .....	33
1.12. Synopsis .....	35
Chapter Two – Literature Review .....	37
2.1. Introduction .....	37
2.2. Structure of literature review.....	38
2.3. Conceptualising CSCL.....	39
2.4. Historical background – The emergence and growth of CSCL .....	41

2.5.	CSCL in practice – Empirical findings .....	43
2.5.1.	The visions and opportunities of CSCL.....	43
2.5.2.	The challenges in CSCL.....	44
2.6.	The multidisciplinary of CSCL research.....	48
2.6.1.	Learning in focus: Education and Educational Psychology.....	49
2.6.2.	Collaboration in focus: Sociology and Anthropology .....	50
2.6.3.	Technology in focus: Information Systems and ICT .....	51
2.6.4.	Engagement in focus: Motivational Science and Educational Psychology ..	52
2.7.	Trends in motivation and engagement literature .....	54
2.7.1.	Motivation, engagement and how they relate to learning and achievement .	54
2.7.2.	Trait vs. non-trait conceptualisations of motivation and the role of context	56
2.7.3.	Types of goals and types of interests .....	58
2.7.4.	On the level of education .....	60
2.7.5.	On the domain / field of study.....	61
2.7.6.	Implications of engagement research for instructional practice .....	61
2.8.	Entering the debates in the literature .....	63
2.8.1.	CSCL – Competing approaches and theoretical foundations .....	64
2.8.2.	Learner engagement – Behavioural vs. cognitive approaches.....	66
2.8.3.	The need for a holistic research methodology .....	67
2.8.3.1.	Precision vs. contextual realism.....	68
2.8.3.2.	Controlled vs. complex – dynamic – adaptive setting .....	69
2.8.3.3.	Techno-centric vs. holistic focus.....	70
2.8.3.4.	Systematic investigation .....	70
2.9.	Abridgement.....	70
Chapter Three – Theoretical Framework .....		72
3.1.	Introduction .....	72
3.2.	The challenge of framing the research .....	73
3.3.	Amalgamation of theories .....	76
3.3.1.	Engagement and motivation theory .....	77
3.3.1.1.	Engagement theory.....	77
3.3.1.2.	Student motivation and engagement wheel .....	78
3.3.2.	Learning theory .....	80
3.3.2.1.	Collaborative learning.....	80

3.3.2.2. 3P model of teaching and learning.....	81
3.3.2.3. Conversational framework .....	84
3.4. Integrated theoretical framework .....	86
3.5. Concluding remarks and methodological implications .....	87
Chapter Four – Methodology and Research Design .....	89
4.1. Introduction .....	89
4.2. Formulating research questions.....	90
4.3. Research methodology .....	92
4.3.1. Mixed-methods research approach .....	93
4.3.1.1. Historical analysis .....	93
4.3.1.2. Definition .....	94
4.3.1.3. Philosophical underpinnings .....	96
4.3.1.4. Rationale for adopting a mixed-methods approach .....	100
4.3.1.5. Research designs and procedures in mixed-methods research .....	105
4.3.1.6. Challenges in mixed-methods research.....	114
4.3.2. Research methods: Ethnography and case study .....	115
4.3.2.1. Definition and background of ethnography .....	116
4.3.2.2. Procedures for conducting ethnography.....	117
4.3.2.3. Challenges in ethnography .....	120
4.3.2.4. Definition and background of case study .....	120
4.3.2.5. Procedures for conducting a case study .....	122
4.3.2.6. Challenges in conducting a case study.....	124
4.3.3. Data collection methods .....	125
4.4. Selecting the research setting and cases .....	126
4.4.1. Determining the case or unit of analysis .....	126
4.4.2. Binding the case: Selecting the research setting .....	127
4.4.3. Binding the case: Selecting the participants.....	129
4.4.4. Binding the case: Deciding on time and context.....	131
4.4.5. Negotiating access and addressing ethical issues.....	132
4.5. Data collection procedures .....	137
4.5.1. Participant observation.....	138

4.5.2. Video-ethnography .....	140
4.5.3. Interviews .....	141
4.5.4. Examination of blogs .....	142
4.5.5. Focus groups .....	143
4.5.6. Student questionnaires .....	146
4.6. Validity, reliability, and trustworthiness .....	148
4.7. Concluding remarks .....	149
Chapter Five – Data Analysis and Major Findings .....	152
5.1. Introduction to data analysis.....	152
5.2. A framework for mixed-methods data analysis .....	153
5.2.1. Common analytical procedures across all waves.....	154
5.2.2. Conducting the pilot study .....	155
5.2.3. Conducting the main studies .....	155
5.2.4. Holistic analysis .....	160
5.2.5. Higher order analysis .....	168
5.3. Key perspectives and findings on learner engagement .....	170
5.3.1. Understanding how learners engage in CSCL activities.....	173
5.3.1.1. Learner engagement as a multi-dimensional concept .....	173
5.3.1.2. Archetypes of learner engagement.....	185
5.3.2. Discovering the enablers and barriers to learner engagement .....	204
5.3.2.1. Learner engagement as a distributed phenomenon .....	204
5.3.2.2. Purposeful interaction as a precondition of learner engagement .....	221
5.3.3. Understanding how learner engagement relates to the learning outcomes .....	225
5.4. Distributed Engagement Theory (DET) .....	237
5.5. Validity and reliability analysis .....	241
5.6. Concluding remarks .....	244
Chapter Six – Discussion and Conclusions.....	246
6.1. From research questions to data analysis to conclusions .....	246
6.2. Establishing links between key findings and literature.....	247
6.3. Implications of research findings .....	254
6.3.1. Research implications for theory .....	255
6.3.2. Research implications for practice .....	256
6.4. Limitations of the study and suggestions for further research .....	259



6.5. Epilogue .....	261
List of References .....	263
Bibliography.....	288
Appendix A – Ethics Approval Form .....	289
Appendix B – Informed Consent Form.....	290
Appendix C – Focus Group Template .....	291
Appendix D – Student Background Questionnaire.....	293
Appendix E – Motivation & Learning Styles Questionnaire.....	295
Appendix F – Approaches to Studying Questionnaire.....	299
Appendix G – Reliability and Validity of the Instruments .....	303
Appendix H – List of Publications.....	305

## List of Figures

Figure 1.1: ColLab videoconferencing system .....	26
Figure 3.1: The student motivation and engagement wheel .....	79
Figure 3.2: The 3P model of teaching and learning .....	81
Figure 3.3: The conversational framework .....	84
Figure 3.4: A proposed theoretical framework for the study of learner engagement .....	86
Figure 4.1: Research design (data collection) .....	111
Figure 4.2: Research design (data collection and analysis) .....	113
Figure 5.1: Overview of mixed-methods data analytic procedures .....	156
Figure 5.2: The coding process .....	162
Figure 5.3: Map of themes at early stages of the holistic analysis.....	164
Figure 5.4: A collage showing snapshots from various group blogs. ....	171
Figure 5.5: Students collaborating using ColLab in two remote sites .....	172
Figure 5.6: The dimensions of learner engagement.....	182
Figure 5.7: Radar chart for withdrawn learner engagement archetype.....	197
Figure 5.8: Radar chart for impulsive learner engagement archetype .....	198
Figure 5.9: Impulsive versus withdrawn learner engagement .....	199
Figure 5.10: Radar chart for strategic learner engagement archetype .....	200
Figure 5.11: Strategic versus impulsive learner engagement.....	202
Figure 5.12: Radar chart for enthusiastic learner engagement archetype .....	204
Figure 5.13: Hierarchical model of enablers and barriers.....	207
Figure 5.14: Academic performance for WISE archetypes based on marks .....	233
Figure 5.15: The premises of Distributed Engagement Theory (DET) .....	238

## List of Tables

Table 2.1: Constraints and opportunities of communication media .....	46
Table 2.2: The visions and challenges inherent in CSCL .....	48
Table 4.1: Philosophical underpinnings of mixed-methods research .....	99
Table 4.2: Mixed-methods design templates .....	108
Table 4.3: Characteristics of ethnography and case study methods.....	125
Table 5.1: Comparison of themes and variables through data transformation .....	164
Table 5.2: Descriptions of major themes .....	168
Table 5.3: Variables measuring behavioural, intellectual, and affective engagement..	189
Table 5.4: Variation in variable B (above) when variable A (left) is high .....	193
Table 5.5: Variation in variable B (above) when variable A (left) is low .....	194
Table 5.6: General characteristics of each archetype in the WISE taxonomy .....	196
Table 5.7: Enablers of learner engagement with CSCL.....	216
Table 5.8: Barriers to learner engagement with CSCL.....	220

## List of Abbreviations

AE	Affective Engagement
BE	Behavioural Engagement
BIS	Business Information Systems
CMC	Computer-Mediated Communication
ColLab	Collaborative Learning Lab
CSCCL	Computer-Supported Collaborative Learning
CSCW	Computer-Supported Collaborative Work
CT	Collaborative Technology
DET	Distributed Engagement Theory
HCI	Human-Computer Interaction
HE	Higher Education
HEI	Higher Education Institution
ICT	Information and Communication Technology
IE	Intellectual Engagement
IS	Information Systems
LE	Learner Engagement
LMS	Learning Management System
LO	Learning Outcome
PISA	Programme for International Student Assessment
TEL	Technology-Enhanced Learning
UoA	Unit of Analysis
VLE	Virtual Learning Environment
WISE	Withdrawn-Impulsive-Strategic-Enthusiastic

# Chapter One – Engaging in the Study of Learner Engagement

## 1.1. Introduction

*“The future is here. It's just not evenly distributed yet.”*

William Gibson (Science fiction novelist)

During the last decade of the 2<sup>nd</sup> millennium and throughout the 21<sup>st</sup> century there have been extensive changes in the technologies available for learning. A prominent change within Higher Education (HE) has been the escalating development and increasing utilisation of Collaborative Technologies (CTs) such as Web 2.0 tools, online shared applications, and videoconferencing systems. These technologies have been widely perceived as the force that can radically improve students' skills and enhance knowledge development. The vision of Computer-Supported Collaborative Learning (CSCL) is to bring learners together in order to “offer creative activities of intellectual exploration and social interaction” (Stahl et al. 2006, p. 2). If we take the potential of CTs to support teaching practices and student learning for granted, then the question is no longer whether we should integrate technology in education or not. Technology is already here. It is ubiquitous and readily available in the classroom, at home, on the move. However, this thesis argues that this potential may be fully realised only if we understand how students engage with CSCL tasks and what affects their engagement – so we can design those tasks accordingly. The emergent question conversely is: What do we need to know in order to make an effective and impactful use of the available CTs to facilitate learner engagement, en route for enhanced learner achievement and improved learning outcomes? This introductory chapter sets the wider context of the study of learner engagement in CSCL environments within postgraduate education.

## 1.2. Background to the study – Setting the wider context of the study

To capitalise the proclaimed benefits of CTs and collaborative learning practices it is essential to explore and understand how students are likely to engage in a real-life CSCL environment as well as the plausible mechanisms that underpin their ongoing

interactions with each other and with the learning content. The chosen milieu within which this exploration takes place for the purposes of the current study is a postgraduate degree in the interdisciplinary field of Business Information Systems (BIS) undertaken at a Higher Education Institution (HEI) in the UK.

The choice of postgraduate education was triggered by the observation that within CSCL literature – as well as within motivation and engagement research – there seems to be a limited number of empirical studies conducted at postgraduate level. The decision was also prompted by the fact that universities are experiencing a rise in the popularity of postgraduate courses. The current critical situation in the global economy alongside the everlasting competition for jobs and the demanding recruitment procedures have brought challenges to graduates in every discipline. With fewer opportunities for employment graduates need to gain a competitive edge by demonstrating a wider range of skills and qualifications. As a result, the number of students who move into postgraduate education has seen a rise in recent years (Lipsett 2009). Specifically in the UK, postgraduate education is seen as the fastest-growing sector within HE (Sastry 2004). Additionally, individuals working in industry increasingly return to universities or take distance learning courses to further their knowledge, skills and qualifications under the pressure of more demanding jobs and the stimulus of a life-long learning society. These trends pinpointed the need for setting up the research in the context of postgraduate education.

Within postgraduate education the selection of a case study in the interdisciplinary degree of BIS was a natural consequence partly because of my academic background (as a BIS graduate) and partly due to the timely technological developments undertaken at the university during the academic year 2006/07 (which coincided with my decision to pursue a PhD). As a BIS graduate I became aware of the tensions and challenges that exist when individuals work in ‘hybrid’ subjects which cross the boundaries of individual disciplines. Most importantly, I gained some experience in working with individuals who come from diverse backgrounds and fundamentally different ways of thinking, learning, and communicating. Despite their complex nature, these situations mirror the real business world. Working and learning collaboratively in hybrid settings is a prevalent challenge in today’s society. Increasingly, business organisations get involved in cross-disciplinary, multicultural projects and establish consortia that bring together people from different countries and diverse fields in the pursuit of innovative and creative ideas that often result from such joint endeavours. Hence, focusing on

postgraduate BIS education emerged as an appealing and important opportunity. I was eager to explore how students engage with learning activities (through technology) when they have different backgrounds – and hence different assumptions and expectations – and how in turn this affects their learning aspirations and outcomes. The choice of the specific case study was also a topical one. The novel CTs installed at the selected university were expected to bring changes (opportunities as well as challenges) in the way some courses within the BIS degree were delivered and consequently in the students’ overall learning experience. The nature of the BIS degree thus presented a unique research opportunity to study how students engage in a ‘real-life’ CSCL context.

### **1.3. Central research concepts**

#### **1.3.1. Collaborative learning**

Collaborative learning refers to learning experiences, processes, and methods which involve, or result in, learning something new through interaction with other people. The major premise of collaborative learning is that people can learn best when they have opportunities to learn with other people in a collaborative way (Dillenbourg 1999). The key pedagogical assumption of collaborative learning is that knowledge is created as it is shared; the more information learners share, the more they are likely to learn (Leidner & Jarvenpaa 1995). As an offspring of social-constructivism, the major goal of collaborative learning is the construction of knowledge through interaction with others, teamwork, and learning-by-doing (active learning). It is assumed that learners have prior knowledge they can contribute to the conversation and that learners will participate if they are given optimal conditions and incentives (such as small groups to work with). Due to the nature of collaborative learning, individual participation and engagement in the learning process are considered critical for successful learning outcomes.

A tension at the heart of CSCL scholarship is the perspective of collaborative learning as a group process versus an aggregation of individual change (Stahl et al. 2006). Key scholars in the field argue that collaborative learning goes beyond aggregating individual learning. Stahl et al. (2006) proclaim that “collaborative learning involves individual learning, but is not reducible to it” (p. 3). Dillenbourg (1999, p. 5) also emphasises that collaborative learning includes activities performed individually (e.g.

reading, building, predicting) which trigger specific learning mechanisms at the individual cognitive level (such as induction, deduction, compilation) yet the interaction among peers generates extra activities (e.g. explanation, disagreement, mutual regulation) which trigger additional cognitive mechanisms (such as knowledge elicitation, internalisation, reduced cognitive load). This suggests that peers do not learn simply because they are two, but because they perform some activities which trigger specific learning mechanisms which would not be realised otherwise. In essence, interactions between peers generate higher order mental processes which are conducive to learning. The field of collaborative learning is precisely about these activities and mechanisms (Dillenbourg 1999).

### **1.3.2. Collaborative Technologies (CTs)**

Information and Communication Technologies (ICTs) in general can be classified in countless ways: according to the types of communication they support (Clark & Brennan 1991), the tasks they allow us to perform, their flexibility, their efficiency, and so on. When talking about CTs in particular we refer to those systems, devices, or applications which allow two or more individuals to communicate and collaborate effectively – while being collocated or at a distance. Whether collaboration has a formal (business or educational) purpose or an informal (social) character the CTs used are primarily the same. Examples of CTs include – but are not limited to – videoconferencing and teleconferencing systems, email applications, electronic meeting rooms, chat rooms and instant messaging applications, newsgroups, project management tools, knowledge management systems, calendaring systems, shared whiteboards and other shared applications, workflow systems, virtual reality applications for real-time interactions, and Web 2.0 tools (also known as the Read/Write Web) which include applications such as Web logs (blogs), wikis, podcasts, etc. In this thesis the focus is on the use of, and engagement with, group blogs and videoconferencing in a learning context.

The terms CTs, group support systems, Web 2.0 tools, and groupware are often used interchangeably both in the literature and in practice. Even though these concepts differ regarding the context in which they are used they share a number of commonalities. Firstly, they all focus primarily on human-to-human interaction rather than human-computer interaction. They provide users with tools for coordinating group activities,



flexible communication channels and mechanisms for processing information. They offer functionalities for recording the progress of the group (scheduling tools or calendaring features), libraries of solutions and established practices as well as meta-information (such as date, sequence of contributions, and author of each contribution). They also support interactions through various channels (i.e. audio, video, text-based) and provide shared storage, exchange and access to/retrieval of information from virtually anywhere (Majchrzak et al. 2000). The literature suggests that the proliferation of CTs and CSCL practices opens up new opportunities for knowledge sharing and group work (Lehtinen 2003; Stahl et al. 2006) and presents educators with the opportunity to encourage learners to participate in collaborative learning tasks (Laurillard 2002a; Leidner & Jarvenpaa 1995).

### **1.3.3. Computer-Supported Collaborative Learning (CSCL)**

Computer-supported collaborative learning is an emerging branch of the learning sciences concerned with studying how people can learn together with the help of computers (Stahl et al. 2006). Within educational practice CSCL refers to the application of collaborative learning processes facilitated through the use of technology. A broad definition of collaborative learning was provided by Dillenbourg (1999) and has been expanded here to accommodate the use of computer support resulting in the following definition: “[Computer-supported] collaborative learning is the situation in which two or more people learn something together [by using technology]”. The use of CTs can act as an enabler for learning and collaboration (Baker & Lund 1997; Laurillard 2002a) and in many occasions CTs provide the only means through which students can reach their peers and learn with and from each other. Still CSCL is concerned with both face-to-face collaboration and distant (synchronous or asynchronous) interaction (Stahl et al. 2006). The field of CSCL has undergone major advancements since the turn of the century and the possibilities that CTs offer for learning are remarkable. Nevertheless, the ability to effectively combine these two ideas (computer support and collaborative learning, or technology and education) in order to enhance learning remains a challenge – a challenge that the field of CSCL is designed to address (Stahl et al. 2006).

### 1.3.4. Learner engagement in CSCL

In the very broadest sense, learner engagement refers to a “student’s willingness, need, desire and compulsion to participate in, and be successful in, the learning process promoting higher level thinking for enduring understanding” (Bomia et al. 1997, p. 294). In the context of this thesis a holistic view of learner engagement is taken in an attempt to capture the distinguishing characteristics of CSCL environments where the underlying learning process is computer-supported, collaborative, and interdisciplinary. Therefore, technology is not the solitary focus; rather this research looks at how students engage with the learning content, with learning activities, and with each other ‘through’ technology:

- Engaging with the learning content implies that learners are expected to engage intellectually with learning material, readings, theoretical knowledge, and case studies. Engaging with learning content through technology means that learners are required to explicate and share the critical analysis which follows their reading and reflective thinking with the aim to advance their understanding and deepen their learning (Baker & Lund 1997). CSCL can promote reflection and advance individual learning by encouraging learners to share their thinking processes through active contribution in group tasks (e.g. in the form of web-based discussions on blogs). To achieve this, the technology must be ‘reconfigurable’ (Stahl et al. 2006) and designed specifically to mediate and encourage intellectual engagement with learning content.
- Engaging with collaborative learning activities entails participating in and contributing to discussions, taking part in collaborative work (e.g. collaborative writing) and jointly constructing an outcome. In CSCL these activities are mediated by CTs (e.g. maintaining a group blog, participating in videoconferences, managing a group assignment using project management tools, etc). The use of CTs means that a record of ongoing activities as well as a product can be kept, replayed, and modified (Stahl et al. 2006) which supports computer-mediated communication and learning (Dillenbourg 2005). In effect, CSCL activities require not only a synthesis of people’s knowledge (cooperation) but also an orchestration of their actions and contributions towards achieving a common goal (collaboration) (Dillenbourg 1999; Roschelle & Teasley 1995). The set of activities embedded in CSCL practices are conducive to learning.

- Engaging with each other involves collaborative construction of knowledge through a process by which individuals negotiate and share meanings (Roschelle & Teasley 1995). Collaboration in group projects and participation in active discussions enables learners to build on each other's knowledge, exchange constructive criticisms and comments on each other's ideas, share their personal experiences or viewpoints, and engage in debates. When these social processes are mediated by technology (e.g. through synchronous videoconferences or asynchronous text-based discussions on social networking sites, blogs and forums) they can facilitate both individual and group learning by giving learners the opportunity to make their thinking processes explicit to others, keep a record of their ongoing knowledge constructions, and collectively regulate their joint understanding.

#### **1.4. Problem definition – Gaps in the literature**

Research into CSCL has been thriving in recent years. The explosion of CTs holds many opportunities for enhancing the ways in which we learn, the places where we learn, and the people with whom we have the opportunity to learn. The interdisciplinary umbrella of CSCL brings together endeavours from complementary research streams (including education, educational psychology, ICT, sociology, educational technology, and anthropology amongst others) with the common aim to understand and, in turn, improve educational practices and enhance the learning outcomes through the use of CTs.

One of the main arguments put forward by proponents of CSCL is the 'engaging' potential of CTs. It has been argued that technologies "can be used in ways that increase student engagement and ultimately improve educational outcomes" (Junco & Cole-Avent 2008, p. 3) and that they "provide tremendous potential for encouraging student engagement and collaborative learning" (Clarke et al. 2008, p. 210). Yet, despite the profound benefits of emerging CTs and CSCL practices, there are a number of issues that remain to be resolved. A gap identified in CSCL literature relates to the fact that there is insufficient evidence contributing to our understanding of how – and indeed whether – learners truly engage with the CSCL tasks presented to them; what affects their engagement; and subsequently how engagement relates with their learning outcomes. This gap has empirical, theoretical, and methodological implications.

Current research efforts in CSCL focus primarily on investigating which or whether emerging technologies can facilitate learning. Up to the point in time of writing this thesis there seems to be inadequate empirical evidence into how learner engagement with CSCL activities actually happens. Do students really engage in collaborative learning through technology? If yes, in which ways? If not, why not? What does it take for individuals and groups to engage in learning through CTs? Furthermore, is engagement an inherent attribute of the technology per se? Put differently, will students consistently engage with a learning task (and with each other) simply because it is mediated or enhanced by technology, or are there other more subtle factors that may enable or hinder the nature and degree of their engagement? Much of the focus in current CSCL literature seems to be on the tools and technologies used, the functionalities needed based on the students' preferences, and on comparing traditional (classroom-based) with computer-supported learning practices. There is however a need for a more 'holistic' approach (Arrow et al. 2000; Majchrzak et al. 2000) which combines the technological aspects with the underlying cognitive, social and pedagogical issues (Dillenbourg 2005; Roschelle & Teasley 1995) which affect the ways in which students engage with CTs. More dynamic, systemic, and systematic models are required to capture the complexity of learner engagement – and the factors that enable or hinder learner engagement – in CSCL environments.

In addition, there is inadequate empirical evidence from CSCL studies conducted in postgraduate education. Although CTs are increasingly used at all levels of education most studies are carried out in secondary schools, college level, or undergraduate education. Given the escalating number of individuals moving into postgraduate education there is a need for a deeper examination of learner engagement and the mediating role it plays in CSCL environments at Master's level. Since postgraduate students are expected to be more mature, and potentially have previous work experience, the underlying assumption is that they are likely to engage differently in CSCL activities compared to undergraduate or secondary school students. It is also assumed that postgraduate students have different motives and goals than younger students (i.e. they may be more career-oriented or more competitive) and these factors may drive them to engage differently in CSCL.

Furthermore, at university level, previous research either tended to look for overarching learning outcomes and universal educational principles that could be applied across several subject areas (e.g. Bowden et al. 2000) or focused on learning within specific

domains (e.g. Chalkley 2000). In the former case, researchers have made considerable strides in describing how students learn and study, and in pinpointing some of the most salient influences on their learning. Yet, in practice, many educators often saw those research findings as being too remote from their own experience and specialism and could not therefore find it applicable in their own practice. Some educational research efforts have hence attempted to distinguish between science learning and learning in the social sciences. For example the ETL Project (2001) was initiated to look at teaching and learning within different subjects rather than looking for broad-spectrum principles that could be applied across subject areas. Identifying teaching and learning principles specific to a particular domain can be found to be more applicable and relevant in practice. Still, there is lack of empirical evidence from interdisciplinary domains (such as BIS which crosses the boundaries between business studies and computer science degrees). This leaves a gap in understanding what happens when students study in a hybrid discipline. How do students engage in a learning context which is not only computer-supported and collaborative in nature but also culturally and academically diverse?

Since we are exploring engagement in a learning context we also need to consider what potential impact engagement or disengagement may have on the learning outcomes and on the students' perceived skills and knowledge development. Some scholars argue that it is what the students are doing (their behaviour) that counts more in terms of their learning outcomes (Astin 1999; Kuh 2003) while others highlight the importance of the cognitive effort that students need to invest in their learning in order to achieve higher levels of engagement and knowledge development (Biggs 1987; Kearsley & Shneiderman 1999). This debate highlights the complexity of learner engagement from a theoretical angle. Unquestionably, learner engagement is a complex and multifaceted concept (Ainley 2004; Murphy & Alexander 2000) especially in situations where learning is both collaborative and mediated by technology. Factors such as the changing role of the lecturer, the assessment strategies used, team building and group dynamics, the criteria for choosing appropriate technologies, and the value of authentic collaborative tasks become significant within CSCL and therefore need to be reflected in modern learning and engagement theories. To the best of my knowledge there is no unified theory that sufficiently explains the phenomenon of learner engagement in and with CSCL environments, which presents a theoretical gap. More theoretical research is needed to understand how exactly student engagement is engendered within CSCL

environments and how students reason about their engagement and the factors that affect it. Threads from existing theories can however be drawn together to provide a framework which can inform novel theoretical efforts.

There is also a methodological gap. The dominant methodological paradigm used in the fields of Technology-Enhanced Learning (TEL) and CSCL falls within the positivist paradigm with the majority of studies asking students to perform pre-determined tasks in a controlled environment or a laboratory, execute artificial tasks in ad hoc groups, or fill-in survey questionnaires (Arrow et al. 2000; Lee 1999; Stahl et al. 2006). Studies using quantitative data collection methods aim to capture the generalisable features of CSCL practices across individuals, groups, institutions, or countries. These efforts can be enhanced by studies conducted in real-life, natural contexts which aim to capture richer and deeper insights from participants in their everyday environments (Hammersley & Atkinson 2007; Rosenberg 2000). Moreover, the use of mixed-methods research approaches has been given a growing attention in recent years (Creswell & Plano Clark 2011; Johnson & Onwuegbuzie 2004; Tashakkori & Teddlie 2010). The combination of different viewpoints and the collection of both qualitative and quantitative data can result in the triangulation of the research findings and ensure the reliability and validity of the research (Creswell 2007). Further, middle-range research approaches allow researchers to utilise the pre-eminent features of each paradigm and may reveal entirely new angles through which engagement with CSCL can be explored.

The gaps identified in the literature, alongside the ongoing data collection through observation of real-life CSCL settings, have inspired me to pursue inquiry into how postgraduate students engage with CSCL, what influences their engagement and how, if at all, engagement affects their learning outcomes. In addressing this research problem I am arguing that the theory and research on learner engagement contributes to a partial understanding of how learners engage, the factors which affect their engagement and how it influences their learning outcomes. Although there are diverse and informative accounts that provide a valuable understanding of learner engagement, many questions remain unanswered. This implies a need to develop a more complex set of theoretical ideas in order to explain the engagement practices adopted within postgraduate CSCL environments. To address this research problem, and fill the gaps that exist in current literature, it is thus essential to employ a well-designed research strategy which will allow novel and insightful viewpoints to emerge.

### **1.5. Key research questions**

Drawing from the above formulation of the research problem my study seeks to identify prominent themes and patterns of engagement with CSCL in the context of a postgraduate interdisciplinary degree. In particular, the study attempts to address the following research questions:

1. How do postgraduate students engage with CSCL activities?
2. What are the enablers and barriers to learner engagement?
3. How does the nature of learner engagement relate to the learning outcomes?

It is worth mentioning that the above research questions were not formulated or selected in the outset of this research endeavour. In reality they emerged through longitudinal participant observations in real-life CSCL settings and were refined and re-formulated during data collection and analysis while also keeping in mind the gaps in current research efforts.

### **1.6. Research purpose – Research aims and objectives**

The overall purpose of this research is to explore, understand and, in turn, explain the prominent patterns (types or processes) of student engagement in CSCL activities and its underpinning mechanisms hence contributing to existing literature and, subsequently, informing educational practice. To attain this purpose the research aims to conceptualise the phenomenon of learner engagement in CSCL and devise a holistic analytical framework that can help to describe, analyse, and improve learner engagement as it unfolds in real-life, interdisciplinary CSCL environments in the context of postgraduate education. Pursuing this research aim entails various methodological stages:

- Firstly, I explore the actions (behaviours), reactions, and interactions of postgraduate students by observing them in their everyday, natural CSCL environments (in the classroom, on the web, and during videoconferencing sessions). The central aim is to examine how their actions (what they do) and perceptions (what they talk about) reinforce certain meanings of engagement with CSCL activities and whether these meanings reveal significant aspects influencing learner engagement. Particular emphasis is placed on unanticipated patterns of collaboration through technology; genuine instances of knowledge

sharing, reflection, and collaborative knowledge generation; novel ways in which students self-organise within their groups and so on. On the whole, attention is placed on those incidents, conversations, or situations that tend to reappear and can therefore be considered as indicators of overall engagement or disengagement.

- Subsequently, I investigate what influences learner engagement and why different individuals engage differently. This involves a deeper exploration of the students' perceptions of engagement, their feelings and motivations, and their self-reported enablers and barriers as they emerge in semi-structured focus group discussions, questionnaires, and informal conversations and interviews with individual students. Capturing the students' self-perceptions by interpretively linking both qualitative and quantitative data enables a more coherent assessment and explanation of the nature of learner engagement and the prominent factors that may affect it. These insights are further enhanced and validated through knowledge reported in existing literature.
- Ultimately, I examine what other factors may contribute to our understanding of learner engagement. This involves a theoretical exploration of the pedagogical consequences and the mediating role learner engagement plays in the learning process by drawing both on engagement theory and learning theory. This examination takes into consideration the students' self-reports on their engagement (i.e. their perceived way of engagement) and learning outcomes (i.e. their perceived knowledge and skills development) and draws threads from various theories in an attempt to connect the empirical understanding (drawn from observation and video-ethnography, focus groups, interviews, blogs, and questionnaires) with the theoretical understanding of learner engagement. The potential correlations between the students' engagement and their level of contribution in CSCL tasks, their assignment marks, learning preferences, academic background and so on are also explored.

The above research aims and objectives elucidate the exploratory-yet-explanatory nature of this research. They suggest the need to explore and investigate the phenomenon of learner engagement in itself as well as explain prominent themes (instances and indicators) associated with learner engagement as they emerge in real-life



CSCL situations (such as the factors that influence learner engagement and the impact that engagement may have on the learning outcomes).

### **1.7. Motivation for the study – Research rationale**

*“Who dares to teach must never cease to learn.”*

Richard Henry Dann

My strongest motivation for pursuing a PhD in the first place is my aspiration to become a successful lecturer and academic. In fact, my passion for teaching and learning is so strong that has also shaped my research topic. Due to my academic background in computer science and business information systems I am also genuinely interested in novel technological developments. In my PhD research I am investigating the ways in which these two worlds – the educational and technological – blend together and the opportunities and challenges involved in delivering engaging technology-enhanced learning environments.

My passion for exploring CSCL was further sparked by several significant technological upgrades at my university which coincided with the completion of my MSc in Business Information Systems. Firstly, Moodle which is an open-source Virtual Learning Environment (VLE), also known as a Learning Management System (LMS), went live officially for students in the academic year 2006/07. During my Master’s degree during 2005/06 there was no such system available and lecturers would disseminate lecture slides and teaching material via email or upload them on various websites. Implementing a VLE was only one of the technological upgrades. Secondly, I was invited to attend the dry-run of the Collaborative Learning Laboratory (ColLab), a state-of-the-art videoconferencing system, which was scheduled to be launched in November 2007 (iCOM 2008). Since its launch, the system has been available to both students and academic staff and it is used primarily for learning and research purposes. Postgraduate students have been using ColLab (figure 1.1) to gain hands-on experience with the available tools and technologies built into the system. The system consists of video cameras, high resolution plasma displays (used for videoconferencing and for sharing documents such as presentation slides with the remote sites), and a smart-board

which allows remote participants to work on the same document simultaneously. The system is controlled by a touch-screen panel and students can log into the system using their usernames and passwords. ColLab can support videoconferencing with up to three remote locations. There are facilities for connecting via videoconferencing with other rooms within the university campus hence allowing students to experiment and play with the technology. ColLab also offers recording facilities and archiving capabilities for saving the collaborative documents created using the smart-board for future reference. At the time ColLab was launched, videoconferencing was not as widely used as today – at least not in HE. Experiencing these technological transformations I was intrigued by how much, and how fast, technology has advanced the learning opportunities that the new students (registered in the same MSc degree I completed one year earlier) would have at their fingertips. I wanted to explore how these technologies would improve their learning experience, what new skills they could develop by learning together through technology, and what benefits and opportunities these technologies could present to them (being a technology enthusiast I did not anticipate any challenges at that stage). Hence, my initial research focus was learning – computer-supported collaborative learning (CSCL).



Figure 1.1: ColLab videoconferencing system

My PhD journey officially started in October 2007. I was involved in different stages of testing ColLab, setting it up, launching it and training academics and students how to use it. Although students were particularly enthusiastic with the facilities available I was intrigued to observe that the uptake of the system – by students and academics alike – was quite limited. ColLab was scarcely used beyond the arranged induction and

presentation events. Many students were not overly satisfied by it despite the available e-learning tools and the built-in facilities supporting online discussions and private forums. Moodle was also used mainly for dissemination of teaching material from the lecturers to the students. So, how was I supposed to explore ‘how students learn through technology’ if the majority of students were not using the technology in the first place? Consequently, following my pilot study, I refined my research questions and re-plotted my line of investigation in order to explore ‘how it is that learners engage with the available technologies’. To be able to pursue these captivating emerging issues my resulting research focus developed into learner engagement in CSCL. Apparently, a shift in the research focus is a frequent phenomenon in research endeavours: “it is frequently well into the process of inquiry that one discovers what the research is really about” (Hammersley & Atkinson 2007, p. 160).

### **1.8. Methodology – Research strategy**

*“No problem can be solved by the same consciousness that created it. We need to see the world anew.”*

Albert Einstein

Using my key research questions as a driver, the process of establishing my methodological framework involved framing my research philosophically and deciding the research approach, research methods, and data collection methods to be employed in the study. The following paragraphs discuss the rationale behind these decisions. The main point in this discussion is that research must be rigorously designed and methodological choices must be transparent and properly justified in order to allow replication and ensure the reliability and validity of the research findings (Creswell 2007).

It follows naturally from the discussion thus far that a middle-range, mixed-methods research approach better fits with my research purpose and research questions. Philosophically middle-range research approaches adopt stances of both constructivism/interpretivism and positivism and therefore value both qualitative and

quantitative data collection methods. Specifically in the context of this study adopting a middle-range philosophy entails carrying our research in the stance of constructivism (i.e. by carrying out focus groups, interviews, and prolonged observations) to formulate some tentative propositions while also carrying out research in the stance of positivism (i.e. through questionnaires and examination of contributions per student on the blog) to verify these propositions, seek for relationships between variables, and guide further data collection and analysis. This process involves a number of iterations between inductive and deductive reasoning towards devising a coherent set of theoretical ideas.

The choice of research approach is also strongly coupled to the types of data the researcher plans to collect (or indeed to the types of data which are practically available to the researcher). Adhering to middle-range research philosophy essentially means that both qualitative and quantitative data will be gathered and this suggests a mixed-methods research approach. Following a mixed-methods approach to research involves an amalgamation of various research methods and data collection methods. Creswell (2003) states that increasingly research tends to be less polarised between quantitative and qualitative approaches. Other scholars also promote the constructive knowledge produced through mixed-methods research approaches (Creswell & Plano Clark 2011; Johnson & Onwuegbuzie 2004; Tashakkori & Teddlie 2003, 2010). Even though mixed methods are employed priority is given to qualitative data due to the ethnographic character of the study. Nevertheless, the combination of both strands of data is inherent throughout the research.

The research method employed in the thesis is a collective, ethnographic case study. Consequently the study is aligned with the characteristic features of case studies (Yin 2003; Stake 2005; Denzin & Lincoln 2005; Merriam 1998) and has a distinguishing ethnographic character (Hammersley & Atkinson 2007; Wolcott 1999; Agar 1980). Traditionally, ethnographic studies are descriptive and highly subjective. Although data-driven (bottom-up) and interpretive/naturalistic at its core, the case study conducted in this research aims to explore and find a plausible explanation of learner engagement rather than just provide a detailed description (narrative) of observed phenomena. The focus is on exploring learners and their attitudes, actions, and behaviours as situated in their natural world (or context of learning) and as much as possible through their eyes, while at the same time seeking to explain why they engage in the way we observe them to engage by making sense of their self-reported views. This exploration is primarily empirical but also theoretical in nature.

To meet my research aim and address my research questions a major part of the study involved participant observations. Throughout my longitudinal study I observed students (both physically and virtually) and used the anthropological tradition of ‘being there’ in order to ‘see the world anew’. In practice this involved immersing myself in the lives and everyday activities of my informants (in the classroom and online), trying to experience their experiences and engage with them as far as possible. Being around and acting as if I were one of them gave me a close insight into how they experience learning with technologies, how they engage with the learning material, the CSCL activities and with each other, how the world looks like from their perspective. Methodologically, participant observation provides rich insights into how people act, feel, react, and interact in their natural environments.

Inevitably, interpretive research is often criticised for the use of purely qualitative methods. Driven by the middle-range, mixed-methods paradigm I adopted, I addressed this issue by combining participant observation with additional data collection methods including in-depth, semi-structured focus groups; examination of students’ contribution on blogs; photographic material and video-recordings of students in action; as well as student questionnaires. Follow-up interviews and informal discussions (with both students and lecturers) over a period of three years (three consecutive implementations of the BIS degree) also complemented the collected evidence and helped to validate initial hunches emerging in the course of the research. This particular combination of qualitative, quantitative, and visual methods provided a much richer portrait of the world under investigation than a combination of qualitative and quantitative methods alone may have permitted.

### **1.9. Importance of study – Expected contributions**

As the literature review in the following chapter will show, much research has been conducted into how, or whether, collaborative learning and the use of CTs in education is correlated with improved knowledge and skills development. The literature review also exposed a gap in understanding the nature of learner engagement and the mediating role it plays in such CSCL environments, especially within postgraduate education. This thesis seeks to explain how it is that learner engagement with CSCL is impacted by the surrounding – often subtle – personal and situational aspects, not how technology affects engagement. In other words, technology sets (part of) the context within which

learner engagement unfolds rather than a fixed attribute of engagement. The attempt to fill the gaps identified in the literature is expected to contribute to current theory, methodology, and experience in terms of learner engagement in CSCL environments.

### **1.9.1. Empirical contribution**

The empirical contribution of the thesis is founded on the fact that the selected case study is conducted in the context of CSCL at postgraduate level where there is limited empirical evidence, particularly in interdisciplinary degrees such as the MSc in Business Information Systems. Another original contribution of the research lies in its focus on group dynamics and how they affect learner engagement at the individual level. Since the study unfolds in a collaborative learning context where students work in groups (both in the classroom and through technology) group dynamics emerged as a prevalent influencing factor. Hence, it was deemed important to explore the ways in which group-level factors influence learner engagement. Particular emphasis was placed on ongoing social interactions and how these affect student engagement and learning outcomes. The adoption of a deeper and more holistic investigation yielded unexpected empirical findings which can contribute to the current state of understanding concerning learner engagement with CSCL activities.

### **1.9.2. Theoretical contribution**

This thesis contributes to theory by providing an empirically-grounded, theoretically-informed conceptualisation of learner engagement in CSCL at postgraduate education in the form of a holistic analytical framework labelled Distributed Engagement Theory (DET). DET provides the analytical tools for (i) understanding what constitutes learner engagement within CSCL environments, (ii) evaluating the prominent factors that affect and shape learner engagement, and (iii) exploring the mediating role it plays in knowledge and skills development within postgraduate BIS education. This holistic analytical framework comprises the multi-dimensional conceptualisation of learner engagement, a model (Hierarchical Model of Enablers and Barriers), and a taxonomy (WISE Taxonomy of Learner Engagement Archetypes).

DET attempts to provide novel perspectives on and explain the nature and influences of learner engagement in CSCL. To fill the theoretical gap identified in the literature, DET

draws threads from a number of theories as well as from experience (through a longitudinal empirical study). The procedure of theorising learner engagement involved an iterative process of identifying patterns of engagement and disengagement with real-life CSCL tasks (both asynchronous tasks such as web-based participation on blogs and synchronous tasks such as classroom-based group work and videoconferencing discussions) and exploration of those patterns through available theory and research. This iterative process involved many cycles between inductive and deductive data analysis which led to the development and refinement of the proposed DET.

In practice, the multi-dimensional conceptualisation of learner engagement may help to better understand what comprises learner engagement with CSCL which, in turn, will help to improve the envisaged learning outcomes. The hierarchical model of enablers and barriers, which is another important part of DET, describes learner engagement as a socially distributed phenomenon. The model represents different classes or categories of factors that were found to influence learner engagement, hence suggesting ways in which CSCL tasks may be designed in order to engage students. Finally, the WISE taxonomy of learner engagement archetypes identifies the most prominent types of engagement strategies identified in the study (i.e. Withdrawn, Impulsive, Strategic, and Enthusiastic – hence the name ‘WISE’). The proposed conceptualisation, model, and taxonomy can help educators, instructional designers, and educational technologists to extract practical recommendations for the successful exploitation of CTs in postgraduate education. Collectively, the aim of the proposed analytical framework is two-fold: firstly, to conceptualise the process of learner engagement in CSCL activities and secondly, to provide practical recommendations to help practitioners (a) understand the need to move beyond the technological affordances of CTs and take a holistic approach in order to promote learner engagement; (b) accommodate diverse types of learner engagement, not just diverse learning preferences; and (c) cultivate the personal, group-level, pedagogical, and technological aspects of CSCL not in isolation but within the complex system they define.

### **1.9.3. Methodological contribution**

This thesis contributes to methodology by adopting a holistic, mixed-methods approach to theory building (Arrow et al. 2000; Creswell & Plano Clark 2011; Mingers 2001; Tashakkori & Teddlie 2003, 2010). The study is middle-range yet interpretive at its core

due to the informative and insightful viewpoints realised through the ethnographic, observational data collected in the study. The study is founded on the principles of traditional ethnographic case studies and their focus on real-life, natural settings in an attempt to understand engagement with CSCL through the eyes of the participants. In contrast to traditional ethnographic studies however, the current study goes beyond merely ‘thick description’ (Hammersley & Atkison 2007) of learner engagement incidents and aims to construct a credible explanation of why students engage in the way we observe them to engage and which factors affect their engagement. Thus, by following a middle-range research philosophy my study contributes to current literature the majority of which adheres to strictly positivist or constructivist/interpretivist studies. Furthermore, the unique combination of qualitative, quantitative, and visual data collection methods leads to a constructive interchange between inductive and deductive analysis which, in turn, offers appealing insights into the phenomenon under investigation. This integrative inquiry process features the iterative nature of mixing various data sources (Jang et al. 2008) and shifted my attention to emergent insights made available through mixed methods. This strategy contributes to the methodological discussion about mixed methods integration of qualitative and quantitative strands of data and responds to the call for more systemic research into mixed methods integration of findings (Bryman 2007; Johnson et al. 2007). Finally, the multi-level analysis is another original contribution of the study. The study explores the patterns of learner engagement with CSCL at the individual learner unit of analysis (UoA), both from the students’ and the lecturers’ point of view. This duality aims to generate a more pragmatic view of learner engagement in CSCL contexts.

#### **1.10. My role as a researcher – Assumptions**

*“The researcher's focus reflects a balance between understanding and depicting the world authentically in all its complexity and of being self-analytical, politically aware, and reflexive in consciousness.”*

(Patton 2002, pp. 494-495)



Over the course of my research I have been extensively and intensively involved in the setting I was studying. Having completed the MSc in BIS with a distinction gave me the prospect to be employed as a tutor on the course. I was a teaching assistant on the MSc in BIS during the last two years of my main study (2008/09 and 2009/10) and my roles included facilitating workshops, preparing material for lectures, running small-group discussions and supervising student dissertations. Participating as a tutor gave me the opportunity to spend a lot of time with the students both in their groups and on an individual basis. Consequently this role gave me a chance to get to know students very well and most importantly students got used to my presence. My involvement as a teaching assistant or simply ‘being around’ also facilitated the negotiation for access to data. In addition to the courses in which I was formally involved I also regularly attended other lectures and I generally tried to develop an informal relationship with students. I also made it clear from the beginning that I was not involved in their assessment or marking, and that my role was to facilitate the workshops and help them with their group work. Being an MSc BIS graduate also helped me as an ethnographer because students saw me more like ‘one of them’ rather than a person of authority.

On account of my close involvement in the research context and intimate interaction with my informants I am aware that my own personal experiences and reflections are considered an important and legitimate source of information. However I am also aware of the researcher bias resulting from this involvement and every effort has been made to acknowledge this and minimise it as much as possible. Nevertheless, the shortcoming of researcher bias is compensated with the intensive and extensive access gained through the privileged position from which I can understand and interpret the findings of this study. Throughout the study I tried to maintain a functional balance between an objective description of the facts I observed in the field and the subjective analysis and interpretation of the plausible mechanisms that underpin those facts. The use of mixed methods also helped to achieve ‘intersubjectivity’ (Biesta 2010) and facilitated the triangulation of findings through re-examination of divergent issues (Tashakkori & Teddlie 2003).

### **1.11. Structure of the thesis**

Chapter 1 has presented the wider context and background to the study aiming to engage the reader into the topic. It also rationalises the importance of understanding the

nature and underpinning mechanisms of learner engagement in CSCL environments. It has introduced the key research questions, the research rationale and the aims and objectives of the study. Finally, it has positioned the thesis within the philosophical context of middle-range, mixed-method inquiry paradigm.

Chapter 2 delves deeper into the related research strands and presents the major schools of thought in the literature as well as ongoing debates and current research trends. It discusses the varied and complex concepts found in interdisciplinary CSCL scholarship and attempts to organise the literature in a stimulating and meaningful way. It also provides a critical review of the key issues identified in the multi-disciplinary area of learner engagement in CSCL. This discussion seeks to elucidate the boundaries of the thesis and offer a rationale behind assumptions and choices made in the course of the research. In doing so the aim is to highlight the research gap and build an initial theoretical foundation for the analysis of my empirical work.

Chapter 3 presents the theoretical framework developed drawing from the engagement and learning theories other scholars have developed and applied for exploring the complex concepts that I am investigating.

Chapter 4 presents the foreshadowed problems which gave rise to initial research questions, elucidates the philosophical assumptions underpinning my research design and research methodology, and presents the novel approach I developed for addressing the identified research gaps. My research followed a middle-range, mixed-methods approach to explore, analyse and explain learner engagement in CSCL environments. The chapter firmly justifies the choice of a mixed-methods approach and thoroughly describes the research methods and data collection methods used in the study. It also elaborates the criteria based on which the research setting and cases were selected.

Chapter 5 presents the analysis of the collective, ethnographic study that provided the empirical basis for the research. It details the iterative analytical steps taken to explore, investigate, validate, understand and explain the phenomenon under investigation. Due to the mixed-method approach taken in this study, a vast amount of rich data was collected in different formats. Data analysis involved identifying the most prominent themes related to ‘learner engagement in CSCL’ and trying to make sense of the actions and perceptions of the informants. This chapter also presents and describes the key themes and major findings emerging from the research and elaborates how Distributed Engagement Theory (DET) was developed based on these.

Finally, chapter 6 concludes the discussion by identifying the key implications arising from my empirical work and discussing the strengths, limitations, and potential impact of my research findings on the scholarly work the rest of the academic community is doing. Most importantly, this final chapter of the thesis highlights the nature of original contribution to knowledge and provides suggestions for plausible extensions to this study, and future research journeys into this cross-disciplinary research area.

### **1.12. Synopsis**

An aspect of existing CSCL literature is the lack of attention on the subtle factors that influence the ways in which people engage in collaborative learning through technology. There seems to be an overstated belief that the integration of technology in the curriculum and the shift towards technology-enhanced, learner-centred pedagogies will automatically transform the ways learners engage and collaborate with each other as part of their learning. The varied presuppositions that exist on the nature of learner engagement in CSCL activities are yet not fully empirically explored. Hence, a major part of the contribution of this research is the conceptualisation of learner engagement in CSCL environments drawing from a hybrid, middle-range perspective and embracing the relevant research streams that provide input to this multi-disciplinary work.

This introductory chapter presented the broader context of the thesis and established the key issues to be explored in the research. Firstly, it has defined the research problem and the key research questions to be addressed. Secondly, this chapter delineated the motivation for pursuing this research topic which was activated by direct observations in the field and driven by the need to understand the underpinning mechanisms and subtle influences that impact the ways in which learners engage in a learning context which is mediated by CTs. To achieve this understanding it was deemed necessary to adopt a mixed-method, multi-level, interdisciplinary approach. This approach was vital for understanding how learners engage, what hinders or encourages their engagement in the studied context, and how their engagement potentially influences the learning outcomes. Capturing the students' behaviours and learning practices as performed in natural settings, as well as the multifaceted ways in which they reason about these practices, helped to make a contribution to knowledge by generating a coherent understanding and a set of plausible explanations pertaining to learner engagement.

Essentially, the aim of the study is to provide educators, researchers, and educational technologists with a coherent set of concepts (a conceptual framework), and supporting descriptions of the underlying research findings (empirical insights) in an attempt to develop more precise ways of making sense about how postgraduates students think, feel, and act when presented with CSCL tasks, as well as to encourage reflection on ways of enhancing student engagement in CSCL environments at postgraduate level (practical recommendations). The hierarchical model of enablers and barriers, the WISE taxonomy of learner engagement archetypes and the multi-dimensional conceptualisation of learner engagement collectively define a holistic analytic framework for enquiring, understanding, and enhancing learner engagement in CSCL. The following chapters discuss these topics in more detail.

## **Chapter Two – Literature Review**

### **2.1. Introduction**

The fields of learner engagement and CSCL jointly cover a broad, multidisciplinary, and complex research area. This complexity has produced a rather fragmented research milieu with scholars approaching the area from diverse conceptual and methodological angles. The literature review organised and presented in this chapter aims to portray a comprehensive, critical evaluation of current research (theoretical and empirical alike) to help answer the key research questions outlined in the first chapter. The examination of relevant literature is also necessary in order to set some functional boundaries and contextualise my research in ongoing debates identified in contemporary theory and practice. To accomplish these objectives, I have turned to the variety of domains that are embraced by this multidisciplinary area including Education and Educational Psychology, Information Systems (IS) and ICT, Anthropology and Sociology.

This chapter synthesises prominent issues found in the literature related to the use of CTs in learning practices and the way students engage with learning. It evaluates the most widely employed methodological approaches and reviews the most influential disciplines in the area CSCL. The purpose of this evaluation is to identify gaps as well as opportunities in current research efforts in order to guide further investigation into the nature, theory and practice of learner engagement with CSCL. It is argued that there is a genuine need for cross-disciplinary research and a holistic methodological approach which will allow researchers to study technology-enhanced collaborative learning from multiple perspectives. Such an approach should incorporate social, cognitive and technological perspectives towards understanding real-life (as opposed to experimental) pedagogical contexts. By drawing insights and inspiration from diverse and complementary research fields the end-goal is to devise a theoretical framework to support the interpretation and explanation of the emerging empirical findings. In essence, the combination of theories drawn from varied scientific fields will form the foundation on which I will re-evaluate emergent ideas towards constructing my final empirical findings. The following sections critically evaluate and discuss the most influential contributions found in the literature.

## **2.2. Structure of literature review**

Unquestionably the arrival of the Internet and other ICTs has leveraged the opportunities for communication, collaboration, and learning bypassing any time and place constraints. The multimedia features of ICTs and the fast worldwide access to information open up new opportunities for knowledge sharing and group work (Dillenbourg 1999; Lehtinen 2003). As a result, within the broader array of ICTs, there has been a growing interest on the application of CTs in education. Nevertheless, the successful application of CTs in education depends not only on the features and functionalities of the technology; above all it depends on the pedagogical approach used (Lehtinen 2003; Leidner & Jarvenpaa 1995). Therefore the social and cognitive aspects of learning must be considered in addition to the technological ones (Dillenbourg 2005; Garrison et al. 2000).

Research on the impact of CTs on learning has attracted attention from various disciplines within the multidisciplinary research area of CSCL. In recent years, CSCL scholarship has been enriched both in terms of theory development, practical application, and methodological approaches. A wide research community consisting of educators, educational technologists, social scientists, computer scientists, psychologists and sociologists, linguists, anthropologists and managers of ICT contribute to this research area. While this phenomenon offers appealing opportunities for innovative studies at the same time it presents specialists with many questions regarding which theories or approaches they could apply for gaining rich insights on a specific aspect of CSCL. The aim of this literature review is to provide a critical analysis of the major theoretical, empirical and methodological trends and developments that have contributed to our understanding of CSCL, in an attempt to guide forward-thinking researchers towards systematic, holistic, and cross-disciplinary research designs with the aim to better understand and improve learner engagement with CSCL. The literature is surveyed in terms of:

- Empirical insights: looking at the key themes, arguments, study findings and implications reported in the literature.
- Theoretical contributions: identifying debates in the literature, different schools of thought, underpinning theories, research trends and gaps in the literature.
- Methodological approaches: discussing the dominant paradigms, approaches, and research methods widely used to conduct inquiry in this area, as well as

implications, gaps and challenges in the study of CSCL and of learner engagement within CSCL environments.

Most of the knowledge and research presented in this chapter derives from books (e.g. Arrow et al. 2000; Biggs 1987; Laurillard 2002a; Martin 2003; McConnell 2000; Roberts 2004); case studies (e.g. Clarke et al. 2008; Dwyer & Suthers 2005; Egea 2006; Wasson & Morch 2000); practitioner articles (e.g. Abramowicz et al. 2003; Milrad 2002; Soller et al. 2005); and theoretical/conceptual work (e.g. Grabinger et al. 2007; Kreijns & Kirschner 2001; Garrison et al. 2000). Several empirical investigations are also reviewed (e.g. Alavi 1994; Belanger & Allport 2007; Bessagnet et al. 2005). Fundamental knowledge on learning and engagement is found in various educational psychology writings and reports (e.g. Covington 2000; Fry et al. 2003; Pintrich 2003).

Several online citation and journal databases available through a university library system were consulted including Web of Knowledge, JSTOR, ERIC, EBSCOhost Business Source Complete, and Science Direct. The majority of papers reviewed are published in journals (e.g. Journal of Educational Psychology, Educational Psychologist, Journal of Mixed Methods Research, Computer-Supported Collaborative Learning, Computers & Education, Academy of Management Learning and Education, Studies in Higher Education), handbooks, and conference proceedings. Google Scholar<sup>®</sup> was also used as a supplementary source for browsing the World Wide Web. Using these resources, a number of searches were conducted using a variety of search terms including but not limited to: collaborative learning; learner engagement; CSCL; ICT in education; eLearning 2.0; pedagogical models; TEL; motivation in learning; and postgraduate education. EndNote<sup>®</sup> was used as a citation management system to organise and manage all resources in a local database.

### **2.3. Conceptualising CSCL**

Although no single or unified definition of CSCL exists in the literature, a number of factors are attributed to effective learning processes when these are mediated by technology. These include active learning and construction of knowledge; teamwork; and problem-solving or learning-by-doing (Leidner & Jarvenpaa 1995). From a theoretical viewpoint, the pedagogical model which embodies these attributes is the collaborative learning model. Collaborative learning (or Collaborativism) draws from the social-constructivist model of learning. Constructivism is based on the tenet that the

role of teaching is not to transmit knowledge from the instructor to the learner; rather knowledge is constructed by the learner (Yaverbaum & Ocker 1998). However, whereas constructivism assumes that learning occurs as an individual interacts with objects, the social-constructivist paradigm argues that individuals learn as they verify and improve their mental models through discussion, information sharing, and negotiating meanings with others (Dillenbourg 1999; Grabinger et al. 2007; Santoro et al. 1999; Stahl et al. 2006). Being exposed to alternative perspectives can challenge an individual's initial understanding and thus motivate learning. These benefits are of great importance to all levels of education, especially in higher education (Alavi 1994; Garrison et al. 2000).

As an offspring of social-constructivism, the major goal of collaborative learning is the construction of knowledge through interaction with others. When collaborative learning is 'supported by computers' this implies that social interaction is mediated by technology either fully (i.e. technology is the only channel/medium through which people interact) or partially (i.e. technology complements face-to-face interaction). A CSCL environment can be physical (such a classroom at a university, an office in an organization, a seminar room, a meeting room, etc); virtual (in which case learning takes place entirely through computers); or hybrid (a combination between the two) (Dwyer & Suthers 2005; Qureshi & Vogel 2001; Wasson & Morch 2000). The effectiveness of the technology used will depend on how well the technology supports the underlying pedagogical approach and, most importantly, on how appropriate the chosen pedagogical approach is for the particular learning situation. This presents both pedagogical and technological implications for the successful application of ICT in education (Leidner & Jarvenpaa 1995).

A common discussion in the literature involves the distinction between collaboration and cooperation. Some researchers use the terms interchangeably but it is important to understand the differences between them. While in cooperative learning students split the work, solve sub-tasks individually and then assemble the partial results into the final product, in collaborative learning all participants perform the tasks together to reach a common goal (Bouras et al. 2008; Dillenbourg 1999; Roschelle & Teasley 1995; So & Kim 2005). Collaborative learning emphasises engagement and participation, and provides more opportunities to co-construct meaning, develop communication skills, and perform additional cognitive processes which facilitate learning (Dillenbourg 1999).



The term CSCL is used in a wide range of academic fields and even within the same discipline different authors use the term differently. This is partly due to the varied interpretations of concepts such as ‘learning’, ‘collaboration’, and ‘computer support’. Additionally, depending on the situation, CSCL may refer to the situation, process, task, system or mechanism through which people learn. A broad definition of ‘collaborative learning’ was provided by Dillenbourg (1999) and has been expanded here to accommodate the use of computer support resulting in the following definition: “[Computer-Supported] Collaborative Learning is the situation in which two or more people learn something together [by using technology]”. Each element of this definition can be interpreted in manifold ways:

- ‘Two or more people’ can be a pair, a small group, a class, or a community of learners.
- ‘Learning’ may refer to attending a course, reading a book or course material, performing learning activities such as problem solving, or learning through lifelong work practice.
- ‘Together’ may refer to diverse forms of interaction: face-to-face or computer-mediated communication (CMC); synchronous or asynchronous; frequent in time or not; short-term or longitudinal; cooperative or collaborative.
- ‘Technology’ may refer to any system, application, or tool which supports communication, collaboration and/or coordination between people including e-mail, teleconferencing and videoconferencing, knowledge repositories, social software (blogs, forums, and wikis), shared online applications, virtual reality systems etc.

As can be easily deduced from the discussion above, CSCL is a multifaceted and complex concept.

#### **2.4. Historical background – The emergence and growth of CSCL**

A review of the literature reveals that multiple factors have contributed to the emergence of CSCL. Firstly, advances in ICTs increased the opportunities for providing technological support for learning. Initially technology was used to aid individual learning and meaning making (through literacy and writing tasks) (Stahl et al. 2006) and

later expanded to engage students in collaborative learning activities (Kreijns & Kirschner 2001). The expansion of the Internet revolutionised the way learners acquire, create and exchange knowledge (Bessagnet et al. 2005). Novel educational tools continue to empower educators to create content, monitor student participation, and facilitate the development of communities of learners (Haythornthwaite et al. 2000). Blended learning tools and techniques are increasingly employed in the curriculum to accommodate the diverse needs of learners and educators alike (Allan 2007).

Secondly, ICTs inspired the restructuring of learning environments by allowing new modes of learning and instruction. On one hand, this shifted the teachers' role from being in the centre of instruction to becoming moderators or facilitators hence engaging students in the learning process. On the other hand, it has empowered students to become active participants rather than passive observers which in turn shifted the focus from individualistic towards collaborative learning (de Freitas & Neumann 2009; Milrad 2002). This two-fold shift encouraged scholars to investigate how ICTs can facilitate student-oriented learning activities such as exploration, problem solving, conflict resolution and argumentation. It is argued that these activities trigger specific cognitive mechanisms (such as knowledge elicitation, higher-order critical thinking, metacognition and self-regulation) which are found to be beneficial for learning (Dillenbourg 1999; Lehtinen 2003; So & Kim 2005). It is no surprise then that during the last two decades research on the use of ICTs in education is explicitly considering the possibilities of technology to enable social interaction both amongst students and between teachers and students (Chou & Min 2009; Kreijns & Kirschner 2001; Laurillard 2002a).

Thirdly, the increasing use of project teams in businesses and organisations was another reason which promoted research in CSCL. In fact, CSCL has grown out of wider research into Computer-Supported Collaborative Work (CSCW) (Santoro et al. 1999). Due to the technological advancements at the turn of the century, there has been an increase in the soft skills graduates should possess. Alavi (1994) argues that "Individuals need to learn at higher rates of effectiveness and efficiency than even before because of rapidly growing bodies of relevant information and the escalation of knowledge and skill requirements for most jobs" (p. 159). This statement is more relevant today than it was more than fifteen years ago, and presents the need for continuous development and research in collaborative learning. The thrust for constant improvement and lifelong learning alongside the fast-changing business needs, the

increased competition, globalisation and the evolution of ICTs have collectively contributed to the emergence of CSCL. At the same time, they have generated both challenges and opportunities for prospective endeavours. These are discussed next.

## **2.5. CSCL in practice – Empirical findings**

### **2.5.1. The visions and opportunities of CSCL**

When research in the area of CSCL first began the possibilities were glorified. Researchers and practitioners were talking about the level of flexibility and the enormous amount of cost reductions institutions and individuals would gain by using videoconferencing and groupware systems instead of conventional ways of learning. The main vision was – and maybe still is – that in the future people will collaborate as easily with someone far away as they would with someone in the same room (Robey et al. 2000). E-collaboration technologies allow people to bring diverse skills on collective ventures that eliminate the barriers of time, distance, and resources (Bessagnet et al. 2005). Yet, CTs are not designed to replace face-to-face interaction; they are designed to supplement it by allowing people to communicate anytime. CTs offer functionalities for coordination of group work, tools for recording progress and giving feedback, libraries of solutions and best practices, as well as meta-information (i.e. date, author, and sequence of contributions). They also support interactions through various channels (i.e. audio, video, text-based) which enrich communication efforts (Majchrzak et al. 2000; McConnell 2000). The standardisation and increasing adoption of these technologies has vastly affected the way people choose to communicate, learn and work. The Internet, through the availability of online tutorials and distant learning courses, offers a more expansive world to explore compared to traditional lectures. This gives students the freedom and flexibility to learn at their own pace and they may find it easier to concentrate and learn compared to following a teacher's thought process during a lecture (Anderson 2004).

In addition to the above benefits, CSCL inherently shares the benefits of collaborative learning. From a social point of view, collaborative learning is superior to individualistic learning because it enables positive changes in interpersonal attitudes and promotes student participation and a sense of community (Flynn 1992). Collaborative learning activities allow students to practice their communication and

listening skills and explore multiple perspectives from people with different cultural, academic or professional backgrounds (Stacey 1999). From a cognitive/psychological viewpoint collaborative learning is associated with increased personal achievement. Learners can develop critical thinking through evaluating, reflecting, and arguing for or against different viewpoints (Fung 2004). They also tend to demonstrate higher-level reasoning, greater diversity of ideas, and more creativity when they are actively learning in groups rather than when they are learning individually or competitively (Alavi & Leidner 2001; Alavi et al. 1995). CSCL also inspires lifelong learning, which seems to be the key to success in forthcoming years (Abramowicz et al. 2003).

Moreover, CSCL is based on the premise that technology can facilitate collaboration which in turn promotes interactive learning and sustained critical discourse. Many scholars argue that ICT holds promising opportunities for the next generation of educational tools (Abramowicz et al. 2003; Kreijns & Kirschner 2001). The integration of social software and Web 2.0 tools in education opens up novel arenas for CSCL. Web logs (blogs), file-sharing systems, and wikis are increasingly embedded in the curriculum and are expected to increase collaboration readiness and active participation of learners (Cress & Kimmerle 2008). Especially since people familiarise with the technology from a young age, its use becomes more and more ubiquitous requiring less effort to use it. As people become progressively more comfortable with using technology, the visions of CSCL are becoming more prominent.

### **2.5.2. The challenges in CSCL**

Alongside the benefits, CSCL is a complex phenomenon and many challenges still remain to be addressed (Bessagnet et al. 2005; Lehtinen 2003; Stahl et al. 2006). To begin with, there is an escalating need for improving educational practices and preparing graduates for the modern economy. Universities are constantly challenged to equip graduates with the skills necessary for effective participation in groups (Abramowicz et al. 2003). To prepare graduates for the demanding business world the curriculum needs to include learning tasks that prompt critical thinking and problem solving. These goals require a pedagogical approach which emphasizes learning from hands-on experience and group work (Grabinger et al. 2007). There is also a genuine need for sharing best practices and raising awareness of successful and sustainable solutions amongst practitioners (Stansfield et al. 2008). Despite the vast technological

progress field observations report low degrees of collaboration and learning performances indicating that contemporary CSCL environments do not completely fulfil the expectations of educators and learners (Kreijns & Kirschner 2001). From a psychological point of view, the unwillingness to collaborate is not surprising since knowledge sharing is often perceived as loss of power. As a result learners may withhold knowledge that would otherwise be shared with peers. Therefore competitive assessment strategies should be avoided as they may disable effective learning (Leidner & Jarvenpaa 1995).

Learners may also be reluctant to collaborate due to lack of trust or incentives (Furst et al. 1999; Olson & Olson 2000; Qureshi & Zigurs 2001). Furthermore, contributing to a forum discussion or posting something on a blog is often associated with additional time and effort which may disengage students. Motivation and engagement play a key role in the success of collaboration practices. It has been argued that learners will participate if they are given the right incentives and optimal conditions such as small groups to work with (Leidner & Jarvenpaa 1995). Providing timely feedback and using group awareness tools can also be useful for re-engaging the students (Kimmerle & Cress 2008; Kreijns & Kirschner 2001).

The fact that group members might have diverse backgrounds or different cultural and communication norms may hinder the grounding process, that is, the interactive process through which students establish mutual understanding or common ground (Cramton 2001, 2002; Schoonenboom 2008). Even though exchanging ideas with people from different perspectives can be beneficial, researchers have pointed out difficulties regarding conflict resolution (Qureshi & Vogel 2001; Wulf et al. 2001). In addition, human-to-human interaction is more likely to be 'mediated' by technology than being strictly face-to-face. People manage to communicate using different 'media' but each medium inflicts more or less effort to coordinate each others' actions and establish a common ground (Clark & Brennan 1991). Table 2.1 shows some communication media and their associated constraints and opportunities for communication.

Another prevalent dispute in the literature refers to choosing between face-to-face and computer-mediated collaboration. Some researchers argue that teams can thrive despite physical distance (Robey et al. 2000) while others believe that distance matters and that face-to-face teams outperform virtual teams (Jarvenpaa & Leidner 1999; Olson & Olson 2000). Some researchers claim that teams begin to lose their identity and emotional

character as they move away from face-to-face interaction (Cummings et al. 2002). Moreover, face-to-face meetings have a lot of side discussions and interactions which are difficult to transfer online. According to Olson and Olson (2000) “There are characteristics of face-to-face human interactions, particularly the space-time contexts in which such interactions take place, that the emerging technologies are either pragmatically or logically incapable of replicating” (p. 140). However, researchers have recently developed mechanisms to create ‘interaction spaces’ (Rosenberg et al. 2005) which compensate for the lack of contextual cues and create a feeling of ‘social presence’ in computer-mediated interactions. Examples include using a shared information space (Kuhn et al. 2007), a graphical shared workspace (Overdijk & van Diggelen 2008) or a structured discussion format (Schoonenboom 2008).

Constraint / opportunity	Communication medium						
	Face-to-face communication	Telephone	Video-conferencing	Instant messaging	Web 2.0 tools	Social networking	Email
Co-presence	✓						
Visibility	✓		✓				
Audibility	✓	✓	✓				
Contemporality	✓	✓	✓	✓			
Simultaneity	✓	✓	✓	✓			
Sequentiality	✓	✓	✓		✓	✓	
Reviewability				✓	✓	✓	✓
Revisability					✓	✓	✓

Table 2.1: Constraints and opportunities of communication media (adapted from Clark and Brennan 1991).

There is also a contemporary belief that ICTs enable better face-to-face meetings. Although some researchers consider this as a paradox it is becoming increasingly true. Technology is used as an enabler rather than a replacement of human interaction. Researchers suggest that “the richness of communication technology media may reduce many of the problems associated with virtual team interaction” (Furst et al. 1999, p.

252) and that “if more flexible tools for problem-solving and decision-making are made available, the collaborative technology could be adapted to a greater extent” (Qureshi & Vogel 2001, p. 9). Others yet suggest that “successful virtualisation does not depend on the degree of technological sophistication. It’s how the tools are used that matters” (Qureshi & Zigurs 2001, p. 85). Hence, in addition to the technology, we need to consider the human side, that is, how students appropriate the capabilities (or affordances) offered by the technology. However, this is not always straightforward since not only the way students use a tool is often unexpected, it also influences their level of satisfaction with the technology (Dwyer & Suthers 2005; Overdijk & van Diggelen 2008). Consequently, exploring the social and cognitive dimensions of CSCL is a complex process and future research should address this further.

The lack of appropriate training is another source of discouragement for technology use. In addition, the tools that are more appropriate for a certain learning task are often not the same with the ones that students feel comfortable with. Selecting the most natural and effective tools taking into consideration the task at hand and the individuals involved is a common pedagogical problem (Kock et al. 2007). Lastly, the proliferation of social tools adds new challenges for curriculum design and planning (de Freitas & Neumann 2009). Following the review of recent literature, it seems that the centre of attention is on which form of interaction outperforms the other. It is however crucial to realise that the arguments used against CMC (such as lack of trust, conflicts, cultural differences and language issues) may also hinder collocated groups of people who share the same culture and background, who know each other for a long time, and have worked together in previous projects. These issues are somehow embedded in human nature and they are inherently built into collaborative encounters. Hence the focus should not be on those aspects that technology cannot entirely support; rather it should be on finding innovative ways to merge the benefits of ICT with the benefits of face-to-face interactions in order to create a truly efficient collaborative setting. This will be an important step towards the next generation of collaborative technologies and CSCL practices. Table 2.2 categorises the key benefits and challenges of CSCL into social, cognitive and technological ones. This classification is neither unique nor absolute (since these three dimensions are interrelated); it simply points out the essentiality of considering the linked effects between social, cognitive and technological aspects in the wider pedagogical context.

	Visions / Opportunities	Challenges
Social	<ul style="list-style-type: none"> <li>• Social and interpersonal skills.</li> <li>• Communication and listening skills.</li> <li>• Student participation.</li> <li>• Communities of learners.</li> <li>• Coordination of joint activities.</li> <li>• Co-construction of knowledge.</li> <li>• Synergy effects.</li> <li>• Exploration of diverse perspectives.</li> </ul>	<ul style="list-style-type: none"> <li>• Changing business needs.</li> <li>• More expectations from graduates.</li> <li>• Sharing best practices and sustainable solutions.</li> <li>• Diverse backgrounds.</li> <li>• Establishment of common ground.</li> <li>• Unwillingness for knowledge sharing.</li> <li>• Lack of incentives.</li> <li>• Development of trust.</li> <li>• Conflict resolution.</li> <li>• Issues of power.</li> </ul>
Cognitive / Psychological	<ul style="list-style-type: none"> <li>• Critical thinking.</li> <li>• Increased personal achievement.</li> <li>• Higher-level reasoning.</li> <li>• Meta-cognition, reflection.</li> <li>• Creativity.</li> <li>• Knowledge construction and elicitation.</li> <li>• Learning at one's own pace.</li> <li>• Self-regulation.</li> <li>• Lifelong learning.</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriation of technology affordances.</li> <li>• Unexpected uses of technology.</li> <li>• Learners' and educators' expectations not completely met.</li> </ul>
Technological	<ul style="list-style-type: none"> <li>• Flexibility.</li> <li>• Easier creation, access to and sharing of information.</li> <li>• No time or space restrictions.</li> <li>• Fast information processing.</li> <li>• Social software.</li> <li>• Easier to give and receive feedback.</li> <li>• Monitoring student participation.</li> <li>• Variety of media to choose from.</li> </ul>	<ul style="list-style-type: none"> <li>• Extra effort and time to contribute.</li> <li>• Media constraints.</li> <li>• Lack of training.</li> <li>• Appropriateness of ICT for the learning task.</li> </ul>

Table 2.2: The visions and challenges inherent in CSCL.

## 2.6. The multidisciplinary of CSCL research

Nowadays, notions such as blended learning (Allan 2007; Sommaruga & De Angelis 2008), e-Learning 2.0 (Boulakfouf & Zampunieris 2008; Clarke et al., 2008; Cress & Kimmerle 2008), virtual collaboration (Majchrzak et al. 2005; Qureshi & Vogel 2001), distance education (Garrison et al. 2001; Haythornthwaite et al. 2000; McConnell 2000; Wasson & Morch 2000), and new ways of working (Wynarczyk 2005) are in the centre of attention. As a result, many researchers and practitioners are exploring the norms and behaviours in collaborative learning situations with a view to inform the design of useful and usable tools to support these endeavours and, in turn, improve the learning outcomes. Various disciplines have contributed to CSCL literature including (in the broadest sense): Education and Educational Psychology, IS and ICT, Sociology and



Anthropology. These disciplines are interlinked in complex ways yet an attempt is made to grasp the main contributions from each scientific area.

### **2.6.1. Learning in focus: Education and Educational Psychology**

The literature on education is a natural place to search for inspiration when studying CSCL. Learning theory and pedagogical paradigms exist in a continuum ranging from behavioural theories (e.g. Skinner's stimulus response theory) to social learning theory (Bandura) to constructivism and social-constructivism. In recent years, there has been a major shift towards collaborative learning, which is an offspring of constructivism. The constructivist paradigm focuses on learner-centred instruction and on immersing the learner in the real-world context in which learning is relevant (Yaverbaum & Ocker 1998). However, whereas in constructivism learning is assumed to occur as an individual interacts with objects, in collaborativism learning emerges through interaction amongst individuals (Dillenbourg 1999; Leidner & Jarvenpaa 1995; Stahl et al. 2006).

Studies have demonstrated that collaborative learning is superior to individualistic learning due to increased personal achievement, positive changes in social attitudes, and enhancement of motivation to learn (Flynn 1992). Learners tend to demonstrate higher-level reasoning strategies and critical thinking, greater diversity of ideas, and more creativity when they are actively learning in cooperative groups rather than when they are learning individually or competitively (Alavi 1994; Alavi & Leidner 2001; Alavi et al. 1995). Collaborative learning also improves communication and listening skills. Learners can contribute their prior knowledge and experiences to the discussion leading to new knowledge; hence participation is critical. However, learners are expected to participate if they are given optimal conditions such as small groups to work with.

Collaborativism assumes that the control of the learning environment should rest with the learners themselves. The instructor's role is to inspire learner engagement and help knowledge sharing between students. Feedback from the instructor is essential for engaging learners although feedback between learners is similarly critical. Another implication for instruction is the need for cooperative rather than competitive assessment strategies. Competitive assessment strategies may disable effective learning; a learner may be motivated to withhold knowledge that would otherwise be shared with peers (Leidner & Jarvenpaa 1995).

Other widely studied frameworks include the cognitive information theory and the socio-cultural approach (Grabinger et al. 2007). Recently, Dillenbourg & Hong (2008) emphasized the need for a new pedagogy that integrates individual, group, and class learning. Using wide-ranging learning activities can trigger different cognitive mechanisms which can be beneficial for learners (Dillenbourg 1999). Recent work in communities of practice and organisational learning drawing from the theory of situated learning (Wenger 1998) has also been applied to study CSCL. Collaborative learning is increasingly used in organisational development literature with many organisations claiming to be ‘learning organisations’ (Brown & Duguid 1991). Using ICT organisations bring together experts with varied skills and knowledge, from different disciplines and countries, to work together on joint ventures. Learning is intrinsic in such endeavours; it is both a key element and the outcome of the process. While working together people can learn with, and from, each other and they can later apply this knowledge in future projects. Another influential theory is activity theory which was inspired by a developmental psychology theory on children’s development and learning (Vygotsky). It was first introduced in the area of Human-Computer Interaction (HCI), but has substantially contributed in many research fields including CSCL (Kuutti 1995; Engeström 2008).

### **2.6.2. Collaboration in focus: Sociology and Anthropology**

Since computer networks started linking people they have inevitably become part of our social networks and should therefore be studied through a social lens. A large community of researchers is employing ethnography (which originates in sociology and anthropology) to develop a thorough understanding of current practices as the basis for the design of computer systems (Luff et al. 2000; Rosenberg et al. 2005; Simonsen & Kensing 1997) in the workplace (Sommerville et al. 1994; Schmidt 1998) and in education. In the last decade ethnographic as well as workplace studies have increased.

Sociolinguistics and social anthropology have also influenced our understanding of patterns of communication and communicative strategies. Muriel Saville-Troike (1982) presents a framework of cultural competence influenced by the work of Dell Hymes and others in the field of sociolinguistics. Kjeld Schmidt and others have used the concept of ‘articulation work’ found in sociology (Strauss’ theory of action) to analyse the activities needed when several individuals’ work is mutually dependent (Schmidt 1998).

The importance of ‘situated action’ was also influential in the CSCL community. The concept was introduced by Lucy Suchman (1994) who argues that all actions should be understood in their respective context. Other scholars also argue for the importance of studying social phenomena in their contexts of use (Rosenberg 2000; Orlikowski et al. 1995). Maryam Alavi and colleagues have contributed to the research on virtual collaboration and its effects on learning (Alavi 1994; Alavi & Leidner 2001; Alavi et al. 1995). Organisational and social learning is another area which has grown in the last twenty years (Brown & Duguid 1991, 2000). Furthermore, recent work in communities of practice drawing from the theory of situated learning (Wenger 1998) has also been widely applied to the study of CSCL.

### **2.6.3. Technology in focus: Information Systems and ICT**

There have been extensive changes in the technologies available for learning in the last decades and these technologies have the potential to radically improve the way students engage with knowledge and negotiate meanings and ideas (Alavi & Leidner 2001; Laurillard 2002a). Despite this potential however the field of CSCL still faces the challenge of combining technology and education in an effective and engaging way (Stahl et al. 2006). It has been suggested that the effective use of technology in a learning environment will depend on two things: the suitability of the technology for the underlying model of learning and the appropriateness of the pedagogical model for the learning situation (Leidner & Jarvenpaa 1995). The application of ICT in education therefore reflects – either purposely or unintentionally – a pedagogical model and this implies that pedagogical aspects in addition to technological aspects need to be addressed. Nevertheless, most research in the field of IS focuses more on the technological affordances of the technology and less on the implications for teaching and learning.

Socio-technical initiatives present an attempt to manage the challenges of computer systems to support collaborative initiatives. It involves cross-disciplinary research focusing on the development of frameworks for exploring knowledge sharing in teams (Belanger & Allport 2007; Majchrzak et al. 2005; McConnell 2000), distant education (Garrison et al. 2001; Haythornthwaite et al. 2000; Wasson & Morch 2000) and the introduction of computer conferencing in HE (Garrison et al. 2000). Qureshi & Vogel (2001) have also attempted to distinguish between collaborative ‘systems’ and

collaborative ‘technologies’ suggesting that the former focus on the interaction required to achieve work, whilst the latter focus on the technologies that support collaborative work (both face-to-face and distributed support for collaborative work). In general terms however, both concepts involve the design and development of collaborative technologies in addition to their application in social and organisational contexts (Wasson & Morch 2000; Dwyer & Suthers 2005; Orlikowski et al. 1995). Many empirical and theoretical insights drawn from the world of work, where ICT has been more widely used compared to HE, can also give us some ideas about the rising issues of technology use in education. Moreover, forthcoming conferences and publications are influenced by innovative technology trends such as the use of social software and Web 2.0 tools in education and call for participations addressing these issues.

#### **2.6.4. Engagement in focus: Motivational Science and Educational Psychology**

The importance of student motivation and engagement has shifted from peripheral to central in psychological and educational research (Pintrich 2003). Not only motivational literature is associated with the study of academic achievement and development (Murphy & Alexander 2000), it also seems to be central to research in learning and teaching contexts (Pintrich 2003). Accordingly, research in student motivation has been growing in recent years. In fact it has been so varied that has produced manifold constructs and principles essential for understanding academic motivation. A number of efforts have been made over the past few years to review the motivational research literature (e.g. Eccles & Wigfield 2002; Murphy & Alexander 2000; Pintrich 2003) building on the ideas of key motivational researchers such as Ames, Archer, Bandura and Dweck as well as contemporary contributors in the field. However, this broad array of contributions has produced a variety of “fuzzy but powerful constructs” (Pintrich 1994, p. 139) which has brought difficulties in finding a common ground among researchers and has called for “greater conceptual clarity” (Murphy & Alexander 2000, p. 4) within the field of motivational research. Human interests, motives, goals, will, self-efficacy, engagement, and involvement are interlinked, overlapping, and non-mutually exclusive concepts sometimes used as synonyms while other times referred to as aspects of a specific construct. All of these motivational variables have been used to describe motivational aspects of students’ connection with learning and how they relate to students’ behaviour and achievement. These variables predominantly represent the

individual perspective on motivation some of which denote positive connection with learning while others alienation from it (Ainley 2004).

Nevertheless, to be in position to make a contribution to the motivational literature we need to become familiar with the specialised phraseology of this community. In spite of the broad array of concepts and the fact that these concepts often appear to be ‘fuzzy’ with no clear boundaries (Pintrich 1994) and multidimensional in nature (Alexander 1997), there is a need to identify some consistency when it comes to framing these concepts. Beyond the differences that appear in the precise classification and definition of these concepts there appears to be some convergence in the presence of some of the key variables. In particular, in their exploration of motivation terminology Murphy & Alexander (2000) classified key terms used in empirical research published in major journals over a five year period. Four basic classes emerged from this review: (a) goal concepts, (b) intrinsic and extrinsic motivation, (c) interest (individual, situational), and (d) self-schema (agency, attribution, self-competence, and self-efficacy). A few years later Pintrich (2003) following a review of the same broad field, proposed five general concepts and argued that these describe what motivates students in classrooms: (a) goals, (b) higher levels of interest and intrinsic motivation, (c) adaptive self-efficacy and competence beliefs, (d) adaptive attributions and control beliefs, and (e) higher levels of value.

There are some evident similarities and disparities in these reviews. Most evident is the presence of goal concepts in both reviews which indicates the central role learners’ goals play in motivation and achievement. There also seems to be a consistency among the other concepts although the groupings differ. In the first review the authors have separated motivation from interest while in the second review they are grouped under one category. Additionally, the first review lists various self-schema concepts as one category while in the second review they are classified into two groups. Another difference is that Pintrich (2003) includes value as a separate category while Murphy & Alexander (2000) chose to exclude expectancy-value theory from their final list on the basis that several reviews of the theory have already been conducted (Eccles et al. 1998) and that value-related constructs are overarching concepts linking more specific motivational concepts (Eccles & Wigfield 2002).

The definitions of learner engagement found in the literature are also diverse. Student engagement has been defined in terms of belonging as “expressed in students’ feelings

that they belong in school and in their participation in school activities” (Willms 2003). Engagement is “a disposition towards learning, working with others and functioning in a social institution” (Willms 2003). Accordingly, engaged students are those who value the relationships with their teachers and peers and who see school as an important part of their life whereas disengaged students dismiss school and report that they feel they do not belong there (Ainley 2004). Engaged learners are also considered to be immersed in “active cognitive processes such as creating, problem-solving, reasoning, decision-making, and evaluation [and] intrinsically motivated to learn” (Kearsley & Shneiderman 1999, p. 1). The following section discusses in more detail current trends, facts, and key findings found in the literature.

## **2.7. Trends in motivation and engagement literature**

This section presents the major findings on student engagement and motivation, highlighting the trends in contemporary research. In particular I consider some of the most significant theories and studies reported in the literature into learner motivation and engagement with and without the use of technology.

### **2.7.1. Motivation, engagement and how they relate to learning and achievement**

One common perspective in research on student motivation is to identify those student qualities, goals, or values which are conducive to engagement with learning. Motivation and engagement are both essential for effective learning yet these two concepts have been often used interchangeably in the literature. One way of distinguishing these two concepts is to consider motivation as the energy that directs behaviour (Ainley 2004), the reasons why learners do what they do, or as the enabler towards academic success (Linnenbrink & Pintrich 2002) whereas engagement as the energy put into action, how a learner connects with a learning activity (Ainley 2004). This interrelationship between various motivational terms is evident in the literature. Murphy & Alexander (2000) suggest that “there is little true independence among achievement-motivation constructs. Instead, there is great deal of interrelationship among them” (p. 40).

Research and theory on engagement and motivation take varied perspectives. Two important research perspectives are that of the person and the situation. From the person perspective key issues involve variables that define the set of characteristics identifying

individual differences between learners in terms of their ‘reactivity’ (Ainley 2004). These characteristics are either defined as broad dispositions, traits, or orientations (Eccles et al. 1998; Pintrich & Schunk 1996) or as transient states (Alexander et al. 1998; Harter 1998; Pintrich 1994). This distinction will be discussed in more detail in a subsequent section. From the situation perspective the focus is on the identification of socio-contextual variables that may trigger, support or increase student motivation and engagement (Ainley 2004). The studies which take this perspective look at the learning environment from a classroom, whole-school, social, or virtual learning viewpoint in an attempt to examine the effects of situational (social, contextual, technological) variables on student learning and achievement (e.g. Alexander & Murphy 1998).

Whenever issues of motivation and engagement are raised in the context of education, often the concern is to identify the predictive effects they have for students’ achievement. For example, engagement in reading activities was found to be an important predictor of literacy achievement (Kirsch et al. 2002). Another example is the Programme for International Student Assessment (PISA) which focuses on understanding the relationship between student engagement and achievement (e.g. Willms 2003). A considerable number of studies focus on the effects of students’ performance and academic goals on their grades (e.g. Wentzel 1989; Roeser et al. 1996). Others have also explored how students’ self perceptions and self-competence at a given grade or age might be affected positively or negatively by various socio-contextual factors (e.g. Harter 1986; Neeman & Harter 1996).

The different approaches taken by various scholars also reflect how engagement is operationalised and measured. International studies have used a number of different indicators of student motivation ranging from measures of students’ participation and sense of belonging at school to self-report indicators of interest and attitudes within specific learning domains/subjects (Ainley 2004; Murphy & Alexander 2000). Findings from recent PISA publications (e.g. Willms 2003) indicated that both individual (personal) and contextual (situational) factors may be consistently associated with engagement.

With regards to personal factors, two indicators of student engagement mentioned in reports from the PISA 2000 wave of data collection are participation and sense of belonging (Willms 2003). Participation was measured using attendance records while sense of belonging was measured by self-report ratings. Both participation and sense of

belonging are considered behavioural measures of engagement that represent individual differences in engagement. With regards to contextual factors school climate was shown to be an important factor including students' engagement with schooling. It has been reported that students were "more likely to be engaged if they attend schools with high average socio-economic status, strong disciplinary climate, good student-teacher relations and high expectations for student success" (Willms 2003, p. 48). Parent and background factors in addition to participation in extra-curricular activities and the overall school level of engagement were also considered strong predictors of engagement at the student level (Ainley 2004).

Within specific domains scholars have also used different measures of engagement. For example in the domain of reading literacy engagement behaviour was measured by specific reading practices such as time spent on reading, diversity and content of reading (Kirsch et al. 2002). Reading attitudes were also measured through self-report ratings on dimensions of interest in, and the value of, reading. Again, both students' orientation to reading (the individual differences perspective), and environmental supports for reading activities such as availability of books at home and the relationship with the teacher (the contextual or situational perspective) are considered significant for strong reading achievement (Ainley 2004).

In another study focusing on engagement on the early years of schooling (grades 1, 3 and 5) engagement was defined as attentiveness and was measured by teachers' ratings of each child's participation in classroom reading activities (Ainley & Fleming 2004; Ainley et al. 2002). Results showed that both attentiveness and engagement significantly predicted literacy achievement. A major finding of the study was that the measures of attentiveness in grades 1 and 3 predicted literacy achievement in grade 5. This finding demonstrates that such longitudinal studies are able to identify how engagement historically affects or predicts later literacy achievement.

### **2.7.2. Trait vs. non-trait conceptualisations of motivation and the role of context**

Both early and contemporary research in the field of motivation has focused on motivation traits and on what learners bring to their learning by way of goals, values, or purposes. In many studies these variables are treated as trait-like dispositions that apply across situations (Ainley 2004). Researchers seek to identify the stable characteristics, traits, and patterns in individuals' motives, needs, and drives which appear to remain



consistent across situations, domains, and across time (Eccles et al. 1998; Pintrich & Schunk 1996). Similarly with research on motivation, early research on goal orientation supports that an individual's stance towards academic tasks constitutes a general, stable, trait-like and enduring characteristics of his or her personality that "cut across domains" (Silva & Nicholls 1993, p. 282).

This trait-like perspective in the motivation literature contrasts the domain-specific or context-specific viewpoint which emphasises the dynamic nature of one's academic goals, needs or values (Alexander et al. 1998; Harter 1996; Pintrich 1994). Harter & Jackson's (1992) study showed that, when given the option, many students' orientation (i.e. intrinsic or extrinsic) was strongly related to the particular academic domain. Ames (1992) also showed that the classroom structure or the nature of the learning environment (e.g. that task, evaluations, recognition, and authority dimensions) can significantly influence children's orientations towards achievement goals. In addition, more relevant to collaborative learning practices, Nichols & Miller (1994) found that students working in cooperative learning settings exhibited significantly higher gains in learning-goal orientations than those learning in the traditional lecture style. In other words the same student may approach different subjects or tasks differently based on the socio-contextual situation. This highlights that the nature of motivational constructs (trait-like vs. state/dynamic/domain-specific) must be carefully examined with reference to domain-specific situations rather than domain-generic ones. This also brings forward the proposition that learning conditions are critical (Ainley 2004). What happens in classrooms, including teacher-student relationships, peer relations, classroom climate and the pedagogical and instructional approach taken, are all critical factors influencing student engagement (Ainley 2004).

In a recent review Pintrich (2003) talks about a divide "between social-cognitive and situated models of motivation that differentially emphasise the individual or the context" (p. 680). Other scholars also refer to this issue as trait versus state (Murphy & Alexander 2000), individual and situational (Krapp et al. 1992), conventional and socio-constructivist (Hickey 1997), domain-generic or domain-specific and so on. These divides pinpoint the need for placing an emphasis on the interrelationship between personal and situational factors and how they influence cognition and development. Concentrating equally on personal and situational factors will allow a clearer articulation of how and why (i.e. for what purpose) students engage with specific learning domains or activities.

### **2.7.3. Types of goals and types of interests**

Considerable research endeavour has gone into explorations of student engagement a significant number of which focuses on identifying how (achievement) goals influence (actual) achievement. Covington's integrative review (2000) concluded that students' achievement goals are reflected in the strategies they use and this consecutively influences achievement. In the author's words: "in effect [...] one's achievement goals are thought to influence the quality, timing, and appropriateness of cognitive strategies that, in turn, control the quality of one's accomplishments" (Covington 2000, p. 174). This is in line with the approaches to studying and learning developed by Biggs (1987). Accordingly, specific patterns of goals seem to be related to whether students favour surface learning (i.e. memorisation strategies such as rote learning) or deep learning (i.e. elaboration strategies such as relating new learning to existing knowledge). A wide range of research studies have demonstrated how students' goals and purposes are linked/connected to the types of strategies they used in their learning and this was related with differences in their achievement (Ainley 1993; Meece & Holt 1993). Many of these studies identified groups of students with different profiles of achievement goals.

The two most common types of goals identified in the literature are learning and performance goals (Archer 1994; Covington 2000). Learning goals (Dweck & Legget 1988) also referred to as mastery goals (Ames 1984, 1992) and as task incentive or task-involved goals (Anderman & Midgley 1997; Kaplan & Midgley 1997; Midgley et al 1998; Nicholls 1984), indicate that the student is concerned with increasing his/her competence, appreciation, and understanding for what is being learned (regarding a specific task or subject) (Covington 2000). Contrarily, performance goals (Ames 1984; Elliott & Dweck 1988) also referred to as ego-incentive or ego-involved goals (Nicholls 1984, 1989; Thorkildsen & Nicholls 1998), ego-social goals (Meece et al. 1988; Nicholls et al. 1985) or self-enhancing goals (Skaalvik 1997) show that students are concerned with demonstrating their abilities to others (Archer 1994) or outperforming others often at their expense (Covington 2000). This proliferation of goal-related terms supports the argument for inclusion of social goals in theories of motivation and achievement (Urduan & Maehr 1995; Covington 2000). Lewin's field theory (1938) was amongst the early theories of motivation which posited that motivation is the result of tensions or energy created in response to particular goals or needs (Murphy & Alexander 2000). Self-efficacy (Bandura 1977, 1986; Bandura & Schunk 1981; Schunk

1991) is a central concept related to goals. Pintrich and Schunk (1996) guided by Bandura's (1986, p. 31) writings noted that the definition of self-efficacy includes the organisation and execution of courses of action. It is distinct from self-concept and self competence in the sense that self-efficacy is used in reference to some goal (i.e. the goal to attain designated types of performance). This definition depicts a situational view of, yet is distinct from, perceived competence.

In the literature, the study of goals has been approached in at least two ways. Some researchers focus on the content of goals aiming to identify the objectives (or performance standards) towards which individuals are aiming their attention and energy (e.g. Wentzel 1991) while other researchers investigate individuals' orientations and the reasons for pursuing those orientations or the purpose for engaging in some learning-oriented activity (e.g. Ames 1992; Ames & Archer 1988; Dweck & Leggett 1988). One other observation regarding goal-oriented research is the limited reference to social goals probably due to their relation to social competence rather than academic achievement (Murphy & Alexander 2000). Regarding the dichotomisation/polarisation between mastery and performance goals it has been suggested that an individual may have multiple goals when undertaking an academic task (including social goals such as recognition from others and being helpful to others as well as learning goals such as increased understanding). Miller et al. (1996) stated that these goals may not always be empirically distinguishable from each other. Furthermore the proliferation of sub-categories of goals depicts the complexity and multidimensional nature of such constructs (Bong 1996).

Another common useful distinction in the literature is the one between individual and situational interest. Studies have shown that when interest was treated as two interrelated components (i.e. situational and individual interest) rather than one composite construct, the findings were clearer and easier to interpret. Further, in some cases it was found that the dimensions of interest worked in harmony to facilitate learning (e.g. when the academic task was found to be stimulating and pleasurable but also relevant to the learners' deeper interests) whereas in other cases individual and situational interest were found to operate in conflict (e.g. in cases where a student's need for excitement and pleasure was stronger than any personal involvement with the subject or task at hand) (Murphy & Alexander 2000).

Further, in relation to the different types of interest many scholars have argued that identifying previous experiences that contribute to the development of positive individual interests, and using them as the foundation on which to build new knowledge, are central issues for supporting continuous learning and achievement (Hidi et al 2004; Renninger & Hidi 2002). This emphasis on previous experiences relates fundamentally with research and theory on collaborative learning which suggests that learners always have stories or experiences which they can contribute to their discussions hence triggering inter-subjective learning.

#### **2.7.4. On the level of education**

It seems that research on academic motivation and engagement focuses mostly on the motivations of elementary and middle-school students and is less concerned with how students engage as undergraduates or postgraduates. In Murphy & Alexander's study (2000) approximately one third of the studies (35.7 %) included in their review were conducted within undergraduate education and only one was conducted at graduate level. One explanation for the focus placed on elementary and middle-school students may be the change in students' motivation for learning due to "the profound biological, physical, behavioural, and social transformations that roughly correspond with the move to middle school" (CCAD 1996, p. 7). A critical consideration is that many recent reviews have drawn attention to the fact that young adolescents demonstrate lack of connection with schooling. Students have been described as disengaged, bored or unmotivated (Eccles & Wigfield 2002; Hidi & Harackiewicz 2000). Yet, what we know about university students is limited to this respect. This makes a good case in point when arguing for the necessity of more research at university level and even more so at postgraduate level. Especially with the current economic crisis and the career challenges faced by so many graduates we also need to explore the trends and shifts in postgraduate students' motivation and engagement with learning. Furthermore, in studies conducted at undergraduate or postgraduate level respondents not only have the ability to reflect on the issues raised but also have the linguistic ability to put those thoughts into words (Murphy & Alexander 2000). This allows a researcher to collect self-reports directly from learners rather than just using established scales and measures. Such exploratory empirical research (such as the one conducted in this thesis) can make important contributions to the current state of understanding learner engagement and

motivation at postgraduate level. Such efforts may also shed light on how student learning and development at postgraduate education is affected by learner engagement.

#### **2.7.5. On the domain / field of study**

While many researchers remain broad in their views on academic learning and development (e.g. Skinner & Belmont 1993; Wentzel & Asher 1995), several motivation researchers have referenced a trend towards domain specificity (e.g. Eccles et al. 1998; Pintrich 1994). It has been suggested that the distinction between the domain-generic and domain-specific stances may be associated with the construct under investigation (Murphy & Alexander 2000). Furthermore, in Murphy & Alexander's review (2000) out of the studies conducted at undergraduate level only one was conducted at a business oriented domain and one in the field of computer technology. Researchers are most interested in the domain of science and mathematics. The three criteria based on which they selected the studies that would be included in their analysis were (i) to focus on applied research that is, identify motivation terminology used in empirical studies, (ii) to review motivation terminology used in relation to academic achievement or development (i.e. studies which did not include both achievement and motivation measures were excluded), and (iii) to review studies between a five year period (1992/97) plus some classic pieces. Given these criteria, their review indicates that there is a gap in literature within the domains of business and computer science and even more so in domains which combine the two into a hybrid postgraduate degree. As the modern world of work seems to value graduates coming from fused backgrounds and for as long as any form of 'hybridness' is considered problematic and challenging, there is a need to understand how students studying in hybrid degrees engage, what affects their engagement, and how in turn it influences their academic achievement or development. This calls for more empirically-driven efforts towards understanding the motivational dimensions of student learning and development in such hybrid domains.

#### **2.7.6. Implications of engagement research for instructional practice**

Certain types of educational experiences can promote student motivation and engagement. In addition to the individual factors, school-level influences play a key role in developing student engagement with school (Fullarton 2002). This has implications for educators who need to pay more attention to the design and implementation of

pedagogical models which create conditions that maximise the opportunity for challenging, engaging learning experiences. Accordingly, educators need to manage the classroom environment, monitor peer groups, and carefully consider the choice of instructional methods and learning tasks. While such learning conditions may trigger engagement they may also activate negative feelings and attitudes. Disengagement, boredom, disruptiveness and anxiety are all values incompatible with learning (Ainley 2004). Research and theory on academic learning especially at university level also pinpoint the significant role that the teaching and learning environments play for student learning. Laurillard (2002a) puts forward the idea that “university teachers must take responsibility for what and how their students learn” (p. 7). Hidi & Harackiewicz (2000) also highlight that certain characteristics of classrooms and learning situations must be structured in such a way so as to function as ‘external triggers’ for interest and positive achievement goals. Research in TEL also shows that connection with a learning subject or learning task can be activated through the use of the latest technology. However, to support deep learning outcomes learning tasks need not only to trigger interest, they must be able to maintain interest at a level sufficient to support the persistence and effort required for skill acquisition and extension of knowledge (Cordova & Lepper 1996; Mitchell 1993). The value of technology in maintaining learner interest and engagement with learning activities and learning subjects is evident in both engagement literature and literature on learning. In their engagement theory Kearsley and Shneiderman (1999) argue that “while in principle, such engagement could occur without the use of technology, [...] technology can facilitate engagement in ways which are difficult to achieve otherwise” (p. 1).

In the face of the influence of motivation on academic achievement and development, another key implication to consider is whether teachers will consider motivation and goal-orientation as inflexible traits that only serve for sorting or classifying learners or whether teachers will see these constructs as “motivational dimensions that are susceptible to instructional intervention” (Murphy & Alexander 2000, p. 44). If teachers’ pedagogical practices indeed impact students’ motivational (stable) orientations or (dynamic) states (Ames 1992; Blumenfeld 1992) then what instructional/pedagogical strategies are more likely to result in optimal motivation and engagement? Furthermore, what motivational types or profiles should highly successful students be expected to demonstrate and should these profiles be expected to be consistent across time and situation? These issues spark questions for future research in

the field of academic motivation and learner engagement. For example “how are learners’ motivation orientations or states coloured or shaped by cognitive, physical, and sociocultural forces or vice-versa?” (Murphy & Alexander 2000, p. 46). Furthermore, there does not seem to be a comprehensive picture of students’ motivations as they enter postgraduate education and before they hit the ground of their professional careers. Pursuing these research questions requires researchers to draw on diverse perspectives both theoretically and methodologically (Murphy & Alexander 2000, p. 46).

Furthermore the literature on engagement and motivation shows a disparity between individual interest and situational interest. Other common distinctions include the ones between intrinsic and extrinsic motivation, and learning (or mastery) goals versus task (or performance/ego) goals. It has been argued that these dichotomies may spur unfortunate consequences (Rigby et al. 1992) which may mislead educators to see academic learning and development in oversimplified, black-and-white terms when in reality motivation exists in shades of gray (Ames 1992). Further exploration in the field can help to extract practical recommendations or pedagogical models for guiding educators towards achieving higher learner engagement.

## **2.8. Entering the debates in the literature**

The preceding literature review discusses the variety of disciplines which we need to draw on when exploring learner engagement in CSCL environments. It also sets the boundaries of this complex research area. Considering this cross-disciplinary literature on engagement, learning, and CSCL, several perplexing issues and questions arise. One such question to consider is: to what degree do the participants’ ratings or statements accurately reflect their deeper, pervasive motives, needs or drives? One assumption seemingly underlying research in the field is that motivational constructs such as individual interest, learning goal, and engagement are conscious, accessible or readily testable variables. Even if we accept that we can only have a restricted access to students’ motivations and patterns of engagement – i.e. a ‘semblance of the phenomenon’ – it has been argued that the collected evidence can still provide educators and researchers with significant clues as to the motives, goals, and needs that guide human thought and action (Murphy & Alexander 2000, p. 38). The next section provides a more critical review of key issues and conspicuous debates which evolve

around the cross-disciplinary area of learner engagement in CSCL. In particular, it discusses in more depth the theoretical foundations which stand out when studying the relevant literature. It also critically evaluates the key methodological traditions employed in the literature and emphasises the need for a holistic (middle-range, mixed-methods, multi-level) research methodology.

### **2.8.1. CSCL – Competing approaches and theoretical foundations**

Research in the CSCL field has been overwhelmed by methodological tensions primarily due to the different traditions and paradigms exploited in the multiple disciplines that CSCL research brings together – an issue also observed in CSCW research which is the foundation upon which CSCL has developed. Originally, CSCL research had a mainly technology-oriented scope and tended to focus more on the technology rather than the ‘use’ of the technology in learning. CSCL was initially conceived as an endeavour for understanding the nature and requirements of cooperative or collaborative learning with the objective of informing the design of computer-based systems to support people learning together through technology. Such a scope presents CSCL research as an essentially design-oriented or technology-oriented research area which appears to be dismissive of socio-cultural, psychological, and pedagogical issues. In recent years the field of CSCL began to broaden its horizons into the social sciences and educational psychology. Several scholars have advocated a more multidisciplinary focus claiming that a combination of sociological and anthropological methodologies and approaches is needed in order for CSCL to be better understood. Nevertheless, the debate between socio-constructivists calling for an interpretive approach towards CSCL research and critical analysts and designers calling for a more positivist tradition is an ongoing issue. Therefore, there are a number of issues that need to be resolved at a technological, pedagogical, and social level.

From a technological perspective, recent literature in the field of CSCL and in the broader area of TEL advocates that the introduction of novel CTs in the curriculum has the potential to increase student engagement in learning activities. A major theme in current literature is the ‘contextualisation’ of already available technologies with the aim to create an effective learning context. Nowadays, research efforts are less focused on ‘what’ we could potentially do if we had all the time and money available, and more centred on ‘how’ we can utilise the existing, readily available, affordable, and



accessible technologies to support collaborative learning (McConnell 2000). The challenge is to integrate technology in education in a way – and with a purpose – that creates an ‘engaging’ learning environment for students. However, creating such a context is not a straightforward endeavour; there are many pitfalls that need to be identified and addressed. Firstly, formal teaching and learning is no longer constrained within the classroom walls; students can learn online, offline, on the move. The integration of VLEs, shared online applications, and videoconferencing systems in HE have radically transformed the notion of ‘learning environment’. Furthermore, the advent of Web 2.0 tools (such as blogs, wikis, and social networking sites) in people’s lives has promoted new trends in the way information is created and distributed amongst learners (Allan 2007; Kreijns & Kirschner 2001; McLoughlin & Lee 2007). The chosen educational technology should therefore be able to support teachers and students (individuals and groups) wherever they are, whatever their preferred learning style is. It should accommodate different learning preferences and teaching modes, and create an engaging learning context altogether.

From a pedagogical perspective, the expansion of CTs has enabled the shift from teacher-centric to student-centric and, ultimately, towards group-centric learning practices. Although the value of collaborative learning is not a new idea and has been advocated for decades, new pedagogical models are needed in order to address the complex issues involved in collaborative learning practices when these are mediated by technology (Jaques & Salmon 2007). Consequently, the roles of the lecturers, the responsibilities of learners, and the nature of the learning tasks need to be re-negotiated and re-established to fit this new learning milieu. To achieve learner engagement there is a genuine need for learning tasks which are meaningful, purposeful and relevant for learners (Bonk & Cunningham 1998; Kearsley & Shneiderman 1999).

Current educational research, across and within disciplines, explores the range of tools, instructional methods, and learning activities that, when combined, can trigger specific cognitive and behavioural changes associated with improved learning outcomes (Laurillard 2002a; Stahl et al. 2006). Furthermore, literature suggests that the ‘orchestration’ of teaching material, assessment strategies, and learning tasks needs to be done in such a way that encourages students with different learning styles to actively participate in the learning process and adopt deep rather than surface approaches to studying (Biggs 1987).

Looking at CSCL practices from a social lens helps us to focus on socio-cultural aspects that may affect student engagement such as people's backgrounds, expectations, and group dynamics. With respect to adult learners, Grabinger et al. (2007) argue that "Adult learners need to feel valued as participants within a community where their prior knowledge and experience is respected and integrated into the instructional process. [...] They want to manage their own behaviours and make decisions about what and how they should learn. They also want to be part of a rich community of practice that will support them in reaching their goals" (p. 13). On these grounds CTs can extend human collaboration and participation. Nevertheless, using technology should not be the end goal; rather the aim should be to activate students to learn with and from others through the technology. When people work in groups (or social communities) and share their experiences and ideas with others, their worldviews expand, they experience alternative perspectives, and can reflect on their own assumptions and understanding. It is these processes that trigger learning and which can be reinforced and strengthened with the integration of CTs in education.

### **2.8.2. Learner engagement – Behavioural vs. cognitive approaches**

Learner engagement is undeniably a complex and multifaceted concept (Ainley 2004; Murphy & Alexander 2000). Some scholars take a behavioural approach arguing that it is what the students are doing (i.e. their behaviour) that counts more in terms of their learning outcomes (Astin 1999; Kuh 2003) while others highlight the importance of the cognitive effort that students need to invest in their learning in order to achieve higher levels of knowledge development (Biggs 1987; Kearsley & Shneiderman 1999). In this thesis a collective view on learner engagement is taken.

In the very broadest sense, learner engagement refers to a "student's willingness, need, desire and compulsion to participate in, and be successful in, the learning process promoting higher level thinking for enduring understanding" (Bomia et al. 1997, p. 294). Engagement occurs when the student is involved in "active cognitive processes such as creating, problem-solving, reasoning, decision-making, and evaluation" (Kearsley & Shneiderman 1999, p. 1). Therefore, engaged students take pride not simply in earning higher grades, but in understanding and personalising the material. Furthermore, students with high engagement show increased interest and enthusiasm for

the subject which, in turn, impacts their retention, learning, and satisfaction (Dailey et al. 2010).

In their engagement theory Kearsley and Shneiderman argue that “students must be meaningfully engaged in learning activities through interaction with others and worthwhile tasks”. They also emphasise that “while in principle, such engagement could occur without the use of technology, [...] technology can facilitate engagement in ways which are difficult to achieve otherwise” (1999, p. 1). The three principles of engagement theory (Relate, Create, Donate) emphasise collaborative learning, project-based learning and authentic, realistic contexts. These components contribute to increased student satisfaction and motivation to learn (Bonk & Cunningham 1998; Ainley 2004). There are however a lot of issues that need further empirical investigation including the role of the lecturer, assessment strategies used, team building and group dynamics, and especially the criteria for choosing appropriate technologies and authentic learning tasks. All these elements are inherent to the engagement process and may enable or hinder the learning outcomes. These therefore require further research.

### **2.8.3. The need for a holistic research methodology**

Current research into CSCL can be broadly categorised in the positivist and the interpretivist approaches. These approaches to research differ – amongst other things – in terms of their focus on context, scope, and purpose of the findings. On one hand, positivist research studies (such as experimental or laboratory-based studies) are based mostly on quantitative data collected from a representative portion of the population in an attempt to test some hypotheses, infer causal relationships or create generalisable rules. The majority of positivist studies within the field of CSCL contrast technology-mediated settings with face-to-face settings or focus on the causal effects between particular features of groupware technology and user performance, critical thinking, or productivity (Yaverbaum & Ocker 1998; Nunamaker et al. 1997; Ocker & Yaverbaum 2001).

On the other hand, interpretivist research studies such as ethnography explore natural settings in depth in an attempt to generate rich insights and make sense of the contextual aspects that affect the acceptance of collaborative technologies (Qureshi & Vogel 2001). Ethnographic, workplace, and field studies explore a social context in depth and attempt to understand what people do, when, with whom, how, and why. These subtle aspects

cannot be replicated in an experimental or laboratory environment (Rosenberg 2000). Due to the context-specific nature of interpretive research some researchers argue that resulting findings cannot be easily applied across other fields and domains neither can be used to generate practical suggestions and recommendations. However, interpretivists argue that the purpose of interpretive studies is not merely to generalise across all situations but to deeply understand what happens in the specific context (Simonsen & Kensing 1997).

Understanding the characteristics, perceptions and expectations of those using the technology – as well as the context within which they are using it – plays a crucial role in successful design and application of ICT. To gain this understanding one needs to employ the right methodological framework. The following sub-sections outline the most prominent points of divergence between positivist and interpretivist methodologies (see Cohen et al. (2007) for a comprehensive discussion of advantages and criticisms of positivistic and interpretive approaches).

#### **2.8.3.1. Precision vs. contextual realism**

The limitation of past research is mostly due to the dominant methodological paradigm which falls within the positivist-reductionist-analytic paradigm. This paradigm permits very precise measurements, manipulation and control of variables which allows researchers to test key hypotheses and/or infer causal relationships between variables. However, this precision is achieved at a high cost. Experimental studies ignore considerable amounts of ‘contextual realism’ and cannot be easily generalised in real world situations since only a small subset of the relevant variables are considered while all other aspects (which would normally affect people in their everyday contexts) are ignored or held constant. The majority of empirical studies ask students to perform artificial tasks with often unrealistic time limits. Many studies also seem to put rigour over relevance (Lee 1999) resulting in pilot-type (quasi) experimental research designs or small-scale pioneer projects with extraordinary resources and participants. Positivist approaches are limited by their analytic focus, temporal scope, and failure to treat groups in context (Arrow et al. 2000).

In contrast, ethnographic, longitudinal research emphasizes the importance of understanding ICT in its ‘context of use’ (Alavi & Leidner 2001; Rosenberg 2000; Luff et al. 2000). Capturing this contextual realism entails research in a real-life setting. In

exploratory studies the researcher gets immersed in the field trying to capture these unique, unexpected, complex patterns found in everyday natural contexts (Belanger & Allport 2007; Majchrzak et al. 2000). The adoption of a middle-range, mixed-methods philosophy – which draws threads from both constructivism and post-positivism – permits the pursuit of such complex inquiry efforts (Creswell & Plano Clark 2011; Denzin & Lincoln 1994; Tashakkori & Teddlie 2003, 2010).

### **2.8.3.2. Controlled vs. complex – dynamic – adaptive setting**

Behavioural norms and patterns emerge in a natural way which cannot be replicated in an isolated, ‘controlled’ laboratory experiment. Contemporary research lacks empirical data that explore the dynamics and complexities in technology-enhanced collaborative environments. When exploring such settings it is essential to treat groups as complex, dynamic and active systems comprising of people, tasks, tools, and the environment (McGrath 1997). Furthermore, most experimental designs are conducted on a one-shot or short-term basis. Participants are brought together for a limited time span, are asked to work in groups with people whom probably never met before – and probably will never meet again in the future – and are given a precise set of tasks to complete in an isolated setting. Such endeavours do not take into account the fact that, in real life, people often participate in more than one group, build their relationships based on previous experiences, and adapt to the work demand. Laboratory groups have neither history nor future; participants have neither commitment nor expectations from the group. Nevertheless, short-term experimental studies have been far more popular than longitudinal ones mostly for practical reasons.

Longitudinal studies are extremely costly in time and resources and demographic effects are often difficult to unravel. Still, if we want to arrive at a complete and rich understanding of real-life groups we need to study them in their workplace with all the complexity that comes with it (Arrow et al. 2000). With the exception of work done in the socio-technical tradition little attention is paid in theoretical construal or empirical research on the interaction of groups with their embedding contexts. Moreover, some of the existing literature appears to be mainly descriptive.

### **2.8.3.3. Techno-centric vs. holistic focus**

Recently, the amount of journal articles and books addressing the problems of using ICT in education has grown immensely. However, many contributions have a technological focus while research on students' experiences and expectations, and the importance of social relationships in teamwork lags behind (Egea 2006). Therefore, it is essential to adopt a holistic approach which collectively focuses on the social, cognitive and contextual aspects of human-to-human collaboration in addition to the technological facets (Majchrzak et al. 2000; Arrow et al. 2000).

### **2.8.3.4. Systematic investigation**

Sociologists almost never compare their field work with that of a predecessor (Burawoy 2003). Future research should provide more systematic empirical investigation into what affects group dynamics and learning practices in real-life settings. Researchers should contrast their results and research methods with similar studies. Systematic empirical research should involve cross-disciplinary research combining theory with practice. This will enable scholars to develop novel theoretical frameworks for better understanding the complex nature of CSCL. This can also guide system analysts and designers to develop more context-specific systems and applications.

## **2.9. Abridgement**

The aim of the literature review presented in this chapter is to evaluate the most influential empirical contributions, theoretical frameworks and methodological approaches used in the fields of CSCL and learner engagement. The critical examination of the studied literature can serve as the basis for the analysis and interpretation of the empirical data collected in the study. The review of the literature suggests that a construct is needed to cover not just how students learn best or how students approach learning but also how they engage in computer-supported, collaborative tasks and the factors that affect their engagement and contribution. Engagement therefore implies a unique combination of: (a) ways of intellectually and reflectively thinking about a subject matter, (b) ways of feeling when engaged with or disengaged from learning, and (c) ways of practicing and contributing to a CSCL task. This seems to suggest that engagement is a behavioural, affective and reflective construct. To the best of my knowledge, no existing theory seems to adequately address

all these dimensions of learner engagement with CSCL collectively. Available models do not seem to explicitly address the complexity and dynamics embedded in learner engagement in CSCL environments. Subsequently my goal is to explore (from a holistic perspective) the factors that encourage or hinder the active engagement of students (behaviourally, emotionally, and intellectually) in achieving high quality learning outcomes. This chapter brings together the multitude of research concepts in an attempt to draw out these gaps and integrate them into a coherent framework which will frame subsequent analysis. This framework will be described in more detail in the next chapter.

## **Chapter Three – Theoretical Framework**

### **3.1. Introduction**

A sound theoretical framework is vital in ensuring the reliability and validity of a research design and in connecting the research findings with current scholarship. This chapter discusses how the thesis is grounded theoretically and makes the underlying theoretical assumptions explicit. In practice, theoretical ideas were not considered as input to the study until after the first set of data were collected and analysed. Yet, it was deemed useful to present the theoretical framework in this chapter in order to set the wider research boundaries before explicating the specific research procedures in chapter 4: Methodology and Research Design. This chapter synthesises theoretical perspectives driven from two interrelated families of frameworks: learning theory and engagement theory. Although the literature related to CSCL is vast, little effort has been undertaken to develop theory on engagement within CSCL contexts. Current theory and research on learner engagement contributes to a partial understanding of both how learners engage with CSCL activities and whether this affects the learning outcomes. No unified theory was found that incorporates the perspectives I inductively recognised as important in the study of learner engagement in CSCL at postgraduate education.

Unquestionably, learner engagement is a complex and multifaceted concept (Ainley 2004; Murphy & Alexander 2000) especially in situations where learning is both collaborative and mediated by technology. Therefore, guided by the perspectives which emerged as prominent in my empirical study, I developed an eclectic, integrative framework drawing threads from relevant theories identified as important in current literature. The proposed framework follows a hybrid approach towards addressing the research problem identified in this thesis which is: to understand how learners engage with CSCL tasks, what can empower or hinder this engagement process, and how this affects the learning outcomes.

The purpose of the proposed framework is to position the research within the existing body of literature on learning and engagement so as to provide a theoretical foundation to the phenomenon under study. All theories carry certain assumptions which need to be brought to the surface in order to understand what each theory really argues and under which situations it holds. Specifically this chapter serves three interrelated objectives. Firstly, to present the varied perspectives on learner engagement found in the literature



by describing important aspects of engagement and learning which can inform the present study (key constructs, theories, frameworks and models). Secondly, to delineate the holistic, integrative perspective on learner engagement adopted in this research which emphasises the multidimensional nature of learner engagement encompassing behavioural, cognitive, and affective aspects. Finally, to provide a platform on which to base the analysis of empirical data so as make them relevant to existing knowledge and in turn help contribute to it.

### **3.2. The challenge of framing the research**

The inductive and exploratory nature of the initial stages of this research in combination with the cross-disciplinary research topic made the selection of a suitable theoretical framework a true challenge. It was in fact the most difficult and uncertain process I have experienced throughout the PhD journey. On reflection I can say that a number of aspects contributed to making this selection process a challenging one.

At the outset, the study started as an exploration of learning practices within a CSCL environment. Therefore the literature I was focusing on at that stage was primarily that investigating how students learn and what affects their learning. The more I was reading on learning the more I was intrigued by the vast array of learning theories proposed through the centuries. The renowned 'Theory into Practice' database (Kearsley 2009) alone contains descriptions of over fifty theories relevant to human learning and instruction, excluding theories which are primarily philosophical in nature. Also, in a regularly updated blog the author chronologically lists more than a hundred theories related to learning and instruction (Goel 2010). At the first instance many of these learning theories were considered and I tried to extract the ones most relevant with the context of my study. In particular, I reviewed theories applicable to learning in postgraduate education (e.g. andragogy (Knowles 1970) and adult learning (Cross 1981)) as well as theories relevant to the collaborative context of my study as implied by the use of collaborative technologies (e.g. social learning theory (Bandura 1977), constructivist learning theory (Bruner 1966), collaborative learning (Dillenbourg 1999), situated learning (Lave & Wenger 1991) and experiential learning (Rogers 1960s; Kolb 1984)). Another influential theory was the 3P model or systems model of student learning developed by Biggs (1987/99). Some integrative learning frameworks have also been developed such as Laurillard's (1993, 2002a) conversational framework

which provides a theoretical basis for designing and using learning technologies in university teaching focusing equally on improving teaching and learning. These theories and frameworks have been cross-influenced hence their underlying principles and assumptions are overlapping and non-mutually exclusive. This only made the preference of one over the other even trickier.

Further, as explained in the first chapter of this thesis, the themes which emerged following the pilot study in 2007/08 resulted in shifting my focus from learning towards the exploration of engagement with CSCL activities. My interest thereafter is how engagement happens and which factors are affecting it within a CSCL environment as well as how it shapes the learning outcomes. I thus refined my research questions and re-approached the literature with a more critical eye in an attempt to identify theories relevant with my refined focus. Although the refined research questions helped to define a narrowed focus, still the complexity and variety of motivational constructs and engagement theories appearing in the literature formed another challenge to overcome. To my surprise the available theories and models exploring learner engagement were of a much lesser range compared to learning theories, yet with divergent – and even contradictory – underlying principles. In the literature some scholars treat the concepts of engagement and motivation as mutually exclusive while others as synonyms; some treat engagement as a behavioural construct (Astin 1999) while others as a cognitive one (Kearsley & Shneiderman 1999). Making sense of the varied theoretical angles on learner engagement was not a straightforward endeavour; yet it was undoubtedly an enlightening one. Reading on current perspectives helped me better understand how other scholars understand and conceptualise learner engagement which in turn helped me identify my impending contribution to this understanding. The most prominent theories considered include Kearsley & Shneiderman's (1999) engagement theory, Martin's (2003) student motivation and engagement wheel, and Astin's involvement theory (1999). Theories on learner engagement draw heavily on learning theories yet their focus is not primarily on how or what students learn but rather on how they engage with or approach learning and schooling in general. Their focus is on which (cognitive, behavioural, or social) facets influence the degree and nature of students' engagement.

Another important implication contributing to the challenge of framing the research included the fact that theories often evolve over time (Kearsley 2009) and therefore may appear in the literature in different versions. Also key constructs are defined, framed, and used in different ways by different scholars thus making their adoption a

complicated choice (Murphy & Alexander 2000). In a motivated attempt to make sense of what current theory and literature can tell us about learner engagement I realised that there is a genuine need for studies that draw threads from varied theories. In order to capture the complexity engendered in the concept of learner engagement – specifically within a cross-disciplinary context such as the one defined by CSCL practices – I tried to combine various theoretical viewpoints into a coherent framework. There are relatively few studies in current literature that successfully tie various theoretical frameworks together (Green et al. 2005). Research has shown a tendency to adopt single theories of motivation and engagement in an attempt to understand how students behave in the classroom or how they think about their own engagement (Green et al. 2005). Nevertheless various scholars are beginning to acknowledge the importance of adopting a multi-dimensional and integrative approach to the field of learning motivation (Dorney 2000; Green et al. 2005; Martin 2003). Scholars also increasingly recognise the need to examine how the wide variety of motivational constructs and theories available in the literature relate to each other (Ainley 2004; Murphy & Alexander 2000; Pintrich 2003) aiming at highlighting the trends that guide contemporary research. In an attempt to adopt a more holistic approach to learner engagement the current study integrates various learning and engagement theoretical perspectives and composes a framework that incorporates some of those constructs and principles driven by the themes which emerged during the preliminary analysis of primary data collected in the field. As mentioned at the beginning of the chapter, the selection of theoretical foundations took place after initial data collection took place. Therefore, the data and ideas/themes stemming from the data guided the selection of theoretical foundations (not the other way round).

Metaphorically, the construction of a theoretical framework (which will serve as a general structure for subsequent data analysis) is similar to looking at my main themes or ideas through different glasses or superimposing my data with varied colour transparencies and then choosing the combination that better illuminates my ideas. If I choose a red overlay some patterns and relationships may stand out while others may fade out whereas if I look through a blue overlay some other concepts and relationships will become apparent. In other words, constructing a sound theoretical framework entails choosing the combination of overlays, or theories, which allows me to see through my data in the most interesting, insightful, illuminating, and meaningful way. In this sense, there is no single ‘right’ theory. Hence, I have chosen to draw threads

from a particular combination of theories (similar to superimposing a red overlay over a blue overlay) which can help me better understand, explain, and theorise the phenomenon I am exploring.

### **3.3. Amalgamation of theories**

Drawing on current knowledge is helpful for connecting new thinking with current, established knowledge. Rather than being solely empirically grounded, this study is also theoretically informed. Even though CSCL is an emerging research field there are significant theoretical contributions in the literature which we can exploit and draw upon and which can help to support our explanations of the phenomenon under investigation. Having a broad theoretical structure also helps to frame and focus-down the research scope, contributing to or challenging the status quo. Moreover, drawing on a theory means using a certain vocabulary (or set of concepts) to explain my findings; hence there is no need to reinvent the wheel. The use of a shared research vocabulary also helps to position my own findings and ideas within the existing body of literature. Further it makes the communication of my ideas and findings more straightforward since commonly accepted terms can efficiently substitute complex concepts, extended explanations, or detailed definitions (Murphy & Alexander 2000, p. 4).

To construct my theoretical framework I explored two interrelated families of theories each of which was a possible candidate to frame this thesis. Theoretical triangulation was achieved through the amalgamation of learning theory with engagement theory. These theories emerged as potential candidates following the preliminary analysis of gathered data and also because they have been used to study concepts relevant to the ones explored in this thesis, namely learning and engagement. The selected theories provide alternative ideas towards addressing my research questions. It was impractical to settle on one theory since no single theory provides a satisfactory integrative coverage of the concepts and themes explored in this research. Thus the selected theories were explored to evaluate how each particular theory can contribute to our understanding of learner engagement within CSCL environments at postgraduate education. This led to the amalgamation of the proposed theories. In particular, the empirical findings of the research provided insights which have led to the adaptation, development and combination of these theories. This in turn has contributed to the development of an original, empirically-driven, theoretically informed framework (the Distributed

Engagement Theory (DET) discussed in chapter 5) which can better represent the real-life situation I am exploring in this research. Consequently, these theories have provided a skeletal theoretical framework whilst my empirical findings provided the empirical body which defines how the phenomenon under investigation fits around this framework. The following sub-sections discuss the most influential theories before explaining how the final theoretical framework has been composed to meet the research needs.

### **3.3.1. Engagement and motivation theory**

Within engagement theory and research two frameworks were found particularly helpful and applicable to the context of the study presented in this thesis. These include engagement theory (Kearsley & Shneiderman 1999) and the student motivation and engagement wheel (Martin 2003).

#### **3.3.1.1. Engagement theory**

Kearsley & Shneiderman's (1999) engagement theory is a framework for technology-based teaching and learning. The fundamental idea underlying this theory is that for learning to occur "students must be meaningfully engaged in learning activities through interaction with others and worthwhile tasks [and] that technology can facilitate engagement in ways which are difficult to achieve otherwise" (p. 1). This statement emphasises the similarities that engagement theory shares with other learning constructs and theories. In particular with its emphasis on meaningful, worthwhile tasks engagement theory is very consistent with constructivist approaches to learning (e.g. Bruner 1966). Due to its emphasis on interaction with peers it is also aligned with collaborative learning (Dillenbourg 1999) and situated learning theories (e.g. Lave & Wenger 1991). Furthermore, because it focuses on experiential learning and active, self-directed learning it is similar in nature to theories of adult learning (e.g. Cross 1981; Knowles 1970).

The basic premises of engagement theory are reflected in its three components: relate, create, and donate. These components imply that for learning activities to be engaging (i.e. have the ability to engage students in active cognitive processes such as problem-solving and evaluation) they must occur in a group context (i.e. collaborative teams), be

project-based, and have an outside, authentic focus. The first principle ('relate') emphasises the value of collaborative efforts and teamwork. The authors argue that such efforts involve communication, planning, management and social skills all of which are intensive activities which force students to clarify, verbalise and elaborate their problems, thereby facilitating collaborative solutions to emerge. The authors also highlight that collaboration increases students' motivation to learn. Especially when students work with others from different background this often drives them to become familiar with multiple perspectives, and to understand and appreciate diversity. The second principle ('create') highlights the creative, purposeful nature of learning. Engagement theory implies that choosing and conducting their own projects is more interesting and valuable to students than answering textbook problems and gives them a sense of control over their learning. Feelings of increased interest, value, and engagement are often associated with project-based or problem-based learning approaches. Finally the third principle ('donate') stresses "the value of making a useful contribution while learning" (Kearsley & Shneiderman 1999, p. 2). The emphasis on an authentic learning context is central in engagement theory and it is often related to increased student motivation and satisfaction.

The role of technology in the theory is to facilitate all aspects of engagement. For example the use of communication technologies such as email, groupware, and videoconferencing can significantly increase the extent and ease of interaction amongst peers. Technology can also facilitate the search for and access to information and hence provides direction for finding innovative, creative project ideas. The authors argue that "technology provides an electronic learning milieu that fosters the kind of creativity and communication needed to accomplish engagement" (p. 6). Although engagement theory has not been adequately empirically tested, it is an appealing model for framing this study due to the interesting way in which it blends key concepts such as learning, technology, and engagement in a single framework.

### **3.3.1.2. Student motivation and engagement wheel**

Martin's (2002, 2003) student motivation and engagement wheel is an integrative framework defined by four dimensions (adaptive cognitive, adaptive behavioural, impeding cognitive-affective and maladaptive behavioural). The model draws on a broad array of learning and motivation theory and related research. It has been

suggested that its integrative nature “makes the model successful at capturing the complexity and breadth of dimensions that underpin academic motivation and achievement” (Green et al. 2005, p. 1). The student motivation and engagement wheel is presented in figure 3.1.

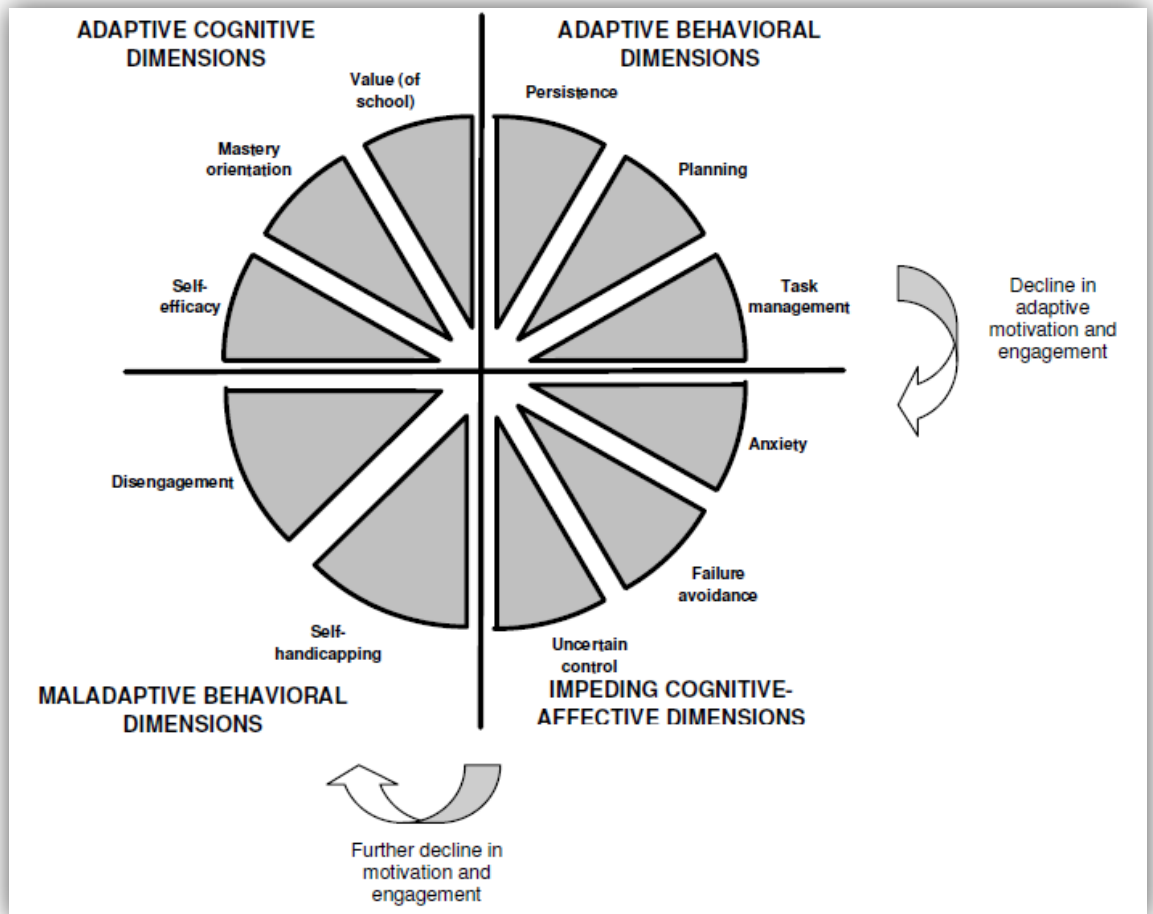


Figure 3.1: The student motivation and engagement wheel (adapted from Martin 2003).

The adaptive cognitive dimensions of student motivation encompass self-efficacy (Bandura 1997), expectancy-value theory to include valuing of schooling (Eccles 1983; Wigfield 1994), and finally goal theory (mastery or learning orientation) and self-determination theory (intrinsic motivation) to include mastery orientation (Elliott & Dweck 1988; Kaplan & Maehr 2002; Nicholls 1989; Ryan & Deci 2000). The adaptive behavioural dimension of the model accommodates choice theory to include persistence (Glasser 1998) and self-regulation theory to include study management and planning (Zimmerman 2001). In terms of the impeding and maladaptive dimensions the model draws on research and theorising on anxiety (Sarason & Sarason 1990; Spielberger

1985), uncertain control is drawn from control and attribution theories (Connell 1985; Weiner 1994), and finally need achievement theory, goal theory, and self-worth motivation theory together form failure avoidance, self-handicapping and disengagement (Atkinson 1957; Covington 1992, 1998; Elliot & Sheldon 1997; McClelland 1965).

### **3.3.2. Learning theory**

Within the extensive history and range of learning theory and practice a number of theories are considered helpful in the sense that they provide useful concepts or analytical ideas for thinking about, and theorising, the learning outcomes and academic development resulting from certain learning activities. These include collaborative learning (Dillenbourg 1999), the 3P model (Biggs 1987), and the conversational framework (Laurillard 1993, 2002a). There is a common thread in these and other contemporary theories of learning: the learner is considered an active agent in the learning process. A radical shift in thinking began with Dewey (1938), one of the greatest educational theorists of the twentieth century. The focus was no longer on teaching as a transmission mechanism. Rather, educational theorists began to develop a careful examination of what it takes to learn and developed learner-oriented theories such as constructivism, social learning, and collaborative learning all of which share the common conception of learning as an essentially active process.

#### **3.3.2.1. Collaborative learning**

Collaborative learning is based on the tenet that knowledge is constructed socially while people interact and exchange experiences, information, and ideas (Dillenbourg 1999). Dillenbourg (1999) defined collaborative learning as “the situation in which two or more people learn something together”. The basic assumption of collaborative learning theory is that participation is critical to learning; hence the more learners contribute to a discussion the more they are likely to learn (Leidner & Jarvenpaa 1995). From a social point of view, collaborative learning is superior to individualistic learning because it enables positive changes in interpersonal attitudes, promotes active participation and a sense of community (Grabinger et al. 2007; Milrad 2002). Collaborative learning activities also provide opportunities to explore multiple perspectives and develop communication skills. From a cognitive-psychological viewpoint collaborative learning



is associated with increased personal achievement. Learners can develop critical thinking through evaluating, reflecting, and arguing for or against different viewpoints. Learners also tend to demonstrate higher-level reasoning and more creativity when they are actively learning in groups rather than when they are learning individually or competitively (Dillenbourg 1999).

### 3.3.2.2. 3P model of teaching and learning

The 3P (presage, process, product) model of teaching and learning (Biggs 1987), also known as the systems model of student learning, describes both personal and situational factors as presage factors that pre-exist and which interact to determine the learning approach adopted by a student in a specific learning situation. Personal factors include ability, personality, locus of control, cognitive style, motivation, values, attitudes, prior knowledge, conceptions of learning, and general experiences, while situational factors comprise the nature of the task, time pressure, the context in which it is performed, method of teaching, assessment, and perceptions of institutional requirements. These presage factors affect the quality of performance (product) or learning outcomes via the learning approach (process) adopted. The learning approach comprises the motive for undertaking the task and the congruent strategies used (Chin and Brown 2000, p. 110).

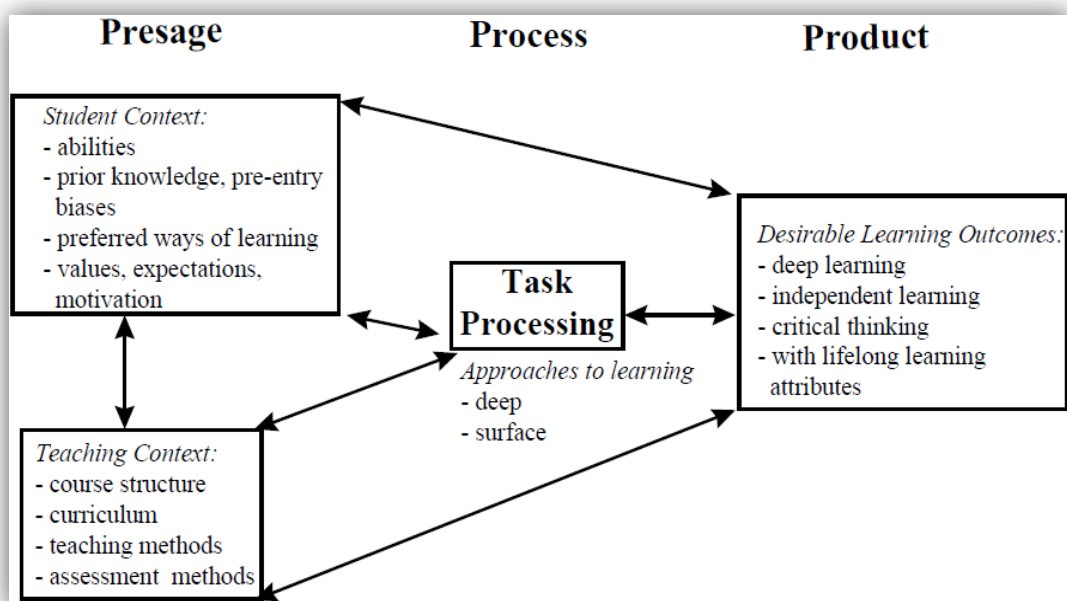


Figure 3.2: The 3P model of teaching and learning (adapted from Biggs 1989).

The overall assumption that Biggs has about learning based on this 3P model is that learning outcomes (such as critical thinking and deep learning) are a result of the interactions of the teaching and learning contexts with the students' abilities. Both student and teaching presage factors interact to produce an approach to learning which in turn produces certain learning outcomes. Students bring into the learning system some predispositions such as prior knowledge, abilities, values, expectations, and ways of learning. These characteristics are learning-related and have a direct impact on the ways students choose to process academic tasks or engage with learning subjects. The learning system itself is defined by the environment or teaching context created by the teacher and the institution as a whole. This includes the course structure, curriculum content, methods of teaching and assessment. Students perceive and interpret the teaching context and accordingly adopt a study approach that they think will help them meet the demands of courses. This is referred to as the 'Presage' phase of the model.

The student's approach to learning can be broadly conceptualized as either 'deep' or 'surface' (Entwistle & Ramsden 1983). These two general approaches of learning have been identified from both qualitative (Marton & Säljö 1976) and quantitative (Biggs 1987) studies. A 'deep' approach to learning is indicated by an intention to understand the material to be learnt and to seek meaning leading students to attempt to relate concepts to existing knowledge, to distinguish between new ideas and existing ones and to critically evaluate and determine key themes and concepts (Fry et al. 1999, 2003). This can be achieved using strategies such as reading widely and combining ideas from a variety of resources, relating parts to a whole, engaging in constructive discussion and exchanging ideas with others, personal reflection, analysing and prioritising alternative options, and applying knowledge in real world situations. An intention to reproduce and recite the material to be learnt without an attempt to make sense of it, to memorise information, and to treat the task as externally imposed characterises the 'surface' approach to learning. Rote learning is a typical surface approach which results from students' intention to give the impression that maximum learning has taken place when in fact they have approached it through superficial levels of cognitive processing (Fry et al. 1999, 2003).

Biggs (1987) also identified a third approach to study, the 'strategic' or 'achieving' approach. This approach is associated with assessment in such a way that the student organises learning specifically to obtain a high grade. With an intention towards higher marks a learner who often uses a deep approach to learning may adopt techniques of

surface learning to meet the requirements of a specific activity (e.g. a test or an assignment). Therefore, one important implication is that a student's approach to learning is not simply a fixed, trait-like attribute of the learner but a function of both learner characteristics and the teaching context. Ramsden (1988) suggested that the approach to learning is not implicit in the make-up of the student, but something between the student and the task and thus it is both personal and situational. Fry et al. (2003) suggest that "an approach to learning should, therefore, be seen not as a pure individual characteristic but rather as a response to the teaching environment in which the student is expected to learn" (p. 11). This procedure by which students select how they will process or approach academic tasks, is referred to as the 'Process' phase.

Finally, the 'Product' phase of the 3P model suggests that study approaches are related to qualitative differences in learning outcomes. The deep approach is expected to produce high quality learning outcomes while a surface approach is expected to result in lower quality outcomes. Overall, the 3P model explains how learners approach a given learning task. It involves the interaction of the student and teaching contexts to produce a particular approach to learning, which affects the quality of learning outcomes. Biggs is one of the leading proponents of the view that approaches to learning can be modified by the teaching and learning context and are themselves learnt. It is therefore the responsibility of the lecturer to ensure that the pedagogical models they choose, the curricula they design, and the assessments they set, challenge students and drive them to exercise their critical thinking, creativity, and synthesis of new information with current knowledge (Biggs & Tang 2007; Ramsden 1992; Shuell 1986). Biggs has also popularised the term 'constructive alignment' to explain the congruence between what the lecturer expects learners to be able to do, know, or understand, how they teach, and what and how they assess the learning outcomes. A key idea that can be extracted is that if teachers want to encourage the development of quality learning outcomes (such as deep understanding, independent learning, critical and creative thinking, problem solving and other lifelong learning attributes), they need to create contexts that discourage surface approaches and encourage deep approaches to learning (Biggs & Tang 2007). The 3P model is in many ways consistent to the themes that emerged during my preliminary data analysis particularly in terms of the unexpected ways of engagement with blogs and CSCL tasks I observed by certain students in my case study. This gives good reason for choosing to describe this model here.

### 3.3.2.3. Conversational framework

The conversational framework developed by Laurillard (1993, 2002a) can be considered both as a learning theory and as a practical framework for designing educational environments. The conversational framework identifies four kinds of activity as essential for learning to take place: ‘discursive’ (the discussion between teacher and student), ‘interactive’ (the task/action/feedback cycle operating in the world of the content), ‘adaptation’ (of description and task by teacher, and of description and action by student), and ‘reflection’ (on student performance by the teacher, and on experience by the student) (Laurillard 2002a). Figure 3.3 shows the conversational framework identifying the activities necessary to complete the learning process.

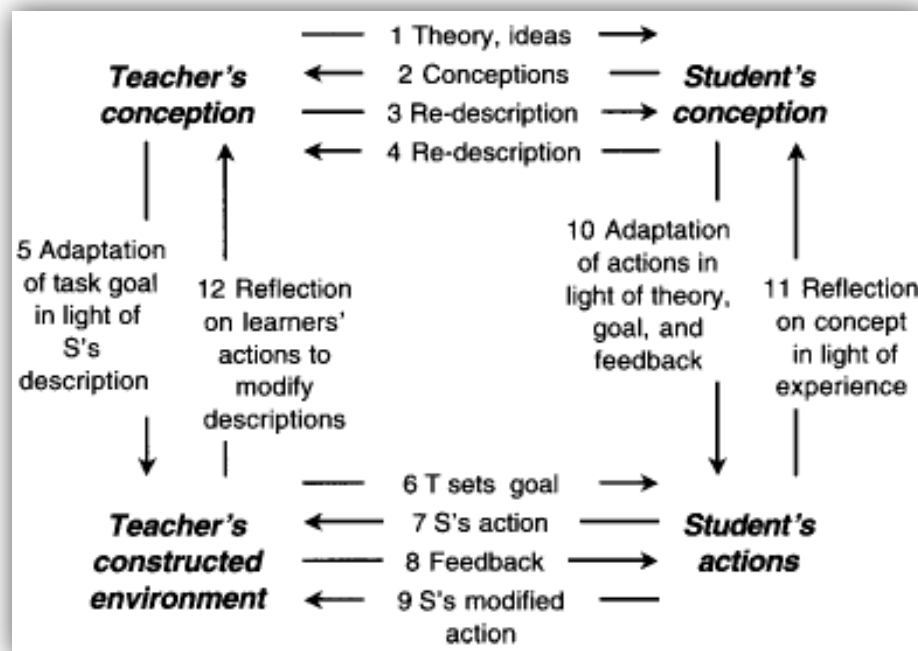


Figure 3.3: The conversational framework (adapted from Laurillard 2002a).

Higher education or academic learning, according to Laurillard, is much about acquiring "ways of experiencing the world" (Laurillard 2002a, p. 19). Therefore pedagogic strategy has to consider different forms of communication and associated mental activities: discussion, adaptation, interaction, reflection. Although traditionally these activities can be supported through a combination of lectures, reading, tutorials, supervised practical work, and assessed assignments, increasingly they are undermined as student numbers increase and resources decrease. Laurillard (1993, 2002a) argues

that large classes and independent learning practices only address the input to the student, not the interaction with the teacher which is imperative for student understanding to happen. She also contends that although there is no substitute for the genuine discussions and interaction between teacher and student, the use of multimedia and interactive technologies can help by providing a degree of adaptive feedback to students on their performance (Laurillard 2005). Yet she emphasises that how well the chosen technologies support student learning depends primarily on the extent to which the instructional design incorporates the necessary affordances that is, whether it provides different levels of support for various kinds of learning experiences (e.g. apprehending, investigating, discussing).

Despite its applicability in technology settings the framework mainly concerns (ways of thinking about) teaching and learning, not technology itself. The author adopts a strategy which offers a way of thinking about teaching and the use of learning technology that is informed by an elaborated understanding of what students do when they learn. This reflects my personal belief that it is not what technologies are used but how they are used that makes the difference. Laurillard (2002a) holds the fundamental assumption that “a university is defined by the quality of its academic conversations, not by the technologies that service them” (p. xvi) and that “university teachers must take the main responsibility for what and how their students learn” (p. 1). My case study shows how interactive technologies such as blogs and videoconferencing systems can provide the affordances students need to make the connection between business and computer science disciplines, that is how technologies are used in practice in real-life work environments. This way they can better appreciate and comprehend both the value and challenges involved in technology-mediated environments. Laurillard argues that interactive multimedia tools can provide the affordances students need for understanding complex phenomena because they can combine key aspects of the conversational framework considered necessary for academic learning. Thus by making full use of the characteristics the medium can offer we can facilitate student learning and understanding (Laurillard 2002a).

In general, Laurillard (1993, 2002a, 2002b) tries to link learning theory with technology not for finding what we can use technology for but for understanding what technology can do to help learning. Hence the focus is on learning and how we can advance it through the use of technology, not the other way round. I found Laurillard’s conversational framework influential to the extent that it combines aspects of

technology and learning thus enabling me to see the wider picture of integrating appropriate learning technologies into education. It also pinpoints the key role that the students' interaction with teachers plays in the learning process which is an important aspect when considering the social factors affecting this process. Another factor which made this framework appealing is its focus on university education which makes it relevant to the context of my study.

### 3.4. Integrated theoretical framework

Each of the theories discussed above provides a partial understanding of how postgraduate students engage in CSCL environments. Still, when considered collectively these theories provide an interesting set of ideas about how engagement with CSCL happens (1<sup>st</sup> research question), what factors are affecting it (2<sup>nd</sup> research question), and how it relates with the learning outcomes (3<sup>rd</sup> research question). Therefore, in order to capture the full complexity of learner engagement in CSCL and attend to the key research questions pursued in this thesis the findings are explored through the theoretical lenses of both learning and engagement theory. By borrowing ideas from the theories outlined in the previous sub-section the following simplified framework emerged (solid arrows denote the relationships explicitly addressed in this research while dotted arrows denote additional relationships suggested by the theories considered):

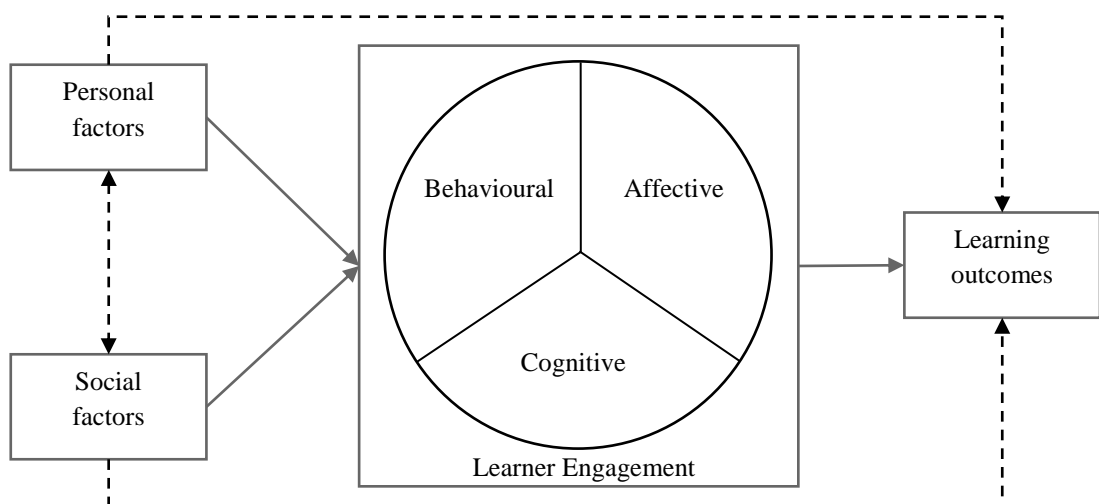


Figure 3.4: A proposed theoretical framework for the study of learner engagement.

The proposed theoretical framework (figure 3.4) reveals some fundamental principles and assumptions. Firstly, as the above diagrammatic model illustrates, the theory that can help to better explain learner engagement in CSCL is one that acknowledges the behavioural, cognitive, and affective facets of engagement rather than one which emphasises a single dimension. Engagement is enacted in the ways students behave, react to, or interact with CSCL tasks (in the classroom and online), in the ways they reason or reflect about their level of engagement, as well as in what they feel when they are engaged.

Another eminent assumption is that social/situational aspects (i.e. environmental, technological, pedagogical, etc) combine and counter-interact with personal aspects (i.e. incentives, goals, expectations, values, beliefs, etc) to foster engagement. Therefore engagement is not just an attribute of an individual's personal characteristics and qualities; rather it can be seen as a situated phenomenon, one that is highly context-oriented and driven by the types of activities and educational practices promoted in the specific context.

This framework also suggests that learner engagement is a fundamental precondition to deep learning and constructive learning outcomes. Overall, this framework illuminates the (theoretical) gaps identified in the literature as outlined in section 1.4. The framework captures relationships which have not been explored theoretically or empirically in previous research and which were found to be pertinent in the current study. Overall, this framework places an emphasis on exploring individuals in their natural learning setting and adopts a holistic approach for investigating how postgraduate students studying in a hybrid degree engage within a CSCL environment.

### **3.5. Concluding remarks and methodological implications**

This chapter attempted to frame the study of learner engagement in CSCL within the multiple contributing disciplines. In doing so it has established a new, holistic approach (theoretical lens) for viewing and exploring learner engagement. The nature of learner engagement has been explored through different angles (within learning theory and engagement theory) taking into account the dynamic, powerful, and complex interactions performed in CSCL environments (i.e. amongst learners, amongst groups, between learner and content, between learner and educator) which inevitably affect the degree and type of learner engagement. Engagement is seen as a multidimensional

concept which comprises intellectual/cognitive, emotional/affective, and behavioural constructs. It is neither static nor transferable; rather it is dynamic and situated within the multi-layered influences of the specific CSCL environment.

By bridging the various research strands presented in chapters 2 and 3, and following an inductive pilot study, a set of focused research questions were generated which were explored and answered through subsequent empirical data collection. The end-goal in formulating a theoretical framework was to amplify the dimensions under study and to identify powerful relationships and correlations between constructs as reported in current literature. The overall aim was to build a theoretical framework as the foundation for deeper analysis of my empirical work and further exploration of learning and engagement. The fundamental principles and assumptions of the proposed theoretical framework were also identified and considered.

In the process of establishing a theoretical framework for the study of learner engagement in CSCL, identifying and tracing relationships and interactions was a challenging yet rewarding task. Due to the cross-disciplinary nature of the topic this process involved considering, comparing and choosing among competing theories and justifying these choices along the way. These choices were continuously re-established and re-negotiated in light of the new emerging themes surfacing from ongoing data collection, analysis, and interpretation/sense-making. Theoretical insights and empirical insights were constantly informing each other. This iterative process is central to grounded theorising whereby data are used to form tentative ideas (or propositions). In turn, appealing ideas (drawn from common sense, data, or the literature) inform further data collection, interpretation, and sense making (Hammersley & Atkisson 2007). This approach fits well with the mixed-methods inquiry paradigm adopted in this study which will be discussed in more detail in the following chapter. In particular, chapter 4 will discuss the justifications for choosing the particular combination of methods before introducing the methods themselves in more detail.



## **Chapter Four – Methodology and Research Design**

### **4.1. Introduction**

Designing and conducting any type of research is by no means a straightforward endeavour. Research must be appropriately designed and effectively documented to achieve academic rigour and this involves reflecting on assumptions made and explicating intermediate decisions. In particular, methodological decisions need to be justified and assumptions need to be transparent to elucidate why particular themes were pursued and certain choices were preferred while others were rejected so as to enable readers to virtually walk in the field where the research unfolds. This chapter intends to make the storyline come alive by giving the readers access to the ‘backstage’ of the research.

Research design involves an iterative, evolving process that develops throughout every stage of the research project. In fact, data generation, data analysis, and data interpretation are all intertwined and iterative stages in mixed-methods designs (Onwuegbuzie & Teddlie 2003). The fact that “these three elements of the mixed methods process are recursive and thus nonlinear in nature” (Onwuegbuzie & Teddlie 2003, p. 352) helped to identify emergent insights and unexpected patterns which were then used to refocus the research questions and inform subsequent data collection. Although impractical to present the research design process in a recursive way every effort has been made to portray the different stages performed throughout the research in a rational way. Having established the research aims and objectives and the theoretical framework in previous chapters, I begin this chapter by presenting the foreshadowed problems which, alongside the gaps recognised in the literature, gave rise to initial research questions which were later refined and reformulated. I continue the discussion in this chapter by explicating my research methodology. This section is divided into three sub-sections covering key issues regarding the research approach, research methods and data collection methods employed in the study.

The discussion on the research approach includes a definition of mixed-methods research and covers the paradigmatic and philosophical assumptions underlying this approach. This is followed by a comprehensive discussion whereby I justify my choice to perform mixed-methods methodology in the study of learner engagement in CSCL environments. I then trace the iterative process through which the research design and

the procedures underlying it developed. The chapter then presents the rationale for conducting an ethnographic case study and discusses in detail the data collection process through which primary data have been gathered to give rise to emerging themes which in turn guided further data collection and analysis. This was by no means a fixed or structured route or one that was straightforward to achieve as the research focus broadened and narrowed and broadened yet again before the final refined set of research questions was realised.

Subsequent sub-sections describe the rationale behind the selection of the study settings and cases and how access was negotiated and ethical issues were addressed. A thorough description of the case study and the participants is also provided to give a fuller picture of the research context. Finally, towards the end of this chapter I address the all-important issues of validity and trustworthiness which also serves as a link to the succeeding chapter.

#### **4.2. Formulating research questions**

Research endeavours often begin with some set of ideas which may be stimulated by an intrinsic motivation or interest, an appealing opportunity, an observation of a surprising social incident, an unexpected episode or even by a personal experience. These so-called ‘foreshadowed problems’ (Malinowski 1922) determine how research questions will be formulated and what the focus and scope of the research will be. The foreshadowed problems, in my case, were my personal interest in CSCL and the rather timely, ‘opportunistic’ (Riemer 1977) technological developments at my university which coincided with my decision to pursue research in this field. Following the completion of my Master’s degree in September 2006 I was fortunate to receive an invitation to attend a dry-run for evaluating ColLab – a state-of-the-art videoconferencing system which had recently been acquired by the university (iCOM 2008). At that time the academics (along with the audio-visual specialists involved in setting ColLab up) were discussing the opportunities of this novel technology as well as any impending compatibility and interoperability issues that could arise when using ColLab to collaborate with other universities. The research agenda at that time included collecting feedback from different user groups (e.g. lecturers, students, external participants) concerning the design, interface, usability, acceptability, and educational potential of ColLab in a learning context. My attendance in these meetings and dry-runs

sparked many questions and ideas for conducting research in the field. I wanted to explore how students learn in real-life CSCL environments within postgraduate education, how CTs such as ColLab can improve their learning experience, which skills they can develop by learning together through technology, and how technology-enabled collaboration can improve their learning outcomes. Hence my initial research focus was learning – computer-supported collaborative learning.

By the time I received my research scholarship and was able to formally commence my PhD (in October 2007) the installation of ColLab was well underway and the official launch was scheduled for November that year. Having a broad idea and being overly excited about what I wanted to investigate in the selected setting, initial stages involved selecting the participants, negotiating access in the field, and addressing ethical issues (these stages will be discussed in detail in the following sub-sections of this chapter). Once I was officially in the field I plotted my research towards investigating my initial research questions which were further refined and reformulated while conducting preliminary research.

During my pilot study (in the academic year 2007/08) I observed that the uptake of the system – by students and academics alike – was rather limited. Despite the students' initial enthusiasm during their induction (when they were presented with the prospect of having such a state-of-the-art technology at their fingertips) I was surprised to observe that the majority of students were not actively using the available CTs as part of their learning. This observation prompted me to look even deeper into the social world I was exploring and ask how students actually (rather than hypothetically or expectedly) engage in the chosen setting. Guided by initial exploratory questions such as 'why is it that students engage with the technology in the way I observe them to engage?' and 'what does it take for students to engage?' I was eager to investigate firstly, how it is that students engage and secondly, what is prompting them to engage or disengage in that way. As a result of this reflective process, my research focus shifted from 'how students learn' into 'how students engage' and finally developed into 'learner engagement in CSCL'. I thus reformulated my research questions and re-plotted my line of investigation in order to pursue these captivating, emerging issues. I set out to explore how it is that postgraduate students engage with CTs in a real-life learning context, which factors enable or hinder their engagement, and how in turn it affects their learning outcomes. What the preliminary fieldwork had clearly suggested was a number of important aspects to be explored more thoroughly as well as some useful analytic

ideas that guided my subsequent inquiry. The research questions were naturally further refined in the course of the research and were more systematically formulated on the basis of the gaps identified in the literature and the deeper insights collected in the field.

In connection with foreshadowed problems, Hammersley and Atkinson (2007) argue that, whatever the origins of inquiry, there is always a need to work the research problem up into a worthwhile and viable form. Research starts with some vague research ideas and opportunities. These in turn need to be developed, piloted, refined or even changed completely before arriving at a set of significant – yet viable – research questions. The formulation and re-formulation of research questions is a demanding and complex iterative task carried out throughout the course of the research. It involves identifying hypotheses, preconceived ideas and expectations and making them explicit in the outset in order to put them under scrutiny and elaborate their implications. It also affects how research will be designed and what methods will be employed in order to best answer the research questions at hand (Creswell 2007). These and other methodological aspects are discussed next.

### **4.3. Research methodology**

Research methodology frames the research; it describes the process and nature of enquiry, the underpinning paradigms, and the techniques and procedures used to address the research questions. This study follows a mixed-methods approach to research with a distinguishing ethnographic character. The research design and methodology of the thesis are influenced by a desire to produce evidence-based knowledge claims that transcend disciplinary boundaries. To this end, the thesis draws on varied, complementary perspectives and approaches so as to contribute to current debates on learner engagement in such multi-disciplinary contexts as the ones defined by CSCL environments. The following paragraphs discuss the key contemporary issues and philosophical viewpoints underpinning the use of mixed methods. Subsequent sections portray a detailed picture of the research methods and data collection methods employed to address the research aims.

### **4.3.1. Mixed-methods research approach**

#### **4.3.1.1. Historical analysis**

Research methodology in social and behavioural research has undergone several changes over the last decades. Tashakkori & Teddlie (2003) suggest that “these changes have had an impact on the purposes, worldviews, and methods of studying behaviours, programs, and social interactions” (p. ix). Naturally, it is accepted that both quantitative and qualitative methods have their places within the context of social and educational research and the researcher’s focus will decide which type of method is used, if not in combination. The dominant and relatively unquestioned methodological orientation (with the exception of the fields of anthropology and sociology) during the first half of the 20<sup>th</sup> century was quantitative research (that is, the positivist paradigm and its variants such as post-positivism). The emergence of qualitative methodology (including variants of constructivism, interpretivism, and naturalism) during 1950-1970 was seen as a reaction to the dominant quantitative methodology of the time and gradually gained widespread acceptance (Denzin & Lincoln 1994). Despite their obvious merits, each of the two basic approaches to research have been criticised by proponents of the other orientation. The major source of divergence focused on the contradictory worldviews with each camp criticising each other’s methods, the rigour of its procedures, and the validity of its outcomes. These discussions and controversies resulted in the ‘paradigm wars’ which in turn helped to establish mixed-methods methodology as the “third methodological movement” (Tashakkori & Teddlie 2003, p. ix).

Despite the greater acceptance mixed-methods have gained, various paradigmatic assumptions are still being debated when attempting to conceptualise mixed-methods studies (Jang et al. 2008). On one hand ‘paradigm purists’ (Jang et al. 2008, p. 222) argue that paradigms are fundamentally different and therefore have incompatible assumptions about human nature and the world, and so knowledge claims cannot be mixed (Guba & Lincoln 1989; Smith 1983; Smith & Heshusius 1986). On the other hand however, many scholars acknowledge that philosophical differences are reconcilable through new guiding paradigms which actively embrace mixed methods (Jang et al. 2008). They contend that focusing on the incompatibilities between paradigms makes dialogue among researchers less productive (Tashakkori & Teddlie 1998) and that paradigmatic differences have been overdrawn (Brewer & Hunter 2006).

Others yet call for more systemic research into mixed methods and integration of qualitative and quantitative findings (Bryman 2007; Johnson et al. 2007).

Philosophically, middle-range studies adopt stances of both constructivism and positivism and therefore aim at understanding actions and meanings as well as explaining observed patterns and seeking plausible causes (e.g. enablers or barriers) (Cohen et al. 2007). Although historically the different schools of thought in social research were presented as largely mutually exclusive and despite the obvious tension that exists between proponents of the paradigms that sit on the two extremes of the continuum (i.e. positivism and constructivism), middle-range research paradigms indicate how different approaches have characteristics which can be harmoniously encapsulated within a coherent research design. Nevertheless, while mixed-methods thinking is linked to both quantitative and qualitative approaches it is separate and distinct in each approach to producing credible knowledge. To date there has been increasing evidence for the overall legitimacy of mixed methods as a separate methodological approach distinct from purely quantitative or qualitative methods. Specifically within the fields of education and social sciences mixed-methods research is increasingly being used as an alternative to traditional mono-method ways of conducting inquiries (Brewer & Hunter 2006; Creswell 1994; Creswell & Plano Clark 2007; Greene et al. 1989; Howe 1988; Jang et al. 2008; Tashakkori & Teddlie 1998, 2003, 2010). Influential research using mixed methods includes Creswell (1994) and Tashakkori & Teddlie (1998). For a comprehensive historical analysis of the emergence of mixed methods see Creswell & Plano Clark (2011), Denzin & Lincoln (1994), and Tashakkori & Teddlie (2003, 2010).

#### **4.3.1.2. Definition**

Most scholars agree with the definition by Creswell et al. (2003a) arguing that: “a mixed methods study involves the collection of both qualitative and/or quantitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one or more stages in the process of research” (p. 212). In terms of methods, following a mixed-methods approach to research involves an amalgamation of various research methods and data collection methods (both qualitative and quantitative) in a single study (Tashakkori & Teddlie 1998). This explains why mixed-method research design is proposed as a bridge

between purely qualitative and purely quantitative approaches. Tashakkori & Teddlie (2010) define the methodology of mixed methods as a “broad inquiry logic that guides the selection of specific methods and that is informed by conceptual positions [which reject] “either-or” choices at all levels of the research process” (p. 5). The authors suggest ‘methodological eclecticism’ (Tashakkori & Teddlie 2010, p. 5) as a guiding principle of mixed-methods research which means that researchers may select and synergistically integrate the most appropriate techniques (qualitative and quantitative) to thoroughly investigate the phenomenon of interest. This integration of methods and techniques provides an opportunity for incorporating a greater diversity of divergent views. In this sense mixed-methods research differs from multi-method designs which may allow the use of multiple studies which are restricted within a single worldview (either quantitative or qualitative) and emphasises the use of both qualitative and quantitative methods used in combination to complement each other’s strengths in relation to the given research problem (Tashakkori & Teddlie 2003).

Furthermore, Creswell (2003) states that increasingly research tends to be less polarised between quantitative and qualitative approaches. Many other scholars are also in favour of using an integration of methods to approach a research topic and openly promote the constructive knowledge produced through mixed-methods research approaches (Arrow et al. 2000; Creswell & Plano Clark 2011; Mingers 2001; Tashakkori & Teddlie 2003, 2010). Although in practical terms mixed-methods methodology incorporates techniques, methods, and procedures from both the quantitative and qualitative research traditions, it combines them in unique ways to answer research questions that could not otherwise be answered. In other words the synergetic combination of methods offers more than the sum of the individual methods.

In addition to ‘methodological eclecticism’ other characteristics of mixed-methods research include paradigm pluralism, an emphasis on diversity at all levels of the research process, an iterative, cyclical approach to research and a compromising/balancing use of mixed methods (Jang et al. 2008). Mixed-methods research designs, data collection procedures, and data analysis techniques are also characterised by a reliance on visual representations (such as figures, diagrams) which help to simplify complex interrelationships inherent in these processes (Creswell & Plano Clark 2007; Dickinson 2010). The value of emphasising and acknowledging these characteristics is to distinguish mixed-methods research from the two traditional approaches. Mixed-method research design is also seen as “a pragmatic way of using

the strengths of both approaches” (Tashakkori & Teddlie 2003, p. ix). Yet as a distinct, separate paradigm, mixed-methods design carries with it certain beliefs and assumptions which differentiate it from alternative orientations or paradigms. The following sub-sections touch upon the philosophical underpinnings of the chosen methodology and provide a firm justification for the choice of mixed-methods approach in the present study.

#### **4.3.1.3. Philosophical underpinnings**

Guba (1990, p. 17) defines a paradigm as the basic set of beliefs and assumptions that guide our inquiry and through which we interpret and make sense of the world. This study falls under the umbrella of mixed-methods paradigm and consequently shares the philosophical assumptions of this paradigm. As Tashakkori & Teddlie (2003, 2010) demonstrate in their handbooks, mixed methods research has evolved into a separate, distinct methodological orientation with its own unique worldview, vocabulary, and techniques. It therefore brings with it certain philosophical assumptions or beliefs consisting a stance on the nature of reality (ontology), beliefs about the nature of knowledge that is, the relationship of the knower and the known or how the researcher knows what they know (epistemology), the role of values and ethics in the research (axiology), the language of research (rhetoric) and the methods used in the process (methodology) (Creswell & Plano Clark 2011; Creswell 2007; Creswell 2003; Denzin & Lincoln 2005; Guba 1990; Guba & Lincoln 1988; Lincoln & Guba 2000; Neuman 2000; Tashakkori & Teddlie 2003, 2010).

Ontological assumptions relate to the nature of reality and its characteristics. With regards to ontology, the viewpoint of mixed methods is to describe reality within its multiple contexts (i.e. cultural, political, economic, historical and so on). In particular, when conducting mixed-methods research the researcher attempts to capture and report the multiple and varied realities embraced by the individuals being studied. Johnson & Gray (2010, p. 72) characterise this approach as ‘ontological pluralism’ or ‘multiple realism’. Different individuals have different perspectives and therefore the researcher aims to provide evidence of these multiple realities by using a representative set of cases and providing evidence (e.g. verbatim quotes, extracts, statistical data) from different individuals, groups, or programmes. One of the advantages of this approach is the close collaboration between the researcher and the participants. Through enabling participants



to share their views of reality, describe their experiences, and tell their stories, the researcher is in position to better understand the participants' actions. The researcher then attempts to triangulate these 'expressed' or 'perceived' realities by bringing in supplementary qualitative and/or quantitative information rather than simply reporting and acknowledging them at face value.

Epistemologically, conducting a middle-range study means that the researcher needs to consider issues related to the link between the nature and kinds of knowledge that can be produced using mixed methods and the most appropriate ways of producing that knowledge. Does our understanding of the world emerge from our own (subjective) perspectives and points of view or from (objective) observations? Biesta (2010) posits 'intersubjectivity' as an epistemological term resulting from the synergy of qualitative (subjective) with quantitative (objective) approaches. For intersubjectivity to be achieved the researcher needs to spend time with the participants being studied, collaborate with them and generally maintain a functional proximity which is neither too far to miss important events nor too close to be intrusive or interfere with the natural flow of events in participants' lives (Stake 1995). Hence with regards to epistemology in the context of mixed-methods research the interaction between the researcher and the participants is essential and this interaction requires understanding and trust (Tashakkori & Teddlie 2003).

The axiological orientations of a researcher involve discussing the values, biases, and ethical issues that may shape the conduct of the study and the description of the findings. In the context of mixed-methods research, axiology relates to those socio-political issues which are "applied to the concerns and problems of the real world contexts within which [the researchers] work" (Tashakkori & Teddlie 2010, p. 4). On one hand researchers actively report any biases resulting from their choice of methods or their presence in the field (due to the qualitative/interpretive influences on mixed-methods studies), while on the other hand they try to minimise them through data triangulation and by incorporating the interpretations of participants in conjunction with their own interpretations.

Undoubtedly, researchers adhering to strictly quantitative or qualitative paradigms use a language or rhetoric which is fundamentally different. Researchers who combine methods and approaches from both paradigms may use qualitative, quantitative, as well as blended or amalgamated terms and definitions to describe concepts that emerge from

a combination of the two traditional paradigms. Innovative terms introduced in the mixed-methods paradigm include inference quality and inference transferability (Tashakkori & Teddlie 2003); fused data analysis (i.e. using the same sources in different yet independent ways) (Bazeley 2003); integrated data display and typology development (Tashakkori & Teddlie 2010). As the field of mixed methods emerged so did the need to develop an agreed and precise terminology or language for researchers. The words we use to define a concept ultimately shape how we make sense of it (Tashakkori & Teddlie 2010; Creswell 2010). In terms of the final written report the approach embraced by mixed-method studies is that the writing needs to be rich, personal yet straightforward in form.

From a methodological point of view, mixed methods offer promising ways to address issues concerning diverse groups. Methodologically, mixed-methods practitioners select and integrate the most appropriate techniques (qualitative and quantitative) which will allow them to thoroughly investigate a phenomenon of interest; this is what Tashakkori & Teddlie (2010, p. 5) refer to as ‘methodological eclecticism’. The research strategy in mixed-methods research involves an iterative procedure switching between inductive and deductive reasoning before producing a coherent understanding of the phenomenon. For example, a study may start from an existing theory (top-down approach) from which to draw hypotheses and then try to confirm or disconfirm them (through statistical data, observations in the field or by collecting the participants’ self-perceptions through interviews or focus groups) and consecutively use the collected evidence to shape the initial theory. Another middle-range study may be grounded in the data collected in the field (bottom-up approach) where the researcher enters the field without preconceived ideas or theories, seeks patterns or regularities in the field, identifies plausible relationships and then challenges these by bringing in ideas from the literature, existing theories, or additional primary data collected by the researcher. No matter what the starting point is, middle-range researchers usually aim to study the topic within its context and attempt to provide a holistic understanding of what is going on in the studied setting. While most quantitative studies are confirmatory and involve theory verification and much qualitative research is exploratory and involves theory generation “a major advantage of mixed methods research is that it enables the researcher to simultaneously answer confirmatory and exploratory questions, and therefore verify and generate theory in the same study” (Tashakkori & Teddlie 2003, p. 15). Table 4.1

pinpoints the philosophical orientations of mixed-methods approach and outlines the key characteristics and implications arising from each.

View	Question	Characteristics	Implications for Practice
Ontological	What is the nature of reality?	Reality is multiple and varied as seen by different participants in the study.	Researcher provides adequate (qualitative and quantitative) evidence to triangulate differing perspectives on reality as represented in the studied context.
Epistemological	What is the nature of knowledge and how can the researcher produce that knowledge?	Knowledge is 'inter-subjective' and can be attained through a functional proximity between the research and the participants being studied.	Researcher spends time in the field with participants, and becomes an 'insider' while also keeping interference to a minimum. The researcher employs complementary methods in an attempt to verify the insights gained in the field and achieve intersubjectivity.
Axiological	What is the role of values and ethics?	Researcher acknowledges that biases are present and that certain socio-political issues may affect the inferences made.	Researcher openly discusses values and biases and includes personal interferences in conjunction with the interpretations of participants in an attempt to alleviate these biases.
Rhetorical	What is the language of research?	Both qualitative and as quantitative terms are used. New innovative terms are also produced to reflect the distinguishing issues of mixed-methods research.	Researcher uses an engaging style of narrative, (e.g. may use first-person pronoun) and employs the language, terms and definitions used in mixed-methods research in addition to those used in the traditional paradigms.
Methodological	What is the process and procedures of research?	Researcher uses an emerging research design which iterates between inductive and deductive reasoning.	Researcher combines theoretical ideas with data collected first-hand in the field to guide further data collection and analysis in order to better understand the studied topic.

Table 4.1: Philosophical underpinnings of mixed-methods research.

While there is general agreement on the value of mixed-methods research and its nature there are a number of issues or controversies surrounding its application. These issues include, amongst others, the varied conceptual and methodological stances, the ways in which research questions are formulated, the language used in mixed methods, design and data analysis issues, and practical issues in the application of mixed methods in cross-disciplinary research (Tashakkori & Teddlie 2010). Nevertheless researchers working with mixed methods are more interested in the research questions they are studying rather than in the complex philosophical issues related to their approach

(Tashakkori & Teddlie 2003). Thus, driven by my research purpose and key research questions – which were inherently shaped by the above philosophical views – the process of establishing a coherent methodological framework (or research strategy) involved elucidating the chosen research approach and deciding the particular research methods and data collection methods to be employed in combination in the study. The following paragraphs discuss the rationale behind these decisions. The main point in this discussion is that research must be rigorously designed and methodological choices must be transparent and properly justified in order to allow replication and ensure the reliability and validity of the research findings (Creswell 2007; Guba & Lincoln 1994).

#### **4.3.1.4. Rationale for adopting a mixed-methods approach**

Integrity is key and foremost for ensuring a rigorous research process. In order to perform high-quality research the decision-making processes behind methodological choices and selection of methods need to be based on sound judgements, and the latter need to be made explicit in the narrative of the study. Cohen et al. (2007) suggest that ‘fitness for purpose’ should be the guiding principle for selecting an appropriate research methodology or paradigm. To recall, my purpose in the present study is to ‘explore, understand and, in turn, explain the prominent patterns of student engagement in CSCL activities and its underpinning mechanisms’. This statement shows that my study aims to simultaneously accomplish two goals: (a) to answer an exploratory question about how learner engagement actually happens and (b) to demonstrate whether learner engagement may have a relationship with other variables (e.g. personal or social factors, learning outcomes). Therefore the study aims not only to understand and describe the self-perceptions, actions and interactions of learners but also to identify and explain the causal conditions and plausible consequences of these actions. This suggests an exploratory-yet-explanatory research paradigm which falls somewhere along the continuum defined between the positivistic/scientific method and the interpretive/naturalistic/constructivist paradigm. Thus, it follows naturally that a mixed-methods paradigm better fits with my research purpose and research questions. Indeed, the methodological power of mixed-methods research to answer both exploratory and explanatory questions is one of the greater benefits of this approach (Tashakkori & Teddlie 2003).

There are numerous additional areas in which mixed methods are superior to single-approach designs and these serve as a good justification for choosing the former in the

study of learner engagement within postgraduate CSCL environments. One good reason is that mixed-methods research provides stronger inferences. It has been strongly argued that ‘inference quality’ is the ultimate advantage of using mixed methods (Tashakkori & Teddlie 2003). This essentially means that the interpretation quality is better (Tashakkori & Teddlie 2003). Inferences are differentiated from results – they are two distinct phases. Results are the outcomes of data collection and data analysis (e.g. following data reduction by creating themes or numerical indicators, establishing a degree of relationship between two categories/variables). Inferences are based on the investigator’s interpretations and explanations of those results (Tashakkori & Teddlie 2003) and are always made within a specific cultural context (Moghaddam & Harré 1995). In the current study I combined methods which give greater depth (e.g. observations in real-life CSCL settings, focus groups with students, individual interviews, and video ethnography) with methods which cover greater breadth of issues (e.g. student questionnaires and informal conversations). Using different strands of methods in combination can give results (i.e. emergent themes and relationships) from which I could make stronger and more truthful inferences. It is particular virtue of mixed methods to lead to multiple inferences which may confirm, triangulate or complement each other (Tashakkori & Teddlie 2003). It has been suggested that mixing qualitative and quantitative methods “will result in the most accurate and complete depiction of the phenomenon under investigation” (Johnson & Turner 2003, p. 299).

The adoption of a mixed-methods approach is also justified on the ground that such an approach permits the pursuit of complex social phenomena such as learner engagement in real-life CSCL environments. It has been suggested that the use of mixed methods is a practical and useful tool towards answering complex research questions in the behavioural and social sciences (Greene & Caracelli 1997; Tashakkori & Teddlie 2003). Like learning and motivation, learner engagement is a heavy, multifaceted concept as demonstrated in the literature review and theoretical framework chapters in this thesis. To best understand and make inferences about the complexities surrounding the concept of learner engagement and be able to derive a holistic set of implications that can inform the design of CSCL pedagogies I employed two research methods (ethnography and case study) and six data collection methods in combination. This particular combination allowed me to gain a deep understanding of how engagement is engendered within postgraduate CSCL environments and provide a portrait of the prominent issues and factors that affect learner engagement within the chosen setting. Methodologically the

choice of mixed methods was found to be pertinent in realising real-life engagement patterns at the individual level. By following a mixed-methods design I was able to explore in greater depth the engagement processes and simultaneously confirm tentative propositions as they emerged.

Overall, using a mixed-methods approach allows divergent findings to emerge which are considered valuable in that they lead to re-examination and triangulation of the conceptual frameworks the research is based on and the assumptions underlying each of the two (qualitative and quantitative) components. Some of the major reasons for employing mixed methods are “(a) to obtain convergence or corroboration of findings, (b) to eliminate or minimise key plausible alternative explanations for conclusions drawn from the research data, and (c) to elucidate the divergent aspects of a phenomenon” (Johnson & Turner 2003, p. 299) as well as to “[alert] the researcher to the possibility that issues are more multifaceted than they may have initially supposed, and [offer] the opportunity to develop more convincing and robust explanations of the social processes being investigated” (Deacon et al. 1998, p. 61). These aspects relate to the fundamental principle of mixed methods according to which methods should be mixed in a way that has “complementary strengths and nonoverlapping weaknesses” (Johnson & Turner 2003, p. 299).

Specifically within the present study, adopting a mixed-methods approach entails carrying out research in the stance of interpretivism (i.e. studying a (sufficient) number of individual cases to collect empirical data by carrying out participant observations in everyday settings and conducting focus groups) in order to formulate some tentative propositions, and then carrying out research in the stance of positivism (by collecting information through questionnaires, examining the contributions per student on the blog, etc) to verify these propositions, seek for relationships between variables, and guide further data collection. This process involves a number of iterations between inductive and deductive reasoning: moving from direct observation towards a set of tentative propositions from which we can deduce a set of practical implications before devising a consistent set of theoretical ideas which can eventually be synthesised into a coherent conceptual framework (Cohen et al. 2007, p. 6). For example, while some students told me they usually prefer to learn in groups and that they learn best when working with others, I observed that their participation on the blogs was limited. This finding motivated me to look deeper into what might create a discrepancy between what students say they prefer and what they actually do rather than taking any of the two

sources of evidence at face value. The opportunity to present a great diversity of divergent views would not be possible without the collection of diverse types of data (Tashakkori & Teddlie 2003).

Several scholars have shown that while pure quantitative and qualitative research methods reveal divergent approaches to conducting research, their combination is not impossible. In fact using multiple methods allows covering the limitations of each approach and aims to make more credible, truthful, and trustworthy knowledge claims (Tashakkori & Teddlie 2003). In particular the reliability gained through the use of qualitative methods (such as participant observation, interviews, and focus groups) can be enhanced by means of the credibility achieved through quantitative methods (such as questionnaires or collection of statistical data) without compromising research quality. Furthermore, the additional use of audio-visual methods of collecting data (for example video ethnography and photos illustrating real-life situations) offers deeper insights and better understanding, thus it may advance the credibility of the research and the knowledge claims made in the writing of the study. In addition, mixed-methods approaches are fundamentally concerned with providing a holistic understanding of a phenomenon through the collection, presentation, analysis, and interpretation of information coming from different angles. In fact, mixed-methods designs evolved from the notion of triangulating the information from different data sources (Tashakkori & Teddlie 2003, p. x). This covers both ‘data triangulation’ (or intra-method mixing that is, using both open-ended and close-ended questions within a single research study) and ‘method triangulation’ (or inter-method mixing which involves the concurrent or sequential mixing of two or more methods) (Denzin 1989; Johnson & Turner 2003). Triangulating both the types of data collected and the methods through which they are gathered allows re-examination of findings from different angles and improves the quality of the findings.

Furthermore, the combination of multiple data collection methods gives space to alleviate researcher bias and achieve intersubjectivity that is, a balance between objective and subjective views on the phenomenon being studied (Biesta 2010). For intersubjectivity of findings to be achieved the researcher needs to spend a lot of time with the participants in the natural environment in which they learn, live, or work – these are important contexts for understanding and interpreting what the participants are saying (Creswell 2007) and for developing ‘communicative competence’ (Saville-Troike 1982). Especially when employing ethnography, it is argued that prolonged stay

at the research site is required to better understand participants' actions and interactions (Wolcott 1999). In the present study observation was the primary method through which I tried to understand how it is that learners engage with CSCL activities and how they engage with each other through CTs. Traditionally however ethnography focuses mostly on qualitative data and is too descriptive to be used in isolation in this type of research. Therefore, the prolonged observation in the field was also accompanied by observation online (i.e. following participants' interactions and behaviours in videoconferences as well as their written contributions on blogs). Furthermore, in my study I also employ quantitative methods to triangulate the findings. The collection of evidence from different contexts allowed me to test and verify the insights gained in the field.

Another justification for adopting a mixed-methods approach for this study is the balance between inductive (data-driven) and deductive (theory-driven) reasoning. Adhering to any school of thought or paradigm essentially involves deciding on the balance between the level of prior literature, prior theorising, and primary empirical data collected first-hand by the researcher. Middle-range philosophy implies that the researcher is eager to challenge the status quo promoted in the literature and aims to 'see the world anew' while being open to maintain certain aspects of current theory and knowledge in order to avoid reinventing the wheel. Especially conducting research in an interdisciplinary area such as CSCL which draws from various (often divergent) paradigms, theories, and schools of thought inevitably requires an association with multiple perspectives. My view on the use of prior literature is to examine it (in the outset) to identify gaps and re-exploit it (during the data analysis stages) to critically evaluate my interpretations of the empirical findings identified in the field. The respect for empirical details and the possibility of learning from prior theories are both represented in middle-range thinking but in different degrees according to the nature of the study. Specifically in the current study the extent to which prior theorisation affects the conduct of research is low while there is high dependence on primary empirical data. In practical terms, middle-range thinking means that some 'skeletal' theories describing social phenomena may be considered but empirical research is imperative in order to attach meaning to them – to make them meaningful within a specific context. Empirical details are of vital importance; they complement and contextualise skeletal theories. Furthermore, empirical, data-driven approaches may help to construct novel theories about a specific phenomenon and are more applicable for claiming a clear contribution to current literature. Specifically the ethnographic nature of the data



collected in this study represents one of the distinguishing elements of this research and contributes to its originality.

The choice of mixed methods in this study was also encouraged by a relevant gap identified in the literature. In particular there are limited mixed-methods, ethnographic case studies conducted in CSCL environments at postgraduate education which used both qualitative and quantitative sources of evidence. Hence the current study can make a clear empirical, theoretical, and methodological contribution to existing literature in the field and provide novel perspectives on the concept of learner engagement in CSCL environments at postgraduate education. Additionally, employing a combination of methods helps to make research a more appealing endeavour. Besides, after the pilot study I conducted I recognised the availability of both qualitative and quantitative data and I wanted to integrate them in order to get a deeper understanding of learner engagement in the selected CSCL setting. Overall, the choice of mixed-methods research approach was profitable in manifold ways. It is hoped that the arguments above justify the choice of a middle-range, mixed-methods approach towards studying learner engagement within CSCL environments in postgraduate education.

#### **4.3.1.5. Research designs and procedures in mixed-methods research**

Many viewpoints on mixed methods have been proposed in the literature for example the a-paradigmatic stance; the complementary strengths thesis; pragmatism (House & Howe 1999; Johnson et al. 2007; Bryman 2007; Patton 1988); the dialectical stance (Greene & Caracelli 1997) and multiple paradigm stances (for a comprehensive review see Tashakkori & Teddlie 2003). In addition to the different stances or viewpoints a number of typologies for mixed-methods research designs have been compiled by scholars. The proposed typologies are based on varied classifying criteria which differentiate between research designs within each typology. These criteria also express the distinguishing assumptions of each typology.

For example, Morse's (1991, 2003) typology classifies mixed-method designs based on two criteria: the sequence in which data are collected and the priority assigned to one orientation or the other (dominant and less dominant). Similarly, Morgan's (1998) Priority-Sequence Model, influenced by Creswell's (1994) distinction between dominant and less dominant approaches in mixed-methods studies, consists of four designs which result from two basic decisions: deciding on the priority of each approach

and deciding on the order of conducting the complementary method (either prior to or following the dominant method). Morgan (1998) also considers multiphase studies which do not impose any limitations on the order of qualitative and quantitative phases (Tashakkori & Teddlie 2003).

Another renowned typology is the one by Greene & Caracelli (1997) who refined their initial typology (Greene et al. 1989) and proposed two broad categories of mixed-methods design alternatives: component designs and integrated designs. These are further divided into a total of seven distinct designs. Integrated mixed-methods designs (iterative, embedded or nested, holistic, and transformative) are distinguished from component designs (triangulation, complementary, and expansion) in that in the former the mixing of different methods takes place throughout the inquiry: from data collection through to analytic procedures and interpretation. Clearly, the purpose of the study plays a key role in selecting among the designs in these typologies (Greene et al. 1989; Greene & Caracelli 1997).

Creswell (2002) incorporating the ideas of Greene et al. (1989) and also taking into consideration the sequence of qualitative and quantitative components classified mixed methods designs in three categories: triangulation, explanatory, and exploratory. In the triangulation mixed-methods design the investigators “collect both quantitative and qualitative data, merge the data, and use the results to best understand a research problem” (Creswell 2002, pp. 564-565). The explanatory design consists of “collecting qualitative data to help explain or elaborate on the quantitative results” which have already been acquired (p. 566) while, on the contrary, exploratory design consists of “first gathering qualitative data to explore a phenomenon, and then collecting quantitative data to explain relationship found in the qualitative data (p. 657). The emphasis in this typology is more on the types of data employed. In triangulation design the quantitative and qualitative components proceed in a simultaneous or parallel manner while the other two designs are sequential (Teddlie & Taskakkori 2003). In addition to the order of implementation and priority Creswell et al. (2003a) also consider two other classifying criteria: the stage of integration (derived from Tashakkori & Teddlie’s (1998) typology) and the theoretical perspective taken (transformative or not, derived from Greene & Caracelli’s (1997) typology).

Within Tashakkori & Teddlie’s (1998) typology research designs are classified into mixed-method studies and mixed-model studies. One of the classifying criteria in this

typology is the number of strands employed (mono-strand or multi-strand). This typology is based on the procedure or method of study rather than other criteria such as the priority of orientation, the purpose of the study, or the theoretical perspective. Mixed-method studies are further divided into sequential, simultaneous, equivalent-status, dominant-less dominant studies and designs with multi-level utilisation. Mixed-model studies on the other hand “combine the qualitative and quantitative approaches within different [stages] of the research process” (Tashakkori & Teddlie 1998, p. 18). This suggests that integration of both perspectives can occur while formulating the research questions, during data collection, data analysis, or data interpretation. Mixed-model designs can therefore be aligned with Greene & Caracelli’s (1997) integrated designs. The aim of mixed-model designs is to offer more general or abstract explanations of events or behaviours in the conclusion of the report thus making it easier to extrapolate findings to other similar situations. In other words, following both types of analysis, multiple inferences are made at the end of the study each varying in generality, subjectivity, cultural orientation, and so on. Teddlie & Taskakkori (2006) also provide a comprehensive framework of research designs using the methods-strands matrix. They discuss four categories of designs which can be broadly aligned to the ones suggested by Caracelli & Greene (1997). These include concurrent, sequential, conversion, and fully integrated designs. Fully integrated designs blend qualitative and quantitative approaches “in an interactive and iterative manner throughout the study. At each stage, the two approaches interact with each other by affecting the formation of the other” (Jang et al. 2008, pp. 223-224).

Finally, Maxwell & Loomis (2003) present an alternative way of conceptualising mixed-methods research designs. Instead of proposing yet another typology they present an ‘interactive model’ in which the components of research design (purpose, conceptual framework, research question, methods, and validity) are treated as components in a network or web rather than in a progressive manner (e.g. moving from purpose, to method, to inference). Maxwell & Loomis’ model is viewed as complementary – rather than an alternative – to the existing typologies of mixed-methods designs (Tashakkori & Teddlie 2003).

Drawing information from Miles & Huberman (1994), Morgan (1998), Morse (1991), and Tashakkori & Teddlie (1998), Sandelowski (2000) compiled a table showing various templates of mixed-methods designs (also referred to as hybrid or combination designs). This set of templates is reproduced below (table 4.2). It adopts Morse’s (1991,

2003) notation which uses the abbreviations QUAN and QUAL for quantitative and qualitative respectively; uppercase to denote more priority given to that orientation; and the plus sign (+) to indicate that data are collected simultaneously/concurrently. There is however a minor alteration with the use of arrows. Morse (1991, 2003) uses the arrow to indicate that data collection occurs sequentially while in the table below Sandelowski (2000) represents sequential relationship using the greater-than sign (>) whereas the arrows suggest a rolling wave between different strands.

Templates	Qualitative/Quantitative Relationship: Priority & temporality	Use of Qualitative Adjunct	Use of Quantitative Adjunct:
Template #1 Template #1a	QUAL > quan Or QUAL + quan		-measured description -validation -formal generalisation
Template #2 Template #2a	QUAN > qual Or QUAN + qual	-explanation -validation	
Template #3	Quan > QUAL		-guide purposeful sampling -focus information-seeking -suggest analytic paths
Template #4	Qual > QUAN	-generate items, variables -generate hypotheses	
Template #5	<p>Quan    wave 1    wave 2    wave 3 Qual    ↘    ↗    ↘           On-going field work</p>	-explanation -validation -generate items, variables -generate hypotheses	-measured description -validation -formal generalisation -guide purposeful sampling -focus information-seeking -suggest analytic paths
Template #6	Qual > Quan > Qual		-instrumental bridge
Template #7	Quan > Qual > Quan	-fieldwork bridge	
> indicates sequential relationship + indicates concurrent relationship CAPITALS indicate priority Arrows suggest a rolling wave			

Table 4.2: Mixed-methods design templates (adopted from Sandelowski 2000).

The typologies described above are neither mutually exclusive nor exhaustive in nature (Jang et al. 2008; Tashakkori & Teddlie 2003). While such typologies are useful for clarifying the purpose of a research project and linking it to appropriate methodologies, the breadth and depth of proposed inquiry types depict the complexity in choosing among, and implementing, alternative designs (Jang et al. 2008; Maxwell & Loomis 2003; Tashakkori & Teddlie 1998, 2003, 2010; Teddlie & Tashakkori 2006). To select the most appropriate research design the researcher needs to consider the assumptions of each typology expressed through its classifying criteria. It is up to the researcher to select the particular criteria that are most important for them and based on these decide which research design is in accordance with the research purpose of their study. Furthermore, many scholars seem to agree that “research questions do not emerge in a vacuum. Rather, they emerge or are influenced by the culture of the investigator as well as through social and political agendas” (Tashakkori & Teddlie 2003, p. 34). Therefore, researchers may have to develop a new mixed-methods design for their study if none of the proposed designs accommodates their research purposes. In addition, the study design may even change in the course of the study as one type of data may become more important as the study proceeds (Tashakkori & Teddlie 2003). Such ‘opportunistic designs’ (Jang et al. 2008, p. 224) may offer the potential for creating a new component in the research process in addition to the predetermined design (Teddlie & Tashakkori 2006).

With a set of key research questions at hand I set out to develop my own research design and select the most appropriate research methods and data collection methods that would comprise my research strategy. Although the choice of research approach is strongly coupled to the types of data the researcher plans to collect (and indeed to the types of data which are practically available to the researcher) it is not always possible to know what data will become available at the outset. When I commenced my research project (with a pilot study during the academic year 2007/08) the primary technique I decided to use for data collection was participant observation. It was the observational data which gave rise to initial themes which were later pursued in more depth in subsequent phases of the study. Having reviewed various methods I realised that participant observation would play a primary role in shaping my research (video-ethnography was conducted in parallel to observation but with less intensity) and I was fortunate enough to gain access for conducting observation in the research field.

Observing students generated many pages of field notes covering unexpected themes, interesting incidents, and emerging questions. I decided to employ supplementary methods for exploring these issues deeper and for testing tentative propositions. Initially, I engaged students into informal conversations and in the process I also arranged individual interviews with students as well as lecturers. In many occasions it was students themselves who initiated such discussions and these were particularly interesting and informative. In the course of the research (in the two main waves of data collection conducted in 2008/09 and 2009/10) another source of data became available which was not part of the initial research design. Students were using blogs in one of their courses and this provided a unique opportunity to investigate how the same students engage with a different type of CSCL. Furthermore, although initially the majority of data collected were of qualitative nature (i.e. observations and interviews) the blogs allowed me to extract some quantitative data as well (i.e. number of posts, number of replies to comments etc). Another form of quantitative data was the background questionnaire employed during the first week of the academic term. Additional questionnaires (e.g. VARK, students' approaches to learning, and academic motivation scale) were also employed at different points during the academic year to test emerging relationships. Apart from the background questionnaire the other questionnaires were not originally planned yet provided another source of information for data comparison and for confirming or disconfirming emerging themes.

Finally, another key source of data which had an integrative, holistic nature was focus groups. Nine focus groups were conducted at the end of each academic term (following each of the two main studies) totalling eighteen focus groups. Overall, in my study I use a combination of two research methods (ethnography and collective case study) and six data collection methods (four qualitative, one quantitative, and one mixed). The following figure approximately simulates the research design as employed over time in the two main waves of data collection. Although mixed at its core, the research design leans towards the qualitative/interpretive side due to the weight placed on the ethnographic, observational data collected in the study. This is acceptable in mixed-methods designs as it is not always possible (or even pursuable) to place equal priority to both types of data. While it is obvious that qualitative research plays a predominant role in the study, and therefore it is given some priority, the order or sequence of qualitative or quantitative methods is not as important. Although initially the study starts with the collection of qualitative data, in the course of the research qualitative and

quantitative methods are concurrent with one informing and shaping the conduct of the other.

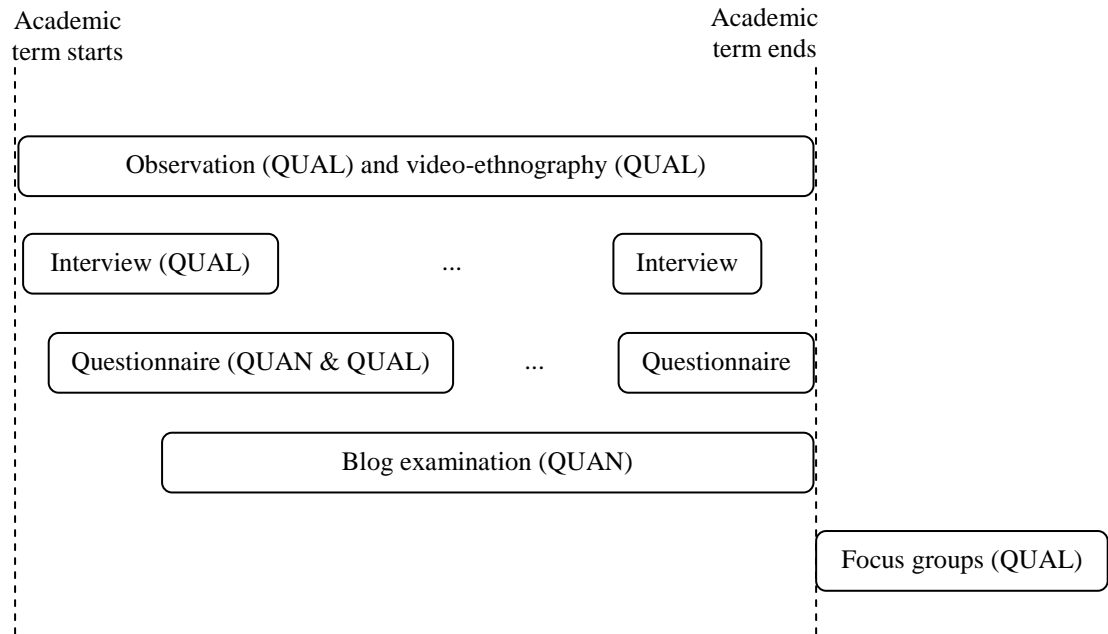


Figure 4.1: Research design (data collection).

In addition to priority, another important criterion in the present thesis is the stage of integration of qualitative and quantitative methods. Particularly the study involves both qualitative and quantitative data collection methods and employs thematic as well as statistical and correlation analysis towards answering both exploratory (i.e. how do postgraduate students engage) and explanatory research questions (i.e. what are the enablers and barriers to learner engagement). Thus, the research design which best reflects the principal characteristics of my study (i.e. collecting both qualitative and quantitative data in parallel during several loops/waves; re-implementing the research design during three consecutive academic years with one strand of data informing the other; giving emphasis to qualitative over quantitative data due to the ethnographic nature of the study; using both approaches at different states of the research process; and interpretively linking emergent findings to better understand the research problem) is a mixed-model, integrated research design with priority given to qualitative methods.

The resulting research design is aligned with Greene & Caracelli's (1997) integrated designs and particularly with the iterative/developmental (due to the rolling waves

between qualitative and quantitative data) and embedded/nested designs (due to the priority towards qualitative data). It is also aligned with Tashakkori & Teddlie's (1998) mixed-model designs where the mixing takes place throughout the inquiry process and with Teddlie & Taskakkori's (2006) fully integrated designs which blend both strands in an interactive and iterative way with one approach affecting the formation of the other. An advantage of implementing an integrated design is that researchers can verify and generate theories by utilising data types and analytic methods from both qualitative and quantitative strands. Results from both strands can be synthesised to make multiple inferences about the research problem at hand.

In terms of data analysis, an integrated analytic strategy was employed. Each set of data collected during each wave was initially analysed independently and then qualitative and quantitative data were compared and contrasted for deeper analysis and for confirming or disconfirming emergent findings before moving to the next wave of data collection and analysis. When data collection was completed, two aggregated data sets were compiled (one qualitative and one quantitative) based on the data gathered during the last two waves. Each of these datasets were re-analysed firstly independently through thematic analysis of qualitative data and correlation analysis of quantitative data, and later interpretively linked and compared for validation and triangulation of research findings hence resulting in a set of merged themes. The most prominent themes were further analysed using higher order data analytic strategies such as data display, explanation, validation and presentation of findings. Figure 4.2 below demonstrates the overall research design.

Aligned with mixed-methods designs, Tashakkori & Teddlie (1998) extending the work of Patton (1990), classified three stages of the research process including: (i) exploratory and confirmatory nature of investigation, (ii) quantitative and qualitative data/operations, and (iii) qualitative analysis/inference and statistical analysis/inference. These stages emphasise the interactive and integrative approach used in integrated mixed-methods designs and are reflected in the research design I have employed in this study. By employing an integrated mixed-methods design in this study the aim was to get insights into how engagement happens in the selected CSCL setting and gain an in-depth understanding of influential mechanisms (enablers and barriers) and the dynamics associated with possible learning outcomes.



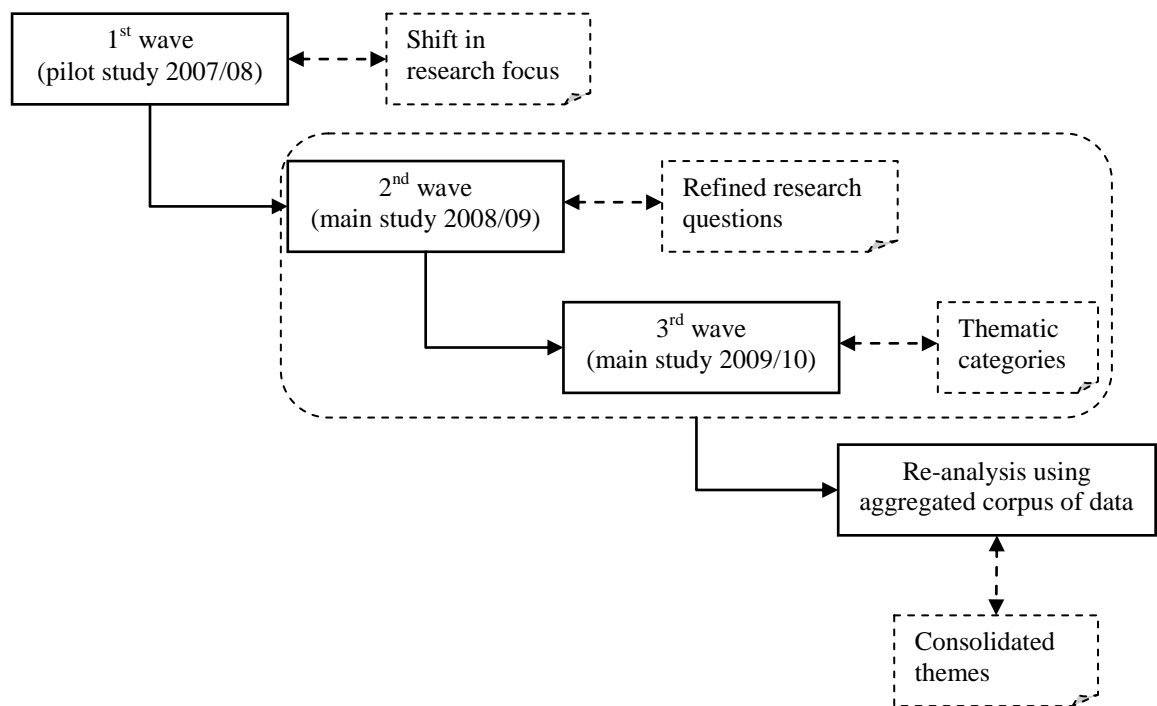


Figure 4.2: Research design (data collection and analysis).

Once the settings and participants were selected an integrated design was implemented composed of qualitative techniques (using observation of students in real-life settings, focus groups with students, interviews with both students and teachers and video-ethnography) and quantitative techniques (questionnaires and data collected from examination of students' contribution on blogs). This design serves primarily two functions: (a) triangulation (Caracelli & Greene 1997; Creswell 2002; Creswell et al. 2003a; Denzin 1978) in the sense that it seeks convergence of different views on the phenomenon of learner engagement (coming from theoretical frameworks, my personal experiences and beliefs, the participants' self-reports, and different methods) in order to strengthen the validity/trustworthiness/inference quality of the findings and (b) 'complementarity function' (Caracelli & Greene 1997) in that the general statistical information (extracted from questionnaires and from measuring the contribution per student on the blogs) was enriched, elaborated, and clarified with contextually specific accounts of learner engagement drawn from observations, focus groups and interviews involving multiple perspectives (researcher's own interpretation, students' self-reports, lecturers' reports). Chapter 5 will discuss all the intermediate analytical procedures conducted in the study in greater depth.

#### **4.3.1.6. Challenges in mixed-methods research**

Dealing with mixed-methods research designs involves both conceptual and practical challenges (Jang et al. 2008) and barriers (Bryman 2007). Mixed-methods studies are often much more complex than any single research design (Green et al. 1989; Maxwell & Loomis 2003; Teddlie & Tashakkori 2006) and many scholars, both recently and in the past, have called for more systematic research into integrative mixed methods research (Greene et al. 1989; Johnson et al. 2007).

A key challenge is ensuring that mixed-methods research is methodical and well-designed. Despite the efforts to develop a uniform and systematic classification of mixed-methods designs there are still some points of controversy and divergence of ideas among scholars in the field. Firstly, different scholars use different classifying criteria in defining their typologies. Secondly similar designs are labelled differently by different scholars (e.g. simultaneous, concurrent, or parallel). This explains why although mixed-methods research has been widely acknowledged as a legitimate research inquiry approach, leading scholars pinpoint a lack of integration of the findings from qualitative and quantitative strands of data as a significant deficiency in mixed-methods research practice (Bazeley 2006; Bryman 2006, 2007; Greene et al. 1989; Johnson et al. 2007).

Furthermore, many mixed-methods methodologists acknowledge that mixed-methods research may provide not only converging but also contradictory and inconsistent results (Caracelli & Greene 1993; Mathison 1988). Although this ‘heterogeneity’ will naturally lead researchers to revisit the data across methods for in-depth analysis in order to substantiate such inconsistency (Jang et al. 2008, p. 223), making strong knowledge claims requires a good understanding of both strands and a careful examination of emerging findings.

Despite the complexities involved in conducting mixed-methods research, high-quality contributions have emerged in the last fifteen years thus creating a systematic and more uniform conceptualisation of mixed methods (Tashakkori & Teddlie 2003). Scholars agree to different degrees that it is possible to have both inductive (exploratory, subjective, constructivist) and deductive (confirmatory, objective, value-neutral) questions within the same study. Furthermore, some research questions can only be answered with a mixed-methods design. The following sections discuss the different

research methods and data collection methods employed in this study and a subsequent section discusses the mixed-methods analytic strategy in more detail.

#### **4.3.2. Research methods: Ethnography and case study**

The selected type (or approach) of inquiry subsequently shapes the design and procedures of a study (Creswell 2007). This research has a longitudinal, exploratory, and explanatory character and uses a mixed-methods methodology combining two well-known research methods: ethnography and (collective) case study (Hammersley & Atkison 2007; Miles & Huberman 1994; Stake 1995; Yin 2003). The term ‘collective case study’ (Stake 1995) is adopted to illustrate that rather than analysing how one specific individual engages my aim is to analyse the most prominent types of learner engagement across individuals (within a well-defined, bounded system). What I seek is to analyse learner engagement through the individual, therefore by considering more than one individual (within a single cohort as well as across cohorts) allowed me to replicate my methods and get a better understanding of which combinations of factors or characteristics lead to different types of engagement. The focus was on engagement practices engendered in collaborative learning environments mediated by different forms of CTs and specifically on the foundations and underlying mechanisms (enablers and barriers) inherent in the social context of the study.

The participants studied were considered active agents in the socially-bounded system explored. Furthermore, although the individual cases (i.e. the learners) were selected from three consecutive cohorts these cohorts were systematically related in the sense that they took place in the same country, HEI, postgraduate degree, and CSCL context. This allowed space for replicating the findings, test hypotheses, and refine emerging case-based themes. In particular, following the pilot study (cohort 2007/08) the initial research questions were readjusted and refocused based on emergent (unexpected) themes before conducting the first case study (cohort 2008/09). The findings from the first case were subsequently used as input for the second case study (cohort 2009/10) for validation and further exploration of learner engagement in CSCL environments. In the following paragraphs I give a definition, briefly trace the history, discuss the procedures involved in conducting the study, and indicate potential challenges in using each of these research methods. Finally, I discuss the similarities and differences

between these two methods although it is worth mentioning that in practice there is no sharp distinction between ethnography and case study (Hammersley & Atkinson 2007).

#### **4.3.2.1. Definition and background of ethnography**

Ethnography originates in nineteenth and early twentieth-century cultural anthropology and is one of the most influential traditions of interpretive research used in social sciences. Literally ethnography means ‘portrait of people’ (Creswell 2007) – it is a detailed, descriptive account of a community or cultural group (Hammersley & Atkinson 2007; Creswell 2007) based on information collected through fieldwork (Harris & Johnson 2000 cited by Genzuk 2003; Wolcott 1999). Scholars such as Malinowski, Mead, Park, and Dewey have shaped the ethnographic method. Although its character has evolved since then, traditionally ethnography involved a qualitative design in which the researcher describes and interprets the cultured patterns of values, beliefs, behaviours and interactions, and the shared language and meanings of the selected community or cultural group (Harris 1968; Creswell 2007; Hammersley & Atkinson 2007; Van Maanen 1988). Towards the end of the twentieth century ethnography started spreading across multidisciplinary fields of research due to the influences from, and association with, various other methodological approaches and theoretical ideas. As a result, contemporary ethnography is not used in an entirely standard fashion and its meaning can vary across studies. In the introduction of their book ‘Ethnography: Principles in Practice’ Hammersley and Atkinson (2007) pinpoint the “variable and sometimes contested character” of ethnography (p. 1). Its complex historical background is one of the reasons why ethnography does not have a standard, well-defined meaning and remains a flexible open-ended research approach.

A basic feature of ethnography is the conception of the research process as inductive, open-ended or discovery-based rather than being limited to the testing of explicit hypotheses. It is argued that if one approaches a phenomenon with a set of hypotheses one may fail to discover the true nature of that phenomenon being blinded by the assumptions built into the hypotheses (as it happens with experimental setups). Rather, ethnographers begin with an interest in a particular area or some ‘foreshadowed problems’ (Malinowski 1922) and go ‘in the field’ (Hammersley & Atkinson 2007) without expectations or presuppositions in order to really understand the shared meanings and symbolic social practices in the particular social realm. In contrast to

experimental, laboratory studies their orientation is an exploratory one. The focus of the research is narrowed and sharpened, and perhaps even changed substantially, as it proceeds. Similarly, theoretical ideas, descriptions and interpretations emerge in the course of the research (Hammersley & Atkinson 2007). Such interpretations are regarded as a valuable outcome of, not a precondition for, ethnographic research (Genzuk 2003; Hackley 2003).

#### **4.3.2.2. Procedures for conducting ethnography**

In qualitative writings ‘ethnography’ is taken to refer both to the process and the outcome or product of the research (Agar 1980; Creswell 2007). As a process, ethnography is intertwined with fieldwork (Harris & Johnson 2000 cited by Genzuk 2003; Wolcott 1999); it involves getting immersed in the field, carrying out extended observations of a cultural group, talking with and interviewing the participants. It is thus a context-dependent and intense approach. Carrying out ethnographic research was in my own experience an experiential learning task similar to learning how to drive or learning how to play the piano. One would not learn how to perform such tasks without getting ‘hands-on’.

The first step a researcher needs to undertake before commencing an ethnographic study is to determine whether ethnography is the most appropriate research method to study the research problem. Ethnography is considered a suitable method if the research aims entail describing how a cultural group ‘works’ and exploring patterns of behaviour, beliefs, attitudes, and meanings shared amongst the participants. Secondly the researcher needs to select an appropriate setting. Subsequent steps include negotiating access in the selected field and identifying key informants or ‘gatekeepers’ (Creswell 2007). Issues such as negotiating which role to adopt in the chosen setting, being sensitive and ethical in all aspects of the research are also central to ethnography (Hammersley & Atkinson 1995; Creswell 2007).

In terms of data collection in the field ethnographic research requires an extended, experiential participation of the researcher in a specific cultural context (Arnould 1998). This usually involves the researcher participating (overtly or covertly) in people’s daily lives for an extended period of time, watching what happens, listening to what is said and how it is said, asking questions in formal interviews or informal encounters, collecting a wide variety of documents and artefacts – in fact, gathering whatever data

are available “to throw light on the issues that are the emerging focus of inquiry” (Hammersley & Atkinson 2007, p. 3). Data collection in ethnography is relatively unstructured in the sense that it does not involve following a fixed and detailed research design specified in the outset. It is also unstructured in the sense that the categories used for interpretation of what people say or do are generated through data analysis rather than being predetermined (Hammersley & Atkinson 2007). This process involves intensive note taking and memoing with data analysis taking place in parallel to, and guiding, further data collection. Audio- and video-recording may also be used for collecting supporting material. The scope in ethnographic studies is generally small-scale, focusing on a few cases or a single setting over a prolonged period of time so as to facilitate in-depth investigation and analysis.

During data analysis the ethnographer analyses the manifold sources collected to produce a description of the culture-sharing group and the themes that emerge as well as an overall interpretation (Wolcott 1994). Particular emphasis is placed on analysing the words (language) and actions (behaviours) of the participants (Creswell 2007) in an attempt to identify recurring patterns or pervasive issues that may contribute to understanding the cultural group. From these first-hand observations the ethnographer seeks to generate interpretive representations of the social phenomena observed, the meanings and consequences of human actions and how these are implicated in the specific context. First-hand empirical investigation of a social culture may also be integrated with theoretical and comparative analysis of cultural themes (Wolcott 1994; Hackley 2003; Hammersley & Atkinson 2007). This usually entails an iterative process through which the ethnographer tries to narrow down the cultural themes or social issues on which to focus (Creswell 2007). As the analysis of the data proceeds the ethnographer moves into a theme analysis of those patterns or topics which better signify how the group works, lives, or learns. By examining how people interact in ordinary settings, and by attempting to discern persistent patterns (which may indicate particular cultural themes, life cycles, or attitudes which characterise the social world) the ethnographer aims to infer a holistic perspective of the group’s history, development and function (Wolcott 1994; Hammersley & Atkinson 2007).

In engaging in close study of a particular social group the ethnographer aims to understand the customs, cultural norms, values and behaviour of that group while at the same time trying to retain a sense of scientific detachment. Ethnography relies heavily on the ethnographer’s personal experience and interpretation through which to

understand social phenomena – yet researchers need to accept and present the world as it is shaped and perceived by the participants, and try to understand why particular meanings are constructed and valued in a social setting. Understanding these meanings is the key to understanding what makes people behave in a particular way and what motivates them to perform certain actions or interactions. It is these values, meanings and insights that interpretive researchers seek (Saville-Troike 1982).

As deeper insights are gained the ethnographer begins to compile a detailed description of the social group in the form of a narrative. Emerging themes and patterns of behaviour as well as plausible explanations are amalgamated into a coherent set of theoretical ideas that attempt to describe or explain how the social group functions. The final outcome or product of an ethnographic study is “a holistic cultural portrait of the group” (Creswell 2007, p. 72) that incorporates the views of the participants as well as the views of the researcher. It might also advocate for the needs of the group or suggest changes (e.g. in society) to address the needs of the group. As a result, the reader learns about the group from both the participants’ perspectives and the researcher’s interpretations. For the most part ethnography as a product includes verbal descriptions, including explanations, theories and verbatim quotes to substantiate the researcher’s interpretations with quantitative and statistical analysis playing a subordinate role in traditional ethnography (Hammersley & Atkinson 2007).

In this thesis an ethnographic study is employed for understanding learner engagement as a social process study within CSCL environments by observing student behaviour. The ethnographic character of the present study emphasises the importance of exploring how students behave ‘in context’, in their natural learning environment, rather than in laboratory, ad hoc settings that have been specifically set up for research purposes as is the case with experimental studies (Hammersley & Atkinson 2007; Genzuk 2003). Within the fields of CSCW and CSCL interpretivist/naturalist research studies such as ethnography explore a natural setting in depth in an attempt to generate rich insights and make sense of the contextual aspects that affect the acceptance of collaborative technologies in the workplace (Rosenberg 2000; Markus & Benjamin 1996; Orlikowski et al. 1995; Qureshi & Vogel 2001). These aspects cannot be replicated in an experimental or laboratory environment (Rosenberg 2000). They lie in the language and meanings of the participants, not in the assumed causal relationships implied by the data. Ethnographic, field and workplace studies are inherently social; they study a social context and attempt to understand what people do, when, with whom, how, and why

(Wenger 1998; Svensson 2002). The underlying assumption is that the context shapes, and is shaped by, people's thoughts, actions and behaviours and the aim is to understand this dynamic relationship and how it impacts learner engagement. Yet, my aim was not simply to provide a 'thick description' (Hammersley & Atkinson 2007) of what is being observed but also to incorporate students' self-reports on why they behaved in the way I observed them to behave. This approach allowed me to "see the world through the eyes of the participants" (Rosenberg 2000) and identify the deeper, more subtle, issues that affect their engagement with CSCL tasks in the environment under investigation. Hammersley & Atkinson (2007, p. x) explain that "It is, after all, a particular virtue of ethnographic research that it remains flexible and responsive to local circumstances".

#### **4.3.2.3. Challenges in ethnography**

Despite the descriptive power of ethnography, it remains challenging to use for the following reasons. Researchers need to become familiar with the concepts and procedures typically used by ethnographers (Creswell 2007). The time needed to collect data is extensive and involves spending prolonged time in the field. Given the nature and magnitude of the collected data, a considerable amount of time and effort will also need to go into recording, processing and analysing them. Furthermore, ethnography is a demanding activity which involves intense reflection and critical assessment of completing interpretations (Hammersley & Atkinson 2007). Finally, ethnographers face an array of complex fieldwork issues; they need to gain the trust of the participants, conduct their research based on ethical values, demonstrate sensitivity towards – and respect – the needs of individuals and acknowledge their impact on the people and places being studied (Creswell 2007).

#### **4.3.2.4. Definition and background of case study**

In addition to its distinguishing ethnographic character, this research is also aligned with the characteristic features of case studies. Case study research involves the study of an issue explored through one or more cases within a 'bounded system' (i.e. a context or a setting) (Stake 2005) and is expected to capture the complexity of this system (Stake 1995). While in ethnography the intent is to determine how the culture group works, in a case study the aim is to analyse and understand an issue or problem using the case as an illustration (Creswell 2007). Put in the context of the case study presented in this



thesis, the aim is to explore learner engagement (the issue or problem) through individual learners within a CSCL environment at postgraduate BIS education in UK (the bounded system).

Case study is considered a comprehensive research strategy or methodology (Denzin & Lincoln 2005; Yin 2003) through which the investigator explores one or multiple cases over time through detailed, in-depth data collection involving multiple sources of information (e.g. observations, interviews, audiovisual material, and documents). In particular, in a case study “we look for the detail of interaction with its contexts” (Stake 1995, p. xi) and what are reported in the end are a detailed case description and a set of case-based themes. Case study research has a distinguished history across many disciplines. Its origin can be traced through psychology and sociology. Modern case study research adopts many approaches. Yin (2003) promotes both qualitative and quantitative approaches to case study development and discusses explanatory, exploratory, and descriptive case studies. Types of case studies may also be categorised by the size of the bounded case (i.e. whether the case involves one or several individuals, a group, an entire program or an activity) as well as by the intent of the case study. Three variations exist in terms of intent: the single instrumental case study, the collective (or multiple) case study and the intrinsic case study (Creswell 2007). As mentioned above in the present thesis a collective case study design is adopted.

The term collective case study (Stake 1995) is adopted since the findings extracted from analysing each individual case were used to compare emerging findings both across (cross-case analysis) and within cases (within-case analysis) and refine the resulting case-based themes. Furthermore the research questions were refined and refocused on the basis of the emergent themes before commencing research in the subsequent cohort of students. In a collective (or multiple) case study the researcher focuses on one issue or concern but rather than selecting one bounded case to illustrate this issue (as it happens with the single instrumental case study) the researcher selects multiple cases to illustrate the issue. For example, the researcher might select several programs from several research sites or multiple programs within a single site (Stake 1995). Stake (1995, p. 4) suggested that “we do not study a case primarily to understand other cases. Our first obligation is to understand this one case”. In a collective case study, however, the researcher purposefully selects multiple cases to show different perspectives on a specific issue (Creswell 2007). Yin (2003) suggests that collective case study design is founded on the logic of replication in which the researcher replicates the procedures for

each case. While qualitative researchers are reluctant to generalise because the contexts of cases differ, in middle-range designs some generalisation is possible given that the cases included in the study are representative. Furthermore, the commitment to common topics (across individuals, groups, or programs) in collective case studies facilitates cross-case analysis (Stake 1995).

#### **4.3.2.5. Procedures for conducting a case study**

There are several procedures for conducting case studies (see Merriam 1998; Stake 1995; Yin 2003). Firstly, researchers need to determine if case study is an appropriate method for the research problem. In deciding whether case study is a suitable design the researcher should consider a number of aspects. Overall a case study is a preferred approach when the researcher seeks to provide an in-depth understanding of clearly identifiable cases or a comparison between several cases (Creswell 2007). According to Yin (2003) case study is appropriate when (a) the focus of the research is to answer ‘how’ and ‘why’ questions; (b) we cannot manipulate the behaviour of those involved in the study; (c) we want to cover contextual conditions because we believe they are relevant to the phenomenon under study; or (d) the boundaries between the phenomenon and the context are not clear. The present study seeks to determine student engagement (i.e. how students engage) and the factors that influence their engagement (i.e. why they engage in that way, what affects their engagement). A case study was chosen because the issue to be explored (i.e. the patterns of learner engagement) could not be considered without its context (i.e. the CSCL environment in postgraduate education including both the face-to-face and online settings). It was in these settings that the engagement patterns emerged and were reflected upon by students. It would have been impossible to get a true picture of learner engagement with CSCL without considering the educational context within which it occurred. Other scholars also promote the use of case studies in the field of education (Merriam 1998).

Consequently, the second stage in conducting a case study is to identify the case or set of cases and set clear boundaries. The case study can be single or collective, multi-site or within-site, focused on a case (intrinsic) or an issue (instrumental) (Stake 1995; Yin 2003). Creswell (2007) recommends that researchers should first consider what type of case study is most promising and useful and which cases will offer “purposeful maximal sampling” (p. 74). In this respect, Stake (1995, p. 4) also argues that when selecting

cases the primary criterion should be to maximise what we can learn, that is, consider which cases will provide different perspectives on the problem, process or event we want to portray. As will be explained in the sections that follow, the selection of the specific context (CSCL within postgraduate BIS education in a HEI in UK) involved a consideration of aspects such as accessibility to the site, access to participants, study duration, representation and relevance to the research problem. The principal criterion in selecting the participants was less about ‘which students represent all postgraduate students working in CSCL environments?’ and more about ‘which participants will help us better understand how postgraduate students engage with CSCL?’ For this reason, more than one cases (i.e. students) had to be explored over a period of time to give us the opportunity to learn more about the patterns (processes or types) of learner engagement with CSCL. I did not expect to represent all postgraduate students neither all CSCL environments; rather I was hoping to identify some common issues across individuals and groups of students from which I could learn a lot about the process and types of learner engagement. Stake (1995) contents that “balance and variety are important; opportunity to learn is of primary importance” (p. 6).

Having selected and bounded the cases for study, data collection typically involves an extensive collection of information. Yin (2003) recommends drawing on six sources of information: documents, archival records, interviews, direct observations, participant-observations, and physical artefacts. Other sources which can complement the methods above include focus groups and audio-visual materials. These methods are compatible with the ones used in ethnographic studies and this made the combination of the two research methods (ethnography and case study) straightforward.

The analysis of the data collected from the multiple sources can be a ‘holistic analysis’ of the entire case or an ‘embedded analysis’ of a specific aspect of the case (Yin 2003). Analysis involves producing a detailed account of the case, a ‘case description’ (Stake 1995) in which the researcher reports the history of the case, the development of interactions between individuals or a day-by-day rendering of activities and their contexts. Following this description – which often includes evident, “relatively uncontested data” (Stake 1995, p. 123) – the researcher may focus on a few key issues (or themes) not for generalising beyond the case but for understanding the complexity of each case. One common analytic strategy would be to identify key issues within each case (within-case analysis) and then look for common themes that transcend all cases (thematic or cross-case analysis) followed by assertions or interpretations that

illuminate the meanings of the case (Yin 2003). Merriam (1988) argues that data analysis is richer if it is done in the context or setting in which the case presents itself. Conclusively, during this interpretive phase the researcher elaborates on and reports the most appealing and significant meanings deriving from the case, the “lessons learned” from the case (Lincoln & Guba 1985).

#### **4.3.2.6. Challenges in conducting a case study**

One of the challenges inherent in case studies is clearly the selection of cases. The researcher must select which bounded system is worthy of study and consider whether to study a single case or multiple cases. The more cases the less the depth in each case, therefore the selection of cases requires that the researcher establishes a rationale for a purposeful sampling strategy for selecting the cases and for gathering information about each case (Creswell 2007). Another challenge is deciding the boundaries of a case that is, constraining the case in terms of time, place, events, and processes. The researcher will need to set boundaries that adequately surround the case. This is not always possible in the outset and may be finalised in the course of the study. Table 4.3 below is adapted from Creswell (2007) and summarises the central characteristics of the two research methods combined in this study: ethnography and case study. The following paragraphs briefly outline each of the six data collection methods used in combination in this study. Subsequent sections cover issues of selecting the setting and cases and negotiating access to the selected settings and participants.

Characteristics	Ethnography	Case study
Focus	Describing and interpreting a culture-sharing group	Developing an in-depth description and analysis of a case or multiple cases
Type of problem	Describing and interpreting the shared patterns of culture of a group	Providing an in-depth understanding of a case or set of cases
Discipline background	Drawing from anthropology and sociology	Drawing from psychology, law, political science, medicine
Unit of analysis	Studying a group that shares the same culture	Studying an event, an activity, more than one individual
Data collection	Using primarily observations and interviews but also collecting other sources during extended time in the field	Using multiple sources, such as interviews, observations, documents, artefacts
Data analysis strategies	Analysing data through description of the culture-sharing group; themes about the group	Analysing data through description of the case and themes of the case as well as cross-case themes
Written report	Describing how a culture-sharing group works	Developing a detailed analysis of one or more cases
Structure of the study	<ul style="list-style-type: none"> <li>▪ Introduction (problems, questions)</li> <li>▪ Research procedures (ethnography, data collection, analysis, outcomes)</li> <li>▪ Description of culture</li> <li>▪ Analysis of cultural themes</li> <li>▪ Interpretation, lessons learned, questions raised</li> </ul>	<ul style="list-style-type: none"> <li>▪ Entry vignette</li> <li>▪ Introduction (problem, questions, case study, data collection, analysis, outcomes)</li> <li>▪ Description of case/cases and its/their context</li> <li>▪ Development of issues</li> <li>▪ Detail about selected issues</li> <li>▪ Assertions</li> <li>▪ Closing vignette</li> </ul>

Table 4.3: Characteristics of ethnography and case study methods (adapted from Creswell 2007).

### 4.3.3. Data collection methods

Landing on a position between the two extremes of social research suggests that a middle-range paradigm values both qualitative and quantitative data collection methods and may involve an amalgamation of various research methods. Data collection methods involve the techniques or procedures used to gather data which are to be used as the basis for inference and interpretation (in interpretivism) as well as for explanation, confirmation, and analysis of causal relationships (in positivism). While different in many aspects, both qualitative and quantitative approaches involve a systematic interaction between theory and data. The particular choice of methods depends largely on what the researcher intends to investigate. Since I aim to gain a contextual understanding of learners' self-perceptions and social actions revolving

around their engagement within a CSCL environment I have chosen ethnographic participant observation as the primary method of gathering data which I combined (or triangulated) with additional data collection methods (both quantitative and qualitative methods) as part of a mixed-methods research design. In particular in my longitudinal study I employ six different methods for data collection.

The study draws primarily from participant observation which is enhanced with additional inquiry methods including eighteen (semi-structured) focus groups with students, informal interviews and conversations with individual students (current students and alumni) and lecturers. Another method used is video-ethnography which entails video-recording students while participating in real-life activities such as communicating through videoconferencing systems and sharing applications online. Supplementary evidence is also collected through student questionnaires and examination of students' participation on blogs. The methods of data collection mixed in this study are consistent with the major types of data reported in the literature (see Johnson & Turner (2003) for mixed-methods research and Yin (2003) for case studies). The data collection methods combined in the study will be described in more detail after presenting the rationale behind selecting the particular setting and participants.

#### **4.4. Selecting the research setting and cases**

##### **4.4.1. Determining the case or unit of analysis**

While formulating the research questions and considering which setting to choose for study we must also consider what the 'case' is. Miles and Huberman (1994) define the case as "a phenomenon of some sort occurring in a bounded context" (p. 25). The case is in effect the unit of analysis (UoA); it is what the researcher intends to analyse. Determining what the case is can be a challenge since it is not always straightforward to distinguish the case from its context. Moreover, the case cannot be defined in the outset neither can it be clearly bound without first having selected a specific context or the set of participants or events to focus on. Thus, determining the case and selecting and sampling within the setting (i.e. selecting participants, time, and context) are all intertwined phases of research design.

In determining the case under study I had to ask myself what I am really interested in. Do I want to analyse the individual or do I want to analyse the group? Do I want to analyse how students engage in a CSCL environment, how they learn, or how they use technology in such an environment? Answering these questions at different stages helped to gradually delineate my case. Considering the guiding research question ‘How do postgraduate students engage with CSCL activities?’ the case (the unit of analysis) is defined as the way in which an individual learner engages (or not) within a CSCL activity. Hence, the issue or case to be explored is ‘learner engagement’ which is defined as a patterned activity or process by which students respond to, connect with, or approach CSCL tasks. Defining the case in this way implies that I am less interested in how each individual learner engages and more interested in examining specifically the most prominent engagement strategies or approaches students choose (either consciously or subconsciously) when encountering CSCL tasks. In essence, I am interested in studying how students engage, what factors influence their engagement, and how engagement affects the learning outcomes in the specific CSCL environment.

Once the case has been determined several authors have suggested that placing boundaries on the case can prevent researchers from attempting to answer a question that is too broad or has too many objectives (Yin 2003; Stake 1995). Binding the case ensures the study scope remains reasonable and feasible within the available timeframe. A case can be bound by time and place (Creswell 2003); time and activity (Stake 1995); or by definition and context (Miles & Huberman 1994). In studying learner engagement in CSCL environments, establishing boundaries primarily involved providing a concise definition of ‘learner’ and ‘CSCL environment’. It would not be viable for me to look at all learners, studying in any CSCL environment, across UK. Therefore binding the case is of methodological as well as of practical value. The following sections indicate the boundaries of the case that is, ‘where’ students were when engaging in CSCL; ‘who’ was selected to participate; and ‘what’ was the context and timeframe of their engagement which I was interested in learning about.

#### **4.4.2. Binding the case: Selecting the research setting**

The nature of the setting chosen for study is a factor that often plays a significant role in shaping the way research questions are developed. Context-setting is as much about adoption as it is about rejection – it is one of the elements that will vouch for the

original contribution of a PhD thesis to the wider body of scholarly knowledge. In my case an opportunity arose to investigate postgraduate students who would be using CTs as part of their MSc in Business Information Systems at a HEI in the UK. This particular setting encompasses a unique set of features: it would allow me to study 'postgraduate' students in their 'natural' environment while using a 'novel' technology. To assess the suitability of this setting I conducted a preliminary review of the literature (in the fields of CSCL and TEL) searching for previous research in similar settings. What the preliminary literature review exposed however, was a gap in empirical case studies conducted within postgraduate education. This gap coupled with the fact that HEIs are experiencing a rise in the number of people registering in postgraduate degrees (Lipsett 2009) – mainly due to the critical financial situation – made the particular setting an ideal choice for conducting an original study which can contribute to existing literature.

Within postgraduate education, the specific case study in the interdisciplinary degree of BIS emerged as a natural yet significant option for a number of reasons. Firstly, the novel CTs installed at the university campus were expected to bring changes (opportunities as well as challenges) in the way some courses within the BIS degree were delivered and, consequently, in the students' learning experience. The timely technological changes undertaken in the BIS degree thus presented a unique research opportunity to observe how students engage with each other through CTs in a 'real-life' learning context (rather than in an experimental one, which has been the focus of previous research). Secondly, as a BIS graduate I was familiar with the collaborative nature of the BIS degree and the great emphasis placed on group work and group projects. The choice of a degree whose curriculum emphasises collaboration would better illuminate the value of CTs in a learning context. Thirdly, having recently graduated I was also in the exceptional position to reflect on and understand the tensions and challenges that students studying in hybrid subjects, such as BIS, often face. Despite the broader interest in the field of MIS (Management Information Systems) in academia and industry alike, there seems to be insufficient empirical evidence in current literature with regards to how students engage with CTs in hybrid degrees that bring together more than one disciplines (in this case Computer Science and Management). Conducting a case study within the BIS degree would provide a better understanding not only of the challenges students face when collaborating through the use of CTs but also of those challenges presented due to the diversity of the



individuals with whom they have to collaborate, and whether the latter affect their engagement with CTs. Overall, my academic background alongside the gaps I identified during the preliminary review of the literature and the timely changes I have been acquainted with were all conducive to the selection of the specific setting for my case study.

Having in mind a set of initial research questions on what I wanted to explore in the selected research setting, early stages in the research journey involved selecting the participants, negotiating access in the chosen setting, and addressing any ethical issues that my choice of methods could have raised. The decisions, actions, and considerations behind each of these stages are discussed next.

#### **4.4.3. Binding the case: Selecting the participants**

The previous sections discussed the basis on which the study setting was selected and elucidated why this particular setting is considered suitable for addressing the research questions. Still, the focus of the research is people and how they engage within the selected setting rather than the setting as such. Therefore selecting the target participants – and negotiating their consent to participate – was a key stage in the research process. Sampling within the selected case involved decisions about who to observe, when, and where. These questions were almost impossible to answer in the outset hence a pilot study was set up to shed some light on who should be included in the selected sample and what is relevant to be recorded.

The pilot study took place in the academic year 2007/08. At the beginning I was randomly walking into lectures and workshops (with permission) and strategically choosing a seat at the back corner of the lecture room to get a good angle from which to observe what was going on. Everything seemed relevant at that stage. Undoubtedly, it is impractical to capture absolutely everything that goes on in a setting so the pilot study played a key role in setting some initial boundaries and determining who to observe, on which CSCL activities to focus, and which ideas are more interesting (or important) to pursue. A few intense weeks – and a bulk of unstructured, handwritten observation notes – later I started getting a clearer idea on which combination of people, time, and context would give me a better understanding of the social organisation of the community I was studying while also being practical for me to study them in sufficient depth.

With regards to the choice of target participants, I decided that all students registered in the BIS degree each academic year should be part of the study. This decision was based on the observation that each cohort was acting as an aggregated whole which would disaggregate and re-combine in different ways for the purposes of different modules or according to the requirements of individual assignments. This made it difficult, if not impossible, to follow up certain individuals since their actions were largely depended on other people's behaviours. Furthermore, it was obvious (and later I confirmed this through questionnaires) that each cohort was largely heterogeneous not only culturally but also demographically and academically. Thus, it was unfeasible to select an adequate, representative sample from the students involved in the particular case; therefore all students registered in each cohort were considered as the whole population for the study. This was not impractical due to the number of students registered on the degree every year (approximately 45 students per year).

Due to the educational nature of the research setting, the timeline of my study was bound by the academic calendar in the chosen university. Following the pilot study, the data collection for the main studies was conducted between October 2008 and March 2010. The participants were two consecutive cohorts of postgraduate students registered in MSc in Business Information Systems. This comprised a total of 86 registered students. As previously mentioned the student cohorts were far from homogeneous in terms of age, nationality, academic background, and previous work experience. Each cohort included graduates from degrees in Computer Science, Engineering, Business Administration, Accounting, and Marketing amongst others. Interestingly, there was also a minority of students who had graduated from degrees such as Biology, English Literature, and Political Science. The majority of students across both cohorts (71%) had previous work experience, either part-time or full-time, while a few students were working in parallel to their studies. Their age was ranging from 20 to 45 years. In addition to the participants' diverse academic and professional backgrounds, cultural diversity was also evident in both cohorts. There were students from 23 different countries in Europe, Africa, America, with the vast majority coming from Asia. Due to the numerous variables and the complexity of the setting being studied, the focus was not on differentiating on how individuals from different countries, academic backgrounds, or age groups engage; rather the aim was to identify the different forms of engagement which are prominent across individuals (and groups) within the studied

setting. The focus was on the nature of the observed engagement behaviours and the students' self-reports on how they engage and why.

#### **4.4.4. Binding the case: Deciding on time and context**

Deciding upon when – and for how long – to observe participants is as important as selecting who will participate in the research. After several hours of active observation, I decided to focus mainly on observing students during the lectures and workshops of their core modules throughout the academic year. Nevertheless, I must add that in many occasions I randomly attended other lectures and seminars if they seemed relevant to my line of inquiry, plus I did not disregard any unscheduled encounters in other occasions – the latter being particularly informative. The rationale behind focusing mainly on the core modules was the fact that these modules focused more on collaborative learning practices compared to other courses, and their curriculum incorporated practical, hands-on experience with CTs (such as ColLab, forums, and blogs) in addition to the theoretical aspects of technology use. Thus, these modules seemed more relevant and appropriate in relation to my research questions within the area of CSCL. Moreover, while some of the courses were selective, all students were registered in the core modules hence concentrating on them would give me the chance to observe all students in each cohort equally. Additionally, given that I was planning to conduct a longitudinal study I had to set a practical time-plan which I would be able to systematically follow in the two main case studies following the pilot study. This decision made it easier – in the long term – to extract comparisons between successive cases. Setting boundaries regarding when to observe students also made the time spent in the field more systematic across cases, and the organisation of the data collected in the field more manageable and structured.

Taking account of variations in context is another important dimension along which sampling occurs. Context in this perspective does not refer exclusively on choosing the place or the location where to investigate how students engage with CSCL. A broader view of context is taken to include those (situational or other) conditions that may engender different behaviours, actions, and patterns of engagement. Such contextual factors may include the formality of the learning situation (whether students are attending a lecture or participate in a workshop – the latter being of a more practical, informal nature), the proximity of participants (whether the CSCL tasks require students

to be collocated or communicate over a distance), the nature of CSCL tasks (whether they are part of formal assessment or simply for informal learning purposes), the relationships between students in a group, and so on. On the course of the research, I identified numerous variations in context within the selected setting. Instead of attempting to define them in the outset it occurred to me that in order to get a more holistic view of the students' learning experience I should 'follow' students not only over time but also across the different contexts which deemed relevant to my focus of inquiry. Therefore I observed students in lectures as well as during workshops; and in face-to-face as well as online CSCL tasks (such as videoconferencing and blogging). This approach allowed prominent contextual factors to emerge inductively in the course of the research and provided a rich source of illuminating information about the participants' patterns of engagement across different contexts.

#### **4.4.5. Negotiating access and addressing ethical issues**

Like any other form of human activity, social research (especially that of ethnographic nature) relies on being allowed access to settings and it is surrounded by ethical issues. The process of negotiating access, as well as the choice of methods to be employed in the study, involve making several decisions such as whose permission should be granted, which role should the researcher adopt in the field, what people are told about the research, how participants' privacy will be preserved, and what participation will involve for those who consent to be researched. These decisions give rise to ethical issues (such as disclosure of presence, purpose, and intent) which need to be taken into consideration and addressed in the outset as well as throughout the process of negotiating access in the field.

Prior to commencing data collection I went through the official process of getting permission from above and within the field. The formal approval process involved submitting an ethics approval form, which clearly stated my research aims and objectives, the target participants of the study, the data collection methods I was planning to employ, and finally a declaration stating that I will conduct my research based on ethical values (for a reproduction of the ethics approval form see appendix A). Following my preliminary literature review and having read about ethnography, I was aware that by conducting an ethnographic case study – and employing participant observation and video-ethnography in particular – I would come across sensitive and

private information which I should treat with confidentiality and anonymity (Heath et al. 2010). I therefore declared in writing that I have no intent to disclose any private information without the prior consent of the participants neither I plan to use any information to harm the participants in any way. Formal approval to commence data collection was granted by the department and PhD Director.

I subsequently had to negotiate access within the field. This involved firstly a negotiation with 'gatekeepers' (Hammerlsey & Atkinson 2007) such as the academics whose lectures and workshops I would observe and, thereafter, a negotiation with the participants of the study, that is, the students themselves. The academics involved were very helpful and supportive (most likely due to their personal experience in negotiating access as researchers themselves) thus gaining permission from them was relatively informal and straightforward. After giving them an overview of my research aims and objectives and explained the methods I was planning to employ, they were thankfully open for negotiation. Access at this level was granted on the ground of the formal authorisation given by the department; no further official procedures were required on their behalf as long as I informed the students about the research. It was then down to the students themselves to give their consent to participate in the study.

Taking the ethical considerations stemming from my research into account I decided to employ informed consent forms during the process of negotiating access with the target participants. However, before handing out the consent forms, I wanted to approach students and inform them about my research. At the beginning of each academic year I got permission from one of the lecturers to introduce myself to students and give a brief presentation of my research and what it would involve for them. I wanted to engage students in my research before asking whether they wanted to participate or opt out so as to stand a better chance to get an affirmative reply. Following my presentation I handed out informed consent forms (see appendix B) so that each student could get a comprehensive account of the terms of participation in writing. The form consisted of a number of sections. Firstly, it included information about the research purpose and what the research aims to achieve. Secondly, the form clarified what the study will involve for participants if they decide to participate. Particularly, it stated that, if students consent to participate then they agree to: be available for interviews which will be audio-recorded, participate in CSCL activities which might be video-recorded and/or photographed, and allow the researcher to use the findings for research purposes. Thirdly, to reassure the participants regarding their privacy, the consent form explained

that personal data will be protected and treated in confidentiality, that any information provided will remain anonymous, will not be disclosed without their permission, and that no identifiable personal information will be published or disclosed to third parties. Finally, the form clearly stated that participation is voluntary and that participants are free to withdraw from the research at any time. On the basis of the information provided, students were asked to decide whether they wanted to give full, partial, or no consent. The option of partial consent was deemed necessary to distinguish those students who wanted to participate but did not want the researcher to use any pictures or videos of them in publications unless their faces were not recognisable, while the option of no consent meant that students agree to participate but do not give permission for their pictures or videos to be used for research purposes. Seven students gave partial consent, five no consent, while the remaining students gave their full consent. All informed consent forms were signed by students, dated, and archived for future reference.

Conducting overt participant observation and seeking informed consent from target participants was a natural choice given my decision to use a mixed-methods research approach. Since I was planning to engage participants in my research in other ways beyond participant observation (e.g. in focus groups, CSCL tasks, questionnaires) I wanted to be ethical on all grounds. While we cannot discount the fact that this may drive participants to (consciously or unconsciously) modify their behaviours while under observation, Hammerlsey and Atkinson (2007) suggest that “even when the fact that the research is taking place is made explicit, it is not uncommon for participants quickly to forget this once they come to know the ethnographer as a person. Indeed, ethnographers seek to facilitate this by actively building rapport, in an attempt to minimise reactivity” (p. 210).

Even after access into the field is granted at different levels, both formally and informally, gaining access to authentic social behaviour is a separate battle to be won. Thus, having a permission to commence data collection, I subsequently had to negotiate a constructive role in the setting under investigation – a role that would allow me to actively build rapport with my informants. I initially considered the implications that different roles might have for the nature of the collected data and which role would give me a more privileged access into the field. From a research perspective, being a BIS graduate was both a challenge and a unique opportunity. On one hand, conducting research in a social setting which is largely familiar is not uncomplicated as it requires

considerable effort to be able to see beyond the obvious, challenge any pre-conceived ideas and expectations, and seek to understand alternative viewpoints which often go against personal experiences or beliefs. In relation to this, I was well aware that – although recognised as a valid approach – researchers choosing to study their own social worlds are often heavily criticised. To address this issue I had to ensure my research is based on trustworthy, reliable, valid, and (as much as possible) unbiased data – the latter being particularly difficult given the ethnographic nature of the study.

On the other hand, being a BIS graduate was my ticket for becoming a teaching assistant in the BIS course for the two years of my main study (2008/09 and 2009/10) and undoubtedly gave me an exceptional perspective through which to observe a real-life CSCL setting and access insightful data which could not otherwise be captured. In my role as a teaching assistant in the BIS degree I was responsible, amongst other tasks, for facilitating workshops, running CSCL activities, and assisting students with managing their group projects and group discussions. Owing to my involvement in workshops and lectures alike I was spending a lot of time with my informants in their everyday learning environment and this gave me a unique opportunity to get to know them better at a personal level, observe how they behave and interact with and through technology, and explore how they engage with CSCL tasks. Through my position in the field not only I was able to obtain a close view of the participants (and their naturally occurring behaviours and interactions) but also students became familiar with me and steadily started opening up and sharing their own experiences.

Achieving access at this low level depends profoundly on building inter-personal relationships as well as gaining people's trust (Hammersley & Atkinson 2007). Having this in mind I tried to instigate and maintain an informal relationship with students throughout the academic year. In many respects, my background as a BIS student allowed students to identify with me and, consecutively, this made it easier for them to open up and freely talk about their experiences, insecurities, aspirations, and the challenges they came across. As a recent BIS student I was also able to 'blend in' easily and therefore it was natural for students to initiate discussions based on a mutual ground. Moreover, I made it clear to all students in the outset that I was not involved in their formal assessment or marking, and that my role was rather to facilitate workshops and help them with their group work. All of these factors contributed in developing trust between researcher and informants something which is vital in negotiating and maintaining access into the social setting being studied.

Like all relationships, those between researcher and informants ought to be reciprocal in order to be fruitful. In many occasions, students asked me about my personal experiences as a BIS student and they showed a lot of interest in the challenges I faced and, even more so, in how I dealt with them. Most of the questions were in the form of “What would you do if...?” or “How would you deal with this”? In answering their questions I tried to maintain an advisory, facilitating approach rather than guiding them to one specific direction; at the end of the day they were there to learn and figure things out for themselves. Nevertheless, these discussions helped to build a connection between us and allowed students to see me more like one of them rather than a person of authority. Besides, I was still a student myself so it was easier for them to consider me as equal and feel comfortable in my presence.

Nevertheless, parallel to gaining access and earning the participants’ trust, I was also conscious about my behaviour in the field and the consequences it might have for the people studied. I was aware that my actions and words could potentially influence the participants’ reactions, interactions and discussions. Ethnographers can never be absolutely sure how participants would behave if they were not aware of the ethnographer’s presence. Therefore, I tried to be as neutral as possible and maintain a ‘functional’ distance from group discussions, activities, disagreements or debates. I made an effort not to be too close so as to interfere or influence the natural flow of interactions, neither too far to miss expressed opinions or reactions (verbal and non-verbal) that might indicate important aspects of learner engagement. Maintaining minimal eye contact and managing my physical proximity also played an important role in gaining a good access point and avoiding infringement of naturally occurring interactions (Hammersley & Atkinson 2007).

Negotiating access and addressing ethical issues resulting from certain decisions is undeniably an ongoing, time-consuming, and complex process. Particularly, ethical considerations within ethnographic research include the disclosure of the presence, purpose and intent of the researcher. For example, when I decided to examine the students’ contributions on blogs and conduct ‘online observation’ I had to do so in an overt way to avoid deceiving my informants and risk losing their trust. Further, due to my choice to conduct a collective case study I had to re-negotiate access with each new cohort of students registering in the BIS degree each academic year while also maintaining contact with previous students throughout the data collection and analysis phases. I also had to ensure I was consistent in my role and approach as far as possible



in the course of the study. The strategies I employed during this negotiation and re-negotiation process (i.e. establishing trust and rapport with my informants, engaging them in my research, adopting an advisory, facilitating role) helped to produce a more informative, insightful data set. I observed that my close involvement with students and simply ‘being around’ made it easier for them to open up and share their thoughts, feelings, and opinions. In many occasions students would come to me rather than me going to them with questions; they led our discussions; they chose the topics to talk about. These open-ended, unscheduled encounters allowed me to identify what was more relevant for them, which topics or aspects were more significant from their point of view. It can be argued that these accounts are far more truthful and illuminating than any information gathered in interviews or questionnaires alone. Hoffman (1980, cited in Hammersley & Atkinson 2007) emphasises this ‘authenticity of accounts’ and highlights the relationship between access negotiation, the fieldworker’s perceived identity, and the quality of data gathered in the field.

Ultimately, my decision to conduct an ethnographic study implied a close interaction with my informants in the setting under investigation. On account of my role, I am aware of the researcher bias resulting from my close involvement in the research context and every effort has been made to acknowledge this and neutralise it as much as possible through data triangulation and combination of quantitative and qualitative methods. Nevertheless, the shortcoming of researcher bias is compensated with the intensive and extensive access gained through a privileged position from which I can understand and interpret the findings of this study. In this respect, my own personal experiences and reflections are considered an important and legitimate source of information. Hence, throughout the study I tried to maintain an efficient balance between an objective description of the facts I observed in the field and the subjective analysis and interpretation of the plausible mechanisms that underpin those facts.

#### **4.5. Data collection procedures**

The choice of data collection methods inevitably affects the data analysis and the themes that emerge. Observation will give different insights than interviews or even participant observation; if I am participating in the situation I am more likely to observe different behaviours and actions compared to simply observing from a distance. Further, my choice of method intuitively affects what I look for, what I observe, what I choose

to document. As Lindlof and Taylor (2002, p. 17) argue “What is left in and what is left out, whose point of view is represented, and how the scenes of social life are depicted” are central in ethnographically-oriented research. Therefore it is essential to justify which methods I chose and why.

#### **4.5.1. Participant observation**

Participant observation took place throughout the academic year by attending and participating in lectures and workshops, often observing as a participant in the student groups. In my role as a teaching assistant I had the opportunity to observe students systematically during the lectures and workshops of the two core courses. To get a more holistic picture I also randomly attended and observed student behaviour in other lectures and seminars. The two modules I observed systematically are considered the most intensive courses in the specific Master’s degree. In particular, the core courses involve a one-hour lecture (delivered by the course coordinator or a guest speaker) followed by a 3-hour workshop. The workshops encompass a range of activities such as group discussions, brainstorming, debates, role plays, and hands-on CSCL activities. I particularly focused on two CSCL activities: group blogging and videoconferencing. The learning objective of group blogging was to encourage students to reflect on what they learn and advance their understanding of the course material by sharing their thoughts on a blog. Participating in two-way videoconferencing interactions aimed to increase students’ theoretical understanding of the course content by discussing it with their peers using a case study as an anchor, while at the same time it gave students the opportunity to gain hands-on experience with technology-mediated communication and collaboration. The videoconferences were conducted during the weekly workshops. Videoconferencing tasks and case studies were designed having in mind the course content as well as the practical affordances of the technology. Groups took turns to engage into collaborative tasks through videoconferencing with another distant group. Each group was located in a different room but within the same building for practical reasons. Students reconvened after each videoconference and a discussions session followed where the lecturer as well as other students provided feedback and suggestions to the participating groups. The students behaviour was observed in the different learning spaces (during lectures, workshops, and online).

Although I was involved in the workshops as a teaching assistant I tried to observe students in a non-invasive way as much as possible. Students were also informed of the fact that I was not involved in any form of marking or assessment. My research aims were also made clear to the students (both orally and in writing) right from the beginning of the study and all students were asked to read and sign an informed consent form. The form outlined the research aims/purpose and students were asked to give full, partial, or no consent regarding the use of any material collected (such as pictures or video recordings of discussions and group activities). The continuous interaction with the students within their daily learning environments helped to make students feel comfortable with, and accept, my presence. Also, as an ex BIS student I was often seen as ‘one of them’ rather than a person of authority. This allowed me to join their discussions without much interference. Students were often asking me about my experience on the course and were sharing their views on several course-related issues and experiences even without asking them.

During observations it was not always possible to keep field notes. However, ‘being there’, spending time with the students, participating in their discussions and classroom debates provided an immense amount of information which linked very well with the information collected in the focus groups. In fact, the focus group template I used to guide the discussions (see appendix C) was inspired by what I observed throughout the term and was adapted to the experiences and observed behaviours of the particular group of students. Hence, spending time with the students and participating in the real-life context in which the students themselves experienced learning – and engagement with it – allowed me to observe their interactions at a micro level. Further, engaging in longitudinal observation allowed me to examine historical changes in peer interactions, formation of lecturer-student relationships, and development of group dynamics which latter prove to be amongst the factors affecting learner engagement with CSCL. Participant observation also helped in making sense of what students were referring to during interviews and focus groups as I will explain in subsequent sub-sections.

While observing students, the emphasis was on their behaviours in collaborative situations where students had to work in groups. Group work took different forms including face-to-face, non technology-mediated group discussions, group presentations using online shared applications in real time, and virtual collaborations between distant groups using an advanced videoconferencing system. From an individual student point of view, of particular research interest was to observe how individual students engage,

what do they do, who speaks and who remains silent, who dominates the discussion, what is the intellectual level of students' discussions. From a group point of view, the observation method allowed me to examine how groups engage as a whole entity, and sense the vibes in the group and the group dynamics. Participant observation is a method used by ethnographers to explore real-life experiences and understand unstated desires or socio-cultural practices that surround people's actions that is, their behaviour.

Additionally, participant observation helped me compare and contrast what students said (in the focus groups, interviews and during our informal discussions) with what they actually did hence avoiding the pitfalls that result from relying only on self-reported (focus group or interview) data. It has been argued that whenever there is a discrepancy between what participants do and say they do, what the observer sees participants doing is generally considered a more accurate reflection of reality than the participants' self-reports (Sandelowski 2000). Therefore, observing students in their natural environment and engaging into informal discussions with them was essential for capturing their beliefs, attitudes, and behaviours and discovering the mechanisms that trigger them.

While particularly suited for exploratory research, ethnography draws on a wide range of both qualitative and quantitative approaches, moving from 'learning' to 'testing' while research problems and theories emerge and shift (Agar 1996 cited in Genzuck 2003). Ethnographic methods are a means of identifying significant categories of human experience. They enhance and widen the understanding of people's views, enrich the inquiry process, and generate new analytic insights by engaging in interactive exploration. Through such findings, ethnography may facilitate the decision-makers to derive, for example, policy decisions or instructional innovations (Genzuck 2003). Therefore employing an ethnographically-informed study was a natural choice for addressing my research questions.

#### **4.5.2. Video-ethnography**

Some of the group discussions and virtual collaborations were video-recorded with the permission of the participants. Video-ethnography is a method which entails video-recording informants (Heath et al. 2010) while participating in real-life activities such as communicating through videoconferencing systems and sharing applications online. Due to the sensitive information that may be collected using this method, and the ethical

and practical issues involved (Heath et al. 2010) all students and teaching staff were asked to fill-in an informed consent form which explained the aims of the research and declared the confidentiality of their identities. Although it is impossible to know how students would possibly behave if they were not being observed (or recorded), I believe that the students quickly became familiar with my presence in the classroom due to the continuous informal interactions and encounters we had (both in the classroom and outside) and this made them more approachable and willing to be recorded. I also aimed to make the recording be a part of the workshop and I often allowed students to record their classmates while participating in videoconferencing tasks. This decision had a two-fold advantage. On one hand it allowed me to get access to what the students considered relevant or important to capture on video and on the other hand it made recording less intimidating and intrusive. Since students knew they would be recording each other in turns they were gradually less concerned and less conscious of the ‘cameraman’.

Overall, one of the greatest benefits of using video-ethnography in my study was the fact that it gave me the capacity to capture unique, representative, real-life events which were indicative of the patterns emerging in the field. Re-watching and reviewing the recordings at different points in time during data analysis provided an opportunity for micro-level analysis in order to clarify issues and look deeper into what was happening in the field. In many occasions the videos revealed important behaviours and interactions which I might have missed during observations. The video-recordings also informed the focus group discussions and helped to check my own interpretations against the interpretations of the participants. In many occasions I played back the recorded incidents to students and asked them to describe what they can ‘observe’, explain how they reacted and justify why they reacted in that way. This process helped me to validate whether their actions were perceived by them in a way similar to how it appeared to me in the first place. The next sub-sections provide an overview of the interviews and focus group designs and how they were informed and shaped by the observations and video-recordings.

### **4.5.3. Interviews**

Supplementary material was collected from individual interviews with students as well as lecturers to validate emerging findings and guide further data collection. The

interviews were either planned or unscheduled, naturally occurring conversations with participants. The latter type of interviews proved particularly helpful for testing hypotheses generated during direct observation. Informal discussions were conducted from day one of the research although they were not always systematically recorded. Only fifteen interviews were audio-recorded all of which were scheduled interviews rather than informal ones. The main role that interviews played in the research design was as a confirmatory method for gaining deeper insights, testing initial propositions and assessing my interpretations through member checking (student interviews) and peer debriefing (lecturer interviews). Considering the key actors' viewpoints allowed me to test the validity of my interpretation against the intuition/perception of natives (Saville-Troike 1982). Interviews lasted from a few minutes to three quarters of an hour and were mostly unstructured or semi-structured in nature. Out of the interviews conducted with BIS students in the duration of the main study only fifteen interviews were pre-scheduled and transcribed. Additionally ten interviews were conducted with lecturers from three UK universities.

#### **4.5.4. Examination of blogs**

Another source of data was the students' contributions on their group blogs. Students were assigned into groups by the lecturer and each group of students had to create a blog (using either a free provider or the institutional VLE) and update it regularly throughout the academic term. The students were expected to engage in text-based online interactions using their group blogs. The aim of the group blogging tasks was to encourage students to reflect on what they learn and advance their understanding. Students were expected to post their comments or ideas on their blogs after reflecting on what they heard during the lecture, reading relevant material, and after discussing their views with their peers during the workshops. Students were encouraged to read other groups' blogs and comment on their peers' thoughts and ideas. The lecturer was open in terms of how much, and how often, the students should contribute on their blog. They could draw from their own experiences, incorporate information from the lectures and the literature, and share their ideas and perceptions. Exploring how much and how often individuals and groups participated on the blogs, as well as the quality of their contribution, provided another dimension of their engagement with a CSCL activity. In this CSCL task, students were left on their own devices to learn with others through technology. From a research point of view it was interesting to observe how the same

individuals (and groups) engaged in web-based CSCL tasks compared with classroom-based collaborative learning tasks.

The collection of media and written artefacts the students have posted on their blogs provided valuable insights and rich information about the students' engagement with CSCL. The blogs were shadowed, tracked, and reviewed throughout the term and students were asked to comment on their experiences in using the blogs during the focus groups. Like other written accounts the blog posts can be regarded as 'social facts' in that "they are produced, shared and used in socially organised ways" (Atkinson & Coffey 1997, p. 47). Blogs provide rich data which could easily become the object of an empirical study in itself or used as a complementary method in pursuing triangulation (Patton 2002). Used as a supplementary source, the exploration of students' blogs helped me to confirm or challenge information received from participants or from observation. Such methods may also provide alternative explanations to the phenomenon under study and provide stimulating analytic ideas (Hammerlsey & Atkinson 2007, p. 122).

#### **4.5.5. Focus groups**

In addition to the observations throughout the year, the research draws profoundly from focus group discussions. Nine focus groups were conducted at the end of each academic term (following the two main studies in 2008/09 and 2009/10) totalling eighteen focus groups. One pilot focus group was also conducted but this was not included in the final coding and analysis as the focus had shifted following the pilot study. All eighteen focus groups were conducted face-to-face at different venues on campus. Small rooms were preferred although not always available. In all cases the rooms were booked in advance to ensure they could be used privately. Timing was also an important element to be considered. The focus groups were arranged at the end of each academic term following the last lecture to ensure that students' experiences were still recent and that students had a complete picture of their learning experience as part of this course in order to capture the full picture and the historical elements of the students' learning journey. The first set of focus groups was conducted at the end of autumn term 2008/09 (between 10<sup>th</sup> and 12<sup>th</sup> December 2008) and the second set was conducted at the end of autumn term 2009/10 (between 7<sup>th</sup> and 9<sup>th</sup> December 2009). The focus groups lasted

between 30 minutes and one hour. All focus groups were fully transcribed shortly after they were conducted and they were analysed using NVivo® (QSR 2011).

The integrative, holistic nature of focus group discussions helped to touch upon all the central issues identified during previous analytical steps as well as to generate novel insights into learner engagement with CSCL. The main reason for which I used focus groups was two-fold: to triangulate the data I had collected through observation, video-ethnography, interviews, blogs, and questionnaires, and to capture further group-related perceptions and attitudes in an informal setting. The preference to use focus groups instead of another set of interviews originated from the fact that students were already working in groups as part of their courses and this would allow me to capture further insights into their group dynamics (in addition to other personal information) and how they affect learner engagement. For this reason the focus groups were not randomly formed; students were invited to join with the group (of three to four members) in which they were assigned to by the lecturer at the beginning of the academic term. Therefore the sample was purposive rather than random. An important benefit in using purposive sampling is the fact that it makes it possible to prolong the historical and concealed character of each group, something which is not feasible in experimental or other cases where groups have no history or common experiences to share. Focus groups prompt reactions and insights that would not be easily captured through individual interviews or randomly formed focus groups hence providing a wider perspective from which to explore the central issues that affect engagement in collaborative activities (Litosseliti 2003; Krueger & Casey 2000; Holbrook & Jackson 1996).

Each and every group was invited to participate separately in a focus group. All focus groups were originally negotiated, scheduled, and agreed with students face-to-face. Since students were familiar and comfortable with the researcher they were willing to participate in the research. Some of them were also inherently interested in CSCL and therefore were keen to be part of the research. Scheduling was done via email and the final schedule with the agreed time and venue was sent to all participants along with a document outlining the key aims of the research and the purpose of the focus group. A hard copy of this document was also provided to participants. In all cases the aims of the study were re-stated clearly at the beginning of each focus group and the voluntary participation in the study was emphasised (although all students had already signed an informed consent form at the beginning of the study giving their consent to be



interviewed). All groups accepted the invitation to participate in focus groups although some individual students did not attend the focus group in the end.

Before commencing the discussion I requested permission to audio-record the discussion and all participants approved this and gave their consent. Participants were also reminded that they were not obliged to answer a question if they did not wish to do so. No one declined to answer any of the questions posed. Audio-recording allowed me to focus on the students' interactions and discussions rather than intensively taking notes. I did however scribble down questions which emerged from what the students were saying or keywords to help me remember emerging themes. Noting these down also helped me shift the structure of the focus group based on emerging issues. The recorder was placed in a visible position but closer to the researcher rather than the participants to avoid making them feel uncomfortable. I tried to make the participants feel comfortable and relaxed at all times (cookies were also provided) since this is a critical aspect of conducting focus groups. This seemed to work since in some occasions participants lowered the voice when they wanted to reveal sensitive information or express strong opinions about certain situations or other people. This shows that they may have instantly forgotten they were being recorded and felt comfortable to speak about these issues openly. The participants were re-assured that confidentiality and anonymity will be maintained at all times.

In the focus groups I adopted a semi-structured and largely open-ended style of questioning. Fundamentally, the topics raised during the focus groups were inspired by what I had observed throughout the academic term and were adapted to the experiences and discussions of each particular group of students. I provided probes to spark discussions among students regarding their experiences. For this purpose, a focus group template of questions (appendix C) was devised based on the themes which emerged from ongoing data analysis. The semi-structured questions used were mostly open-ended and some were also individually-oriented exploring each student's opinion on a specific issue. Using open-ended questions is typical in qualitative and mixed-methods research and helps to capture those perspectives, ideas, or perceptions which the researcher may not have anticipated. The focus groups probed questions such as 'how did you approach the CSCL tasks (e.g. blogs, ColLab)? What affects your level of contribution in CSCL tasks and how much you participate? What could motivate you to engage and contribute more on CSCL tasks? How did CSCL affect your learning outcomes?' The individually-oriented questions were probing each individual informant

to declare their own opinion about a topic. This was done at various stages to engage everyone to contribute their views in the discussion. These questions were focused on the students' preferences or expectations and were again open-ended (e.g. How do you go about CSCL tasks and why? What expectations did you have from the course? What were the learning outcomes from CSCL tasks?). Such questions attempt to grasp the informants' point of view and they often generate unanticipated responses. Overall, the topics and prompts used in the focus groups were geared towards answering the key research questions; they explored themes such as the participants' perceptions on engaging with CSCL, the factors that affected or determined the nature of their engagement with CSCL tasks, as well as their perceived learning outcomes and gains from CSCL activities. The focus groups provided great opportunities for testing my initial hunches with respect to how students engage and provided deeper and richer insights into how students reason about the way they engage with CSCL tasks.

Adopting a semi-structured approach and using a template helped to ensure consistency among the focus groups without constraining the flow of discussion. The focus group template was used mostly as an instrument to help me introduce the same issues across all groups of students and to guide the discussion to the next topic when the previous topic was exhausted and participants had nothing else to add. Although a template was used no sequential order was sought during the focus group discussions; rather the order of questions was adjusted to the issues brought up by the participants in order to keep the flow of the conversation going. In fact, students quite often brought up issues linked directly to some prescheduled questions in which case I adapted the structure of the discussion to generate more insights. The open-ended and flexible nature of the discussions allowed participants to bring up issues which I had not encountered before and students were permitted to pursue their line of argument. This allowed me to explore the participants' views and experiences in more depth and to encourage other lines of inquiry to be pursued, according to what the participants felt is important.

#### **4.5.6. Student questionnaires**

To learn more about different aspects of learning and engagement supplementary information was collected through a set of questionnaires. Questionnaires were used as an integrated, mixed method of collecting both qualitative and quantitative data. Firstly, a background questionnaire was administered at the beginning of the year asking

students to provide personal, demographic information and information about their academic background and previous work experience (appendix D). The final demographic data were entered in a Microsoft Excel<sup>®</sup> workbook. Some variables were then normalised to facilitate data comparison and to ease statistical and correlation analysis. For example, the 23 textual values of the nationality variable were reduced to numerical values so that 1 represents European and 0 represents International students according to geographic region. Student age was organised under three age groups (20-22, 23-26, >=27). Gender and work experience were defined as binary variables, while academic background was reduced to 1 for computer science, 2 for hybrid or mixed background, 3 for business and marketing degrees, and 4 for other). The majority of students were international students (69.5%), males (61%), in the age of 23-36 years old (43.5%), with work experience (69.5%) and a degree in business (36%) or computer science (48%).

The second questionnaire was on motivation and learning styles (appendix E). This questionnaire was divided into three parts. The first part was an adapted version of the Academic Motivation Scale (Vallerand et al. 1992). The original scale was adapted to reflect MSc students instead of college students. The adapted scale contains all 28 items of the AMS assessed on a 5-point scale ranging from 'does not correspond at all' to 'corresponds exactly'. The scale classifies students according to whether they are intrinsically motivated, extrinsically motivated, or amotivated. The vast majority of students were found to be extrinsically motivated. The second part included a number of questions. In addition to the close-ended questions which are common in questionnaires, I also included some open-ended questions in order to capture the participants' perspectives, ideas, or perceptions on issues for which there is no right or wrong answer (e.g. How do you prefer to learn? What was your goal when joining this Master's degree? What skills did you develop? What are your career aspirations?). Such questions attempt to grasp the informants' point of view and they often generate unanticipated responses which was exactly the reason for including these questions. In particular, students were asked to provide their learning styles, that is, whether they prefer to work and study as individuals or study in groups. The purpose of this was to test my hypothesis whether students with natural inclination towards social learning (social learners) were more engaged with collaborative activities and collaborative technologies than those students who preferred to learn on their own (individual or solo learners). This open-ended question (i.e. asking students to specify their learning

preference with relevance to individualistic or social learning) was also considered in the holistic quantitative analysis. Based on their responses, the students were classified into solo, neutral, and social learners. In the third part, students were asked to complete the online version of the VARK questionnaire (Fleming 2006) and provide their scores.

Finally, the third questionnaire I used attempts to assess the students' approaches to studying (appendix F) and uses a shortened version of the Approaches and Study Skills Inventory for Students (ASSIST). This inventory is designed to allow students to describe in a systematic way how they go about learning and studying (CRLI 1997; Tait et al. 1998). I used the second part of the inventory which classifies the students' approaches into surface apathetic, strategic, and deep. The questionnaire includes the 52 items of the inventory and students were asked to respond to the items on a 5-point scale ranging from 5 ('agree') to 1 ('disagree'). The results from all questionnaires were used in conjunction with additional quantitative data which became available at the end of each academic term (such as the students' assignment marks and the total number of blogs posts and comments each student had contributed on the blog). These metrics proved particularly useful in making sense of key relationships emerging in the data during analysis. For a discussion of the reliability and validity issues pertaining to the use of these instruments see appendix G.

#### **4.6. Validity, reliability, and trustworthiness**

This section outlines key issues that need to be kept in mind when collecting data and when integrating different methods into a mixed-methods study. Validity and reliability refer to the idea of conducting high-quality research. Data-driven (inductive) approaches may be considered to have greater validity than theory-driven (deductive) approaches because they are more flexible and open to discovery of themes and ideas not previously considered resulting in theory that is grounded in the data. By contrast, a theory-driven approach, which is guided by specific a-priory ideas or hypotheses which the researcher wants to assess, tends to be more structured and for this reason may be considered more reliable in the sense that the same results are likely to occur regardless of the researcher. Fortunately, mixed-methods research is not too rigid hence allowing researchers to borrow from both approaches to balance reliability and validity and maximise the quality of the findings (Onwuegbuzie & Johnson 2006).

A well-designed study is also one which includes appropriate validation and replication checks which can compensate for various errors and biases and can verify the trustworthiness of data. Errors in a study might result from reactive effects from participants including the participants' awareness that they are targets of study which may influence their natural behaviour or push them to consciously select a 'proper' behaviour or role in the field. Another source of error is the investigator effect which refers to the influences that the investigator's age, gender, class or appearance may have on the data as well as on the changing researcher skills or motives. Other factors which may affect the quality of the research include sample variety, access to relevant content, and ease of replication or validity checks. Reference to current literature can compensate for some of these errors and "demonstrate converging corroboration of a research finding" (Johnson & Turner 2003, p. 303). These issues will be discussed in more detail in the following chapter of data analysis.

#### **4.7. Concluding remarks**

The purpose of this chapter was to make explicit the assumptions made when choosing to conduct a middle-range mixed-methods research, the paradigmatic views it draws upon, and the diverse types of data that shape the research. In the outset, this chapter elucidated my chosen research methodology and research design and presented the novel approach I developed for addressing my research purpose. Guided by my personal views, beliefs, and orientations I positioned my research within middle-range philosophy. My research approach followed a mixed-methods investigation of learner engagement within CSCL environments. Many scholars increasingly promote the constructive knowledge produced through mixed-methods research approaches (e.g. Creswell 2003; Mingers 2001; Tashakkori & Teddlie 2010) and some argue that mixed methods is a new paradigm (Tashakkori & Teddlie 2003). Like any other methodological decision, the preference to undertake a middle-range paradigm brings with it certain philosophical assumptions which shape, and are shaped by, the purpose of the research. The procedures for conducting research (i.e. the research design) evolve from the orientations underpinning the researcher's philosophical views – there seems to be a reciprocal relationship between the choice of philosophical stance and the conduct of the research with one informing the other. In addition, the theoretical frameworks on which I draw on (described in chapter 3) also informed the study. My personal experiences and beliefs further influenced the research design (conduct of

inquiry) and the writing of the study. Good research requires not only being aware that these sets of assumptions, beliefs, and frameworks shape how the research will be carried out but also making them explicit in the narrative of the study (Creswell 2007). This chapter attempted to do just that.

Drawing on the research purpose and the theoretical framework presented in previous chapters, this chapter presented the foreshadowed problems which, alongside the gaps recognised in the literature, gave rise to the initial research questions. Having the key research questions in mind the chapter goes on to discuss the key issues surrounding the choice of a mixed-methods approach to research, the specific decision to conduct an ethnographic case study, and the selection of the six data collection methods. Any study which requires the researcher to investigate the ways in which people engage, collaborate and learn in technology-enhanced learning environments requires the use of methods that allow deep exploration of how daily practices unfold in real-life settings. Therefore an ethnographic collective case study was employed. During the academic year 2007/08 I started exploring the literature to decide on appropriate methods while at the same I was observing lectures and workshops where students were engaged in project-based group work. The great emphasis placed on ethnography is that, on reflection, it was the daily observations of naturally occurring behaviours and interactions that really gave rise to interesting ideas which guided subsequent data collection. Participant observation and ‘being there’ is what makes this research unique in its approach to studying how postgraduate students engage with CTs.

In addition to participant observation, my research draws from focus group discussions which provided insights into how students reason about their preferences and their degree of engagement in CSCL tasks; how different incentives interact to foster specific behaviours and approaches to studying and learning; and which skills (learning outcomes) students’ believe they have developed through their participation in CSCL tasks. Students were also video-recorded while participating in videoconferencing exercises which provided an opportunity for a micro analysis of their attitudes and behaviours. The students’ written contributions on their group blogs were also tracked and investigated throughout the academic term and some statistical information was extracted for further analysis. Finally, additional information (demographic information, VARK learning preferences, Academic Motivation Scale, etc) was collected by means of questionnaires. This particular combination of methods allowed me to investigate what learners say against what they do which was useful for triangulating the findings

and making better inferences. The purpose and aim of the research directed me to the choice of the particular research approach and the use of mixed methods.

The ability of mixed-methods inquiry to fully describe a phenomenon is an important consideration not only from the researcher's perspective but from the reader's perspective as well. Lincoln and Guba propose that "If you want people to understand better than they otherwise might, provide them information in the form in which they usually experience it" (1985, p. 120). The rich nature of mixed-methods reports which are often accompanied by verbatim quotes, photographic material, statistical data, and true stories from the field should be in harmony with the reader's experience to accordingly provide a more meaningful account of the participants' experiences of the world.

This chapter also described the case study context in which the data were collected (CSCL environment within BIS education at postgraduate level at a British university), the characteristics of the participants (demographic information such as average age, academic and cultural composition of each cohort, gender proportions, etc) and most importantly why this specific environment was the chosen milieu for this research. It also portrayed how respondents were selected and how access was negotiated (with students, the lecturer, the department, the university) as well as the anticipated ethical issues involved in conducting the research. It then provided an overview of the types of data gathered and the nature of these data (qualitative, quantitative). Finally, this chapter briefly discussed the framework for analysing data which involves an iterative process of identifying emerging themes and generating inferences from the data. The following chapter will discuss the analytical steps taken to analyse the collected data and the key findings stemming from the research.

## **Chapter Five – Data Analysis and Major Findings**

### **5.1. Introduction to data analysis**

Data analysis is not an off-the-shelf, prescribed ‘recipe’ (Hammersley & Atkinson 2007); rather it is a custom-built, evolving, and ‘choreographed’ process (Huberman & Miles 1994). Particularly conducting a mixed-methods study is considered a dynamic option for expanding the scope and improving the analytic power of the research (Sandelowski 2000). Like any other aspect of a mixed-methods study (such as determining the research questions and developing the research design), data analysis evolves as the inquiry proceeds; data analysis process concurs with – and further informs – the data collection process. Furthermore, it has been argued that the process of analysing data in mixed-methods research is one of the most challenging steps – if not the most challenging step – of the research process (Onwuegbuzie & Combs 2010) involving both conceptual and practical challenges (Jang et al. 2008). The development of a framework for data analysis is hence imperative for providing a structure as to how to manage and analyse the massive volume of data generated by the study. Such a framework can facilitate the documentation of the data analysis process, the integration of data coming from varied qualitative and quantitative methods, and the evaluation of the rigor and legitimacy of the analytic procedures employed in the study. Fundamentally, it can help to improve the quality of inferences drawn from mixed-methods data that is, the validity, reliability, credibility, conformability, and transferability of the findings that emerge from the data analysis – what Teddlie & Tashakkori (2009) refer to as ‘inference quality’ (p. 27).

An integrated mixed-methods data analytic approach was employed in this research. The purpose of this chapter is to provide detailed illustrations and reflections that delineate the data analytic strategies undertaken in this study and to document the major findings. Towards this end, the chapter begins by presenting the integrative framework used for data analysis in the context of this study. The chapter also discusses some key analytical decisions and considerations. The integrative data analytic approach undertaken in this study included strategies such as: parallel integration of data for member checking and peer debriefing, data transformation for comparison (qualitising and quantising), and cross-case analysis for fine-grained descriptions of student engagement profiles. Hence, the analytical framework presented in this chapter



contributes to the methodological discussion regarding mixed-methods integration of findings derived from a blend of qualitative and quantitative strands of data.

Following the presentation of the analytical framework, the main themes and findings are described and inferences resulting from these are presented. The five major themes are organised under the three research questions. Finally, the chapter elaborates how Distributed Engagement Theory (DET) was developed based on the findings emerging from the research. Throughout the chapter an attempt is made to illuminate how qualitative and quantitative data were analysed together through an integrative analytic strategy. The aim is to improve the quality of inferences and create a bridge between these two approaches. The analysis is enriched by unfolding stories and episodes of engagement using verbatim quotes and making reference to verbal and visual material in an attempt to immerse the reader into the context of the study. It is hoped that the research aims presented in the previous chapters are naturally realised in this chapter, and that the research gaps are adequately attended to.

## **5.2. A framework for mixed-methods data analysis**

The study takes an integrative mixed-methods data analytic strategy to analyse learner engagement in CSCL environments. Consistent with mixed-model (Tashakkori & Teddlie 1998), integrated (Greene & Caracelli 1997), and fully integrated (Teddlie & Tashakkori 2006) research designs the approach to data analysis taken in this study implies that qualitative and quantitative strands interact throughout data collection, analysis, and interpretation with one informing the other. In effect, they are iterative (non-linear), simultaneous (Creswell 2007), and highly intertwined stages (Onwuegbuzie & Teddlie 2003). The previous chapter has discussed the initial stages of the research process including: determining the research questions, designing the research, choosing the research methods, selecting the sample, and collecting data. Data analysis formally begins in the pre-fieldwork phase and feeds into research design while more systematic data analysis commences as soon as an adequate set of data becomes available. This chapter elucidates the analytical strategies and the underlying procedures used in this mixed-methods study which focuses on understanding how learner engagement happens in CSCL environments.

The research is based on an ethnographic collective case study which draws on three consecutive cohorts of postgraduate students. In essence, each cohort of students

represents another wave of data collection and analysis. The multiplicity of the data sources used in the study the majority of which was qualitative, coupled with the longitudinal nature of the research, has generated a ‘voluminous’ (Patton 1980, p. 297) amount of rich data in different formats (words, numbers, photographic and video-recorded material). The aim in analysing the collected data was to gain an understanding of how learners engage, what affects their engagement, and the ways in which it relates to the learning outcomes. The process of analysing this sheer volume of information involved a ‘spiral data analysis’ process (Creswell 2007, p. 151) and employed data reduction techniques (Creswell 2002; Namey et al. 2007; Thomas 2003) aiming at identifying the most frequent, dominant, and significant themes inherent in the raw data related to the phenomenon of learner engagement in CSCL. This approach intended to make sense of the actions (i.e. routine activities or strategies) and perceptions (i.e. situated meanings, motives or decisions) of the informants (Hammersley & Atkinson 2007). The emphasis was placed on understanding social action ‘in context’ that is, what learners do, how, and why within a postgraduate CSCL environment. Of particular interest was whether what I observed students doing (in the classroom, on the web, and during videoconferences) supported or contradicted what they said they were doing, which fuelled subsequent analysis and exploration (Hammersley & Atkinson 2007).

### **5.2.1. Common analytical procedures across all waves**

During each wave, ongoing data collection was driven by intermediate analytical phases and vice versa. Qualitative and quantitative data were collected and analysed in parallel and the outcome of each wave of inquiry served as input to the next, as illustrated in figure 5.1. There were several analytical procedures which were common across all waves including organising data into computer files and archival folders as well as converting data files in other formats appropriate for data analysis. For example, audio-recordings of focus group discussions were transcribed for textual analysis. Following the organisation and preparation of the raw data I re-viewed my field notes, re-watched the videos, and re-read all the transcripts in their entirety while listening to the recordings in an attempt to immerse myself in the details of the discussions and “to get a sense of the interview [or focus group] as a whole before breaking it into parts” (Agar 1980, p. 103). Going over the available data collected in each wave I tried to ‘hear’ what informants said (Creswell 2007, p. 151) disregarding as much as possible predetermined ideas and expectations (Thomas 2003). Writing memos (i.e. short

phrases, ideas, or concepts) at the margin of field notes or inserting comments in the electronic version of the transcripts also helped to keep track of key concepts that occurred to me while reviewing the raw data (Miles & Huberman 1994). Moreover, keeping a research diary helped to report my evolving reflections on the major ideas presented in the data. Further to the analytical steps which were essentially common across the three waves, additional stages were also executed in each wave.

### **5.2.2. Conducting the pilot study**

The analytical procedures followed during the pilot study (1<sup>st</sup> wave, cohort 2007/08) were quite different from those in the other two waves. Firstly, observation and informal interviews were the only sources of data available in addition to a pilot focus group conducted towards the end of the academic year. The aim of the pilot study altogether was ‘to explore’ the social situation with an open mind as much as possible. The collected qualitative data were analysed inductively using colour-coding in order to identify emerging patterns and recurrent or unexpected incidents and behaviours. Coding was done by hand while at the same time I was keeping reflecting notes (Huberman & Miles 1994) in a separate diary. The analysis of the data generated during the pilot study produced unanticipated insights which consequently shifted the research focus from how students learn into how students engage with CSCL.

### **5.2.3. Conducting the main studies**

With a refined focus, I continued my inquiry with the next cohort of students. The analytical phases in the two main studies (2<sup>nd</sup> and 3<sup>rd</sup> waves of inquiry) were homogeneous – as it is often the case in collective case studies. Basically, the analytical procedures followed in the 2<sup>nd</sup> wave were documented and re-implemented with the successive cohort of students. The aim was to refine the research questions and repeat the same procedures for validation and scrutiny of emerging themes. The following discussion focuses on the iterative and interrelated analytic phases followed in each of the two main studies (cohorts 2008/09 and 2009/10) as well as on the subsequent, holistic analytical phase.

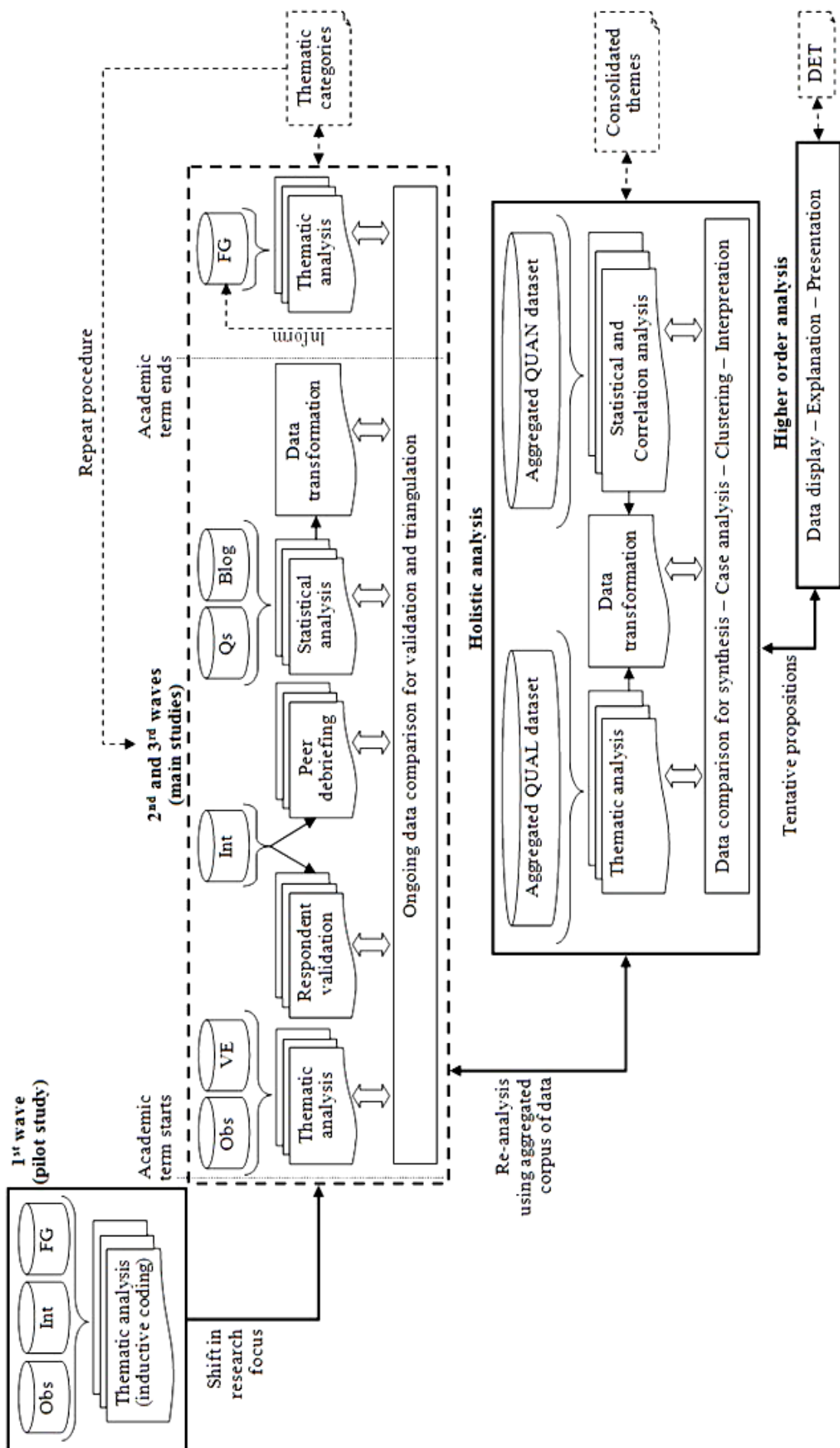


Figure 5.1: Overview of mixed-methods data analytic procedures.

The qualitative (observation, video-ethnography, interviews) and quantitative (questionnaires, blogs) strands of data were initially analysed independently and then interpretively compared. In particular, field notes (taken during observations, while re-watching video-recorded material, or after informal encounters with students) were analysed inductively and coded by hand (either on paper or electronically by creating data reduction tables in Microsoft Word<sup>®</sup>) to identify key patterns of behaviour, attitudes, or opinions expressed by informants while participating in real-life CSCL tasks. Quantitative data gathered from blogs and questionnaires were analysed by means of statistical analysis (using Microsoft Excel<sup>®</sup>) to extract measures such as the percentages regarding students' demographic information, academic motivation, contribution, and approach to studying.

Interviews served both as a data collection technique as well as a validation strategy. Whenever possible, recorded interview data were analysed using thematic analysis. Primarily however, interviews were used for respondent validation (member checking) (Hammersley & Atkinson 2007). Respondent validation involves checking that key themes and findings are consistent and can be confirmed across participants. When a recurrent incident or dominant theme was identified which seemed to indicate a certain aspect of learner engagement I purposefully selected individual students and either asked them a few questions then and there, or invited them to voluntarily participate in a semi-structured interview. Many interviews were conducted but only fifteen of them were transcribed for thematic analysis. The purpose of engaging participants at an early stage was to ensure that my tentative interpretations accurately reflected the participants' perspectives and experiences within the specific CSCL context. Accordingly, the topics covered in these interviews were focused on current issues as they emerged through ongoing inquiry. Due to the concurrent processing of qualitative and quantitative data, respondent validation (member checking) was a constructive strategy for interim confirmation or disconfirmation of emerging findings. It also served for exploring the extent to which participants concurred with my intuitive 'judgements' (Bloor 1978), 'inferences' (Hammersley & Atkinson 2007), 'impressions' (Bloor 1978), or 'accounts' (Lincoln & Guba 1985) of observed phenomena.

Another intervening validation technique used during term time was peer debriefing (Lincoln & Guba 1985). Even though the focal point of the study was on analysing students, approaching lecturers served as an invaluable source of information. In the course of the study I interviewed ten lecturers from three British universities all of

which were teaching postgraduate students, either in BIS degrees or a similar course, and were using collaborative learning or CSCL practices as part of their instruction. The purpose of engaging lecturers in the study was to discuss my ongoing results and interpretations and explore “aspects of the inquiry that might otherwise remain only implicit within the inquirer's mind” (Lincoln & Guba 1985, p. 308). I asked for their critical comments on the preliminary findings and for their views on a number of issues including: how they understand learner engagement; what their experience has taught them in terms of how postgraduate learners engage and what makes them engage or not; and what role they think technology and collaborative learning practices play in engaging postgraduate students. Through this process I was able to uncover perspectives, assumptions, and biases I had taken for granted, and become aware of my own position towards the social situation I was exploring. This was also a unique opportunity to test and defend emergent hypotheses and tentative propositions and see if they appear reasonable and plausible to a number of ‘disinterested’ peers (Lincoln & Guba 1985, p. 308). On the whole, the outcomes from interviewing students as well as lecturers were invaluable for three main reasons: firstly, they allowed me to engage participants in the study and see things from multiple angles and levels rather than just from a single viewpoint (Lincoln & Guba 1985); secondly, they enhanced the descriptive and interpretive validity of the study findings (Maxwell 1992) through triangulation (Hammersley & Atkinson 2007); and thirdly, they provided inductive, grounded insights which informed subsequent inquiry.

Informed by the evolving analysis of qualitative and quantitative strands of data during term time, nine focus groups were also conducted immediately after the end of each academic term (following the 2<sup>nd</sup> and 3<sup>rd</sup> waves of inquiry). The focus groups served as an integrative method employed to re-evaluate key issues, tie emerging themes together, and investigate whether what I observed students doing (in the classroom, on the web, and during live videoconferences) reflected what they said they were doing. The focus group templates (appendix C) were designed based on themes which emerged from data comparison and analysis conducted during term time. All focus group discussions were audio-recorded and fully transcribed, inductively coded for data reduction, and organised under thematic categories. Thematic analysis was executed using NVivo<sup>®</sup> (QSR 2011) and involved reading and re-reading the transcripts and coding text segments accordingly. NVivo<sup>®</sup> was a useful tool not only for coding data but also for managing ongoing analytical steps. As the corpus of data and number of codes

increased using NVivo® as a qualitative analysis tool was ideal for avoiding the daunting task of coding by hand. Initial codes were gradually organised under broader descriptive categories which eventually yielded a number of data-driven (grounded) themes.

Alongside the progressive analysis of observational, interview, focus group, and numerical data I systematically kept reflective notes and summaries of emerging analytical ideas in my research diary together with contextual information (such as date and time, location, names of participants) and linked each entry to relevant archived data. Keeping a research diary was not only a strategy for documenting my state of mind but also an analytical strategy for discovering patterned regularities in the data (Wolcott 1994) and for noting relations among variables and categories (Miles & Huberman 1994). Emergent patterns and relationships resulting from different methods were also compared and contrasted for testing initial themes or hunches. To be able to compare data from different strands, quantitative data were transformed into simple narrative descriptions using an integrative analytic technique called data transformation through 'qualitising' (Tashakkori & Teddlie 1998, 2003). 'Quantising' data was also used as a tactic for drawing conclusions by counting the number of occurrences (frequencies) of codes indicating their significance and prominence (Miles & Huberman 1994; Namey et al. 2007).

The results from this ongoing data comparison were used to refine the research questions and narrow down the research focus on key thematic categories. Comparisons were carried out both between and within quantitative and qualitative data. For example, whereas questionnaires provided evidence about personal factors such as academic motivation and learning styles, observation and blogs provided evidence about the actual behaviour of students. Furthermore, whereas students reported (in focus groups and questionnaires) that they generally prefer to learn in groups, observation and blogs examination showed low engagement for some of those students in collaborative learning tasks. In other words, the learning preferences as expressed in questionnaires and focus groups were not always reflected in actual student behaviour. In addition, although some students' participation in observed videoconferences was low, the same students were active in web-based CSCL tasks such as blogs. Therefore, data comparison prompted deeper analysis for testing divergent or inconsistent findings produced from different methods or across different tasks. In particular, interpretively linking different strands of data informed the design of questionnaires, interview guides,

and focus group templates. It also allowed me to test the initial set of themes and verify tentative interpretations through subsequent data collection and analysis. The thematic analyses and data comparison conducted during the 2<sup>nd</sup> wave of inquiry (2008/09) resulted in 336 codes which were organized under 58 thematic categories. The qualitative data gathered in the 3<sup>rd</sup> wave (2009/10) were coded using the list of codes that emerged in the previous wave while many of them were adapted and a number of new codes were also added to the list. A total of 38 qualitative thematic categories emerged after the 3<sup>rd</sup> wave. These were further refined in the subsequent round of analysis (holistic analysis).

A number of methods employed during the two main studies represent different forms of triangulation. Respondent validation serves as data-source triangulation. It involves checking the inferences drawn from one source (e.g. researcher' observations in the field) by collecting and comparing data relating to the same phenomenon from other sources (e.g. participants self-reports in interviews). In addition, peer debriefing offers the opportunity for researcher triangulation and minimizing researcher bias (Lincoln & Guba 1985). Further, comparing data produced from various data collection techniques is a type of method triangulation (Hammersley & Atkinson 2007). Data comparison provides a basis for checking the validity of interpretations and inferences by examining data relating to the same concept drawing from participant observation, interviews, questionnaires, focus groups and so on. The key point here is that "data must never be taken at face value [...] what is involved in triangulation is a matter not of checking whether data are valid, but, at best, of discovering which inferences from those data seem more likely to be valid" (Hammersley & Atkinson 2007, p. 184).

#### **5.2.4. Holistic analysis**

The data collection phase was completed in 2010 after three consecutive years of inquiry. This was not only due to time restrictions but also due to the observation that towards the end of the final wave, new additions of data (both qualitative and quantitative) generated already captured themes and therefore contributed little or nothing to the understanding of the topic. When the data collection phase was completed a holistic analysis took place which involved thematic analysis of the entire qualitative dataset and statistical and correlation analysis of an aggregated set of



quantitative data. Each dataset was first re-analysed independently based on the refined set of research questions to ensure a homogeneous analysis across waves.

On the qualitative side, analysis consisted of preparing and organising (textual, photographic or other forms of) data for analysis, then reducing the data into themes through a process of coding and condensing the codes, and finally representing the data and making comparisons using figures, charts, and matrices (Creswell 2007; Hammerlsey & Atkinson 2007; Huberman & Miles 1994; Namey et al. 2007; Wolcott 1994). All transcribed focus group data and field notes (from observations and interviews) as well as data from open-ended questions in questionnaires were imported into a new project in NVivo<sup>®</sup>. Raw data were in turn re-coded having in mind the knowledge accumulated during the previous analytical steps (grounded or data-driven coding) as well as based on perspectives found in current literature (structural or theoretical coding) (Hammerlsey & Atkinson 2007). This involved both inductive and deductive coding to identify and consistently analyse themes emerging in the data (Creswell 2002; Miles & Huberman 1994; Thomas 2003).

Essentially, qualitative data analysis involves describing, classifying, and dimensionalising themes ‘in situ’ that is, within the context of the situation (Creswell 2007, p. 151). During this process researchers also provide plausible interpretations in light of their own views, common sense, or ideas instigated by existing theory and research (Hammerlsey & Atkinson 2007). These analytical stages of describing, classifying, and interpreting data play a central role in ethnographic case studies (Wolcott 1994). The choice of appropriate code labels was also central in this process. Whenever possible I chose ‘in vivo codes’ using the participants’ exact wording, while in other cases I selected names that in my view best described the information. The resulting list of codes demonstrates an assortment of surprising or unexpected information; information that I expected to find based on previous analytical steps or views described in the literature (‘a priory codes’) as well as conceptually appealing or unusual aspects (Creswell 2007). The list of codes was compared with the coding scheme created following the 3<sup>rd</sup> wave of inquiry (and with the reflective passages kept in my research diary) and was re-adjusted accordingly. In this round of analysis attention was drawn on redundant or overlapping codes as well as on the lack of coding clarity (Creswell 2002). To check the clarity and internal consistency of codes I compared examples of text segments coded under a specific theme. This resulted in further adjusting the coding scheme by either splitting complex codes into simpler ones

or merging similar codes to create new overarching themes. Every time a new code was created previously coded data were revisited and re-analysed to ensure I had not missed earlier occurrences of important indicators. It was this iterative process that helped me realise the meaning of the prefix ‘re’ in ‘research’.

Emergent codes were then classified into higher-order thematic categories and relationships/links between them were explored (Huberman & Miles 1994; Miles & Huberman 1994). This involved looking for patterns of co-occurrence in behavioural and intellectual norms across individuals in order to identify correlations between the major themes and start building a logical chain of evidence (Huberman & Miles 1994) with the view to develop a provisional model of learner engagement and a set of tentative propositions (Creswell 2002). While looking for code co-occurrences I found that indeed some themes were related. For example when the same text segment was coded both under ‘learning preference’ and ‘assessment’ and these two concepts tended to re-appear together in many text segments, then this showed that these two concepts appear to be conceptually related (code co-occurrence). I also looked for other forms of evidence to support emerging relationships and tried to capture multiple perspectives about each category (Stake 1995). Counting the frequency of occurrence of major themes (Huberman & Miles 1994) and looking at the number of text segments associated with each code (Creswell 2007) also helped to discover reoccurring themes indicating prominent patterns. Transforming qualitative variables into numbers is also a way to judge the robustness and significance of emerging insights (Miles & Huberman 1994. p. 254). A total of 13 themes resulted from the initial stages of the holistic analysis which eventually were consolidated into 5 core themes. The analytical procedure described above resembles the coding process suggested by Creswell (2002) as illustrated in the following figure. This process shed light on prominent aspects that seem to affect student engagement in the context under investigation.

Initial read through text data	Identify specific segments of information	Label the segments of information to create categories	Reduce overlap and redundancy among the categories	Create a model incorporating most important categories
Many pages of text	Many segments of text	30-40 categories	15-20 categories	3-8 categories

Figure 5.2: The coding process (adapted from Creswell 2002).

On the quantitative side, statistical and correlation analyses were conducted in an attempt to find whether what students said in focus groups and interviews (e.g. regarding their preferences, motives, learning outcomes) supported or contradicted their actual online behaviour (on blogs) and their responses in questionnaires. Significant quantitative data collected through questionnaires (e.g. demographic data and learning preferences), blogs (e.g. counts of posts, comments, and replies to comments), as well as some supplementary data (e.g. assignment marks) were used to compile an aggregated dataset which included equivalent information for each student. Incomplete questionnaires or missing data resulted in removing some students from the final dataset (all students were however included in the qualitative analysis). The final aggregated dataset comprised fifteen variables for 69 students. Basic statistical information was extracted to support the description of prominent themes. In turn, this dataset underwent correlation analysis in order to identify potential relationships between different variables (e.g. gender, nationality, academic background, assignment grade, number of blog posts, learning preferences, etc). Although the sample size (n=69) is generally considered small for such analysis, the particular sample represents more than 80% of the whole of the population (i.e. all registered students in both cohorts) and therefore was regarded as suitable for analysis. The correlation analysis did not yield many significant relationships but still helped to identify key variables in the dataset. This was useful for the cross-case analysis.

The results from the parallel analysis of the aggregated qualitative and quantitative data were subsequently compared and contrasted for synthesis through data transformation (qualitising and quantising). To be able to synthesise data from different sources, the results from the correlation and statistical analysis were transformed into narrative descriptions of key variables while qualitative variables were operationalised. The transformed quantitative data were compared with the operationalised qualitative themes as shown in table 5.1. This allowed the themes and variables resulting from the qualitative thematic analysis to be compared and contrasted with findings from quantitative analysis. Figure 5.3 shows a map of themes (and sub-themes) developed at early stages of the holistic analysis and how they relate to each of the three research questions.

Research question	Theme / variable	Qualitative data	Quantitative data
RQ1	1. Actions	Focus groups, interviews, participant observation	Blog examination
	2. Feelings	Focus groups, interviews, participant observation	
	3. Reflections	Focus groups, interviews, open-ended questions in questionnaires	
RQ2	4. Approach to learning		ASSIST
	5. Background		Background questionnaire
	6. Learning preferences	Focus groups, interviews, open-ended questions in questionnaires	VARC
	7. Motivation capacity	Focus groups, interviews	AMS
	8. Group dynamics	Focus groups, interviews, participant observation	
	9. Nature of CSCL task	Focus groups, interviews	
	10. Role of lecturer	Focus groups, interviews	
RQ3	11. Assessment strategy	Focus groups, interviews	
	12. Types of learning outcomes	Focus groups, interviews, open-ended questions in questionnaires	Student marks
	13. Career ambitions	Focus groups, interviews, open-ended questions in questionnaires	

Table 5.1: Comparison of themes and variables through data transformation.

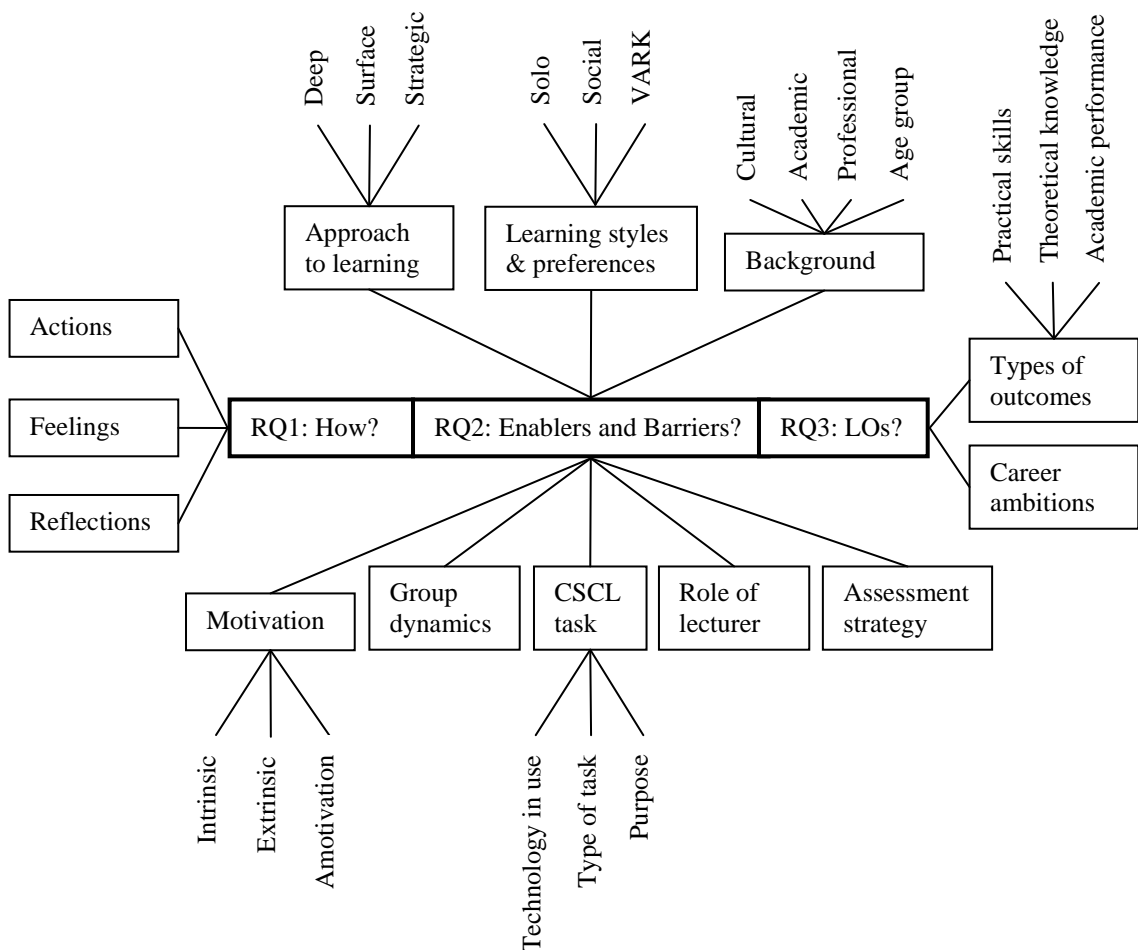


Figure 5.3: Map of themes at early stages of the holistic analysis.

The design of this network of themes was geared towards answering the key research questions and gained consistency through additional iterations between data comparisons and interpretation. The comparison of the findings from the qualitative and quantitative strands of data brought forward not only overlapping but also non-overlapping (divergent) aspects associated with learner engagement. In addition, 4 out of the 13 themes associated with learner engagement (i.e. actions, learning preferences, motivation capacity, and types of learning outcomes) were supported by both qualitative and quantitative data while, as shown in table 5.1, some themes which emerged from thematic analysis of qualitative data were not clearly present in the results from quantitative analysis (and vice versa). For example the qualitative data indicated that social factors (e.g. group dynamics and the role of the lecturer) seem to affect learner engagement, whereas quantitative data were unavailable in reference to this theme. Further, whereas focus groups showed that the majority of learners preferred to learn in groups, blogs examination showed low engagement for those students in collaborative learning tasks. In other words, the learning preferences expressed in focus groups were not always reflected in actual student behaviour on the blogs. In essence, the results from the qualitative thematic analysis provided additional insightful evidence about the nature and underpinning mechanisms of learner engagement. These insights allowed me to obtain an enriched understanding of contextual aspects of learner engagement which could not be adequately captured through questionnaires or by exploring the students' blogs alone. This is precisely a case in which the value of mixed-methods research can be truly realised. The fact that qualitative and quantitative analysis yielded some divergent aspects of learner engagement permitted re-evaluation of the findings in order to gain an in-depth understanding of the causes and nature of these inconsistencies.

To further substantiate the findings and gain a deeper understanding of the phenomenon I used additional integrative analytic strategies including case analysis and clustering (cluster analysis). Using the themes described above, case analysis (Caracelli & Greene 1993) was employed to generate fine-grained descriptions of profiles of students and provide context-rich accounts of participants' perspectives and engagement patterns. The results from the integrative data analyses indicated different strategies in approaching CSCL activities. Although all students participated in CSCL activities as part of their degree, they did so in varying degrees and using differing strategies. Therefore I wanted to closely examine how the key themes were embodied or reflected at the individual level. In pursuing this endeavour I first created student cases in a

Microsoft Excel<sup>®</sup> workbook combining qualitative and quantitative data. I then used clustering (Miles & Huberman 1994) or cross-case synthesis (Yin 2003) to create classes encompassing the most dominant patterns of engagement.

These techniques entail identifying similarities and differences among cases and developing typologies. In particular using cross-case comparison the cases were examined across participant characteristics (e.g. grades, learning preference, level of contribution) to identify commonalities as well as discrepancies between cases. Clustering helped to indentify homogeneous groups in which subjects may be placed together because they are more similar to each other than to subjects in other groups. This process was enriched by going back to the qualitative data coded under the key themes and also looking at the variation of key variables between students. The use of radar charts also facilitated the clustering process and helped me identify patterns of variation in behavioural, intellectual, and emotional norms across individuals. The combination of different analytical methods, eventually allowed me to classify these norms/patterns into an ‘articulate set’ of types of strategies (Lofland 1970, p. 42-43). This led to the identification of four archetypes of engagement in CSCL activities comprising the WISE taxonomy. The taxonomy describes withdrawn, impulsive, strategic, and enthusiastic types of engagement. In essence, I created a typology which shows how students engage with, or respond to, routine CSCL activities in different ways and how these differences can be clustered in ways that distinguish different engagement approaches from each other. Generally, typologies provide a more or less exhaustive set of sub-types (e.g. alternative strategies) of some general category (such as various strategies which a group of actors adopt in order to deal with a problem or situation they face routinely) or a number of phases through which participants go. Whether their focus is on identifying alternative strategies or phases in a routine process, typologies hold out the prospect of extrapolating or applying findings to other situations (Hammersley & Atkinson 2007).

Subsequently, an attempt was made to verify the internal validity of each archetype by exploring the extent to which the elements that characterise each student classified under each archetype are consistent and interrelated. This involved looking for relationships among categories. In essence, whenever I identified a set of characteristics or features which were most likely to re-appear together in other student cases I revisited the qualitative and quantitative data to provide a contextually rich narrative of each set of characteristics or ‘profile’. I was particularly interested in why particular

strategies are adopted by particular students under certain circumstances and which learners are likely to adopt each profile. Extreme cases were also identified. I subsequently chose a name for each archetype that in my view best captures these set of features. The findings were also evaluated against existing literature to strengthen their external validity, generalisability, and reliability.

During this holistic analytical phase qualitative and quantitative strands of data were interpretively linked, compared, and synthesised. The emergent categories and the relationships amongst them led to the creation of five consolidated themes (core themes) which formed the basis for formulating a holistic conceptual model of learner engagement in CSCL environments. The five consolidated themes include: multidimensional engagement encompassing behavioural, reflective, and affective dimensions of engagement; engagement profiles comprising the WISE taxonomy which characterises students as withdrawn, impulsive, strategic or enthusiastic; distributed engagement across personal, group-level, pedagogical and technological aspects; purposeful interaction; and finally, engagement-oriented learning outcomes. Table 5.2 provides brief descriptions of the core themes before presenting them in more detail in subsequent sections. The descriptions of these themes were enriched by the contextually rich accounts drawn from the qualitative dataset.

The process of sculpturing this set of five consolidated themes involved drawing inferences, seeking plausible explanations of patterned regularities, and testing the quality of interpretations. Interpretation and data analysis are separate yet highly interlinked activities. Interpretation involves stepping back from the data, making sense of what is going on in the situation under investigation, and extracting the ‘lessons learned’ (Lincoln & Guba 1985) from the inquiry. In mixed-methods, as well as in interpretive studies, several forms of interpretations surface as the inquiry proceeds. These include interpretations based on hunches, theoretical or empirical insights, and intuition (Creswell 2007). In essence, mixed-methods data analysis is driven by the key research questions which are inductively derived through multiple readings, comparisons, and interpretations of empirical data and deductively shaped by insightful ideas found in current literature. Thus, the research findings are both empirically-driven and theoretically-informed. Clearly, interpretations and inferences drawn from the data become stronger as the analysis progresses through several iterations. Hammersley & Atkinson (2007) suggest that “in moving between data and concepts we must take great care to note plausible alternative links to those made in the emerging analysis, and these

need to be investigated [...] such alternative interpretations have serious implications for the character and validity of the analysis produced” (pp. 174-175).

Theme	Description
Multidimensional engagement	This theme suggests that engagement has a number of facets. When talking about their engagement with CSCL activities students expressed what they do when learning collaboratively through technology, how they feel when they are participating in or contributing to an activity, and how they reflect on their involvement with CSCL tasks and their roles and responsibilities in these tasks. Students’ behavioural, emotional, and cognitive states collectively determine how students are likely to engage.
Engagement profiles	This consists of four learner archetypes which portray the most universal patterns or types of engagement found in the studied context. Embedded in this theme is the role that the level of contribution, learning preferences, approaches to studying, academic motivation, and expressed feelings play in relation to observed learner engagement. The resulting taxonomy of profiles describes the extent of learner engagement based on the above set of features, according to which each archetype is characterised by withdrawal, impulsiveness, strategy, or enthusiasm.
Distributed engagement	This theme indicates that there are various factors (enablers and barriers) that shape learner engagement rather than just personal factors. Engagement is considered to be distributed across personal, group-level, pedagogical, and technological factors. This distribution allows potential engagement to be positively and/or negatively affected by others (peers, lecturers, groups) in the same social context. Thus, engagement is not a trait-like characteristic confined to the individual learner; rather it appears to be a socially distributed phenomenon.
Purposeful interaction	This concerns the role that a clear, recognisable purpose plays in CSCL activities in order to be fully attained to by students. Interaction is defined as the process and inherent activities in which students are expected to engage with as part of their CSCL. Purpose is defined as a learner-oriented reason for, or incentive towards, engagement. Purposeful interaction and collaboration are essential for engaging learners in CSCL activities. This theme encompasses ideas such as constructive alignment between tasks and assessment, peer-encouragement and lecturer-monitored CSCL tasks.
Engagement-oriented learning outcomes	This theme refers to the role that learner engagement may have on the learning outcomes and how the envisaged learning outcomes may impact actual engagement. Learning outcomes are defined as the set of theoretical knowledge, practical (social or technical) skills, and academic performance which students themselves perceive they have gained or believe they can potentially attain through their engagement with CSCL tasks. This theme emphasises the learners’ awareness and sensitivity to their personal, intrinsic ambitions and goals as well as the impact of external influences.

Table 5.2: Descriptions of major themes.

### 5.2.5. Higher order analysis

The holistic analysis stages described above were enhanced with another set of analytical strategies including data display techniques, explanation, and presentation of



findings, as part of a higher order data analysis. In effect, having developed a set of concepts and propositions from analysing the data, the next step was to present these concepts and propositions in a comprehensible model. This model would represent the generalisation/abstraction of the findings from the study. Data display or data visualisation techniques are often used to represent the data in a comprehensive and appealing way. Data display techniques including creating hierarchies (hierarchical tree diagrams), taxonomies/typologies, charts, and code co-occurrence matrices were employed to better envisage and elaborate the findings. These strategies inherently helped the findings to materialise and mature. They particularly facilitated the creation of the hierarchical model of enablers and barriers and the WISE taxonomy.

In the final stages of data analysis I also developed descriptions ('naturalistic generalisations') (Creswell 2007, p. 163) about the phenomenon with reference to the consolidated themes. Writing reflects in itself a certain interpretation of the phenomenon which the researcher has chosen out of a set of alternative interpretations. What the researcher chooses to include or exclude from the writing of the study represents an analytical decision in its own right. The interpretive phase proceeded even during the reporting of the findings. In essence, the ensuing findings contributed to the development of DET which aims to provide a comprehensive explanation of how postgraduate students engage with CSCL activities.

Figure 5.1 presented earlier presents an overview of the mixed-methods data analytic procedures employed in the study and illustrates how the analytical phases were interrelated. These procedures were not conducted in a linear, hierarchical manner; rather they were iterative and interrelated. The integrative mixed-methods data analytic framework used in this study permitted the examination of the interrelationships among key themes and variables associated with learner engagement and deepened my understanding of the dynamic interplay amongst them. The use of a single method alone would have been insufficient to systematically examine such dynamics and effectively capture major issues pertaining to learner engagement in CSCL environments. The next section contains a description and discussion of the findings and the five core thematic categories. These are organised according to their relevance to each of the three key research questions. This is followed by an explanation of how these categories were moulded into a comprehensive model, the Distributed Engagement Theory.

### **5.3. Key perspectives and findings on learner engagement**

In the social context under investigation the informants were postgraduate students learning through real-life CSCL practices. As part of their learning students were assigned into groups by their lecturer and were given collaborative tasks to work on. The focus of this research was particularly on two CSCL tasks: group blogging and videoconferencing. These tasks were performed in a natural setting and encompassed CSCL practices 'in action'; therefore they were considered fit for the research purpose. The learning objective of the group blogging tasks (figure 5.4) was to encourage students to reflect on what they learn (during the lecture, the workshops, and through their reading) and advance their understanding of the new theoretical knowledge they acquire during their learning. Students were expected to post their comments or ideas on their blogs after reflecting on what they heard during the lecture and on the discussions they had with their peers during the workshops or based on reading relevant material. Students were encouraged to read other groups' blogs and comment on their peers' views and ideas but the quantity and frequency of blogging was not strictly prescribed by the lecturer. The learning objectives of the videoconferencing tasks were to give students opportunities to enhance their understanding of the course material by discussing it with peers while also gain hands-on experience with technology-mediated collaboration. ColLab was used to accomplish this dual learning aim (figure 5.5). The students' behaviour was observed in the different learning spaces (during lectures, workshops, and online) while their perspectives and self-reports were collected in focus groups, questionnaires, and individual student interviews. Several collaborative incidents such as group discussions and videoconferences were captured on video for micro analysis of engagement patterns.

The intention in analysing and interpreting the raw data was to develop concepts and propositions which would respond to the research purpose that is, to explore, understand and subsequently explain the prominent patterns of learner engagement in CSCL activities and its underpinning mechanisms, and present these in the form of a holistic analytical framework of learner engagement. As the inquiry process progressed, the close interactions with informants helped to make the data analysis more focused. Having started with an open-ended inductive perspective, themes emerging from the data helped me refine the research questions and concentrate on those issues that were more relevant to them.

## Just blog it!

TUESDAY, 2 DECEMBER 2008

### Session 9

Taking all factors into consideration about the newly installed computer system there are some topics that should be discussed. The system should be evaluated from both parties in order to be effective. As we have different stakeholders in each company, evaluation could be crucial. We can present some key points from the perspective of each company that can be discussed in the evaluation.

Monday, 24 November 2008

### Session 8 - Participatory Approach of Design



Participatory Design is an approach to the assessment, design and development of technological or organizational systems concentrating maximum attention on the active involvement of potential or current users of the product.

### Communic84bis's Blog

#### Customer Relationship Management (CRM)

Customer relationship management (CRM) focuses on improving customer service and customer satisfaction in order to retain customers for the foreseeable future. CRM software

Blog Archive

- 2009 (21)
- December (1)
- E-Marketing
- November (5)
- October (15)

Contributors

### CRM & Budgeting



### Evolution of Communication



One of the most important aspects of life or process which has evolved throughout the history of mankind is communication or the art of communication. From using sign languages and smoke signals thousands of years ago to the usage of Internet and mobile phone in modern day communication has always played an important part in the life of humans.

## Communication : Stories vs Theories

(Blogs for Group 6, Workshop on "People And Technology")

VIDEO BAR




### Blog Archive

- 2009 (18)
- November (4)
- This is the table of the website's budget from th...
- how IT can improve the supply chain and procuremen...
- How IT can improve the supply chain and procuremen...
- I am uploading the flow process chart for the ol...
- October (14)

### Session 9 Workshop

PART A



MONDAY, 23 NOVEMBER 2009



ICT's (Extranets, Web2.0, etc) & ICS's (GDS, CMS, EDS, CMC, ERP etc.)

## TECHNOLOGY

THIS BLOG IS GOING TO BE UPDATED EVERY WEEK WITH OUR WORKSHOP ASSIGNMENTS OF OUR COURSE.

Followers

Join this site with Google Friend Connect

Members (6)



Posted by NetOrg at 15:20 4 comments

MONDAY, 12 OCTOBER 2009

ABOUT ME

PEOPLE AND TECHNOLOGY GROUP FIVE

TUESDAY, 18 NOVEMBER 2008

### Session 7 Workshop - Part A, Theoretical Analysis of SSM

BLOG ARCHIVE

- 2009 (8)
- November (3)
- Throughout the recent years, the information in...

Figure 5.4: A collage showing snapshots from various group blogs.



Figure 5.5: Students collaborating using ColLab in two remote sites.

The following sub-sections explain the core categories and descriptions I developed out of the themes which emerged from the in-depth analysis of the collected data. The descriptions of these categories attempt to provide a solid rationale for the ensuing research findings. In the following discussion the descriptions are enriched with verbatim quotes from interviews and focus groups. The reason for using quotes is two-fold: firstly, to allow the reader to gain affluent, truthful insights into the field and secondly, to account for the researcher's reflexivity and interpretation of these insights – the latter pertaining more to the methodological implications of ethnographic studies.

The interpretations and inferences that follow represent a blend of the researcher's own interpretations with self-reported thoughts from participants thus providing what is hopefully a truthful account of the observed learner engagement patterns within the studied CSCL context. Some small-scale preliminary findings were published in conference proceedings and peer-reviewed journals either as single-authored or co-authored papers in an attempt to invite constructive criticisms and feedback on my overall approach. The intriguing questions from conference participants and the

reviewers' critical comments on the papers were invaluable in fine-tuning my approach and deepening my interpretations. A list of publications is provided in appendix H.

### **5.3.1. Understanding how learners engage in CSCL activities**

#### **5.3.1.1. Learner engagement as a multi-dimensional concept**

In order to address the first research question and understand how (i.e. the ways in which) students engage, I explored students in action focusing on how they approached various CSCL tasks, and later asked them to talk about their experiences, how they think they engaged (if at all), and what influenced their engagement, or the lack of it, in each case. A number of ideas emerged from analysing the collected data which can contribute to our understanding of how postgraduate students engage in CSCL activities. In observing students during group discussions and videoconferences a salient observation was the fact that some students were contributing more to the discussions than others or participating more confidently and actively compared to their peers. This behavioural side of engagement that is, 'what students do' emerged prominently during preliminary analysis. I took a note of the dominating and shy students and tried to keep track of their actions and interactions in subsequent CSCL events. While doing so I also asked myself: 'Does this observation imply that engagement is effectively a behavioural construct? Is it what students do that determines whether they are engaged or not?'

Having these tentative ideas in mind I started interacting closer with students to get to know them better as individuals and get a deeper understanding of their actions. Noticeably, the behaviour of many students appeared to be inconsistent across time and tasks. Some students appeared to be anxious or detached during the videoconferencing tasks although they would overall appear to be sociable and confident individuals in other CSCL occasions. Contrarily, in the course of the study, some shy students started to slowly gain some confidence and increasingly contributed more to group discussions due to prompts from their peers and after becoming familiar with the nature of the videoconferencing tasks. There were of course a few cases where students appeared to be systematically passive (withdrawn) or exceptionally active (enthusiastic) in such discussions. Based on these insights I intuitively started classifying student contribution into systematically active, transformative or moderate, or systematically passive based on their observed behaviours during the real-life videoconferencing sessions.

In the meantime, I was also examining the students' contributions on their web-based group blogs. Some groups approached the group blogs with enthusiasm and contributed more than their lecturer expected them to do. They added new content regularly and embraced innovative ideas such as posting relevant videos, photos or creating side-bars with quizzes on their blogs. For them, blogging was clearly more than just a task; it was an invaluable learning experience. Other groups were less eager to spend time and effort on developing or updating their blogs. Their blogs featured a basic design with short weekly posts and individual contribution was minimal. To operationalise each individual student's contribution on the blog I added the number of posts uploaded by each student to the number of comments made on their peer's posts and the replies to comments, and kept these numbers in a logbook. By the end of the academic term I had an initial classification of students based on their overall contribution on blogs and categorised student contribution as active, moderate, or passive accordingly.

When I compared each student's overall behaviour during the videoconferencing tasks with their contribution on the blog I found more inconsistencies than regularities. The classification of many students based on their contribution on the blogs did not always match their observed collaborative behaviour in the videoconferencing tasks. Neither did students engage systematically with each type of CSCL task. The same student would approach different types of tasks differently and even the same task was approached differently over time. Although, discrepancies between tasks were expected since students may prefer one type of learning task over another based on their learning preferences and learning styles I would expect to see some regularity with respect to the same task. This was not however the case. Furthermore, reading through the students' blog posts on a daily basis it was clear that the number of contribution did not always reflect the level of involvement with the course content. Some posts were too superficial and did not comply with the level of academic writing expected at postgraduate level of education. Analysing the quality of posts was however not part of subsequent analysis as it was infeasible to evaluate all posted content. Trying to identify patterns in the students' overall behaviour with CSCL tasks based solely on observed behaviour was therefore inconclusive. To get a grasp of what all these actions, interactions, and transformations meant in terms of how students actually engage with CSCL I had to turn to students themselves.

I purposefully selected some students based on their observed behaviour (online and during the workshops) and invited them to interviews or asked them questions on the

spot. In selecting which students to approach I aimed to cover different combinations of observed behaviours including students who were systematically active across tasks, active on one task but passive on the other, or generally withdrawn. I asked students what they thought about the CSCL tasks, how they approached each task in the first place, and why. The same issues were revisited later in the focus groups. The ways students reasoned about their engagement were compared and contrasted with the observed patterns of student engagement to strengthen the interpretation and description of the phenomenon of learner engagement. While expressing their views on the ways they engage students talked about their actions and behaviours. To describe their engagement they used active verbs and phrases such as: discussing with peers and listening to others, learning from others, managing the group, and negotiating ideas through a process of sharing, confirming, and rejecting alternative suggestions. They also explained that getting involved in a CSCL task entails activities such as reading, writing, and finding additional resources. The following excerpts are extracted from several focus groups and provide some illustrative examples of the behavioural side of learner engagement:

*“When we started discussing about particular things mentioned in the book there were different perspectives about the same line written on the same page. So for one person that line means something else and for someone else is a totally different thing. So we saw the differences between group studies and individual studies. So from that point onwards we started doing group studies and it was a totally different thing. [...] The things we did in the workshop and the things we learned was not possible to study from the books. It was a really nice experience.”*

*“We do end up grasping the theories more when we work as a group in the workshop because we hear some things, we grasp some parts from the theories, and then we end up discussing the different parts of it, so you finally understand the whole theory.”*

*“If you have a project [...] I need to discuss it with some people. They will confirm my ideas or they will just reject them or they will give me some other ideas.”*

Some of the discussions and negotiations among group members were not visible or observable in the classroom or in web-based discussions. Nevertheless, they emerged as an inherent part of the student’s overall engagement. This indicates that engagement with CSCL tasks is not time-bound but continuous. Students do not act on the task only

during the actual video-conference; rather their involvement begins much earlier through the preparation, discussions, and negotiations between the group members. The focus group dialogue below illustrates how the discussions and negotiations of meanings amongst group members form an inherent part of their engagement with the group tasks:

*Student A: I noticed many things when we had the paper describing what we have to do in the workshop. There was a question, I read it and also the other members read it, but I really understood different things from the other people.*

*Interviewer: And what happened next?*

*Student A: From discussion we figured out what is happening.*

*Student B: We were nowhere close to thinking on the same lines, so we had to come back and [...] that's very important even when you go out to work, at least knowing that the same thing would mean totally different to someone else and we prepare about that. It's really important to have the knowledge of that.*

There were also additional activities performed by the students as part of their engagement with the CSCL tasks which were also not initially apparent. For example, the fact that students took the initiative to self-organise themselves before the videoconferences, agree on a common purpose, assign interim group roles, or carry out some background reading before constructing the text they would post on their blogs were all actions indicating their engagement with the CSCL tasks. In some occasions students appeared to be disengaged or withdrawn at first but actually thrived in such 'back-end' group activities. Although these students did not appear to be active on the blog discussions or during videoconferences, they actively engaged in supportive activities such as coordinating and organising the group, delegating tasks, setting up and designing the blog, and finding resources on the Internet. Contrarily, there were some students whose contributions were more evident but approached the CSCL tasks naively and their involvement with relevant material was superficial. Therefore, in engaging with a CSCL task, many students seemed to be aware that they have to act on it, do something about it – as individuals and as groups – yet, they did so in varying degrees based on various factors (which will be discussed later). This dynamic 'behavioural' dimension of engagement was evident from the early stages of inquiry and was reconfirmed through the students' self-reports.



In addition to their actions, students also talked about their reflections and thought processes in relation to their engagement with CSCL tasks both during the workshops and outside the classroom. They described engagement as a process which involves becoming acquainted with theoretical knowledge, developing critical thinking, getting involved with applying theoretical and technical knowledge into practice, appreciating the benefits of group work, realising the value of working in CSCL tasks, and making decisions on how to approach a particular task. The students' expressed views indicate that thinking, reflection, and decision-making processes are all inherent parts of their engagement with CSCL tasks.

*“A very practical example is about the assignments we did. [...] There were different views regarding what we should do for the assignment. When I was reading the questions I just thought we need to develop a whole system [...] but when I started discussing it with my friends they told me that even if you take one small problem and then focus on its internal details then that problem also contains a lot of things so then I started thinking in a different way and it was a totally different thing. I prepared one report of eight pages and then I had to discard all the report and then prepare a new report just because of these discussions.”*

In essence, the way students perceived or thought about their engagement appeared to be strongly interrelated to how they actually approached these tasks. This implies that it is not simply what students appear to be doing but also what they make of their actions (that is, how they become conscious or reflect on their actions) that counts in terms of their engagement. Therefore, when a student appears withdrawn and does not contribute regularly on a blog or does not collaborate in group discussions this does not necessarily mean that the student is wholly disengaged from the task and vice versa, when a student appears to speak a lot this does not demonstrate a deeply engaged student if the contributions are naive, inconclusive, or irrelevant to the aim of the task. These insights present another, arguably higher-order dimension of engagement with CSCL tasks: the ‘intellectual’ (cognitive and meta-cognitive) dimension. The following excerpts illustrate how students engaged intellectually in CSCL tasks and how, in turn, their engagement with these tasks enhanced their development and learning:

*“If you see the first blog it is literally like re-incorporating whatever everyone has said but by the last blog you say “oh wow I’ve used critical thinking! (laughs)”*

*“Didn’t you realise that the workshops were just another way of approaching the same problem? [...] Without the workshops the kind of ideas that we have produced in our assignment it would have been totally different and it would involve only what we could have read in books. It wouldn’t be as practical as it is now. [...] Everyone had really nice ideas but I think without the workshops the ideas would have not been that attractive.”*

*“The workshops are more involving and demanding and they make our brain to think.”*

A number of students described their engagement on the blogs as an academically-oriented activity involving both the ways of thinking about how they approach the learning tasks (cognitive processes) and also of reflecting on how their approach can aid their understanding (meta-cognitive processes). This intellectual side of engagement has a lot in common with the approaches to studying and learning proposed by Marton (1975) and Biggs (1987) in the sense that it describes the students’ intention towards the learning task. Whether a student’s intention is to learn, understand, and seek meaning (deep approach), or simply complete the task and memorise information (surface approach), their intention determines the extent of their engagement with the subject and in turn affects the quality of the learning outcomes (Fry et al. 2003). These intellectual processes were either explicitly or implicitly reflected in students’ self-reports and were further explored through the questionnaire on approaches to learning (CRLI 1997; Tait et al. 1998). The following dialogue illustrates a deep approach to learning and the student’s intention to understand the theories (i.e. get ‘the point’ in what the student reads):

*Student A: I think the writing style in the papers and articles and special journals it’s really [...] difficult to understand. But writing on the blog makes it simple. So sometimes when I am reading an article I say “Oh maybe that’s the point” but it will become clear when I write it on the blog, after I write it on the blog.*

*Student B: It’s daily language.*

*Student A: Yeah in daily language you can understand. Also I think it is like a shortcut to jump in the understanding of theories.*

The above extract shows how engagement with CSCL tasks may complement the students' attempt to understand and make sense of what they read in papers which helps them gain meaning from their studying. In effect, the use of CSCL tasks has the potential to guide the students' intention towards higher levels of understanding and cognitive processing. Nevertheless, in cases where students do not have an intention to learn in the first place they may fail to engage with the subject matter and the CSCL tasks alike. In these occasions it seems that the presence or absence of CSCL tasks plays little or no particular role in the students' learning. The following extract serves as an illustration of disengagement. It also indicates that students are often conscious of how they (dis)engage:

*"You actually have to put research in and most of the time I am like 'I'll keep that for later' and I never do it."*

Other students perceived engagement in group work as an opportunity to change and develop themselves. Change in this case is highly related to learning – both individual and collaborative learning (Dillenbourg 1999). The students' experiences with CSCL tasks drove them to transform, adapt, and shift their behaviour as well as their preconceptions about themselves and others (all of which are considered higher-order cognitive activities) in an attempt to adjust to the environment, as the following students explain:

*"It's more interesting to listen to different opinions, different thinking, from different countries, different parts of the world, different ways of education [...] It's really interesting and demanding for me to change something in my character and my behaviour, in my knowledge, as a result. That's from the point of view of advantage of being in a group."*

*"I am not very sociable. But the advantage is learning from other people, picking their brains for their opinions and it kind of helps to develop yourself in some way. [...] I like group work because different people have different perspectives, different opinions and you have yours as well so you put yours on the table, they put theirs on the table and you kind of learn from other people so it's kind of cool!"*

What is unique about this particular pattern of change and development is that it captures the relationship between engagement and learning, a relationship which is

commonly discussed in the literature (Biggs 1987; Dillenbourg 1999; Fry et al. 2003). In essence, this pattern points to the mediating role that engagement plays in the learning process. When students approach a CSCL with the intention to learn something new or evaluate different approaches, this triggers higher-order mental mechanisms which essentially result in changes in their understanding and ultimately lead to learning. The mentally demanding and complex nature of these changes is a distinct feature of engagement. Engagement at this intellectual level cannot be imposed upon students; students do not only need to put the required energy into their learning (behavioural engagement) but are also required to possess the inherent intention to learn and understand (intellectual engagement). It is through a combination of these processes that high quality learning outcomes will be achieved.

Another indicator of engagement which prevailed during analysis was the students' emotional reactions and feelings in connection with the CSCL tasks. In contrast to intellectual engagement – which seems to relate to students' intentions – emotional engagement is intuitive. When talking about how they engaged with CSCL tasks students often used expressions which reflected positive or negative feelings and reactions. Some students pointed out feelings of excitement, satisfaction, and motivation, while others revealed feelings of fear or anxiety, boredom, uncertainty, or confusion. Some of the negative feelings were often related to situations which appeared to be unfamiliar or alien to students. For example, some students explained the anxiety they felt when sitting in front of the camera for the first time or when receiving a critical comment on something they posted on the blog. In some occasions these reactions were noticeable during participant observation or were identified through the analysis of the video recordings. These occurrences indicate that students engage with CSCL tasks at an emotional level as well as intellectually and behaviourally. This pattern emphasises that there is another aspect of engagement which may affect the quality of the learning outcomes. The way a student feels when encountering a CSCL task will impact not only the way the student is likely to approach the task in the future but also the quality of the impending learning outcomes. This 'affective' dimension complements the picture of learner engagement; it is effectively the bridge or the glue that holds the other two dimensions together in the sense that it can sustain or break overall engagement. The distinct presence of culture is a key feature of this theme. It indicates how cultural influences may have an impact on how students feel about a specific CSCL task and how in turn this may affect the way they will approach it (i.e. by

simply ignoring it or by finding ways around it). The observation made by this student about one of her peers serves as a good case in point (brackets added):

*“Many of us Chinese when we first come here [in UK] we don’t speak English very well. Sometimes they have very good ideas [...] but they don’t speak it out because we are –not shy– but just don’t know how to get into the discussion. Because other people were talking very open and there is no space to get in there. That’s why the blog is good, because my friend told me that. He didn’t speak in advance but when he would go back he would write the things which he thought of in the group blog. So it’s like if he doesn’t speak he will write it. So that’s good!”*

The patterns portrayed in the events presented above suggest that in conceptualising learner engagement in CSCL we need a set of constructs that have the capacity to encapsulate what students ‘do’ when they are engaged (Astin 1999; Kuh 2003; Martin 2003) but also how they ‘feel’ and ‘think’ when they are engaged (Kearsley & Shneiderman 1999; Martin 2003). The data analysis procedures described above helped me dimensionalise engagement that is, identify patterns of variation in engagement norms. In this study learner engagement emerged as a three-dimensional concept which incorporates the ways in which postgraduate students (a) approach, participate in, or act upon a CSCL task (behavioural dimension), (b) think about the task or reflect about the way in which they approach the task (intellectual dimension), (c) feel when participating or contributing to the task (affective dimension). This suggests that postgraduate students may engage actively, intellectually (cognitively and meta-cognitively), and emotionally with a given CSCL task. Consequently, learner engagement in CSCL is conceptualised as a complex multi-dimensional concept encompassing behavioural (BE), intellectual (IE), and affective (AE) constructs, as illustrated in figure 5.6 below.

Theorising learner engagement as a three-dimensional concept can be parallelised with an object whose position can be determined in a three-dimensional world defined by three orthogonal axes. In a similar way learner engagement can be defined as a blend of three variables: human behaviour, personal reflection, and emotions. It is a certain combination of these three attributes that constitutes the concept of learner engagement. This refined understanding of how postgraduate students are likely to engage with CSCL tasks suggests that the nature of CSCL tasks can motivate and engage students on different dimensions and at a different extent/level within each dimension.

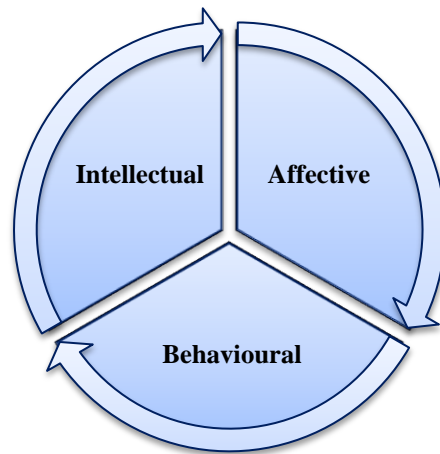


Figure 5.6: The dimensions of learner engagement.

In some cases the CSCL tasks triggered students to contribute actively in the learning process rather than being passive observers who simply attend academic lectures. Students engaged with CSCL tasks by reading books or browsing the Web in preparation for group discussions and videoconferencing tasks, by discussing alternative ideas, and by listening to each other's opinions (behavioural engagement). At the same time, students engaged with CSCL tasks by forming an intention to understand the underlying theories, by becoming self-aware of changes in their learning or by reflecting on how sharing relevant material on their blogs facilitates their learning outcomes. CSCL also activated some students' desire to change, to become better students, to overcome their fears and develop new skills, to seek meaning in what they do, to find ways to justify their arguments, to think about alternative ways of contributing in group tasks, and to take initiatives (intellectual engagement). These incidents altogether generated certain feelings expressed through the emotional states the students experienced, such as feeling challenged or satisfied with their performance or feeling comfortable or nervous during their experiences (affective engagement).

Many students explained that they would fail to engage with the course content and with each other if they did not have these practical CSCL tasks to focus on. Learning-by-doing was perceived by many as a challenging yet rewarding experience which drove them to engage deeper not only with the CSCL tasks but also with the course material, the technology, and with each other. Data analysis (looking for code co-occurrences) revealed that the three dimensions that emerged are highly interrelated and comprise inextricable features of the same multidimensional concept. In most occasions

it was a combination of all three dimensions that formed the overall engagement of each individual student.

With regards to engaging with blogs the excerpts below show that many students valued the use of blogs as part of their learning precisely because it served as a goldmine of information. Students were engaged with blogs either by contributing new material in the form of posts or comments or by reading other students' blog posts and the lecturer's comments. Most students realised early on that their engagement with the blogs can help them refine their own understanding of the course material but also complete their individual assignments. The actions (i.e. reading, writing, contributing, checking other perspectives, discussing with others, and checking what others wrote or thought) and reflections (i.e. it is a profit in knowledge, it is easier to understand things) illustrated by the following statements demonstrate how the behavioural dimension of learner engagement is dynamically linked with the higher-order, intellectual dimension of learner engagement. In the excerpts that follow, the behavioural, intellectual, and affective patterns of engagement are coded with the labels BE, IE, and AE respectively. The quotes are extracted from diverse focus groups and students across the two cohorts.

*“If you had contributed [BE] to the activity towards the blog like writing content [BE], reading stuff [BE] it would have definitely helped our assignment at the end [IE].”*

*“I’ve read [BE] at least four other groups’ blogs just to check other perspectives [BE/IE] while writing my assignment [BE] which is a profit in knowledge [IE/AE].”*

*“I think it’s better if you work in groups [...] because if you are confused [IE/AE] in some sort of ideas or some things [...] you can actually discuss it [BE] and get it cleared out. It’s easier for me to understand things [IE] when I am with other students rather than doing it by myself [IE/AE].”*

*“When you talk with others [BE] it’s like you get something: ‘oh yeah, that’s right’ [IE/AE] and you get different opinions [BE/IE] and your image becomes broad [IE].”*

Furthermore, students appreciated that contributing in blogs or reading other students' contributions served as a benchmark for testing their own interpretation on a theory taught during the lecture against the way their peers interpreted it. In this way blogs helped students develop their self-awareness. The excerpt below shows how this student reflected (intellectual engagement) on the ways in which he approached the group

blogging tasks (behavioural engagement) and what feelings his engagement has generated (affective engagement):

*“If we had to look up some theory or want to clear something you could look through about ten blogs and see what other people wrote or thought [BE] and you can picture together what you should understand [IE], what the theory is about for example, so that was really good actually [IE/AE]. [...] I just found that it was beneficial [IE/AE] to ask other people if they found anything interesting because if you just individually look for stuff [BE] you might have a feeling like ‘Am I actually missing some important aspect or some different angle?’ [AE] It’s always good [IE/AE] to talk to other people just to get more views on the topic [BE/IE].”*

The blogs also served as a useful tool for reviewing and staying in touch with the course material. While traditional learning is limited in time as it disappears once the learning and teaching functions are completed, with technology-mediated learning this is not the case (Carroll et al. 2008). Engaging in CSCL activities such as group blogs involves sharing ideas, discussing alternatives, and logging useful and relevant knowledge in a single place for later use. By engaging in these practical activities students develop their critical and analytical skills which in turn make it easier for students to comprehend things better and lock key ideas in their memory for future reference. As this student explains:

*“In this subject after every week’s session we had something written so it was like logging in what we did in each and every session [BE]. We had the things written [BE] by our own hands so it was more helpful to remember things [IE/AE].”*

With regards to the videoconferencing tasks where two distant groups of students had to establish a link and accomplish a joint task, students reported that seeing things ‘in perspective’ helped them identify the practical relevance of what they learn during the lecture and what they read in the literature. This completeness in their learning experience, achieved through the blend of theoretical and practical knowledge, helped them defy the challenging nature of the task and feel satisfied and content for doing so:

*Student: We always knew the theories of how to work in a videoconferencing but actually sitting in front of a camera and speaking as a group [BE] is really hard [IE/AE]. It’s like being*



*on the stage in front of a hundred people, especially if there is an audience sitting behind and watching both groups, it makes it more harder [AE]. But it was really good [IE/AE].*

*Interviewer: Do you think that if you use it more times it would be even better?*

*Student: Yeah. The thing is we got an idea already on how to use it [IE] and now the next day we are going to be prepared. So, we know what's going to happen [IE]. It's going to be a lot easier [IE/AE].*

Ultimately, what the findings suggest is that postgraduate students engage at different levels and they also reason about their engagement differently. In the process of making sense of how it is that learners engage with CSCL activities I took into consideration what I observed students doing in their natural learning environments, but also how students articulated the ways in which they engaged and what they responded in questionnaires. The inferences drawn from these mixed analytical processes reflected that learner engagement is exhibited by and embodied in human behaviour, understanding and personal reflection, and emotions. This resulted in the multi-dimensional conceptualisation of learner engagement as a complex, dynamic process which explains the plausible ways in which a postgraduate student is likely to engage with a CSCL task. Students' engagement with a CSCL task was found to be influenced by numerous factors which will be explored in more detail after I discuss the most prominent engagement profiles which emerged in the studied context.

### **5.3.1.2. Archetypes of learner engagement**

The discussion above attempts to provide a concrete description and explanation of how postgraduate students are likely to engage with CSCL tasks. Drawing a coherent understanding of what constitutes learner engagement, and how it happens, formed the foundation upon which further analysis was conducted. Conceptualising learner engagement as a three-dimensional concept suggests that postgraduate students may engage with a CSCL task by means of their actions, reflections, and feelings and that these three dimensions are interrelated and concomitant. When looking closer at the emergent patterns of engagement they also seem to suggest that an individual student may engage at different levels within each dimension. For example, a student may be emotionally neutral, appear to be deeply engaged intellectually, yet contribute

moderately on the actual CSCL task. This indicates that there are several degrees of engagement within each dimension. Therefore, in addition to discovering patterns of learner engagement related to behavioural, intellectual, and affective constructs it was also useful to partition each of these constructs to key characteristics and explore the extent to which individual learners fulfil or possess that characteristic. This analytical process contributed towards the development of a more abstracted view on learner engagement.

During the holistic analysis, qualitative and quantitative data were compared and synthesised in order to make sense of the inherent degrees of engagement across each dimension. This involved various analytical tactics such as partitioning the three key constructs into further variables; finding relations between the variables; making contrasts and comparisons among cases (cross-case analysis), and finally building a logical chain of evidence (Miles & Huberman 1994). It also involved a range of analytical decisions such as which variables, attributes, or characteristics to focus on in each dimension, and how to operationalise them. The selection of the variables was based on a combination of my intuitive assessment based on empirical evidence pooled from the iterative analysis of mixed data, the availability of adequate evidence related to each variable, as well as from ideas suggested in the literature.

To be able to partition or decompose each dimension of learner engagement to a set of characteristics I attempted to evaluate and select a set of measurable variables which would collectively provide a valid and truthful measure of the level of engagement at each dimension. This evaluation and selection process was a challenging task to achieve given the range of variables gathered through quantitative data and the variety of themes emerging from qualitative data. In pursuing this endeavour I created student cases in a Microsoft Excel<sup>®</sup> workbook using evidence from the aggregated qualitative and quantitative datasets. Filling the cells with the quantitative data was straightforward since they were already in electronic form yet it took some time to assess different normalisation possibilities for each variable (that is, to find ways to group individual values under broader classes for each item). The challenge with the qualitative variables (that is the students' feelings, level of involvement in supportive, back-end activities, level of contribution in videoconferencing tasks, and self-awareness) which resulted from the holistic thematic analysis, was the fact that they had to be operationalised that is, I had to turn them into something measurable. To do so I combined evidence collected through focus groups, field notes, interviews, and open-ended questions in

questionnaires. I found that using scales ranging from low to high, or from negative to positive, was a useful and practical way to assign values to these variables. In addition to the quantitative data collected in questionnaires I also included two other numerical metrics: the total number of blog posts (calculated by adding the number of posts, comments and replies made by each student) and the individual assignment mark of each student. Having constructed the complete table of cases I noticed there were some variables with inadequate or incomplete data and therefore I discarded them. I also excluded some students from the final dataset given they did not return their completed questionnaires, had provided insufficient responses in questionnaires, or did not attend the focus group. The final dataset comprised fifteen variables – eleven quantitative and four qualitative – for a total of 69 students.

I then started looking at how these variables were related to each other and to the three dimensions of engagement. Running a correlation analysis on the quantitative data showed a correlation between the number of blog posts and the students' grades. This suggests that the two variables are analogous or symmetrical: students who blog more are also those with higher grades. The presence of a correlation does not imply that one variable causes the other; it simply suggests they are related. Nevertheless, neither the number of blog posts nor the grades alone make someone a better student; hence, additional measures were necessary in order to help me to assess engagement across the three dimensions. Correlation analysis did not prove very useful beyond this point as some variables were found to be interrelated and most correlations were insignificant. This could possibly be due to the big range of variables and the small sample size. Nevertheless, in combination with statistical analysis it was conducive to reaching a decision on which variables to include and which to exclude.

Demographic variables such as gender, age, nationality, academic background, and work experience were not found to be significantly correlated with any of the other variables, neither their distribution across students suggested any prevalent pattern. Students with European background and female students were as likely to blog as much as students with International background and male students respectively. Similarly, students with a computer science background were as likely to engage with videoconferencing tasks as students from management degrees or other academic backgrounds. Age was also not useful in classifying students according to their engagement. For example, some of the more mature students approached their degree in a very professional manner and were very involved while others felt they could not

connect with the younger students and consequently appeared to be isolated and withdrawn from the collaborative tasks. As a result, these demographic variables were excluded from subsequent analysis. To manage the large number of variables, the VARK learning preferences were also excluded from holistic analysis and more emphasis was placed on the social versus individualistic learning preferences which are considered more relevant for making sense of how students engage in a collaborative learning environment.

Eventually, the three dimensions of learner engagement were partitioned into a number of objective/quantitative metrics and subjective/operationalised variables. Behavioural engagement was characterised by three attributes: one objective (total number of blog posts, comments, and replies) and two subjective (level of contribution in videoconferencing CSCL tasks, and level of involvement in supportive, back-end collaboration and coordination activities towards completing CSCL tasks). Intellectual engagement was also characterised by three attributes: two objective (academic motivation and approach to studying) and one subjective (degree of self-awareness regarding the relation between learner engagement and learning outcomes). Finally affective engagement was measured using a single subjective variable (student's expressed feelings). Two additional independent variables (learning preference and assignment mark) were also included for further analysis. The addition of these two variables was based on the observation that they were helpful in discriminating between different patterns of engagement. The selected variables are presented and described in table 5.3.

Both objective and subjective variables were measured on a scale of values with three levels (e.g. low-moderate-high, negative-neutral-positive, and so forth according to the variable) to ease analysis and data comparison. The total number of blogs posts, comments, and replies were normalised to three values: passive for 0-1 posts, moderate if the student had contributed 2-5 posts, and active when the contribution was equal to or greater than 6 posts. The level of student contribution in the live videoconferences was assigned the same range of values hence classifying student contribution as passive, moderate/transformative, or active, based on empirical evaluation of the overall student engagement and involvement with ColLab throughout the academic term. Similarly, the level of involvement in back-end activities classifies students' involvement as passive, moderate, or active. For some individuals this measure was not applicable or not available and these were assigned the value N/A for this metric.

Variable	Code	Definition	Measurement (from low to high)
<b>Behavioural Engagement</b>			
1. Level of contribution on the blogs	BLOG	An objective measure of the total number of blog posts, comments, and replies made by each student on any of the blogs.	Passive (0-1 posts), Moderate (2-5 posts), Active (>=6 posts).
2. Level of contribution in videoconferencing tasks	VC	A subjective measure based on the researchers' empirical evaluation of the overall student engagement with ColLab throughout the academic term.	Passive, Moderate, Active.
3. Level of involvement in back-end activities	BACK	A subjective assessment of the students' involvement in back-end collaboration and coordination activities contributing towards the CSCL based on the analysis of self-reported data and observation of face-to-face group discussions.	Passive, Moderate, Active.
<b>Intellectual Engagement</b>			
4. Academic motivation	AM	An objective measure based on an adapted version of AMS which assesses students' academic motivation.	Amotivated, Extrinsically motivated, Intrinsically motivated.
5. Approach to studying	AS	An objective measure based on ASSIST (part B) which assesses each student's approach to studying.	Surface apathetic, Strategic, Deep.
6. Degree of student self-awareness	SELF	A subjective measure of the degree of student self-awareness regarding the relation between learner engagement and learning outcomes resulting from empirical assessment drawing on varied evidence.	Unaware, Ignored awareness, Consciously aware.
<b>Affective Engagement</b>			
7. Expressed feelings	FEEL	A subjective measure based on the analysis of empirical qualitative data whereby feelings and reactions about CSCL tasks were expressed verbally by students or observed in real-time, natural CSCL tasks.	Negative, Neutral, Positive.
<b>Additional variables</b>			
8. Learning preference	LP	A self-reported measure where students declared their learning preference with relevance to individualistic or social learning.	Solo, Mixed, Social.
9. Assignment mark	MARK	A numerical measure of academic performance based on each student's mark on their individual assignment which counted towards their final grade for the course.	Fail (<50%), Pass (50-64.9%), Merit/Distinction (>=65%).

Table 5.3: Variables measuring behavioural, intellectual, and affective engagement.

Academic motivation was measured based on an adapted version of the AMS (Vallerand et al. 1992) which categorises students as amotivated, extrinsically motivated, or intrinsically motivated, while the student's approach to studying was determined using the second part of ASSIST (CRLI 1997; Tait et al. 1998) based on which student's approach was categorised as surface apathetic, strategic, or deep. The

degree of student self-awareness was subjectively evaluated by looking for relationships and connections between the ways students experience or appreciate learner engagement and the ways in which they envisage their learning outcomes. This evaluation was based on qualitative data according to which students were assigned one of three possible values based on whether they appeared to be unaware of how or whether engagement has something to do with the learning outcomes, whether they were consciously ignoring their awareness on various grounds, or whether they appeared to be consciously aware about how or whether their engagement affects their learning and adjusted their engagement accordingly. The nature of expressed feelings is another subjective variable considered in cross-case analysis. It was based on an assessment of the students' self-reported feelings as well as observed reactions during participation in CSCL tasks. Expressed feelings were found to be negative, neutral, or positive in nature. For some individuals this measure was not applicable or not retrievable and these students were assigned the value N/A for this metric.

The learning preference is a self-reported variable based on how students see themselves. Students were asked to determine whether they prefer to learn individually or in groups. In addition to the social and solo clusters, some students were assigned into an intermediate, mixed cluster if they had articulated that their preference depends on the subject being studied, the type of the task, the level of concentration the task requires and so on. Finally, the assignment mark is a numerical variable which was also normalised into three groups of values. Marks below 50% were assigned the value fail, marks in the range 50-64.9% were assigned a pass, and combined merit/distinction was assigned to students who received a mark greater or equal to 65%. This partitioning was based on the assessment model used by the university.

Following the initial data reduction, subsequent analysis involved drawing contrasts and comparisons among students on a case-by-case basis (cross-case analysis) to identify common patterns of engagement across individuals, as well as noting relations between variables. Comparison is a classic tactic for generating meaning as well as drawing and testing the plausibility of a conclusion (Miles & Huberman 1994). It is also a way of looking for patterns of co-occurrence and patterns of variation in an attempt to understand how two persons, variables, behaviours, ways of thinking, emotional states, or patterns of engagement are similar and how they are different. Some of the contrasts I made included those between low and high contribution on the blogs, low and high assignment grades, between intrinsically and extrinsically motivated students, and

amongst the triad of behavioural, intellectual and affective engagement. At the same time I tried to discover what sort of relationship – if any – exists between two or more variables. Noting relations between variables is useful in drawing conceptual frameworks (Miles & Huberman 1994). To be able to compare and relate qualitative and quantitative variables I used data transformation through quantising and qualitising for each type of data respectively.

Contrasting students with high contribution on the blog with those with low contribution showed me that high bloggers were intrinsically motivated whereas students who were passive on the blogs were either extrinsically motivated or amotivated. Contrasting high-achieving students with low achieving ones revealed that students who received pass or fail grades contributed a lower number of blogs, were more often apathetic, and were more likely to express negative feelings about their experience with CSCL tasks. Surprisingly, comparing students with social versus solo learning preference showed no difference in relation to their level of contribution on the blog, yet solo learners were less likely to participate in the videoconferencing tasks. This finding was unexpected since social learners are generally expected to be more open to social, collaborative tasks than learners who prefer to study on their own. This finding indicated that learners may engage differently in different tasks and that social and solo learners were equally likely to engage or disengage with CSCL tasks.

Another interesting observation emerged by contrasting the different forms of behavioural engagement. When comparing a student's contribution in videoconferences with the number of blog posts I observed that these were not always analogous. However, considering the student's involvement in supportive back-end activities, in addition to the other two attributes, provided a broader view of behavioural engagement and appeared to better represent the student's overall behavioural engagement. Looking for additional relations among variables I also started grouping together individuals who have responded to items in similar ways or who were classified in similar ways according to different variables. By considering how the respondents differed on additional variables (i.e. assignment grade and learning preference), a clearer picture of the nature of the clusters was obtained. After becoming acquainted with key relationships I also used graphical ways for representing the selected variables and the relationships amongst them. Joint data displays facilitate comparative pattern analysis involving mixed (qualitative and quantitative) data (Bazeley 2010). In particular, such displays permit comparisons between cases as well as comparisons between dissimilar

sets of data (e.g. interview data with self-reported data) assuming that these sets of data can be linked on a case-by-case basis. Some of the most useful data displays I employed as part of the higher-order analysis phase included joint matrix displays, comparison matrices, and radar charts. These graphical techniques helped me in discovering patterns in the mixed data, in making sense of the data, and in drawing descriptions and explanations of the most prominent profiles of learner engagement.

Like most graphical displays, matrices and comparison tables display only a small percentage of the available data and therefore may result in a relatively thin description. To avoid this I regularly went back to the qualitative dataset in NVivo® for more contextually-thick evidence in order to support or validate emerging findings and conclusions. Creating matrix displays in Excel® helped to sort data according to different variables and this yielded unexpected patterns and some initial groupings began to stand out. For example, when ordering the table based on the students' grades I observed that the majority of students who failed (i.e. received a mark lower than 50%) demonstrated a passive contribution on the blog and were solo learners. When I sorted the table based on academic motivation and then by expressed feelings, I observed that the majority of students who were intrinsically motivated expressed positive feelings and they all had an active involvement in back-end activities.

The two comparison tables that are presented below display all relationships describing the possible dyads between the nine variables. In addition to the presence of absence of a relationship between two variables, these tables show the relation type. In particular, to construct table 5.4 I focused on what values each variable has when another variable is high. For example when blog contribution is high (active), the academic motivation and the degree of self-awareness also appear to be high (i.e. they have the values intrinsic and aware respectively). Similarly, when academic motivation was high (intrinsic) the students' contribution in back-end activities was also high (active). Another sort of information this table displays is the possible fluctuation in the value of one variable when the other one is high. The following notation is used: '+' means that when variable A (left) is high then variable B (above) is also high (there is a positive relationship between the variables, both variables are high at the same time); '+ ~' means that when variable A is high, then variable B is high in the majority of cases while moderate in some other cases; '~ +' indicates that when variable A is high, then variable B is moderate in the majority of cases and high in some other cases; '+/~' shows that when variable A is high, variable B is high half of the times and moderate



half of the times; ‘0’ is used to denote that the relation is not applicable; and finally empty cells indicate the absence of any meaningful relationship. For example, no relation or pattern was found between blog contribution and learning preference when the level of blog contribution was high. In other words students who were high bloggers could be social, mixed, or solo learners. There was also a lack of relation between the assignment mark and the level of contribution on the blog indicating that students with high marks were as likely to contribute passively, moderately, or actively on the blogs. Table 5.4 displays all possible dyadic relationships between the nine variables.

	BLOG	VC	BACK	AM	AS	SELF	FEEL	LP	MARK
BLOG	0	+ ~	+ ~	+	+ ~	+	+ ~		+ ~
VC	~ +	0	+	+ ~	~ +	+	+ ~	+ ~	+ ~
BACK	~ +	+ ~	0	+ ~	~ +	+	+ ~		+ ~
AM	~ +	+ ~	+	0	+ ~	+	+ ~		+ / ~
AS	~ +	+ ~	+	+	0	+	+ ~		+ ~
SELF	~ +	+ ~	+ ~	~ +	~ +	0			~ +
FEEL		+ ~	+ ~	+ ~	~ +	+ ~	0		+ ~
LP				~ +		+ ~		0	
MARK		+ ~	+ ~	~ +	~ +	+ ~	+ ~		0

Table 5.4: Variation in variable B (above) when variable A (left) is high.

There were of course a few extreme cases which are not represented in the table above. For example, there was a single student in the dataset who received a high mark even though she appeared to possess the following sequence of characteristics: her contribution in videoconferencing tasks and back-end activities were both passive, she appeared to have a surface approach to studying and a solo learning preference. Another extreme case concerns a student whose contribution was active in both videoconferencing tasks and back-end activities; he was intrinsically motivated, and followed a deep approach to studying; yet expressed negative feelings about the nature of the CSCL tasks. These unique instances presented a combination of learner engagement characteristics which were not uniform across students yet were interesting to explore to deeply understand the complex mechanisms underpinning learner engagement. After isolating these cases I purposefully approached these students to get deeper insights about how they engage and the way they see their engagement.

Correspondingly, I wanted to see the relation between variables when each of the nine variables was low. The following notation is used in table 5.5: ‘\_’ means that when variable A (left) is low then variable B (above) is also low (there is a positive relationship between the variables, both variables are low); ‘\_ ~’ means that when variable A is low, then variable B is low in the majority of cases while moderate in some other cases; ‘~ \_’ indicates that when variable A is low, then variable B is moderate in the majority of cases and low in some other cases; ‘\_ / ~’ shows that when variable A is low, variable B is low half of the times and moderate half of the times; ‘0’ is used to denote that the relation is not applicable; and finally empty cells indicate the absence of any meaningful relationship.

	BLOG	VC	BACK	AM	AS	SELF	FEEL	LP	MARK
BLOG	0	~ _	~ _	~ _	~ _				
VC	_ ~	0	_	_ ~	_	_ ~	~ _	_	~ _
BACK	_ ~	_	0	_ ~	_	_ ~	~ _	_	~ _
AM	_ ~	_	_	0	_	_ ~	_ ~	_	~ _
AS	_ ~	_	_	_ ~	0	_ ~	~ _	_	~ _
SELF	_ ~	_	_	_ ~	_	0	_ / ~	_	~ _
FEEL	_ ~	_ ~	_ ~	~ _	_ ~		0		
LP		_ / ~						0	
MARK	_ ~	_	_	_ ~	_	_ ~	_ / ~	_	0

Table 5.5: Variation in variable B (above) when variable A (left) is low.

When looking at the tables above two observations can immediately become obvious: firstly, it is clear that none of them is symmetrical to their respective diagonals and secondly, the way variables behave when their values are high does not mirror the way they behave when their values are low. Particularly, an interesting finding becomes apparent when comparing the learning preference column of each table. This comparison shows that although high engagement is not necessarily related to social learning preference, low engagement is related to solo learner preference. Furthermore, comparing the learning preference row of each table shows that social learners are motivated (extrinsically or intrinsically) and self-aware whereas solo learners have demonstrated low contribution during videoconferences. The observations made possible through the comparison matrices above indicate the complexity and density of the relations between these variables.

Further higher-order analysis included additional data displays towards constructing plausible explanations of the emerging findings. Using the variables above I created a radar chart for each of the 69 students and in turn arranged them into stacks/clusters of learner engagement profiles by grouping students whose values on each of the variables were more closely aligned. Initially I clustered similar engagement profiles together based on the levels of engagement in each of the three different dimensions, using the seven engagement-oriented variables. This yielded some overlaps between the clusters. The addition of two independent variables (i.e. learning preference and assignment grade) into the radar charts helped to make the clusters more cohesive and coherent. By considering how the respondents differ on these additional variables which were not related to variables that directly measure an aspect of learner engagement, a clearer picture of the nature of the clusters was obtained. Using radar charts proved a highly useful illustrative method which allowed me to display the values for all nine variables for each student in a graphical way and thus helped to instantly identify similarities across students by simply looking at the shape of the chart.

Clustering learner engagement profiles was a very productive and fruitful exercise which helped me to group together individuals who appeared to engage in similar ways behaviourally, intellectually, and emotionally and also in similar levels across each of these three dimensions. This clustering process revealed four distinct ways in which learners may engage with CSCL activities, which are presented as four archetypes of learner engagement. The resulting four stacks were then compared internally and externally to verify their validity and coherence. This involved checking that each individual instance of learner engagement profile can be best described by one of the four archetypes. After verifying the validity and consistency of the four engagement archetypes, an attempt was made to identify the general characteristics of each archetype. To achieve this I identified the extreme cases and compared them against the 'normal' archetypical characteristics. Finally, I carefully labelled each of the four archetypes according to the overall profile of learner engagement. The four archetypes represent 'withdrawn', 'impulsive', 'strategic', and 'enthusiastic' learner engagement profiles. Using the initial letters of each archetype this classification was entitled 'WISE taxonomy of learner engagement archetypes'. Table 5.6 presents the regular, archetypical values for each of the variables as related to each of the four learner engagement archetypes. The sequence of the values in each cell (where applicable)

denotes the prominence of the first value over the second for the specific variable-archetype combination.

Variable	Learner engagement archetype			
	Withdrawn	Impulsive	Strategic	Enthusiastic
1. BLOG	Passive/Moderate	Moderate/Active	Passive/Moderate	Moderate/Active
2. VC	Passive	Moderate	Moderate	Active
3. BACK	Passive	Active/Moderate	Moderate	Active
4. AM	Amotivation/Extrinsic	Extrinsic/Intrinsic	Extrinsic	Intrinsic/Extrinsic
5. AS	Surface	Strategic/Deep	Strategic	Strategic/Deep
6. SELF	Unaware/Ignored	Aware/Ignored	Ignored/Aware	Aware
7. FEEL	Neutral/Negative	Positive/Neutral	Negative/Neutral	Positive/Neutral
8. LP	Solo	Solo	Social/Mixed	Social/Mixed
9. MARK	Pass/Fail	Pass/Merit	Pass/Merit	Merit/Pass

Table 5.6: General characteristics of each archetype in the WISE taxonomy.

To create the radar charts I used the numerical values 10, 30, 50 to represent the low, moderate, and high level of each variable and the numerical values 20 and 40 to signify the combination of two levels (low-moderate and moderate-high respectively) of a variable. Low values are located towards the core of the radar chart while higher values towards the outer surface of the chart. The students whose characteristics formed extreme cases were also clustered using the WISE taxonomy by disregarding the variables with outlier values. For simplicity purposes the extreme cases are not represented in the table above; the table only shows the most universal instances of learner engagement. In the cells where two values are given, the first variable denotes that the majority of students classified under the particular archetype possess that value. In the paragraphs that follow I describe the four learner engagement archetypes and their inherent characteristics in detail. I also provide verbatim quotes typical for each archetype to enrich the descriptions and allow the reader to gain inner perspectives to the context within which they emerged.

Withdrawn learner engagement characterises those students whose overall behavioural, intellectual, and affective engagement was low as illustrated in figure 5.7. These students demonstrated a passive behaviour towards the CSCL tasks. In particular, the level of their involvement in blogging and videoconferencing tasks was low in most of the cases and they also appeared disengaged from back-end activities which are

considered essential towards achieving the two other tasks. Withdrawn learners also appeared to lack intrinsic motivation to learn and followed a surface, apathetic approach to studying.

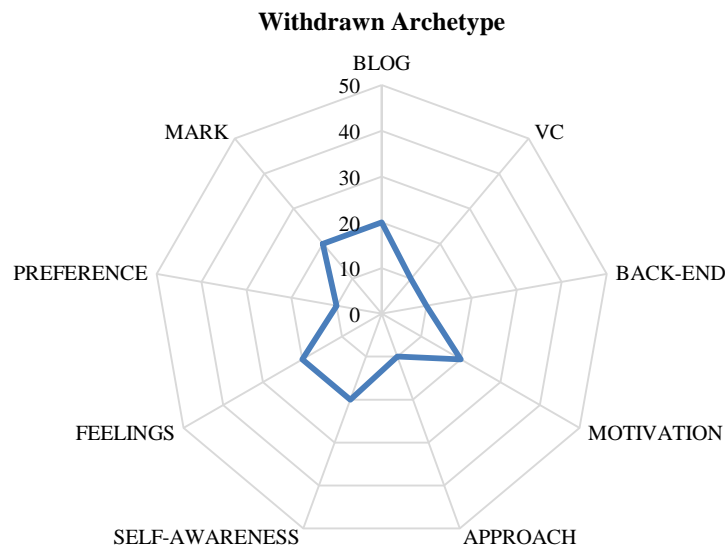


Figure 5.7: Radar chart for withdrawn learner engagement archetype.

What was intriguing about this archetype was the fact that many students consciously adopted this engagement profile and they knowingly ignored the fact that engaging with the CSCL tasks may help their learning experience and their learning outcomes. Given their characteristics, a total of 15 students (22%) were clustered as withdrawn learners. The fact that almost one in four students appeared to be genuinely disengaged is definitely not a positive outcome especially given the fact that these are postgraduate students who are preparing for a professional career. The reasons for this outcome and what may have hindered these students' engagement are explored as part of the second research question later in this chapter.

Furthermore, going back to the qualitative data and looking closer at the outcomes of the case analysis revealed that students in this category generally prefer to learn and study on their own and demonstrated a lack of interest in engaging with the particular CSCL activities. They seemed to consider CSCL tasks as requiring too much effort, and the majority of students failed to see the true value of CSCL activities towards their learning as postgraduate students and upcoming workers alike. This was also reflected in their assignment marks which were significantly lower compared to all other learner engagement archetypes. Additionally, the expressed feelings coming from this group of

students were predominantly negative the most common of which included feelings such as of apathy, boredom, and cynicism. The following quotes are typical of students who adopted a withdrawn learner engagement profile:

*“For me it’s much faster to just do it by my own, not waste my time with some people.”*

*“You actually have to put research in and most of the time I am like ‘I’ll keep that for later’ and I never do it.”*

*“I think group project is good but sometimes not as efficient as individual”*

Impulsive learner engagement was in fact an unexpected archetype which however emerged prominently in the study. A total of 13 students (19%) were clustered as impulsive learners. One plausible reason which explains why this archetype was unanticipated relates to the fact that, in general, solo learners have a natural inclination or preference towards studying on their own rather than getting involved in collaborative learning tasks. Nevertheless, 50% of the students who considered themselves solo learners were actually active both on the blogs and in supportive, back-end collaborative activities. This is clearly illustrated in the radar chart of figure 5.8. Furthermore, by comparing the impulsive and withdrawn archetypes we can visually see the resemblance concerning the preference variable against the discrepancy in all other variables (figure 5.9).

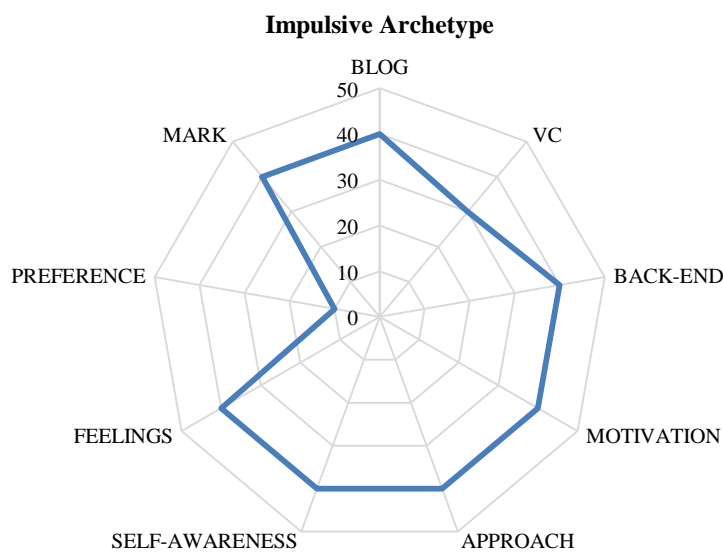


Figure 5.8: Radar chart for impulsive learner engagement archetype.

### Impulsive vs. withdrawn archetypes

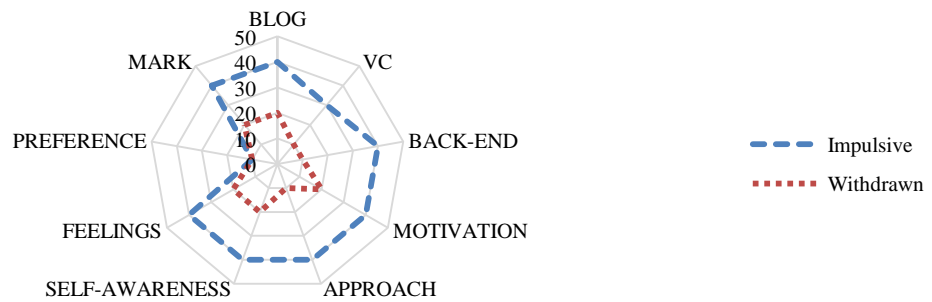


Figure 5.9: Impulsive versus withdrawn learner engagement.

Although impulsive students appeared to be shy in face-to-face discussions and contributed moderately in videoconferencing tasks, they were generally active on the blogs and in back-end activities – hence the name ‘impulsive’. The explanation for this is given through the students’ perceptions of the nature of the blogging tasks and the informality of the back-end activities. Blogging was considered by impulsive learners as an opportunity to contribute to the group, to be heard, to share their ideas. When I investigated this further I found that students with this profile found the web-based interaction as an alternative way to communicate and collaborate with their peers. Getting involved through reading and writing content was considered much easier and less intimidating for these students compared to face-to-face collaboration situations. The web-based, asynchronous nature of group collaboration on the blogs allowed students to take their time before replying to a comment or before posting new content which gave them the flexibility and time they needed to become confident with their contribution. It was these opportunities that motivated impulsive students to leave their comfort zone and actually start collaborating. In doing so they started appreciating the importance of CSCL in their learning and studying and progressively became more aware of how collaboration and collaborative learning can enhance their self-confidence and their learning experience.

The overall experience impulsive students had with both blogs and videoconferences generated positive feelings and encouraged them to remain active and intellectually engaged throughout the academic term. These findings also suggest that if the blogging tasks were not a part of their education it is quite likely that these students may have failed to share their ideas and get engaged with the learning content and with their peers

alike. This emphasises the significance of CSCL tasks in students' learning. The following quote is representative of how impulsive learners engage with CSCL tasks:

*“Many of us Chinese when we first come here [in UK] we don't speak English very well. Sometimes they have very good ideas [...] but they don't speak it out because we are –not shy– but just don't know how to get into the discussion. Because other people were talking very open and there is no space to get in there. That's why the blog is good, because my friend told me that. He didn't speak in advance but when he would go back he would write the things which he thought of in the group blog. So it's like if he doesn't speak he will write it. So that's good!”*

Strategic learners formed another prevalent sequence of behavioural, intellectual, and emotional engagement (figure 5.10). There were 19 strategic students (27%) across both cohorts.

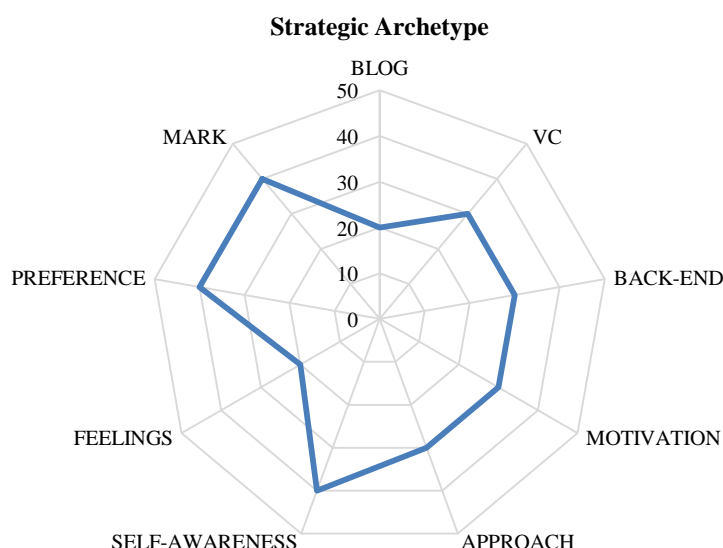


Figure 5.10: Radar chart for strategic learner engagement archetype.

Although the majority of students in this category expressed a preference towards social learning their overall behavioural engagement was moderate to low. Strategic learners appeared to be active in face-to-face group discussions yet they had a tendency to disregard and devalue CSCL tasks on the basis that these tasks were not officially assessed. The following statements show how strategic students' assessment-driven approach affected their overall (dis)engagement (brackets added):



*“I would put more effort in when I am assessed.”*

*“It’s true that you put a lot more work when you know it’s going to count in our final grade.”*

*“I was thinking why should I do it [write on the blog]? I’ve got assignments to do which are going to be marked.”*

Comparing and contrasting the radar charts for the strategic and impulsive archetypes in figure 5.11 shows that the greatest variation concerns specifically three out of the nine variables: level of blog contribution, self-reported feelings, and learning preference. Strategic learners appeared to have lower contribution on the blogs and negative feelings regarding the CSCL tasks although their learning preference was mostly social whereas impulsive learners were more active and expressed positive feelings regarding the CSCL activities despite their natural inclination towards individualistic learning. This implies that the learning preference alone is not a determinant of overall learner engagement across all the three dimensions, and points to the fact that we need to look for other factors which may enable or disable learner engagement.

Further exploration of the strategic archetype showed that the involvement and participation of strategic learners was generally higher in videoconferencing tasks rather than blogs. This might be due to the fact that the videoconferences were taking place during the workshops where the lecturer was present. There was a shared belief among some strategic learners that if their individual contribution was more obvious to the lecturer this could potentially have a positive effect on their grade. This however does not explain why their contribution on the blogs – which were also regularly and actively monitored by the lecturer – was passive. The blogs were generally considered as requiring too much effort and preparation and were time-consuming and informal in nature. Although strategic learners created some content on the blogs they did not engage actively and did not reply to comments from their peers or the lecturer. This indicates that their strategic/achieving approach to learning and studying interfered with their engagement. In a way the assessment strategy adopted in the course was conducive towards disengagement – with respect to strategic learners. In some cases, their assessment-oriented approach pushed them to withhold information rather than share and discuss their ideas, which is obstructive collaborative learning. This illuminates the importance of assessment strategies and the value that postgraduate students often assign to extrinsic motives in the context of CSCL pedagogical practices.

### Strategic vs. impulsive archetypes

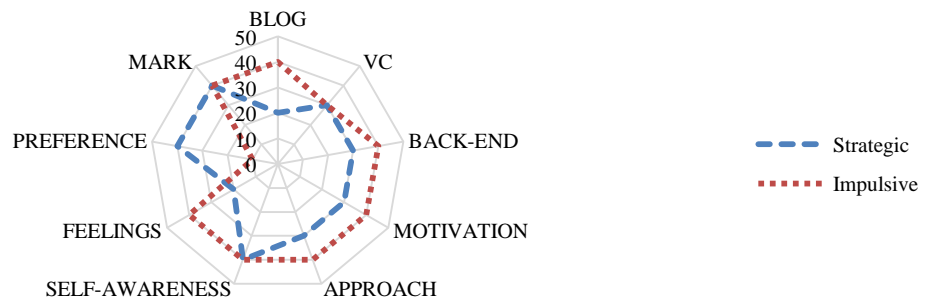


Figure 5.11: Strategic versus impulsive learner engagement.

Another discovery was that many of the students, who appeared to be strategic learners, were either members of active groups – where their peers did most of the work and therefore they could easily get away with free-riding – or in a group where all members appeared to be behaviourally disengaged. Both of these occasions indicate that group dynamics may impact individual (dis)engagement and vice versa. Especially in the latter occasion some students explained that since everyone in their group was disengaged they considered it unfair to do all the work themselves and as a result they failed not only to encourage each other to get involved but also to ignore the educational value of engaging with CSCL activities themselves.

*“In a way I do like working in groups but when it’s usually not marked as such, because sometimes you feel that the people are freeloading or whatever are getting your mark or you are not getting the mark that you deserve because they didn’t contribute enough.”*

Finally, the enthusiastic learner engagement archetype represents 32% of the students across both cohorts (22 out of 69 students) and therefore it is the most prominent archetype followed by the strategic learner engagement archetype. Enthusiastic learners demonstrated the highest level of overall engagement expressed through their actions, reflections, and emotional reactions. The dialogue extract below exemplifies how students’ enthusiasm was evident in the way they talked about their engagement:

*Student A: If we have a group studying it should be like discussing things after you study yourself. You get a problem*

*and then you discuss with others [BE]. I have found in the previous years that when you discuss with others sometimes it suddenly becomes so clear in your mind [IE]. It's like you open a door which if you study alone you wouldn't get that idea [IE]. But when you talk with others it's like you get something: 'oh yeah, that's right' and you get different opinions and your image becomes broad [BE/IE].*

*Student B: Yeah, it makes you feel good, you get confidence [AE].*

In terms of their behavioural engagement, enthusiasts were not only creating content on the blogs regularly but they were also commenting on other groups' blog posts and engaging in web-based discussions by replying to the lecture's comments. They also took the initiative to post additional relevant content such as videos or links to relevant websites. Their natural enthusiasm and excitement was also evident during the videoconferences. Their peers confirmed their eagerness to coordinate the group and encourage other group members. Intellectually they appeared to be motivated to learn and share their views with others. They also associated their experiences with CSCL with feelings of excitement, enthusiasm, and satisfaction and made clear, explicit connections between their learning experiences with CSCL tasks and their expected learning outcomes. As illustrated in figure 5.12 an archetypal characteristic of enthusiastic learners was the fact that they appeared to be consciously aware of how their engagement with CSCL can impact their learning outcomes both at a theoretical extend (i.e. in terms of the knowledge they acquired) and a practical extent (i.e. in terms of the skills they developed). The following quotes are characteristic of enthusiastic learners:

*"I love the blog!"*

*"It was great that I could go and check the other group's blogs and take some extra ideas."*

*"The advantage is that you learn things from different people; different people have different views so you learn different things. Your horizon of learning increases."*

*"I also like to study in groups because I can learn something from the other people and it's very enjoyable."*

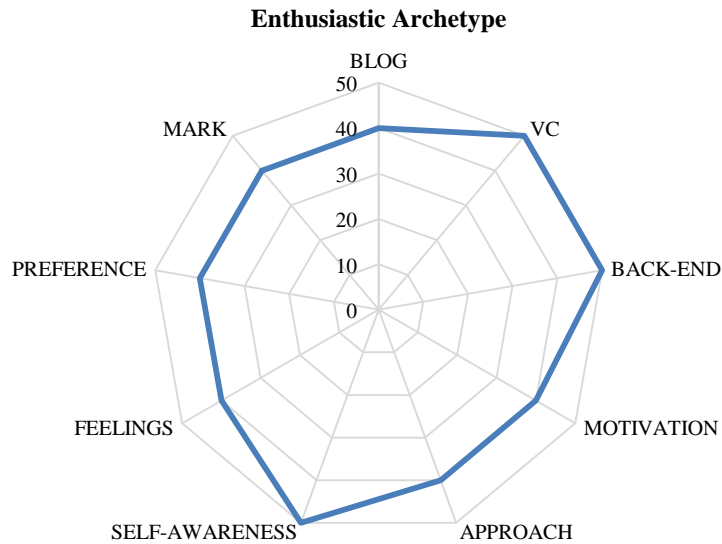


Figure 5.12: Radar chart for enthusiastic learner engagement archetype.

Theorising learner engagement as a multi-dimensional concept defined by behavioural, intellectual, and affective constructs is useful for understanding the ways in which postgraduate students approach CSCL tasks. Emergent findings have also indicated that students engage to a different extent within each dimension. The WISE taxonomy of learner engagement archetypes suggests that there are four combinations of characteristics which capture the most universal occurrences of learner engagement patterns across individuals. The multi-dimensional conceptualisation of learner engagement alongside the WISE taxonomy of learner engagement archetypes provide a set of ideas which help to make sense of how it is that postgraduate students engage with real-life CSCL activities in natural everyday educational environments, thereby addressing the first research question posed in this thesis.

### 5.3.2. Discovering the enablers and barriers to learner engagement

#### 5.3.2.1. Learner engagement as a distributed phenomenon

The aim of the second research question is precisely to understand what enables or hinders learner engagement by exploring what distinguishes active from passive students or withdrawn from enthusiastic ones, and on which factors students base their overall engagement or disengagement towards CSCL tasks. The analysis of multiple

forms of data indicate that learner engagement does not appear to be a stable, trait-like characteristic of the individual; rather it may shift and change according to a number of factors. Students provided a number of reasons why they engaged in the way they did with specific CSCL tasks. During the holistic analytical stage, the aim was to note the most prominent instances of these factors. I first started identifying and coding all references made to situations, people, places, beliefs, or conditions that seemed to affect student engagement, as well as how they affected it (i.e. positively or negatively). I then attempted to find patterns and recurring themes and finally used clustering (Miles & Huberman 1994) to group factors expressed with similar words or which appeared to have comparable characteristics. Grouping and then conceptualising factors that share some common attributes helped to understand the phenomenon better and generate more coherent descriptions and conclusions.

Students brought forward a broad array of beneficial circumstances which in their view enabled them to engage deeply with the group blogs and videoconferences; barriers which drove them to keep their contributions and engagement minimal; as well as (hypothetical) conditions under which they believe they would engage more. In addition to the students' self-reports, the quality and quantity of students' engagement was also analysed and validated using the data extracted from open-ended questions in questionnaires, video-recordings, and the students' blogs. Having a view on each student's learner engagement 'profile' while exploring what affects learner engagement was a useful tactic for making sense of the vast amount of analytical ideas emerging from the data. Discovering why enthusiastic and impulsive learners engage while withdrawn and strategic learners lag behind is imperative in order to identify ways to instigate the former and avoid the latter.

Having identified a set of factors that students perceived as enablers and barriers to their engagement I attempted to classify them in higher order categories. This was without doubt a complicated task due to the voluminous number of codes and themes that emerged in the data as well as due to the various ways of categorising these themes. Although the actual factors were inductively identified, the final structure of the higher order categories was based on a combination of inductively-driven classes that were grounded in the data and pre-existing classes provoked by existing literature. Inspired by Biggs' 3P model (1987) factors were initially classified as foreshadowing (presage) and ongoing (procedural). I classified factors based on the point in time they seemed to exercise their influence on learner engagement. I wanted to examine whether

engagement is fixed and pre-determined by personal factors or variable and adjustable. I found that although presage factors such as preferences and personal interests highly affect learner engagement, the process of CSCL also has a great impact on student engagement. Social, procedural factors were found to be inherent to the engagement process. I thus attempted to classify the enablers and barriers based on their association with personal and situational/contextual facets. This classification has two benefits. On one hand it allowed me to identify the extent to which individuals regulate the quality and quantity of their own engagement (internal factors). On the other hand it allowed me to capture the external or social factors that may encourage or hinder student engagement. Another useful classification used was stirred by the People-Place-Process framework (Rosenberg et al. 2005) based on which factors were clustered according to their relevance to people, places, and processes. In particular, this framework was used to analyse emerging factors by looking at the learning process as a interactive situation taking into account the people (i.e. the participants and their respective roles, expectations, and motives), the place (i.e. the setting where interactive learning takes place and the available resources for collaboration), and the process (i.e. the collaborative learning tasks students are engaged in and the underlying pedagogical aspects). The organisation of clusters went through a great deal of restructuring and summarising before it became clear and meaningful.

The findings resulting from additional analysis suggest that the factors (enablers and barriers) that affect learner engagement may be both personal (internal) and situational (external). Situational factors were further divided into group-level, pedagogical, and technological factors. Using the clustering technique was a useful ‘conclusion-drawing tactic’ (Miles & Huberman 1994, p. 250) which helped the development of the hierarchical model of enablers and barriers (figure 5.13). The proposed model features the major categories that capture the most dominant and attention-grabbing factors influencing learner engagement. The distinction between internal (personal) and external (social/situational) factors that affect engagement has practical implications for designing pedagogical models since it isolates those aspects where educators can actually regulate in order to positively influence postgraduate students’ engagement. It also has theoretical implications since it pinpoints to the fact that learner engagement is not confined to the individual learner; rather it is something between the individual and the situation. We can therefore speak of socially distributed learner engagement. This is specifically relevant to the particular context of study which examines how individual

learners engage in collaborative tasks. The nature of CSCL tasks implies a certain form of social interaction mediated by a technological interface and altogether has an effect on learner engagement. In theoretical terms this suggests that learner engagement with CSCL tasks is distributed across personal and situational grounds.

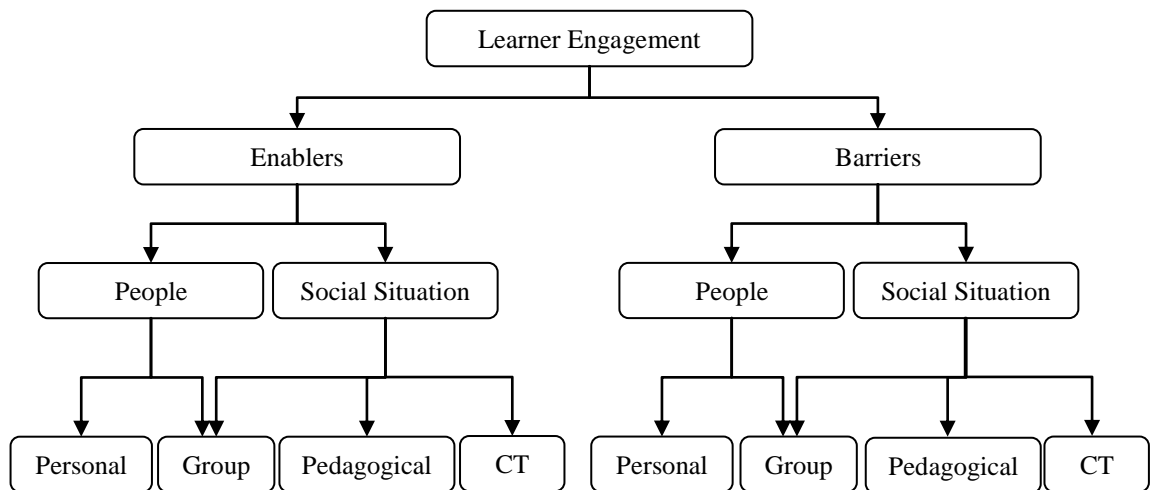


Figure 5.13: Hierarchical model of enablers and barriers.

The proposed model has two noteworthy features. Firstly, the enablers and barriers are not treated as direct opposites; rather they are considered as a dynamic set of features, a certain combination of which has a collective influence on each individual student's engagement. The reason for treating these factors as a dynamic set is two-fold. On one hand, occurrences of reverse factors did not always emerge in the data. For example, the lecturer's active feedback emerged as an enabler of engagement, yet nobody mentioned whether the lack of it was or could be a barrier to their engagement. Although we can infer that if the former holds then the latter also holds this was not sufficiently supported by the data. On the other hand, where such opposite factors did emerge they were perceived differently by different students. For instance, some students perceived the blogs as a formal learning environment because of their sustainable and open nature which made it visible to others, while other students perceived the blogs as an informal way of sharing their views and collaborating with others while being at the comfort of their home. Furthermore, equal contribution from peers in the group is believed to aid engagement, but this does not eliminate the possibility of a student to take the initiative to lead the group to successful outcomes even in the presence of free riders (in fact, at

least one student mentioned that the latter was seen as a good reason for engagement). Similarly, although intrinsic motivation is vital for learner engagement, successful engagement can still occur if adequate external incentives compensate for the lack of natural willingness to engage. These examples indicate that there exist many independent factors that affect learner engagement, in addition to those factors whose presence or absence was found to affect engagement. In essence, the hierarchical model presents an aggregated set of all emergent enablers and barriers rather than an individual student's perspective. This means that from a single student's point of view, the presented factors did not (and could not possibly) hold altogether. In effect, the model represents a superset of the most dominating, recurring factors that were found to influence learner engagement across students.

Secondly, the model shows that the resulting clusters of factors are not mutually exclusive but they may overlap. Specifically, the group-related factors may be considered both as people-oriented and as socially-oriented factors. Learner engagement is not only affected by the personality or qualities of an individual learner neither is wholly determined by the pedagogical or technological characteristics of the learning environment; group dynamics also have a powerful role in shaping a student's engagement with a CSCL activity. A student learning with a specific lecturer who assigned a specific CSCL activity might engage differently if she is assigned into two different groups. Groups are not considered as unresponsive, controllable, and static elements. Rather they are dynamic, fluent and reactive systems consisting of an interacting group of people brought together in a shared, temporary, and not necessarily clearly defined, social situation. This overlap between personal, group, and situational factors represents an important contribution of this model as it suggests that there is a layer between the individual and the situation which highly affects learner engagement yet was not given much attention in the literature. The following paragraphs thoroughly discuss the most prominent enablers and barriers which affected the students' engagement with CSCL. Their prominence and significance was judged both intuitively by indentifying unexpected or intriguing factors, and based on their weight and consistency across respondents by counting the number of references made to each factor. Counting represents an integrative analytical technique through and a useful way of testing for possible bias and seeing how 'robust' emerging insights are (Miles & Huberman 1994, p. 254).



Driven by the observed shifts in student engagement and the varying degrees of individual contribution across tasks, I tried to isolate some personal factors which appear to empower learner engagement with reference to CSCL. The findings seem to suggest that students who are intrinsically motivated and take a deep approach to studying are more likely to engage with CSCL tasks than those who are extrinsically motivated or take a surface approach to learning, respectively. Intrinsic motivation and deep approach to studying and learning are therefore considered as enablers of learner engagement. Furthermore, learner engagement was most evident in cases where students seemed to have formed a clear understanding of what is expected of them. Having clear expectations of what the purpose of the CSCL tasks is gave students the confidence to approach the tasks appropriately. Some students also explained that being career-oriented helped them appreciate the value of engaging with CSCL. Setting goals helped them to relate their long-term career aspirations with their learning experience which in turn helped them to stay focused and make the most of the opportunities presented to them. The role of goals is also heavily documented in motivational and engagement literature. Given that these are postgraduate students, many of whom already had some work experience or were working in parallel to their studies, the value of both educational and vocational goals and aspirations in promoting learner engagement was no surprise. What was intriguing however was the fact that although some students were setting learning goals and were aware of how CSCL tasks can help them achieve these goals, they were generally conscious about their assessment (vis-a-vis strategic learners). This is also was distinguished enthusiastic learners whose main aim was to learn from their experiences irrespective of whether they were assessed or not. This also brings forward two propositions: the influence that external, pedagogical factors exercise on individual learner engagement and the role that engagement plays in how students envisage their learning outcomes. Both of these implications will be discussed in subsequent sections.

*“I think it's a big advantage to work as a group because you have to be ready to work like that in the future life and it is really important for us.”*

*“Before, I've never been in this kind of situation like many people together, group talking, and it is quite beneficial. You can observe others' opinions and it's like in the real life because in a company now you should work in a group.”*

Other personal factors which appear to positively influence learner engagement include the students' know-how and prior experiences with similar technologies or learning tasks. Familiarity and expertise with CTs or CSCL tasks gives students confidence and skill in approaching similar tasks as part of their postgraduate education and triggers their engagement. Furthermore, the students' self-perceived confidence in textual and verbal communication was another factor facilitating their engagement with blogging and video-conferencing tasks respectively. This was often related to the student's cultural background (e.g. native English speakers and European students appeared to be more confident to express themselves verbally). However, each individual student's professional and academic background also had a great impact on this. For example, non-European students who had been working in international companies, had previously studied other degrees in English-speaking universities, or lived in the country for a long period of time were as eager to engage with the CSCL tasks as other confident English speakers. In other cases, it was the student's personal interest with the subject matter that drove them to engage deeply with the content through the CSCL tasks. The role of personal interest is also documented in engagement and motivational literature.

According to the students' responses, their engagement with a given CSCL task was not only shaped by their individual qualities, aims, or interests but also by other people. Various group-level aspects emerged as influential in addition to the personal factors. Group-level aspects were categorised both under the people and situational classes since each individual was a student (person) and a peer (part of the social situation) at the same time which implies that each individual was influenced by, and exercised certain influences on, other learners. Group dynamics are often neglected in the literature; they are however as important as personal factors in shaping learner engagement with CSCL tasks. That engagement is reflected in both personal and group levels is a significant finding rather than an issue determined in the outset. This finding emphasises the distributed nature of learner engagement proposed in this thesis.

Overall, the situational or social influences include three major clusters of factors: group dynamics, technological, and pedagogical factors. While the latter is often documented in the literature, the role that group dynamics play in the ways individual learners engage in CSCL tasks is something which requires further research, particularly within CSCL contexts. One group-level aspect which was found to positively influence learner engagement includes mutual understanding and constructive rapport between group

members. Students in groups which sustained positive interpersonal relationships throughout the academic term were found to be more active and enthusiastic because they shared a common understanding of what is expected of them and knew that it will be to the benefit of the whole group if they all contribute equally. To achieve this they self-organised themselves, they assigned a group leader and other team roles to the group members, and tried to do the best they can, given the available time towards meeting the requirements of the tasks. This required a certain degree of effective communication between peers in a group; yet, driven by their common goal to achieve better outcomes they worked on making their relationships stronger.

*“The workshops give you the chance of actually work in groups, interact and it’s an important experience to the real world. You will be never working alone, you will be interacting with people. That’s the importance of this kind of experience working together, achieving a common goal.”*

Related to the theme of mutual understanding, some students explained that since everyone else in the group was contributing to the CSCL tasks they felt that they also had to contribute something. In other words, the dynamics in the group were such that generated a strong motivation and determination to engage. Although some students were engaging for the sake of the group rather than due to their own interest they were still engaging and contributing and therefore could gradually appreciate the value of the CSCL tasks more. Maintaining a productive collaborative environment within the group, by ensuring equal contribution among members and setting a clear common goal, was a recurrent enabler of learner engagement across groups and across cohorts alike.

Furthermore students mentioned that another aspect which triggered their engagement was the encouragement they had from their peers. In some occasions this helped students build their self-confidence and believe in themselves and as a result they found it easier to engage in the tasks. They felt that they were respected by their group and in return they attempted to contribute to the group by engaging in the group tasks. Peer encouragement and working in a group with easy-going, mature, and helpful group members contributed to their overall engagement. This was particularly evident in the way impulsive learners articulated their engagement. The findings described above indicate the dynamic interplay between individual and group engagement. Although the

exploration of how students engage as groups was outside the scope of this thesis, it definitely shows that this idea is worth exploring both in itself and in relation to individual engagement. In the field of CSCL and the broader domain of group learning and group theory there are many calls for the necessity to consider both the individual and the group as the units of analysis (Arrow et al. 2000; Dillenbourg 1999; Stahl et al. 2006).

As mentioned earlier, the group dynamics form part of the social situation in which students engage, collaborate, and learn. Whether students self-organise into groups or are assigned into groups by the lecturer the dynamic interactions developed amongst the group members are expected to trigger certain mechanisms which are conducive to learning. This is the underlying principle of collaborative learning (Dillenbourg 1999). There are however, additional situational factors which cumulatively influence learner engagement with CSCL activities, specifically the pedagogical and technological ones.

One pedagogical theme which emerged prominently was the importance students assigned to the instructor's active role and feedback. The fact that the lecturer was actively monitoring the group blogs and providing comments and suggestions on the students' posts was regarded as motivational for students and instigated their continuous learning engagement.

*Interviewer: What do you think about the feedback from [the instructor]?*

*Student A: For me it was helpful because each time I read the blog I also read the comments because I think it helps us for writing the next time.*

*Student B: It provides motivation and guidance.*

Continuous feedback enables student engagement by giving students guidance and a sense of approval. Similarly the lecturer organised discussion sessions following the videoconferencing tasks during the workshops, and invited students to reflect on their experiences and what they learned from them. The lecturer also prompted students to think about the benefits they gained from group work and from their engagement with CSCL tasks and suggested ways of improving the quality of their group work. These instructional strategies emphasise that learning is not confined to a single blog post or a one-off videoconference; it is a continuous journey through which learners build on and

reflect on previous experiences and knowledge with the aim to expand their understanding. The active presence of the lecturer is central in initiating and maintaining learner engagement with such experiences. This statement does not intend to counteract the student-oriented learning experience promoted through the use of CTs; rather it emphasises that CTs should not replace traditional teaching and learning practices but complement and extend them beyond the classroom. Using the blogs was in this sense an extension of the students' learning environment yet the instructor was still there as a mediator – monitoring student engagement and providing feedback to students – and many students appreciated this.

In many occasions students also reiterated how inspiring the external motives and incentives provided by the lecturer were. Praising the best efforts in the class either verbally or by giving out small prizes to signify the most respectable contributions were well-perceived, especially given the fact that the tasks were voluntary and did not count as part of the students' overall assessment. The focus group dialogue below indicates how such strategies can be perceived as motivational (brackets added):

*Student A: We are not forced any of us to do the things together but still some things we are doing together so that was a good point over here [...] And the one thing I would like to mention again is when [the lecturer] distributed the two small prizes for two groups that was unbelievable, unexpected! We were one of the groups which got one of the prizes. That was a nice thing.*

*Student B: And it was motivating. The idea was really good.*

*Student A: It has a motivating purpose because I thought ok we really did something compared to the other people. So that was good.*

Further to the instructional approach taken by the lecturer, another dominant theme identified was the type of the tasks. Different students realised the nature and purpose of the CSCL tasks differently. Regarding the nature of the tasks, some students reported that the fact that they were interesting and challenging triggered their engagement. In other occasions it was the novelty of the tasks or their relevance to the theoretical material of the course that triggered the students' interest. They referred to the case studies or the specific scenarios they had to participate in and how these helped them envisage what they were required to learn from the course. To their eyes the purposive and meaningful nature of the tasks was of central importance. I will return to this theme

in the next sub-section as it was a prominent, recurring indicator of engagement and was suggested by students as a precondition of engagement.

Technological factors also seem to play an intervening role in the process of learner engagement. On the positive side, the use of CTs was perceived as the means by which students enhanced and expanded their face-to-face contact through web-based interaction. This ‘complementarity’ feature of CTs is applicable to the context of HE. CTs allow students to engage with the learning content and each other from different places and locations (physical and virtual ones). Since different places are often associated with different levels of formality, different students found specific technologies more useful than others and engaged with them more. For example, blogs were considered more informal in the sense that students were in the comfort of their homes when blogging or browsing the blogs. This informality was perceived as an enabler especially for shy students and for those who generally prefer to study individually. Despite their inclination towards individual learning however, many students did engage due to the nature of the specific CT. Some of these students (vis-a-vis impulsive learners) would possibly fail to engage with the course content and other students if the blogs were not used as a complementary method of learning.

Another influential feature is the multimodality of the available technologies. Taking for granted that students have diverse and multiple learning styles and preferences, choosing a set of CTs that collectively supports diverse modes of interaction was found to positively influence learner engagement. This has practical implications for educators who need to employ appropriate CTs and design CSCL which support multiple learning styles and preferences. While some students thrive in oral interactions, some other students find it easier to engage in written communications using blogs, forums, or wikis, because they are shy or lack the confidence to break into open discussions (Cress & Kimmerle 2008). In a number of instances this issue appeared to be a strong motivating factor for writing on the blog. For many students the blog acted as an alternative medium for expressing their views (brackets added):

*“When we speak, the number of ideas [she] contributes is less, but when she writes it down I understand she has so much to express! Maybe she cannot speak it out as much as we can but I know she is working hard and I can read what she has written on the blog.”*

The motivating factors for engaging with the blogs in particular can also be attributed to a number of additional reasons. First, blogs featured information which was highly relevant to the students' assessment, that is, their individual assignment and the final examination. I also found some anecdotal evidence regarding students' participation on the blog. While commenting on each other's ideas was limited, almost every student mentioned they were visiting other groups' blogs to get an idea of what they were expected to do or to find relevant information to complete their assignment. Second, the information was concentrated and centralised. The blogs permitted the sustainability and recordability of learning content which students found helpful for their learning as a whole. Furthermore, writing on the blog helped students to elaborate on what they read in books and get different viewpoints. In addition to group work and open discussions in a classroom, participation of learners on a common artefact such as a blog can improve knowledge quality and make learning more interesting and engaging.

*“The blogs for example when we were doing the actual coursework they were quite helpful because you had an overview of what we've done the whole term.”*

*“In this subject after every week's session we had something written so it was like logging in what we did in each and every session. We had the things written by our own hands so it was more helpful to remember things.”*

Third, a few students mentioned that they found it interesting to observe how differently they understood a concept compared to their peers when they read their blog posts. If blogs were not used as a shared learning space to complement students' learning these diverse views and ideas would not be visible and open to discussion. The visibility of the students' reflections made possible through the use of the blogs allowed students to realise the diversity in the way their peers realised the same concepts which, in turn, triggered their interest to go back to the blogs again and again. Therefore engaging on the blogs gave students a sense of confidence that they are on the right track by comparing their views with those expressed by their peers. The following extract serves as an illustration:

*“It was interesting because all the other opinions and the ideas that we had of an approach they had a completely different idea. So it was really interesting to see what five other people's ideas would be at the same –exact same– thing.”*

With respect to the videoconferencing tasks, many students could see the link between their training with ColLab and the technologies businesses actually use to manage their projects and human resources. The hybrid nature of the BIS degree helped towards realising how ColLab can help students prepare for their future careers. The degree focuses precisely on topics such as managing people and technologies, sustaining web-based businesses, and running international projects from multiple locations around the globe. Unquestionably, the integration of CTs in education opens up novel arenas for learner engagement and helps to prepare students for a technology-driven business world. Especially with the prolonged critical financial situation experienced by many companies, the use of CTs is employed as an alternative to travelling and other more expensive ways of communicating. The following table summarises the major factors organised under each cluster of the enablers-side of the hierarchical model.

People		Social Situation	
Personal factors	Group dynamics	Pedagogical factors	Collaborative technology
<ul style="list-style-type: none"> <li>• Intrinsic motivation</li> <li>• Deep approach to studying and learning</li> <li>• Clear expectations</li> <li>• Setting learning and career-oriented goals</li> <li>• Prior knowledge and familiarity with similar technologies and tasks</li> <li>• Confidence in verbal and textual communication</li> <li>• Personal interest in the subject matter</li> </ul>	<ul style="list-style-type: none"> <li>• Mutual understanding</li> <li>• Effective communication in the group</li> <li>• Equal contribution from members</li> <li>• Peer encouragement</li> </ul>	<ul style="list-style-type: none"> <li>• Role of lecturer as an active mediator</li> <li>• Continuous feedback, support, and monitoring</li> <li>• Emphasis on the benefits of group work</li> <li>• External incentives (recognition, rewards)</li> <li>• Interesting and challenging CSCL tasks</li> </ul>	<ul style="list-style-type: none"> <li>• Complementarity of learning places (face-to-face and technology-mediated)</li> <li>• Informality of the technology or setting</li> <li>• Multimodality of the technology: ability to support multiple learning styles and preferences</li> <li>• Sustainability, recordability, and visibility of learning content</li> <li>• Training opportunities and preparation</li> </ul>

Table 5.7: Enablers of learner engagement with CSCL.

The findings from analysing patterns of engagement with real-life CSCL tasks show that a number of aspects can also deactivate engagement in these tasks that is, the way



in which each student will engage with the task. At a personal level, the most common factor which appears to discourage learners is student apathy towards their degree, their professional future, and their learning altogether. Despite the fact that these students were at a postgraduate level of education, their indifference and lack of interest indicated a sense of immaturity which is uncommon or even unacceptable at this level. When I explored this further I found out that this minority of students (vis-a-vis withdrawn learners) lacked the motivation to engage with the learning tasks for three main reasons: either because they considered their previous work experiences as more advanced and business-oriented than these tasks, they came from wealthy families and their employment was not a serious concern, or because they had already earned another postgraduate degree in the past. Some of the students who expressed these issues as a reason for failing to engage with the CSCL tasks seemed to be conscious of their decision to do so and were not cautious with revealing their reasoning and expectations.

Other students provided a clear distinction between learning and achieving high grades and focused their attention on the latter. They focused more on reading books and the suggested articles rather than on sharing their ideas and discussing their views with their peers either in the workshops or on the blogs. This indicates that some of the students who adopted a surface or achieving approach to learning failed to engage deeply with the CSCL tasks. The influence of a student's intention on engagement was apparent; especially in the absence of any form of assessment. Furthermore, as mentioned earlier some students had anticipated the relevance of the blogs' content to their individual assignment and this was a strong motivating factor for engaging with the blogs. At the same time however many students failed to see this connection. This finding was unanticipated indicating that the connection between the CSCL tasks and the assessed part of the course (e.g. assessed assignments and examinations) was not apparent to some students and as a result they formed unclear or fragmented expectations. By failing to see this connection they felt that there was not much purpose in engaging with these tasks, especially since they did not count towards their grade. Another personal barrier towards engagement was the lack of confidence in direct interactions, although this was more prominent towards the beginning rather the end of the academic term as students increasingly started becoming more confident. Again the nature of the BIS degree may have contributed to this shift due to the numerous group assignments given to students.

Group-wise, barriers such as conflicts, dislikes, and disagreements among peers, the absence of a group leader, free riders or dominating members in the group were evident. The following dialogue is taken from a focus group with an underperforming group whose members were not getting along and their contributions at an individual level were minimal. While the first student attributed the lack of his engagement to the absence of a group leader who is supposed to coordinate the group and to the fact that the CSCL tasks were not official (i.e. they did not have deadlines or specific requirements), the second student expressed his opposition to his approach. Both of these students demonstrated low engagement indicating once again that the overall group dynamics have an evident impact on individual engagement. Even when individual students are willing to engage they may fail to do so as a reaction to their peers' engagement. For example, if there are free riders in the group, or dominating members who want to take charge of everything and fail to take into consideration everybody's ideas and suggestions then a negative climate is created in the group which may eventually neutralise engagement.

*Student A: We didn't choose a group leader for this group because we didn't have any particular deadlines or anything. It's when you have a report to submit that you have to.*

*Interviewer: Does it make any difference in the way the work is done?*

*Student A: It's certainly different because one person is there to coordinate it. In case there are a couple of people in the group lacking behind there is a group leader and you listen to that person because obviously you chose that person.*

*Student B: Even though you are not the group leader you can still do so many things.*

The lack of coordination and willingness to collaborate was another prominent factor hindering student engagement. For some students the task of coordinating the group took up more time and energy than carrying out task as such which in turn made the overall learning experience daunting.

*"I was struggling with one group, they didn't understand group work [...], everyone was thinking we'll just do it and then we'll just send it to one person and he'll just put it together and no meetings, nothing [...] but this doesn't work and I was*

*struggling having all of them together to put everything together.”*

At a pedagogical level, the most evident barrier to student engagement was the fact the CSCL tasks (blogging and videoconferencing) were not officially assessed. The lack of assessment was perceived by many students as a deteriorating factor towards their engagement and therefore acted as a barrier to some students' engagement. Although many of these students seemed to be self-aware of the relationship between engagement and learning they tended to ignore the real value of CSCL tasks. Many students explained that they would engage if the assessment strategies used were aligned with the overall expected learning outcomes. This confirms the need for constructive alignment (Biggs & Tang 2007). Shuell (1986) asserts that “If students are to learn desired outcomes in a reasonably effective manner, then the teacher’s fundamental task is to get students to engage in learning activities that are likely to result in their achieving those outcomes [...] It is helpful to remember that what the student does is actually more important in determining what is learned than what the teacher does” (p. 429). Also according to Ramsden (1992) ‘the assessment is the curriculum’ as far as the students are concerned. Students will learn what they think they will be assessed on, not what is in the curriculum or what has been covered in class. This is why it is imperative to design assessment tasks to mirror the desired learning outcomes (Biggs 2003). The following dialogue extract shows how some students explained – in a naive way – that their approach is chiefly determined by the way the lecturer designs the task and how the task will be assessed.

*Student A: Because we had so many of the assignments going on [...] I was not writing on the blog because I knew whatever I write is not going to be assessed.*

*Interviewer: Do you think marking the group work would affect it positively or negatively?*

*Student A: Personally, if you apply it to me it could work positively because I would put more effort in when I am assessed.*

*Student B: Yeah because there is motivation behind. If there is motivation then we have more interest to find information and things.*

An additional pedagogical barrier relates to some students' belief that the expected learning outcomes were not clearly articulated or re-emphasised by the lecturer. Students were also concerned with the imbalance between the time and effort they should spend on the blog or on preparing for the videoconferencing sessions since these CSCL tasks were not formally assessed. This concern re-emphasises the fact that extrinsic motives such as rewards and assessment can strongly influence the students' degree of engagement with CSCL tasks. When I investigated the issue further, I found two additional prominent issues related to low engagement. First, students did not want to spend extra time and effort on something which was not assessed. Second, a few students mentioned that they did not post comments to avoid conflicts with their peers.

Technology-wise some of the most evident barriers students mentioned included the intimidating nature of the videoconferencing tasks, the degree of formality or structure expected in the students' blogs (such as the need for using proper referencing, checking the grammar and syntax of posted comment, etc). Technology-oriented barriers did not emerge as strongly as the other categories of factors yet it is important to understand how technology may also have an impact on how students engage. The following table outlines the major barriers captured by the hierarchical model.

People		Social Situation	
Personal factors	Group dynamics	Pedagogical factors	Collaborative technology
<ul style="list-style-type: none"> <li>• Apathy and lack of motivation</li> <li>• Surface or achieving approach to learning</li> <li>• Unclear or fragmented expectations</li> <li>• Lack of confidence in verbal or textual communication</li> </ul>	<ul style="list-style-type: none"> <li>• Conflicts and disagreements</li> <li>• Free riders or dominating members</li> <li>• Lack of coordination, absence of group leader</li> </ul>	<ul style="list-style-type: none"> <li>• Non-assessed CSCL tasks</li> <li>• Demanding CSCL tasks requiring a lot of preparation, time, and effort.</li> <li>• Expected learning outcomes not clear</li> <li>• Imbalance between required effort and assessment</li> </ul>	<ul style="list-style-type: none"> <li>• Intimidating nature of the videoconferencing tasks</li> <li>• Formality of the technology</li> </ul>

Table 5.8: Barriers to learner engagement with CSCL.

The themes discussed above (both enablers and barriers) suggest that engagement is shaped by many factors rather than just the individual student's inclination towards a

particular learning style or learning approach. The influences are considered to be distributed across many people, pedagogical processes and technology-mediated places (formal versus informal) and these collectively affect how each learner engages. Therefore, the findings seem to suggest that learner engagement with CSCL activities is a social in addition to a personal phenomenon. As a distributed system, engagement is dispersed across many actors (people, places, or processes) rather than being dependent or centralised on a single source. Indeed, learner autonomy and choices are constrained by a relational interplay between contextual, group-level and personal factors. Occasionally, adult learners are making choices based on the level of control imposed by others (peers, instructors, sponsors) on their learning. Ultimately, learners will consider the costs versus benefits of a particular learning option and then make choices accordingly (Carroll et al. 2008). Particularly at postgraduate education this can explain why students often appear to be competing with each other or why they may shift their intuitive approach towards a learning task.

### **5.3.2.2. Purposeful interaction as a precondition of learner engagement**

In addition to the broad array of factors and circumstances which in the students' views enabled or obstructed them to engage with the group blogs and videoconferences, students also provided suggestions and hypothetical conditions under which they believe they would engage more. During the discussions with the students their overall impression was positive and many of them seemed to be very aware of the benefits they can get from using CTs as part of their learning. This included both short-term benefits (i.e. in reference to their individual assignment) and long-term goals (i.e. related to their future careers). However, some unanticipated findings also emerged regarding the students' enthusiasm and motivation towards using the system. Although many students mentioned that the videoconferencing exercises were very helpful, almost none of them actually used it outside the workshop hours. When I investigated this further I found that the limited adoption of the system was related to the fact that the use of the ColLab was not part of the assessment criteria. Something similar happened with the blogs. With the exception of a handful of students, the vast majority did not get into the habit of blogging even though they could see the benefits within the context of the specific course. When interviewing students they explained that they did not create blogs simply because they did not have a set idea in their mind on what to write about. These situations were prominent across both cohorts of BIS students and they suggest that

although students join a university degree in order to learn and develop their skills and prospects, this does not necessarily mean that learning outcomes constitute their primary motivating factor.

Conversely, the workshops were not assessed either yet they were considered as beneficial by students. Many students explained they were satisfied with the group discussions and experience they gained with ColLab and group work during the workshops. Why, then, did students attend the workshops and wanted to be part of the videoconferencing exercises while using ColLab outside the workshop was limited? This question impelled me to investigate what motivated students to attend the workshops in the first place. I found that during the workshops students knew they will have a specific task to complete and a given case study to discuss which guided their interactions during the videoconference. In their words there was a 'purpose' for using ColLab. Students mentioned that it is difficult to arrange similar videoconferences on their own. Another reason was that they could easily connect the CSCL tasks with their overall learning and they were aware that this experience would be directly relevant and useful for completing their individual assignment. Many students also explained that the feedback provided from the course coordinator during the workshops was invaluable for their learning.

This recurring social phenomenon was captured by a theme described as 'purposeful interaction'. The study revealed that learner engagement with CSCL activities presupposes purposeful interaction. In essence, purposeful interaction emerged as a vital precondition for learner engagement and is proposed as an integrative theme encompassing the collective influence of the enablers described above (personal, group-level, and social/situational) as well as the inherent value that the presence of an explicit collaboration purpose plays in achieving learner engagement. Fundamentally, this theme concerns the role that a clear, recognisable purpose plays in CSCL activities in order to be fully attained to by students. Purpose is defined as a learner-oriented reason for, or incentive towards, engagement; interaction is defined as the process and inherent activities in which students are expected to engage with as part of their assigned CSCL tasks. Purposeful interaction and collaboration are essential for engaging learners in CSCL activities. This integrative theme encompasses ideas such as constructive alignment between tasks and assessment, peer-encouragement and lecturer-monitored CSCL tasks. It also emphasises the fact that academics should not assume that learners will engage because they are postgraduates or because the tasks can contribute to better

learning outcomes. Additional incentives need to be promoted, such as emphasising the benefits that this learning experience will have on their future careers or instigating learner engagement through the design of authentic, purposeful CSCL tasks. Thus, purposeful interaction is defined within the broader array of personal, group and situational factors active in a CSCL context. Most importantly, this theme emphasises the significance of designing CSCL activities which are directed towards a clear, explicit purpose, and captures the impact of pedagogical design on learner engagement.

To students' eyes the purposive and meaningful nature of the tasks was of central importance. Purposeful interaction was prominently suggested by withdrawn, impulsive, strategic, and enthusiastic students alike as a precondition of engagement. This seems to suggest that students need to see that their interactions, collaborations, and contributions in group tasks have a reason and that they are not simply sitting in front of the camera for the sake of it. Students articulated this 'purpose' in different ways: some considered assessment as the main purpose of CSCL tasks; others viewed the purpose of CSCL tasks as a skill-building exercise; while others saw little value in participating. A prevalent sub-theme involved the importance that students (including enthusiastic ones) assign to purposeful assessment strategies. The following extract serves as an illustration:

*“Again, one more suggestion for this course. I thought at first that these blogs or workshops, we should force them to get some sort of assessment so that people will take interest and they will get benefited more. So if say ok, all 10 workshops will be counted as a 10% of your course if you do it. [...] If we can force it to count for 10% or 5% then I think people will take it more seriously and once they take it more seriously then they will learn better.”*

This finding does not intent to suggest that all postgraduate students are assessment-oriented or that they should be. Contrarily, it argues that we need to understand how it is that different postgraduate students view their engagement with CSCL tasks and how we can maximise their engagement by delimiting potential barriers and promoting the suggested enablers. Although it is not expected (or even acceptable) that all postgraduate students will be assessment-oriented many of them are. In this study more than half of the students across both cohorts appeared to direct their level of engagement based on what is assessed and what is not. The main issue here is that many of these students have families to take care of in addition to a full-time or part-time job parallel

to their postgraduate studies. It is logical then, that they may prioritise their tasks according to the time and effort required against the value or benefit they will gain. These postgraduate students tended to weigh the costs versus the benefits and draw an action plan accordingly. This tendency was often above and beyond the students' personal characteristics and natural inclinations. Furthermore, although younger students are often more enthusiastic and want to explore new ideas, they too want to complete their postgraduate degree with a high grade to ensure a bright future career. All these situations relate – in one way or another – to how the tasks are designed, presented, and assessed. Furthermore, findings suggest that, in the same way that enablers and barriers may affect the learning outcomes, purposeful interaction may also indirectly affect the learning outcomes. This highlights the mediating role that engagement plays in the learning process.

Overall, to engage the students and encourage them to take control of their learning experience, there is a need for a place where interactive and stimulating content can be developed (Lehtinen 2003). This place can be created through the use of technology, through appropriate pedagogical strategies and by managing group interactions. Still, providing the right incentives and engaging postgraduate students are ongoing challenges for instructors. Incentives can range from formally assessing the participation on the CSCL tasks, from providing clear links to other learning tasks, to rewarding best practices and contributions on an individual and group level. Incentives can be explicit or implicit and tangible or intangible. Students' expressed views indicate that incentives need to be present, obvious and clearly articulated to students. Students need to see a clear, authentic purpose for engaging, and this suggests that purposeful interaction is a precondition of learner engagement with CSCL tasks. Managing the balance between the required effort and how much that effort contributes towards students' assignment is also crucial. The 'purpose of having a purpose' in what students do is key in managing and empowering their engagement. Many scholars have also suggested that in order to achieve learner engagement there is a genuine need for learning tasks which are meaningful, purposeful, and relevant for learners (Bonk & Cunningham 1998; Kearlsey & Shneiderman 1999).

The identified patterns related to this theme reinforce the importance of motivation in educational practices especially when these involve teamwork and interaction through technology. Findings seem to suggest that postgraduate students are more likely to engage in CSCL activities when they can see a clear purpose, value, or benefit.



Theorising learner engagement as a socially distributed phenomenon suggests that it is not confined to the individual learner but rather it is the result of a dynamic negotiation between the individual, his or her peers, and the social situation defined by the collaborative, pedagogical, and technological context. The hierarchical model of enablers and barriers captures and presents the most prevailing factors that transpired during analysis. This model helps to generate a rational understanding of the potential internal and external influences on learner engagement as experienced and expressed by the students, hence addressing the second research question posed in this thesis. Moving one step further, the idea that learner engagement presupposes purposeful interaction enriches this understanding. This integrative theme encapsulates numerous factors which are conducive towards higher levels of learner engagement and therefore has central implications for educational practice. The fact that both the hierarchical model and the notion of purposeful interaction emerged inductively from the data and were evaluated through relevant literature is an important contribution of this research.

### **5.3.3. Understanding how learner engagement relates to the learning outcomes**

The third and final research question intended to explore how the nature of learner engagement relates to the learning outcomes. This question encompasses several sub-questions such as: What learning outcomes do postgraduate students envisage (i.e. what do students expect to learn)? What learning outcomes do students believe they have achieved in the end (i.e. what do students actually learn)? How does learner engagement (versus learner disengagement) affect the learning outcomes? Are students aware of how or whether their engagement affects their learning outcomes and vice-versa? How do students realise the relation between their engagement and their learning outcomes? There are also some practical questions, for instance: How can the learning outcomes be measured or operationalised (i.e. based on academic performance or students' self-assessment)?

To be able to explore how learner engagement relates to the learning outcomes, I sought meaningful ways to evaluate and measure each variable. The WISE taxonomy provided a model for evaluating learner engagement. To assess the learning outcomes I analysed the students' self-assessment and identified the most prominent learning outcomes phrased by students. I then compared the learning outcomes expressed by engaged students with those mentioned by disengaged students. Academic performance was also

regarded as a learning outcome. Hence, I considered the students' assignment marks as an objective measure of student performance in an attempt to explore how engagement impacts the learning outcomes from a different angle.

During the thematic analysis of the aggregated qualitative dataset two major themes emerged. The first theme revolves around the type of learning outcomes based on the ways students articulated them. Learning outcomes were coded based on emerging themes and were further organised under practical (social and technical) skills, theoretical knowledge, and academic performance. The same learning outcomes were also categorised based on the point in time during which students realised them. This categorisation captures the distinction between expected (envisaged) versus actual (achieved) learning outcomes. What (and how much) students expected to learn did not always match what they gained in the end through their engagement with CSCL activities. Moreover, when talking about their expected versus actual learning outcomes students were more passionate about the latter. This emphasises that, on the whole, students got more things (both quality-wise and quantity-wise) from participating in CSCL tasks than they had anticipated. The second theme describes the links students made between their learning experience and their career prospects and aspirations. This theme surfaced early and prominently during the data analysis process. Students perceived the practical skills and their academic performance as more relevant to their future careers than the underlying theoretical knowledge. This theme reflects a maturity in postgraduate students' reasoning regarding their learning experiences and how these may be extrapolated in future career scenarios.

The following paragraphs describe the most evident learning outcomes (LOs) reported by students and how they relate or connect to learner engagement (LE) patterns. For the purpose of reporting the data analysis and interpretation, the findings are presented under three sub-questions: (i) How does learner engagement (versus disengagement) affect the actual learning outcomes? (ii) How do the expected learning outcomes affect engagement? (iii) How do students realise the interrelation between their engagement and their learning outcomes? These guiding sub-questions altogether aim towards understanding the potential correlation between these two variables. The following notation is used to reflect each of the sub-questions respectively: (i)  $LE \rightarrow LOs$ ? (ii)  $LOs \rightarrow LE$  (iii)  $LE \leftrightarrow LOs$ ? In essence, the third sub-question encompasses the other two. However, it was beneficial to deconstruct the relationship and explore each direction of

the relationship separately, before going into a deeper examination of the underpinning mechanisms under which it holds and how students become aware of it.

Addressing the first sub-question (LE→LOs?) entails exploring how the variation in the degree of learner engagement affects the ensuring learning outcomes. Towards addressing this issue I explored how engaged students articulated their learning outcomes compared to disengaged students. I found that overall, engaged students (with enthusiastic or impulsive profiles) articulated their learning outcomes in a mature and meaningful way and tended to make explicit connections between their engagement and their self-perceived learning outcomes. They also seemed to appreciate learning outcomes not just as an end in themselves but also as a means towards improving their career prospects. Appreciating the long-term value of their learner engagement was a prominent attribute of enthusiastic learners. Contrarily, disengaged students (with withdrawn or strategic profiles) appeared to be less confident to articulate what they learned through CSCL. One reason for this may be the fact that some of them simply did not engage adequately with the tasks in order to be in position to fully articulate how or whether their engagement affects their learning. Furthermore, when speaking about their outcomes, strategic learners focused more on the assessment of CSCL tasks. They articulated their learning outcomes in terms of their academic performance; for them what they achieved from the CSCL activities was expressed in terms of the marks they gained.

Engaged students (i.e. students who adopted an enthusiastic or impulsive learner engagement profile) expressed numerous learning outcomes which in their view resulted from their close engagement with CSCL tasks. The most prominent theme was communication skills. By engaging actively in real-life, interactive CSCL activities such as videoconferences and blogs, enthusiastic and impulsive learners appreciated the communication competence they gained. Some of them reported that their participation also helped them acquire or enhance additional social skills such as self-management, effective teamwork and collaboration, patiently listening to others, understanding others' perspectives, clearly and confidently expressing their views to others, being flexible and tolerant to diverse situations. In students' words:

*“By sharing experiences you learn.”*

*“Four people will obviously have four different perspectives; it's hard to make your point to come across to other people in the group. You have to prove your point and*

*unless you do that it is like you are throwing an idea just like that. That, I don't think it will come at the first group meeting but after one or two meetings you automatically understand this is what I need to do to get my point through."*

*"Group work improves your skills of communicating with other people."*

*"[When] talking to other people initially I was not able to properly understand whether they understand what I am speaking about and what their idea is. Now I think I can better understand it."*

*"You get the patience to listen to other people."*

*"[...] we can get an understanding of what each person's view is and their level of perception."*

Another social skill which students developed through their engagement with CSCL activities is conflict management. Especially in non-functioning groups or groups with free-riders, students mentioned that conflicts were a usual phenomenon. Still, a few students were able to appreciate that through this experience they did not only become familiar with handling conflicts and developing strategies for self-management, but they also realised that conflicting views can in fact lead to better ideas – if they are skilfully and constructively negotiated:

*Student A: [...] Only when ideas clash [putting his hands together making a clapping sound] that is when you apply your brains more and come out with better ideas.*

*Interviewer: If you can overcome conflicts.*

*Student B: That's a skill, because in real world when you are working in companies it is harder on one person to get on the opposite side of your ideas irrespective of being right or wrong. So if you don't have a small experience of how to handle conflicts or if you have never been into that, you will be in a very difficult position when you will be working.*

As previously discussed, students appreciated the blogging tasks and videoconferencing tasks at different extents. Blogging was associated with collaborative writing where students had to work together – practically as well as intellectually – to create a coherent content on their blogs. They also had to self-organise and coordinate their actions in order to effectively maintain their blog and ensure it is regularly updated.

These hidden or back-end activities were highly interactive and involved collaboration-in-practice.

*“It would be easier if [...] we had to do something individually, so ok I would take it back to my room, I would study and I would write something. That’s not a problem. But the issue is how to interact with the others to write something down.”*

With respect to the ColLab activities, some students were excited with the opportunity to use a modern videoconferencing system since they did not have prior experience with similar systems. Other students however appeared to be intimidated by the nature of the task. Watching the participants on the remote side through one screen, viewing additional resources or a live reflection of themselves on the other screen, ensuring they can hear and be heard clearly, collaboratively creating shared documents on the smart-board, and managing their ongoing conversations altogether requires multi-tasking. By definition such tasks are challenging especially for novice users. Nevertheless, by participating in these tasks students slowly started gaining the competence and confidence to manage the collaborative situation at multiple levels. Students were practicing their communication skills, applying theoretical knowledge into practical case studies, while simultaneously gaining practical experience with the technology. Eventually students reported that the more they engaged the more confident they felt to manage similar situations. In essence the videoconferencing tasks supported engagement across all dimensions: behavioural, intellectual, and emotional. The following student talks about what how his engagement with ColLab affected his learning outcomes:

*Interviewer: What kind of skills did you learn that will help you in the future?*

*Student: We always knew the theories of how to work in a videoconferencing but actually sitting in front of a camera and speaking as a group is really hard. It’s like being on the stage in front of a hundred people, especially if there is an audience sitting behind and watching both groups, it makes it more harder. But it was really good.*

*Interviewer: Do you think that if you use it more times it would be even better?*

*Student: Yeah. The thing is we got an idea already on how to use it and now the next day we are going to be prepared. So, we know what's going to happen. It's going to be a lot easier.*

The excerpt above shows that even though some students found it challenging at first, they could see the benefits in the long term. Engaging with real-life tasks allowed students to get their hands on the technology and gain familiarity with an advanced videoconferencing system in a safer environment before they enter a more demanding setting, the real business world. Students mentioned that using ColLab as part of the course gave them the confidence to use similar systems in the future. They also seemed to be aware that during the videoconference they had to focus on many things at the same time such as making sure the remote audience can hear them and see them clearly, while also focusing on completing the actual task. By doing so, students started to appreciate the role of best practices in situations where two remote groups of people need to communicate and collaborate via videoconferencing. These practices are better realised through experiential learning rather than presented to students as a prescribed set of principles. Developing practical skills involves learning through trial and error. It is similar to learning how to ride a bicycle. One cannot learn how to ride a bike simply by reading instructions in a book; learning entails getting on the bike, falling over and getting back on, figuring out how to balance artfully on two wheels. The only difference between learning how to ride a bike and collaborating through CTs is that the former involves managing a situation defined between the person and the task, whereas the latter requires a constant re-negotiation between the person, the task, and other individuals within a certain social context. In this sense, CSCL presents students both with the challenge and the opportunity to master the art of collaboration through CTs.

*“With some of the techniques we discussed [...] we understand how to make it easier to get these interactions going, like pausing during the discussion and things like that.”*

*“The way we react changes, we familiarise with things.”*

*“The workshops give you the chance of actually work in groups, interact and it's an important experience to the real world. You will be never working alone, you will be interacting with people. That's the importance of this kind of experience working together, achieving a common goal.”*

In addition to communication, collaboration, and social skills, students reported that by engaging in CSCL tasks behaviourally as well as intellectually helped them develop their critical and logical thinking and appreciate diverse perspectives on theoretical ideas. Their learning did not simply revolve around attending lectures and reading things from books or journal papers. Learning about new theories, understanding various design and evaluation models, and analysing cases studies did not solely involve reading and comprehension. Through specifically-designed CSCL tasks, students were presented with authentic opportunities to discuss these theories and share their analytical views in face-to-face and web-based discussions; apply the design methods in practice and critically analyse the underpinning principles; and experience real-life case studies through role-playing and decision making. More importantly, the multi-cultural context of the degree enabled many students to share experiences and communicate effectively with others coming from diverse backgrounds and cultures and as a result enhanced their theoretical understanding and critical thinking (brackets added):

*“I mean what I learned from this is my thinking space has increased after this course and now I can think from different perspectives.”*

*“[Developing] logical thinking, learning how people think, how to use the environment, how to adapt to the environment.”*

*“Everyone has been doing individual studies throughout their lives so if we are still doing the same thing that wouldn't be such a good approach for this course. I think the group idea is much better because you learn to interact with people and the most important thing is you get to know how other people think. And because we are from different countries the way we think will be definitely different.”*

Furthermore, in a few occasions, students mentioned that they actually got some unanticipated learning outcomes related to their personality, or the way they approach certain situations which they would probably not encounter if the CSCL tasks were not part of the course. For instance, students working in groups with low performing peers either took the initiative to carry the group forward or appeared to be disengaged as well. In the former case, by assuming a leading role and taking on most of the workload rather than following what their peers did, some students realised that this was in fact a learning experience in itself:

*“In the first week nobody took the initiative [...] I first started doing some things and distribute the work accordingly. [...] So I think I developed some characteristics of myself.”*

While engaged students clearly articulated how their engagement helped them develop certain skills, disengaged students were less specific when talking about what they learned from the CSCL tasks. When asked what they actually learned, or what they got from the CSCL tasks, withdrawn students talked about the lower-level knowledge they gained such as learning what a blog is, learning what a videoconference is and what functions it allows users to perform. They failed to make deeper connections between their learning experiences with CSCL tasks and their skills development. Although a few of them seemed to be conscious that they can learn something when working with others, they talked about it in a vague, uncertain way and failed to fully articulate the specific practical skills or theoretical knowledge they gained. Moreover, they failed to make strong connections between their engagement and their future career aspirations. Learning from others by engaging in CSCL activities is considered a valid learning outcome which is at the core of collaborative learning practices; yet, it was clear that engaged and disengaged students reasoned differently about how (or whether) their behavioural, intellectual, and emotional engagement affected their learning outcomes.

In addition to the qualitative data analysis based on the students' self-assessment of their learning outcomes (that is, based on what the students themselves believe they have learned or achieved through their engagement with the CSCL activities), I was also keen to explore the same relationship (LE→LOs?) using some quantitative data. In particular, I used the assignment marks each student got for their individual, written assignment and wanted to evaluate how the degree of their engagement (based on the WISE taxonomy) relates to an objective measure of the academic performance of each student. Figure 5.14 diagrammatically displays the resulting findings (including data for extreme cases).



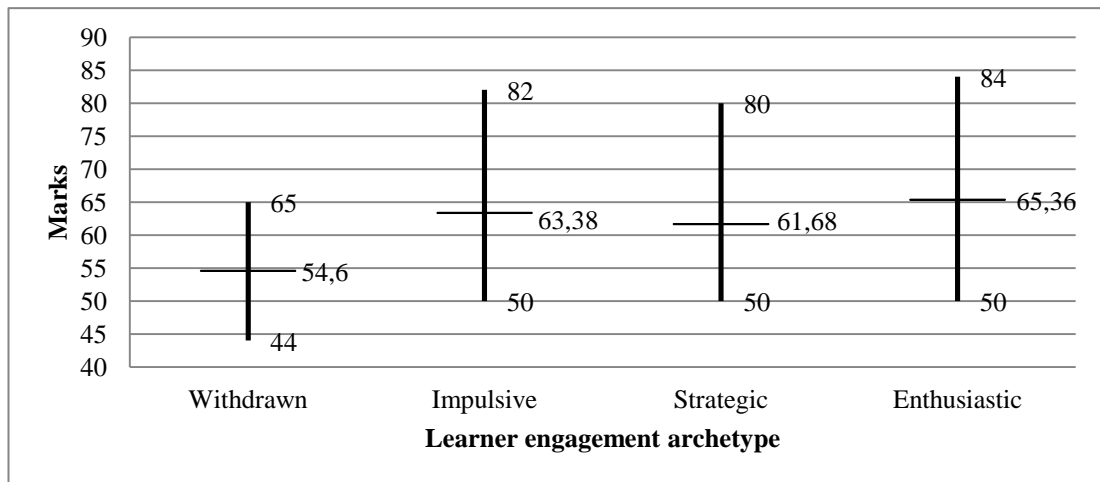


Figure 5.14: Academic performance for WISE archetypes based on assignment marks.

Addressing the second sub-question (LOs→LE?) entails exploring how the variation in the self-reported expected learning outcomes affects the degree of learner engagement. Towards investigating this issue, I explored how students tend to justify the ways in which their envisaged learning outcomes affected the degree of their engagement. The findings indicate that essentially all students formulated certain (clear or vague) expectations from the CSCL tasks in particular, and the course in general. Another observation was that the students' anticipated learning outcomes appeared to define the nature and degree of their overall engagement. Students' expectations were driven by various factors such as their personal goals/interests or the curriculum design. Expected learning outcomes were either learning-oriented (e.g. aiming towards better theoretical understanding, enhancing communication skills, improving teamwork, gaining leadership abilities, and so on) or performance-oriented goals (e.g. aiming at achieving high marks). Findings suggest that students who had formulated learning goals/expectations from the CSCL tasks were also those who appeared to be more engaged behaviourally (i.e. they were more active in the CSCL tasks), intellectually (i.e. they demonstrated a deep approach to learning and appeared to be intrinsically motivated), as well as emotionally (i.e. they expressed feelings of satisfaction, eagerness, and enthusiasm). This indicates that not only learner engagement shapes the way students articulate their learning outcomes, but also that the ways students envisage their learning outcomes drives their engagement. Overall, students who had formulated clear expectations from the CSCL tasks and worked towards achieving certain learning outcomes were more eager to engage compared to those who seemed to be unclear about the purpose or the value of the tasks. In particular students who realised that in

order to learn how to better express themselves to others, how to better collaborate in a team, or how to better comprehend theoretical knowledge, were also found to be more engaged with the CSCL tasks. The following students describe how they articulate this:

*“[...] you have to express individually what you believe but you have to start thinking how you can express yourself in a group. This is also important because in one or two years we will be in the market so it’s time, it’s a good opportunity to start thinking how we can express ourselves in groups.”*

*“That is the challenge we will have to deal with as future managers because if you are going to work in another company you will be in a team with an unknown set of people and you have to learn to do the best you can in a team.”*

*“So if I am to achieve something from this subject I think I have to work in a group, it is better. If there is an individual theory then you can go and read anytime, it’s up to you. But this kind of things you will never learn.”*

In many occasions however, it was unfeasible to disentangle the ways students talked about their engagement in relation to their actual or expected learning outcomes. Therefore, the third sub-question (LE↔LOs?) provided a basis for analysing the students’ expressed views, thoughts, and beliefs at a more conceptual level. The expressed views are based on the students self-reports and self-assessment of their engagement and learning outcomes alike. The aim in analysing the students self-reports was three-fold: firstly, I wanted to understand how students make sense of their overall engagement with CSCL activities; secondly, I sought to identify what students expected to learn compared with what they actually learned and what role engagement played; and finally, I aimed to draw inferences that would help me explain how students became aware of the relationship between learner engagement and learning outcomes.

The study findings suggest that learner engagement plays a mediating role in the learning process. In other words, the findings seem to suggest that the way students envisage their learning outcomes is affected by the engagement approach each student adopts, and vice-versa. Not only learner engagement affects the resulting learning outcomes, but the ways students envisage their learning outcomes seem to affect learner engagement. This bidirectional relationship between learner engagement and learning outcomes impacts the students’ overall learning experience. Furthermore, this relationship is not fixed at the beginning of the academic term; it is realised and re-

negotiated through ongoing experiences. As previously discussed in section 5.3.1.2, the findings provide evidence indicating that enthusiastic learners appeared to be consciously aware of the relation between engagement and learning outcomes, while the majority of withdrawn learners seemed to be unaware of it (see table 5.6). Impulsive students were generally aware of this relation yet some of them ignored it, while the majority of strategic students seemed to consciously ignore the impact of engagement on their learning. These findings suggest that engaged students are likely to be conscious about how their engagement affects their learning, and are keen to take advantage of it, hence achieving better learning outcomes. The opposite also holds as the majority of students who appeared to be consciously aware were classified as enthusiastic learners (62%) and these students also performed well academically (half of them received either merit or distinction for their assignment). Not only enthusiastic learners were aware about the interrelationship between their engagement and their learning outcomes but they also acted on it rather than ignoring it as most strategic learners did.

Overall, many students made connections between the importance of collaborative tasks and CSCL activities for their learning and development. The following extracts attempt to illustrate how the way students envisage their learning outcomes affects the way they engage with the CSCL and how, in turn, engagement affects their actual learning outcomes. This reciprocity was mostly evident with reference to communication and collaboration skills. Communication and collaboration was amongst the most regularly referenced codes identified during thematic analysis. Some representative quotes are presented below:

*“[...]if you want to work in a group you can learn how to cooperate with other people [LE→LOs], you can learn how to give your opinion to others [LE→LOs], maybe persuade others to understand you, it’s like a skill [LE→LOs]. In this course there are a lot of group discussions so it’s really good practice for me to cooperate with people [LOs→LE].”*

*“Before, I’ve never been in this kind of situation like many people together, group talking, and it is quite beneficial [LE→LOs]. You can observe others’ opinions and it’s like in the real life because in a company now you should work in a group and it’s good to know that when you have conflicts of opinion how to make other people to agree with you or how to listen, how to give your own opinion like that [LOs→LE].”*

*“The advantage is that you learn a lot from each other of how things are going to be in the real world where you have to work in a group [LE→LOs]; especially with how the IT world is changing you have to coordinate with other people to make it work [LOs→LE].”*

*“The life now is really cosmopolitan, you have to be ready to cooperate with the other person well [LOs→LE] yeah we have to, and it is really helpful for us I think [...] It's more interesting to listen to different opinions, different thinking, from different countries, different parts of the world, different ways of education [...] It's really interesting and demanding for me to change something in my character and my behaviour, in my knowledge, as a result [LE→LOs]. That's from the point of view of advantage of being in a group.”*

Social skills such as communication, collaboration, and coordination skills were also recurrently discussed in reference to work situations. As previously mentioned, a major theme related to learning outcomes involved the students' career ambitions. This theme surfaced early and prominently during the data analysis process. Its prominence can be attributed to the fact that many students already had an idea of what skills are relevant to a work environment due to their previous work experience. The following extract from a focus group discussion illustrates how I used prompts to gain deeper insights into how students connect their learning experience with their career prospects and aspirations:

*Interviewer: From all the things you've learned what do you think is going to be the most beneficial in your future career?*

*Student A: The experience of actually knowing how people think about the same objective in a different way.*

*Student B: For me at least, the most important was how to collaborate with the other people in the group; to see how people are thinking; because that's the most important, to see how they can approach the same problem from another way.*

*Student A: Yeah, that's what I meant to say, the experience of actually getting to know how different people would think. If it's the same question, then how different people have different views about that? It's the same thing you asked us to do discussing in our groups but still each one of us had very different ideas about what could be done.*

*Student C: I have to say my opinion. I agree with [student B], the group work is the most important for me, how to interact, how to cooperate with other people, how to listen to others'*

*opinions and how to learn from other experiences. So that's the most important for me.*

In general, students perceived the practical skills and their academic performance as more relevant to their future careers than the underlying theoretical knowledge. This theme reflects a maturity in postgraduate students' reasoning regarding their learning experiences and how these may be extrapolated in future career scenarios. Engaged students seemed to be very conscious of the potential benefits gained by engaging in CSCL tasks, listening to others, and experiencing different perspectives. The findings from analysing the students self-reports show that these tasks support the students' learning and understanding (theoretical knowledge) and enhance their social and technical skills. From a different angle, the findings suggest that students realised both the short-term (assignment-related) and long-term (career-oriented) learning outcomes associated with engagement with CSCL tasks. The reciprocity between the two variables (LE and LOs) was also evident through direct observations of students participating in CSCL and partly explains the observed shifts in students' engagement patterns both across tasks and across time.

#### **5.4. Distributed Engagement Theory (DET)**

This thesis contributes to theory by providing an empirically-grounded, theoretically-informed conceptualisation of learner engagement in CSCL at postgraduate education in the form of a holistic analytical framework labelled Distributed Engagement Theory. To fill the theoretical gap identified in the literature, DET was inductively developed through a longitudinal study incorporating mixed-methods data analysis procedures and was validated by drawing threads from various theoretical ideas found in relevant literature. The procedure of theorising learner engagement involved an iterative process of identifying patterns of engagement and disengagement with real-life CSCL tasks (both asynchronous tasks such as web-based participation on blogs and synchronous tasks such as classroom-based group work and videoconferencing discussions) and exploration of those patterns through available theory and research. This iterative process involved many cycles between inductive and deductive data analysis which led to the development and refinement of the proposed DET. The resulting theory attempts

to provide novel perspectives on and explain the nature and influences of learner engagement in CSCL.

DET provides the analytical tools for understanding what constitutes learner engagement within CSCL environments; evaluating the prominent factors (enablers and barriers) that affect and shape learner engagement; and exploring the mediating role that learner engagement plays in knowledge and skills development within postgraduate BIS education. This holistic analytical framework comprises the theoretical conceptualisation of learner engagement (defined as a multi-dimensional, socially-distributed, and essentially purposeful phenomenon); the hierarchical model of enablers and barriers; and the WISE taxonomy of learner engagement archetypes. The schematic diagram in figure 5.15 is a revised version of the theoretical framework proposed in chapter 3 (figure 3.4) and graphically illustrates the ideas emerging from the study findings.

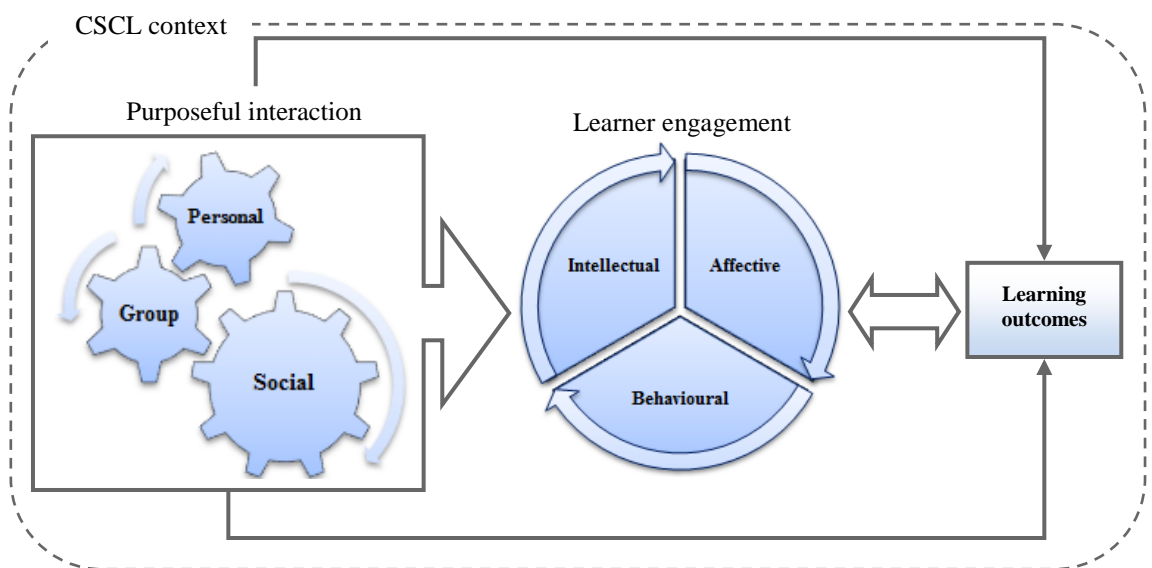


Figure 5.15: The premises of Distributed Engagement Theory (DET).

The proposed DET is founded on a number of key premises which are discussed below. After exploring, understanding and explaining the prominent patterns of learner engagement in CSCL activities and its underpinning mechanisms through a series of data analytical phases (multiple waves, holistic analysis, and higher order analysis), the ultimate endeavour was to present these in the form of a holistic analytical framework. DET is a hybrid analytical/conceptual framework which was inductively developed,

empirically grounded, and theoretically informed. The findings discussed throughout this chapter provided specific elements and connections which were used to refine the initial framework and address the theoretical gaps identified in the literature. The key premises of DET in reference to postgraduate CSCL environments are:

Premise 1: Learner engagement is constituted by behavioural, intellectual, and emotional constructs. It has a behavioural nature as it refers to how students act upon, or approach, a CSCL activity that is how they routinely behave when engaged in or disengaged from CSCL activities. Learner engagement is reflective and intellectual to the extent at which it is manifested in cognitive, mental processes and decision making. Students appear to consciously regulate their actions, interactions and approaches to learning based on diverse factors. Furthermore, learner engagement is enacted through expressed feelings and emotions. Learner engagement is characterised by a strong coupling between these three dimensions; hence it is defined as a multi-dimensional concept.

Premise 2: The relationships among the elements that constitute learner engagement and the potential (personal and social) influencing factors occur across various levels in dynamic and mutually reinforcing ways. This impacts the degree of engagement across each dimension of learner engagement and suggests archetypical ways in which postgraduate students may engage with CSCL tasks. The proposed WISE archetypes do not intend to label or confine individual students based on predetermined categories; rather they attempt to capture the most prominent instances of learner engagement across different dimensions and different degrees within each dimension.

Premise 3: Learner engagement is distributed across personal, group-level, and other situational factors. In this sense, learner engagement is not considered a trait-like characteristic which remains stable across settings and social situations; rather it is engendered through processes of social interaction and participation and is embedded in interpersonal relationships and the social, situational, and historical context within which it happens. Learner engagement is a multi-level phenomenon that occurs not only across individuals but also across groups. At the group level, learner engagement is defined as more than the sum of individual engagement. The findings seem to suggest that group structures, collaborative procedures, and group dynamics influence the way in which learners engage in CSCL tasks, and their collective engagement in turn influences individual learner engagement. The dynamic, powerful, and complex

interactions performed in CSCL environments (i.e. amongst learners, amongst groups, between learner and content, between learner and educator) inevitably affect the degree and nature of learner engagement.

Premise 4: Learner engagement presupposes purposeful interaction in order to be fully realised and experienced by students. In the context of CSCL at postgraduate education, it is imperative to demonstrate a clear, authentic, explicit, and shared purpose in order to engage students. This emphasises the need for constructive alignment between assessment strategies, pedagogical and instructional strategies, and strategies for monitoring and managing group interactions. It also highlights that in addition to the inherent engaging nature of CSCL activities, additional incentives need to be promoted by educators such as: emphasising the benefits that CSCL will have on students' future career or instigating learner engagement through the design of authentic, purposeful CSCL tasks. Thus, purposeful interaction is defined and negotiated within the broader array of distributed personal, group and situational factors active in a CSCL context.

Premise 5: Learner engagement is a fundamental precondition to learning and constructive learning outcomes and at the same time the ways students envisage their learning outcomes affects their overall degree of engagement. Postgraduate students can identify both short-term (assignment-related) and long-term (career-oriented) learning outcomes associated with their engagement with CSCL tasks. The reciprocity between the two variables (learner engagement and learning outcomes) is central in understanding the nature of each and how they interact dynamically within CSCL environments. In essence, learner engagement plays a mediating role in the learning process.

Collectively, the aim of DET is two-fold: firstly, to conceptualise the process of learner engagement specifically in CSCL activities and secondly, to provide practical recommendations to help practitioners (a) understand the need to move beyond the technological affordances of CTs and take a holistic approach in order to promote learner engagement; (b) accommodate diverse types of learner engagement, not just diverse learning preferences; and (c) cultivate the personal, group-level, pedagogical, and technological aspects of CSCL not in isolation but within the complex system they define.



## 5.5. Validity and reliability analysis

*“People are meaning-finders; they can very quickly make sense of the most chaotic events. [...] We keep the world consistent and predictable by organizing and interpreting it. The critical question is whether the meanings you find in qualitative data are valid, repeatable, and right.”*

(Miles & Huberman 1994, p. 245)

A rigorous and high quality research entails neutralising errors and biases and being transparent in the conduct of the inquiry. Ensuring both the validity and the reliability of the research findings also entails finding a balance between empirical data and prior theorising. As Glaser and Strauss (1967) argue, it is the intimate connection with empirical reality that permits the development of a testable, relevant, and valid theory. The nature of mixed-methods research allows researchers to borrow from both data-grounded (inductive) and theory-driven (deductive) approaches in order to maximise the quality of the findings (Onwuegbuzie & Johnson 2006). Replication, triangulation, and transparency in the research process are important aspects to consider when assessing its validity and reliability. These methods can help to alleviate errors (such as reactive effects or the investigator effect) and biases (such as the researcher’s personal views and beliefs).

Replication of research processes was achieved by repeating the same procedures with a different sample and then comparing the findings resulting from each to verify discrepancies and alleviate external effects. In the collective case study presented in this thesis I repeated the same procedures with two consecutive cohorts of students studying towards the same degree and then compared the findings resulting from each wave of data collection and analysis. This replication helped me refine the key thematic categories emerging in the data, check the consistency and trustworthiness of the resulting research findings, and explore discrepancies and extreme cases in more detail. To be able to verify the credibility of the noted patterns and relationships among variables the important thing was to be able to show evidence of ‘recurring regularities’ (Guba 1978) and remain open to disconfirming evidence (Miles & Huberman 1994). Miles and Huberman (1994) also suggest that before patterns can represent useful

knowledge they need to be subjected to ‘scepticism’– our own and that of others – and to conceptual and empirical testing to find out if they really make sense (conceptually and empirically) (p. 246). In my analysis strategy I used a combination of tactics for drawing conclusions and generating meanings to test and verify whether my findings are valid, persistent, and recurring.

In reference to variation, Hammersley and Atkinson (2007) argue that “Taking account of variations in context is as important as sampling across time and people. Within any setting people may distinguish between a number of quite different contexts that require different kinds of behaviour” (p. 39). In my study I observed that the behaviour of some students differed greatly between face-to-face collaboration and web-based collaboration. Students also behaved differently between different technology-mediated tasks (e.g. blogs compared to video-conferences). Sample variety (across subject groups, time, and context) in addition to replication and validity checks helped to increase the confidence level of the research findings.

The combination of different viewpoints, methods, and the collection of both qualitative and quantitative data can also result in the triangulation of the research findings and ensure the reliability and validity of the research (Creswell 2002, 2007). Triangulation of the findings was achieved through the use of multiple and diverse data, methods, theories, and perspectives. Data triangulation was pursued through the use of mixed-methods. Using a mixed-methods approach allows divergent findings to emerge which are considered valuable in that they lead to re-examination and triangulation of the conceptual frameworks the research is based on and the assumptions underlying each of the two (qualitative and quantitative) components (Biesta 2010; Patton 2002; Tashakkori & Teddlie 2003). Nevertheless, mixed methods provided not only converging but also inconsistent and contradictory results. This inconsistency is often acknowledged in the literature (Caracelli & Green 1993; Mathison 1988) and it can be beneficial in that it drives more in-depth analysis for substantiating such inconsistency (Jang et al. 2008). Seeking convergence on a single perspective of a particular social phenomenon (i.e. triangulation) and attempting to strengthen validity by alleviating biases resulting from theories, researcher preconceptions, or methods (Denzin 1978; Mathison 1988), are useful practices for reaching a more substantial understanding of the phenomenon.

By definition, employing mixed methods permits convergence or corroboration of findings, exploration of alternative explanations or conclusions drawn from the research data, and elucidates the divergent aspects of a phenomenon (Johnson & Turner 2003). Mixed-methods also “[alert] the researcher to the possibility that issues are more multifaceted than they may have initially supposed, and [offer] the opportunity to develop more convincing and robust explanations of the social processes being investigated” (Deacon et al. 1998, p. 61). Respondent validation serves as data-source triangulation. This involves checking the inferences drawn from one source (e.g. researcher’ observations in the field) by collecting and comparing data relating to the same phenomenon from other sources (e.g. participants self-reports in interviews). In addition, employing methods such as peer debriefing and member checking allowed me to engage participants in the study and see things from multiple angles and levels rather than just from a single viewpoint hence alleviating researcher bias (Lincoln & Guba 1985). These methods also enhanced the descriptive and interpretive validity of the study findings (Maxwell 1992; Hammersley & Atkinson 2007) and provided inductive, grounded insights which informed subsequent inquiry.

Further, comparing data produced from various data collection techniques is a type of method triangulation (Hammersley & Atkinson 2007). Data comparison provides a basis for checking the validity of interpretations and inferences by examining data relating to the same concept drawing from participant observation, interviews, questionnaires, focus groups and so on. The key point here is that “data must never be taken at face value [...] what is involved in triangulation is a matter not of checking whether data are valid, but, at best, of discovering which inferences from those data seem more likely to be valid” (Hammersley & Atkinson 2007, p. 184). Reference to current literature can also compensate for these errors and “demonstrate converging corroboration of a research finding” (Johnson & Turner 2003, p. 303). Theoretical triangulation was achieved through the amalgamation of learning theory with engagement theory.

Transparency is another issue pertaining to the quality of any research endeavour. It relates to the axiological orientations of a researcher which involve discussing the values, biases, and ethical issues that may shape the conduct of the study and the description of the findings (Tashakkori & Teddlie 2010). Throughout the research I actively reported any biases resulting from my choice of methods or my presence in the field and my close involvement with my informants. At the same time however I tried

to minimise these biases through method and data triangulation and by incorporating the interpretations of participants in conjunction with my own interpretations. I also ensured I remained ethical throughout the study and complied with the relevant research procedures (e.g. using informed consent forms and getting approval to commence data collection).

## **5.6. Concluding remarks**

More than two decades ago Greene et al. (1989) identified the need for strategies for integrated data analysis among the priorities for further mixed-method work suggesting that relatively few investigations integrated different methods at the level of analysis. This gap seems to persist in contemporary research. In response to a call for more systemic research into mixed-methods integration of findings (Bryman 2007; Johnson et al. 2007) this chapter illustrated the mixed-methods strategies employed in the study and described the major findings which emerged from data analysis. In particular, I documented the data analysis plan that framed the inquiry process and subsequently presented the major themes drawn from the research. It is hoped that the analytical framework presented at the beginning of this chapter can elucidate the procedures employed for analysis and integration of qualitative and quantitative data, and for the interpretation of the findings. Fundamentally, this framework aims to make the analysis and interpretation process as transparent as possible to permit readers to validate the quality of inferences drawn from the mixed-methods data through diverse, rich, and graphical illustration of key findings. The presentation of the findings is geared towards addressing the three key research questions which motivated the inquiry into learner engagement with CSCL activities. It is also hoped that the research gaps presented in the previous chapters were naturally realised and adequately attended to in this chapter.

The five key themes presented in this chapter are the following: learner engagement is characterised by behavioural, intellectual, and emotional dimensions and thus is defined as a multi-dimensional concept; learners can be broadly clustered under four broad learner engagement archetypes based on the extent in which they engage and these are described by the WISE taxonomy; learner engagement is distributed across personal, group-level, pedagogical and technological actors who may facilitate or hinder the degree of learner engagement and these constitute the hierarchical model of enablers and barriers; learner engagement in CSCL contexts presupposes purposeful interaction;

and finally, learner engagement has a dynamic and reciprocal relationship with both envisaged and actual learning outcomes. These themes collectively define DET which is proposed as a universal, analytical, conceptual framework for exploring learner engagement with CSCL activities.

The ensuing findings suggest that DET lays a novel foundation for development of a multidisciplinary notion of learner engagement which integrates components from several existing streams of research while also being heavily grounded in the data. To support this claim the following chapter revisits the major themes and attempts to find links to key literature (as identified in chapters 2 and 3) paying special attention to their meaning and significance for both theory and practice. The discussion of the key findings alongside current literature allows concepts and theories to be critically evaluated against the latest thinking and debates in the literature. It also provides a benchmark for performing a reflective appraisal of the research aims and objectives identified in the first chapter of this thesis.

## Chapter Six – Discussion and Conclusions

### 6.1. From research questions to data analysis to conclusions

*Inquiry is “the logical sequence that connects the empirical data to a study’s initial research questions and, ultimately, to its conclusions”*

(Yin 2003, p. 20)

Conducting this research project was a complex, evolutionary, and primarily enlightening learning process. A continuous interaction between research questions, data, and theory marked this research journey. By the time the final, refined set of research questions was formulated, the research focus was broadened, narrowed, and broadened yet again. Data analysis was conducted in parallel to – and highly informed – ongoing data collection which allowed emerging concepts to be embraced and more in-depth insights to be pursued. What remained unchanged however was the commitment to producing evidence-based, theoretically-informed research conclusions which would lead to various levels of understanding engagement practices in CSCL environments.

In addition to the presage and ongoing research considerations, every researcher also needs to consider issues such as: Why and to whom are the findings significant? What is the value of these findings for theory and practice? Do they make an original contribution to the understanding of learner engagement in CSCL environments? It is hoped that the research gaps and questions presented in the previous chapters are naturally realised and adequately attended to through the comprehensive presentation of research findings and research procedures. This concluding chapter marks the closure of the time-bound research endeavour yet opens up new highways for future research journeys. To this end, the following sections create links with existing literature, cover the theoretical and practical implications arising from the research, identify the limitations of the study, and suggest routes for further exploration of learner engagement in CSCL environments, in postgraduate education and beyond.

## **6.2. Establishing links between key findings and literature**

Having discussed the major findings in the previous chapter, I return to them here in order to elucidate their empirical, theoretical, and methodological contribution. The thesis presents Distributed Engagement Theory (DET) as an empirically-grounded, theoretically-informed conceptualisation of learner engagement in CSCL environments in the context of postgraduate education. The findings suggest that learner engagement is a complex and multi-dimensional concept (i.e. it is constituted by and embodied in learners' behaviour, emotions, and reflective thinking). It is also a 'distributed' phenomenon (i.e. it is not confined to the individual; rather it is shaped by, and distributed across personal, group-level, and other situational factors). In particular (by analysing the observed behaviour of participants in CSCL tasks as well as their personal reflections during the focus groups) the findings suggest that postgraduate students value collaborative learning practices which are not merely computer-supported but rather assessment-based, instructor-monitored, and peer-encouraged. Postgraduate students engage (or disengage) themselves in CSCL activities by regulating (mainly consciously) the nature and degree of their exertion in collaborative tasks based on a multitude of factors (personal/internal vs. social/external; foreshadowing vs. procedural factors) and incentives (intrinsic and extrinsic). The thesis presents the hierarchical model of enablers and barriers of learner engagement based on the diverse categories of factors found to be prominent in the study. Further, using the clustering technique, four archetypes (or approaches) of learner engagement are identified, namely 'Withdrawn', 'Impulsive', 'Strategic', and 'Enthusiastic' types of engagement. These archetypes comprise the 'WISE Taxonomy of learner engagement archetypes' which were found to be pertinent across participants. Findings also seem to suggest that learner engagement presupposes purposeful interaction. 'Purposeful interaction' is proposed as an overarching integrative theme for understanding and enhancing learner engagement in CSCL activities at postgraduate level. In essence, this theme illuminates the fact that it is not simply the presence of technology that enhances students' learning experience but the fact that it allows students to share information, learn from others, and collaborate; how – rather than what – technologies are used is what really matters in terms of learner engagement and learning outcomes within CSCL environments. Ultimately, the findings show that the way in which learners envisage their learning outcomes drives the engagement profile or approach/strategy they are likely to adopt. The fact that engagement emerged as an outcome-oriented phenomenon has major implications for

educational practice since managing students' expected learning outcomes may reflect how they are likely to engage in the first place.

The descriptions produced in the previous chapter are compared and contrasted with published literature in the interdisciplinary field of learner engagement and CSCL in reference to the key research questions. Important gaps identified in the literature relate to the fact that there is insufficient evidence contributing to our understanding of how – and indeed whether – learners truly engage with the CSCL tasks presented to them; what affects their engagement; and subsequently how engagement relates with their learning outcomes. Regarding the nature of learner engagement, the findings re-emphasise what has been previously argued in the literature: the fact that engagement is a complex and multifaceted concept (Ainley 2004; Murphy & Alexander 2000). The learner engagement patterns that emerged in the field suggest a way to merge existing theories on learner engagement which appear to be fragmented or focusing on partial aspects of learner engagement. In particular, the findings suggest that in conceptualising learner engagement in CSCL we need a set of constructs that have the capacity to encapsulate what students 'do' when they are engaged (Astin 1999; Kuh 2003; Martin 2003) but also how they 'feel' and 'think' when they are engaged (Kearsley & Shneiderman 1999; Martin 2003). The present study resulted in the dimensionalisation of learner engagement which incorporates the ways in which postgraduate students (a) approach, participate in, or act upon a CSCL task (behavioural dimension), (b) think about the task or reflect about the way in which they approach the task (intellectual dimension), (c) feel when participating in or contributing to the task (affective dimension). The diversity of definitions of learner engagement found in the literature illuminate the complexity involved in exploring and understanding what it is, what enables or hinders its development, and how it affects the learning outcomes. This study attempted to conceptualise learner engagement in a CSCL context in postgraduate education. The fact that the understanding of learner engagement comes from the perspective of postgraduate students, an area where there is limited empirical evidence, particularly in interdisciplinary degrees such as the MSc in Business Information Systems, forms part of the empirical contribution of this research.

The findings seem to suggest that student engagement rests upon students' willingness to intellectually, emotionally and actively engage in the learning task. The core aspect of a fully developed learner engagement approach or profile is defined by active participation in CSCL activities (behavioural engagement), an intention to form a



personal appreciation of the value of learner engagement for learning outcomes (intellectual engagement), combined with emotional development (affective engagement). Unsurprisingly, literature also supports that students that show active engagement also tend to take a deep approach to studying and demonstrate interest in their studies (CRLI 1997; Tait et al. 1998). Furthermore, the insights gained in the field seem to suggest that learner engagement is not considered a black-and-white variable; rather it features a range of shades in between. We therefore need to talk about levels of variation in student's engagement considering the level (behavioural, intellectual, and affective) and intensity of engagement (that is, how much or how little they engage, if at all). Particularly, the intellectual side of engagement has a lot in common with the approaches to studying and learning proposed by Marton (1975) and Biggs (1987) in the sense that it describes a student's intention towards the learning task. Whether a student's intention is to learn, understand, and seek meaning (deep approach), or simply to complete the task and memorise information (surface approach), their intention determines the extent of their engagement with the subject matter and, in turn, affects the quality of the learning outcomes (Fry et al. 2003). These intellectual processes were either explicitly or implicitly reflected in students' self-reports and were further explored through the questionnaire on approaches to learning (CRLI 1997; Tait et al. 1998). Other findings are also analogous to related literature. For example, the theme of self-awareness is found to be related to the notion of self-efficacy (Bandura 1977, 1986; Bandura & Schunk 1981; Schunk 1991). Both of these are related to goals, yet the former also captures how these goals affect the students' course of action (i.e. their engagement) and their learning outcomes.

Furthermore, the present study takes a 'holistic' approach (Arrow et al. 2000; Majchrzak et al. 2000) which combines the technological aspects with the underlying cognitive, social and pedagogical issues (Dillenbourg 2005; Roschelle & Teasley 1995) which affect the ways in which students engage with CTs. Much of the literature is predominantly concerned with technology and its application in learning contexts, while my findings (based on what the students said and what I observed students doing) emphasise the role of group dynamics, self-awareness, goals and expectations, and the role of purposeful interaction in CSCL environments. Therefore, it can be suggested that these themes illuminate some aspects of the original contribution of this thesis.

An interesting finding is that although lecturers expect postgraduate students to be highly self-motivated and self-directed, the intensity of most Master's degrees and the

ever-increasing competition for jobs drive students to focus on gaining higher grades. Grabinger et al. argue that “It isn’t that adult learners don’t want to read, come to class or write papers. They’ll read, write papers, and discuss issues as long as they believe that these activities will help them achieve their goals” (2007, p. 13). Postgraduate students face unique challenges due to their background, prior knowledge, goals and expectations. Furthermore, some students lack the confidence to engage openly in discussions (Cress & Kimmerle 2008). Thus, for CSCL activities to be effective, it is important to provide external incentives and purposeful tasks to reinforce student engagement. In this study some students appeared to be disengaged because the CSCL tasks were not part of their assessment. This finding has profound implications for higher education. Lecturers should not underestimate the importance of external triggers; rather they must find a way to ‘use the learners’ goals to meet the teaching goals’ (Grabinger et al. 2007, p. 13). Motivation plays a key role in successful collaboration initiatives – in educational and business settings alike. While in business contexts extrinsic incentives are highly exploited, these are lacking in educational contexts. This can be attributed to the underlying assumption that adult learners are self-directed and that their most potent motivators are internal (Fry et al. 1999). The findings from the fieldwork challenge this assumption suggesting that postgraduate students do not necessarily see CSCL as a means in itself. Rather, their approach is largely determined by the interplay between intrinsic and extrinsic motivations influenced by their learning expectations, the teaching strategy used, and the nature of the CSCL task at hand. A wide range of research studies have demonstrated how students’ goals and purposes are linked to the types of strategies they used in their learning and this was related with differences in their achievement (Ainley 1993; Meece & Holt 1993).

Furthermore, the findings suggest that learner engagement is both a personal and a situational phenomenon. In addition to personal interest, motivation, and goals, attention should be placed on socio-cultural aspects that might alienate, confuse, and hence demotivate learners. This highlights the social aspects of learner engagement. Many research efforts emphasise the importance of the idiosyncratic details of students learning (CRLI 1997; Tait et al. 1998) yet this study considers the complex effects that differing learning environments, tasks, and processes may have on learner engagement. The trait vs. non-trait conceptualisations of motivation and the role of context is often discussed in the literature on engagement (Ainley 2004; Eccles et al. 1998; Murphy &

Alexander 2000; Pintrich 2003) which emphasises the importance of social and contextual factors (Rosenberg et al. 2005).

Many scholars have also suggested that in order to achieve learner engagement there is a genuine need for learning tasks which are meaningful, purposeful, and relevant for learners (Bonk & Cunningham 1998; Kearlsey & Shneiderman 1999). The theme on purposeful interaction is also in line with constructive alignment which explains the congruence between: what the lecturer believes learners are able to do, know, or understand; how they teach; and what and how they assess the learning outcomes (Biggs & Tang 2007) to encourage deep learning and enable learner engagement. Shuell (1986) asserts that “If students are to learn desired outcomes in a reasonably effective manner, then the teacher’s fundamental task is to get students to engage in learning activities that are likely to result in their achieving those outcomes [...] It is helpful to remember that what the student does is actually more important in determining what is learned than what the teacher does” (p. 429). Also according to Ramsden (1992) ‘the assessment is the curriculum’ as far as the students are concerned. Students will learn what they think they will be assessed on, not what is in the curriculum or what has been covered in class. This is why it is imperative to design assessment tasks to mirror the desired learning outcomes (Biggs 2003).

The ways students expressed their beliefs and views on learning outcomes and engagement indicates an interrelationship between the two. In particular, students’ self-reports suggest that active engagement can contribute constructively towards realising the expected learning outcomes. At the same time their envisaged/expected learning outcomes seem to drive their overall learner engagement. Students perceived their engagement in CSCL tasks as an opportunity to change and develop themselves. Change in this case is highly related to learning – both individual and collaborative learning (Dillenbourg 1999). The students’ experience with CSCL tasks drove them to transform, adapt, and shift their behaviour as well as their preconceptions about themselves and others (all of which are considered higher-order cognitive activities) in an attempt to adjust to the environment. Literature also deals with the importance of managing expectations and achievement goals. Covington (2000) suggests that “in effect [...] one’s achievement goals are thought to influence the quality, timing, and appropriateness of cognitive strategies that, in turn, control the quality of one’s accomplishments” (p. 174). What is unique about this particular pattern of change and development is that it captures the relationship between engagement and learning, a

relationship which is widely discussed in the literature (Biggs 1987; Dillenbourg 1999; Fry et al. 2003). This is in line with the approaches to studying and learning developed by Biggs (1987). Furthermore this cyclical process between engagement and learning outcomes is negotiated throughout the academic year both internally as well as socially. This re-emphasises the idea of social distribution of engagement across people, tasks, and time.

Furthermore, the correlation of collaborative tasks with learning is widely documented in the literature. Being exposed to alternative perspectives can challenge an individual's initial understanding and thus facilitate learning (Alavi 1994). In business education and project management in particular developing communication and collaboration skills is recognised as essential. Through an in-depth exploration of the lived-experiences of the participants and a representation of their perspectives this thesis contributes to the timely and critical conversation on 21<sup>st</sup> century learning. The findings reinforce the importance of student engagement in promoting student achievement suggesting that successful educational practices require educators to design challenging activities and clearly explain the benefits and skills students can gain from CSCL. Additionally, there has to be a constructive alignment between the expected learning outcomes, the CSCL tasks, and the assessment criteria used. Ultimately, competence in using Web 2.0 tools and videoconferencing systems is a learning objective in its own right as it requires skills in navigation, communication, and critical evaluation which are essential for the students' future working lives. From the above extracts and the available literature we can surmise that participating in a blog (where participation refers to viewing, reviewing or publishing content on the blog) or a videoconference (including discussing, monitoring, or managing group discussions) can encourage the ownership of knowledge and give students the opportunity to connect their learning to their particular experiences (Carroll et al. 2008).

Due to its nature, collaborative learning is expected to provide better learning outcomes and increased student involvement compared to individualistic learning practices. Numerous studies have reported the benefits of collaborative learning in higher education (Alavi 1994; Dillenbourg 1999; Grabinger et al. 2007; Stahl et al. 2006). Through sharing their views and ideas and engaging in debates students can also enhance their communication, negotiation, and persuasion skills which were also identified as prominent. Collaborative learning practices can be conducive to all skill categories that emerged in this study. Developing diverse skills and gaining practical

experience in a 'safe' environment before moving into the real business world plays a central role in the learning process. In such endeavours CTs are powerful tools, not as an end in themselves but as vehicles for extending teaching and learning processes (Carroll et al. 2008). Indeed the Web is increasingly used as a virtual textbook or reference library (Boulakfouf & Zampunieris 2008). These trends pinpoint the genuine need to merge pedagogy and technology to develop new educational models that encompass a forward-thinking perspective embracing the skills and qualities needed in the workplace of the future. This will form a sound basis for motivation and life-long learning, both of which are crucial in the complex, ever-changing world of work where the desire to continuously learn and develop is critical.

The study raises some key issues about the connections that need to be established between formal education and the 'world of work'. Blackwell et al (2000) suggest that work experience can contribute to superior educational standards in higher education and to the development of a flexible, highly-skilled and enterprising labour force. Educators and programme coordinators need to re-orient education towards the needs of the economy (Harvey et al. 2002). They need to establish stronger links with industry and essentially these links need to be bidirectional. This means that relationships between academia and industry need to be both 'inside-out' (i.e. students should have opportunities to work in real-life projects, join voluntary projects or internships as part of their formal education at university) and 'outside-in' (i.e. course coordinators should invite experts from relevant industries to give presentations to students and provide real-life insights drawing from current projects they are working on). As McCormack argues: "for vocational skills this business/academic synergy is ever more important in order for qualifications to hold their value outside the sphere of the academic environment" (2010, p. 68). In recent years there has been an increasing emphasis on graduate employability and vocational skills (Harvey 2003; Knight & Yorke 2003). Some studies attempt to identify the core transferable skills within a specific domain (e.g. Chalkley 2000) while other studies are more generic and attempt to identify overarching skills and competencies (e.g. Bowden et al. 2000). Research on e-skills is also on the rise (e.g. McCormack 2010). Bowden & Marton (1998) suggest that "The curriculum for any university programme needs to be developed around the idea that students are being prepared for a future which is largely unknown" (p. 94). Within the domain of BIS there are a limited number of studies that have explicitly explored skills development (e.g. Jiang et al. 1998; Napier et al. 2009) and these focused on

professional development rather than formal education. The current study provides insights on the range of skills postgraduate students acquire through the use of CSCL activities within the field of BIS.

In essence, the aim of the study is to provide educators, researchers, and educational technologists with a coherent set of concepts (a conceptual framework), and supporting descriptions of the underlying research findings (empirical insights) in an attempt to develop more precise ways of making sense about how postgraduate students think, feel, and act when presented with CSCL tasks, as well as to encourage reflection vis-à-vis enhancing student engagement in CSCL environments at postgraduate level (practical recommendations). The hierarchical model of enablers and barriers, the WISE taxonomy of archetypes, and the multi-dimensional conceptualisation of learner engagement together define DET which is proposed as a holistic analytical-theoretical framework for enquiring, understanding, and explaining learner engagement in CSCL environments. In the following section I discuss the theoretical and practical implications resulting from the accumulated knowledge resulting from the study, that is, how this understanding can be useful for researchers and educators alike.

### **6.3. Implications of research findings**

An academic research endeavour is not a stand-alone task; it is embedded in a well-defined research context shared with other like-minded scholars. It is therefore a central facet of academic research to carefully and explicitly consider the implications of the research findings for future research efforts and the practical applications of the ensuing findings. It is imperative to consider both the theoretical and practical implications arising from the research findings. This entails a higher level of awareness, reflexivity, and maturity on behalf of the researcher. The purpose of considering the ensuing inferences and implications is to draw the attention of the reader to the relevance of my findings to those who teach/lecture as well as for those who study learner engagement.

The considerations described below are practical as well as theoretical in nature. The findings suggest that the successful application of CSCL must be accompanied by a careful examination of the needs and expectations of the individual learners at an intellectual, behavioural, and emotional level. Further, the personal, group-level, pedagogical, and technological aspects inherent in the specific CSCL context must be collectively attended to. Current learning and engagement theories seem to ignore one

or more of these aspects. The ensuing findings also create implications for their practical application.

### **6.3.1. Research implications for theory**

This thesis contributes to theory by providing an empirically-grounded, theoretically-informed conceptualisation of learner engagement in CSCL at postgraduate education in the form of a holistic analytical framework. DET attempts to provide novel perspectives on and explain the nature and influences of learner engagement in CSCL. To fill the theoretical gap identified in the literature, DET draws threads from a number of theories as well as from experience (through a longitudinal empirical study). The proposed theoretical view on learner engagement resembles a multi-agent process whereby multiple agents (personal, group, social) act collectively as a driving force which enables learners to engage in different ways and at different levels. Learner engagement is fundamentally a driving force which can propagate mechanisms for supporting learning. The conceptualisation of learner engagement as a multi-dimensional, socially-distributed, and purposeful phenomenon draws threads from both engagement and learning theory and contributes to it by providing new links between key aspects. A major part of the contribution of this research is the conceptualisation of learner engagement in CSCL environments drawing from a hybrid, middle-range perspective and embracing the relevant research streams that provide input to this multi-disciplinary work.

From a theoretical point of view, the findings illuminate how group dynamics and interpersonal relationships can enable or hinder learner engagement with CSCL. Although the value of collaborative learning has been advocated for decades, new pedagogical theories and models are needed to address the complex issues involved in collaborative learning practices when these are mediated by technology (Jaques & Salmon 2007). DET contributes to theory by emphasising not only the interplay between personal and social factors but also the role that group dynamics play in establishing engagement. The distinction between internal and external factors also has theoretical implications since it pinpoints to the fact that learner engagement is not confined to the individual learner; rather it is something between the individual and the situation. We can therefore speak of socially distributed learner engagement.

With the expansion of e-Learning 2.0 and the growing integration of CTs in education, ‘learner engagement’ is one of the latest buzzwords. Traditionally, authors have developed theory by combining observations from previous literature, common sense, and experience. However, the tie to actual data has often been tenuous (Perrow 1986). The thesis attempts to contribute to CSCL literature and theory by adopting a multi-method, data-driven approach to theory building drawing from a longitudinal, real-life case study in postgraduate education in the UK. In the attempt to understand what it means to ‘be engaged’ or ‘disengaged’ I observed how students behaved in their natural learning contexts (face-to-face, distant, and web-based) and took into consideration their perceptions and self-reports for developing a holistic analytical framework for learner engagement in CSCL. DET is an offspring of the multi-dimensional conceptualisation of learner engagement, the hierarchical model of enablers and barriers, and the WISE taxonomy. It illustrates the diversity and complexity of student engagement in CSCL. Capturing the students’ behaviours and learning practices as performed in natural settings, as well as the multifaceted ways in which they reason about these practices, helped to make a contribution to knowledge by generating a coherent understanding and a set of plausible explanations pertaining to learner engagement.

### **6.3.2. Research implications for practice**

From a pedagogical perspective, the findings suggest that simply introducing CTs in the curriculum will not magically engage students. The choice of learning tasks and the assessment strategies used are critical for engaging students. There is also a genuine need for continuous feedback, active monitoring, and support from the lecturer. Consequently, the roles of the lecturers, the responsibilities of learners (individuals and groups), and the nature of the learning tasks need to be re-negotiated and re-established to fit this new learning milieu. Furthermore, the ‘WISE taxonomy’ shows that students may be engaged or disengaged irrespective of their social or solo learning preference. This has implications for student inclusivity: educators need to accommodate diverse types of engagement, not just diverse learning styles.

Another implication is that potential learner disengagement can be shifted towards engagement through the actions of the lecturers. The distinction between internal (personal) and external (social/situational) factors that affect engagement has practical implications for designing the curriculum since it isolates those aspects where educators



can actually regulate in order to positively influence postgraduate students' engagement. This is specifically relevant to the particular context of study which examines how individual learners engage in collaborative tasks. In particular, the study findings offer practical recommendations to instructors on how to engage students to participate in CSCL activities with the aim to reach higher levels of knowledge and skills development. Towards this end, instructors should not assume that students are intrinsically motivated, especially at the beginning, and that they should make clear the extrinsic rewards students will get by participating (as well as what they might lose if they do not). The expected learning outcomes should also be made clear and re-emphasised throughout the activities.

An awareness of the prominent 'portraits of learners' and the associated motivational mechanisms is also crucial as a variety of strategies to promote learning should be embedded in the curriculum. However, the identification of learning profiles should not intend to confine or label individual students to one specific type but to understand better the ways in which students learn in CSCL contexts. Greater awareness of student diversity and individual preferences can help educators to provide learning activities that are more inclusive and which reach all students. The overall aim must be to help students build their knowledge, skills and capacities.

The findings from the field study also reinforce the importance of incentives in educational practices. Educators need to explain the benefits and skills gained from teamwork and the use of CTs and ensure these are reflected in the assessment strategies used. There has to be a constructive alignment between the expected learning outcomes, the CSCL tasks and the assessment criteria. Additional incentives should also be provided to enhance engagement. Students are more likely to engage in CSCL activities when they can see a clear benefit or purpose in their interactions. Finally, technology is not a panacea for promoting effective learning. Appropriate, challenging, and diverse learning tasks need to be designed that uniformly – rather than inconsistently – incorporate CTs in the curriculum, to accommodate the diverse student profiles, promote student inclusivity and maximise the learning outcomes. Furthermore, students should not only focus on learning raw facts and theories; rather they need to be able to identify key issues, analyse the situation, identify risks as well as opportunities, blend new knowledge with previous experiences and apply them together to solve problems. To be able to deliver the above, teachers need to provoke students' creativity and practical problem solving through interesting, meaningful learning tasks. Most

importantly, they need to incorporate technologies into the curriculum and develop learning activities which allow for learning through experimentation.

There are also implications on the role of ICT in education (McCormack 2010) and the design of engaging CSCL pedagogies. Variability appears to be central in teaching and learning environments (Bowden & Marton 1998) if we want to enable students to become flexible and competent in diverse situations. The need for flexibility suggests that students can be benefited if blended teaching and learning methods are used. Educators should provide opportunities for students to participate in project-based tasks, group work, and use different tools and technologies to support their communication and collaborative efforts. By doing so, students become familiar with different means of communication. Nevertheless, the use of technology is not enough on its own. In order to engage students educators need to provide additional incentives and ongoing feedback and support. Moreover, lecturers should design learning activities which specifically incorporate elements from professional situations and which map the positions and roles the particular students are targeting. Such conditions incorporate purposeful interactions, challenging learning tasks, real-life components, and collaborative learning practices. Therefore, the availability of CTs alone is not adequate for engaging learners with CSCL tasks. Students will engage as long as the context within which they will be used is relevant to the students' expectations, experiences, and aspirations and as long as they conform to factors perceived as enabling by students. It is a combination of personal, group, pedagogical, and technological factors that affect learner engagement not the presence or absence of CTs. Still, technology forms an inherent part of the CSCL context in which students learn and therefore it cannot be ignored. This study does not take technology as an all-encompassing enabler for learning. Rather, it explores the ways in which this inherent technological support enables or hinders the development of learner engagement and attempts to suggest ways for making the most of the available technologies.

In practice, the multi-dimensional conceptualisation of learner engagement may help to better understand what comprises learner engagement with CSCL which, in turn, will help to improve the envisaged learning outcomes. The hierarchical model of enablers and barriers, which is another important part of DET, describes learner engagement as a socially distributed phenomenon. The model represents different classes or categories of factors that were found to influence learner engagement, hence suggesting ways in which CSCL tasks may be designed and managed in order to engage students. Finally,

the WISE taxonomy of learner engagement archetypes identifies the most prominent types of engagement strategies identified in the study. The proposed themes presented in the form of a conceptualisation, model, and taxonomy can help educators, instructional designers, and educational technologists to extract practical recommendations for the successful exploitation of CTs and CSCL activities not only in postgraduate education but also in workplace design and other levels of training and schooling.

#### **6.4. Limitations of the study and suggestions for further research**

On reflection, there were a number of limitations identified in the study and a series of ideas are suggested for dealing with them in future research. While this research has confirmed and extended the understanding of patterns of engagement in relation to academic achievement and learning outcomes, it is much less successful at providing full or detailed descriptions of how certain combinations of factors (i.e. enablers and barriers) affect each dimension of learner engagement. The WISE taxonomy and the hierarchical model of enablers and barriers provide analytic abstractions which summarise the key findings in an attempt to simplify the complexity of learner engagement within diverse CSCL environments. While these models can prove useful for both theory and practice, future research needs to address the complex interaction between them. In particular, there is a need to understand which enablers or barriers affect behavioural, intellectual or affective engagement – not simply how they impact engagement as a whole.

Another possible limitation of this study is its solitary focus on capturing the perceptions of individual students. One potential extension to this research would be to examine how students engage as groups (in BIS and other hybrid domains). The overlap between personal, group, and situational factors described by the hierarchical model of enablers and barriers presented in this thesis represents an important contribution of this study as it suggests that there is a layer between the individual and the situation which highly affects learner engagement. Group dynamics and interpersonal relations are often neglected in the literature or are not given the required empirical attention. Group-level factors are however as important as personal factors in shaping learner engagement with CSCL tasks. In this study many prominent themes were related to group dynamics and the impact that group engagement may have on individual engagement and vice versa.

Exploring these aspects may yield appealing insights which can contribute to the understanding of learner engagement as a socially distributed phenomenon. Future research may explore these aspects in more depth. The role that group dynamics play in the ways individual learners engage in CSCL tasks is an area which requires further research, particularly within CSCL contexts. Although the exploration of how students engage as groups was beyond the scope of this thesis, it definitely shows that this idea is worth exploring both in itself and in relation to individual engagement.

In addition, while the study was longitudinal and involved three consecutive cohorts of students, the fieldwork took place in a single site and a specific postgraduate degree. Although it is quite possible that the elicited archetypes of learner engagement identified in this setting may be present in other learning situations, their prominence may vary according to the context and the specific CSCL practices employed. Therefore another potential extension to this research would be to validate the conceptual framework across different CSCL contexts.

In relation to the methods used, by interviewing only a few students I did not get access to the stories and experiences of other students who did not appear to exhibit striking behaviours but could have provided different insights into how learners engage. Furthermore, although I used both objective and subjective measures towards assessing the degree of learner engagement at the individual level, different measures are likely to produce divergent classifications of learner engagement patterns. Future research may address the degree to which other qualitative or quantitative variables are correlated with the engagement strategies adopted by postgraduate students (at the individual and group unit of analysis). Another suggestion is to analyse the content quality of blog posts in addition to the number of posts. The quality of the content (including length, depth, proper referencing, grammar and syntax) may provide additional information about the level of intellectual contribution rather than just a measure of the behavioural contribution of each student. Researchers may also consider the quality of contribution per group in addition to individual contribution.

Finally, the relationships among the elements of the proposed DET can be described as processes of reflection, behaviour, and emotion that occur across varying levels in mutually reinforcing ways. The precise processes that shape these complex relationships are the subject of further investigation. The study provides an understanding of learner engagement and proposes a holistic analytical framework for describing learner

engagement with CSCL activities in the context of postgraduate education. Further research is needed to continue exploring how students engage in CSCL environments and in finding novel pedagogical methods that respect and respond to the distinctive ways in which students engage.

## 6.5. Epilogue

*“We are currently preparing students for jobs that don’t yet exist, using technologies that haven’t been invented yet, in order to solve problems we don’t even know are problems yet.”*

*Karl Fisch*

The themes and patterns described in this chapter contribute to our understanding of how learner engagement with CSCL happens in the context of postgraduate BIS education, how personal and social aspects impact learner engagement at the individual level and finally, how students realise the effects of their engagement on their learning outcomes. This understanding illuminates the need for recognising the complexity and diversity in the ways postgraduate students engage and for developing closer links between the personal, technological, pedagogical, and social sides of CSCL practices. In this respect, the theorisation of learner engagement as a multi-dimensional, distributed concept is informed by and contributes to current literature.

Furthermore, the notion of learning outcomes takes different, yet interesting dimensions when explored through a student perspective rather than defined through the analysis of expected learning outcomes prescribed in the curriculum. Making sense of how students realise and envisage their learning outcomes and how engagement relates to them provides useful insights into the nature and underpinning mechanisms of learner engagement. The study also contributes to our understanding of how postgraduate students approach CSCL tasks (behaviourally, intellectually, and emotionally) and how they appreciate the value of these tasks for their future careers. Many students seemed to be aware of the skills and competencies they will need to demonstrate when the real business world unravels around them. These findings confirm the value of CSCL tasks in preparing students for their 21<sup>st</sup> century careers while also illuminating new perspectives on the core motives and enablers postgraduate students perceive as

important for engaging with the CSCL tasks. These findings provide a sound foundation for future research in learner engagement with CSCL activities and the implications they may have on pedagogy and technology alike.

CTs have been widely perceived as the force that can lead to significant educational outcomes and support students' skills and knowledge development. There has been escalating development and increased availability of CTs in higher education during the last two decades. In view of the latest advances in CTs this thesis provides a sound theoretical basis for the pedagogical design and use of CSCL tasks within postgraduate education. The thesis argues that although the new learning technologies are not capable of replacing the effectiveness of the lecturer, their combination can support student learning. In other words, CTs should not replace traditional teaching and learning practice; rather they should complement it. Together they can improve the quality of teaching and learning in higher education.

In this research my aim was to advance current knowledge on learner engagement with CSCL and its practical implications for postgraduate, inter-disciplinary education to improve the quality of contemporary CSCL endeavours. The findings suggest that a dynamic, engaging CSCL environment is essential in maintaining student excellence at all levels (behavioural, intellectual, affective) and this entails managing a broad range of personal and situational factors. This thesis provides a strong basis for further research in the field of learner engagement with CSCL, in postgraduate education and beyond.

## List of References

- Abramowicz, W., Kaczmarek, T., & Kowalkiewicz, M. (2003). E-Collaboration System Designed to Improve Learning Processes. *Informing Science*. InSITE (Where Parallels Intersect).
- Agar, M. H. (1980). *The professional stranger: an informal introduction to ethnography*. San Diego, CA: Academic Press.
- Ainley, J., & Fleming, M. (2004). *Five years on: Literacy advance in the primary years*. East Melbourne: Catholic Education Commission of Victoria.
- Ainley, J., Fleming, M., & Mc Gregor, M. (2002). *Three years on: Literacy advance in the early and middle primary years*. East Melbourne: Catholic Education Commission of Victoria.
- Ainley, M. (1993). Styles of engagement with learning: Multidimensional assessment of their relationship with strategy use and school achievement. *Journal of Educational Psychology*, 85, 395-405.
- Ainley, M. (2004). What do we know about student motivation and engagement? *Paper presented at the annual meeting of the Australian Association for Research in Education*, Melbourne.
- Alavi, M. (1994). Computer-Mediated Collaborative Learning: An Empirical Evaluation. *MIS Quarterly*, 18(2), 159-174.
- Alavi, M., & Leidner, D. E. (2001). Research Commentary: Technology-Mediated Learning - A Call for Greater Depth and Breadth of Research. *Information Systems Research, INFORMS*, 12(1), 1-10.
- Alavi, M., Wheeler, B. C., & Valacich, J. S. (1995). Using IT to Reengineer Business Education: An Exploratory Investigation of Collaborative Telelearning. *MIS Quarterly*, 19(3), 293-312.
- Alexander, P. A. (1997). Mapping the multidimensional nature of domain learning: The interplay of cognitive, motivational, and strategic forces. In M. L. Maehr & P. R. Pintrich (Eds.). *Advances in motivation and achievement*, 10, 213-250, Greenwich, CT: JAI Press.

- Alexander, P. A., & Murphy, P. K. (1998). The research base for APA's learner-centered psychological principles. In N. Lambert & B. McCombs (Eds.), *Issues in school reform: A sampler of psychological perspectives on learner-centered schools* (pp. 33-60). Washington, DC: American Psychological Association.
- Alexander, P. A., Murphy, P. K., & Kulikowich, J. M. (1998). What responses to domain specific analogy problems reveal about emerging competence: A new perspective on an old acquaintance. *Journal of Educational Psychology*, 90, 397-406.
- Allan, B. (2007). *Blended Learning Tools for Teaching and Training*. London: Facet Publishing.
- Ames, C. (1984). Achievement attributions and self-instructions under competitive and individualistic goal structures. *Journal of Educational Psychology*, 76(3), 478-487.
- Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology*, 84, 261-271.
- Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. *Journal of Educational Psychology*, 80(3), 260-267.
- Anderman E.M. & Midgley C. (1997). Changes in achievement goal orientations, perceived academic competence, and grades across the transition to middle-level schools. *Contemporary Educational Psychology*, 22, 269-98.
- Anderson, T. (2004). Toward a Theory of Online Learning (Chapter 2). In T. Anderson & F. Elloumi (Eds.), *Theory and Practice of Online Learning*. Canada, US.
- Archer, J. (1994). Achievement goals as a measure of motivation in university students. *Contemporary Educational Psychology*, 19, 430-446.
- Arnould, E. J. (1998). Ethical Concerns in Participant Observation/Ethnography. *Advances in Consumer Research*, 25, 72-74.
- Arrow, H., McGrath, J. E., & Berdahl, J. L. (2000). *Small Groups as Complex Systems: Formation, Coordination, Development and Adaptation*. Sage Publications.



- Atkinson, J. W. (1957). Motivational determinants of risk taking. *Psychological Review*, 64, 359-372.
- Atkinson, P. & Coffey, A. 1997. Analysing documentary realities. In D. Silverman (ed.) *Qualitative research: Theory, method and practice* (pp. 45-62). London: Sage.
- Baker, M., & Lund, K. (1997). Promoting reflective interactions in a CSCL environment. *Journal of Computer Assisted Learning*, 13, 175-193.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191-215.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice–Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman & Co.
- Bandura, A., & Schunk, D. H. (1981). Cultivating competence, self-efficacy, and intrinsic interest through proximal self-motivation. *Journal of Personality and Social Psychology*, 41, 586-598.
- Bazeley, P. (2003). Computerised data analysis for mixed methods research. In A. Tashakkori & C. Teddlie (Eds.) *Handbook of mixed methods in social & behavioural research* (pp. 385-422). Thousand Oaks, CA: Sage.
- Bazeley, P. (2006). The contribution of computer software to integrating qualitative and quantitative data and analyses. *Research in the Schools*, 13(1), 64-74.
- Bazeley, P. (2010). Computer-assisted integration of mixed-methods data sources and analyses. In A. Tashakkori & C. Teddlie (Eds.) *Sage handbook of mixed methods in social & behavioural research* (pp. 431-465). Thousand Oaks, CA: Sage.
- Belanger, F., & Allport, C. D. (2007). Collaborative technologies in knowledge telework: an exploratory study. *Information Systems Journal*.
- Bessagnet, M. N., Schlenker, L., & Aiken, R. (2005). Using e-Collaboration to Improve Management Education: Three Scenarios. *Journal of Information Systems and Technology Management*, 2(1), 81-94.

- Biesta, G. (2010). Pragmatism and the philosophical foundations of mixed methods research. In A. Tashakkori & C. Teddlie (Eds.) *Sage handbook of mixed methods in social & behavioural research* (pp. 95-118). Thousand Oaks, CA: Sage.
- Biggs, J. B. & Tang, C. (2007) *Teaching for Quality Learning at University* (3<sup>rd</sup> Ed.). Maidenhead, UK: Open University Press/McGraw Hill.
- Biggs, J. B. (1987). *Student Approaches to Learning and Studying*. Hawthorn, Victoria: Australian Council for Educational Research.
- Biggs, J. B. (1989). Approaches to the enhancement of tertiary teaching. *Higher Education Research and Development*, 8, 7-25.
- Biggs, J. B. (2003). *Teaching for quality learning at university* (2<sup>nd</sup> Ed.). Buckingham: Open University Press. Society for Research into Higher Education.
- Bloor, M. (1978). On the analysis of observational data: a discussion of the worth and uses of inductive techniques and respondent validation. *Sociology*, 12(3), 545-52.
- Blumenfeld, P. C. (1992). Classroom learning and motivation: Clarifying and expanding goal theory. *Journal of Educational Psychology*, 84(3), 272-281.
- Bong, M. (1996). Problems in academic motivation research and advantages and disadvantages of their solutions. *Contemporary Educational Psychology*, 21, 149-165.
- Boulakfouf, S. & Zampunieris, D. (2008). Integrating Web 2.0 Features into a Learning Management System. *Paper presented at the 7th European Conference on e-Learning (ECEL'08)*, Cyprus.
- Bouras, C., Giannaka, E., & Tsiatsos, T. (2008). e-Collaboration Concepts, Systems and Applications. In M. Freire & P. Manuela (Eds.), *Encyclopedia of Internet Technologies and Applications: Information Science Reference* (an imprint of IGI Global).
- Bowden, J. & Marton, F. (1998). *The University of Learning: Beyond Quality and Competence*. London: Kogan Page.
- Brewer, J., & Hunter, A. (2006). *Foundations of multimethod research: Synthesizing styles*. Thousand Oaks, CA: Sage.

- Brown, J. S., & Duguid, P. (1991). Organizational Learning and Communities-of-Practice: Toward a Unified View of Working, Learning, and Innovation. *Organization Science*, 2(1), 40-57.
- Brown, J. S., & Duguid, P. (2000). *The Social Life of Information*. Boston, MA: Harvard Business School Press.
- Bryman, A. (2006). Integrating quantitative and qualitative research: How is it done? *Qualitative Research*, 6, 97-113.
- Bryman, A. (2007). Barriers to integrating quantitative and qualitative research. *Journal of Mixed Methods Research*, 1(1), 8-22.
- Burawoy, M. (2003). Revisits: An Outline of a Theory of Reflexive Ethnography. *American Sociological Review*, 68(5), 645-679.
- Caracelli, V. J., & Greene, J. C. (1993). Data analysis strategies for mixed method evaluation designs. *Educational Evaluation and Policy Analysis*, 15, 195-207.
- Caracelli, V. J., & Greene, J. C. (1997). Crafting mixed method evaluation designs. In J. C. Greene & V. J. Caracelli (Eds.), *Advances in mixed methods evaluation: The challenges and benefits of integrating diverse paradigms* (New Directions for Evaluation No. 74, pp. 19-32). San Francisco, CA: Jossey-Bass.
- Carroll, F., Kop, R., & Woodward, C. (2008). Sowing the Seeds of Learner Autonomy: Transforming the VLE into a Third Place Through the use of Web 2.0 Tools. *Paper presented at the 7th European Conference on e-Learning (ECEL'08)*, Cyprus.
- CCAD (Carnegie Council on Adolescent Development) (1996). *Great transitions: Preparing adolescents for a new century* (abridged version). New York: Carnegie Corporation.
- Chin, C. & Brown, E.D. (2000). Learning in Science: A Comparison of Deep and Surface Approaches. *Journal of Research in Science Teaching*, 37(2), 109-138.
- Chou, S.W., & Min, H.T. (2009). The impact of media on collaborative learning in virtual settings: The perspective of social construction. *Computers & Education*, 52(2), 417-431.

- Clark, H. H., & Brennan, S. E. (1991). Grounding in Communication. In L. B. Resnick, J. Levine & S. D. Teasley (Eds.), *Perspectives on socially shared cognition* (pp. 127-149). Washington.
- Clarke, J., Hunter, J., & Wells, M. (2008). Enhancing the Student Experience Using Web 2.0 Technologies (Wikis, Blogs and Webcam Recordings) to Encourage Student Engagement and to Develop Collaborative Learning: a Case Study. *Paper presented at the 7th European Conference on e-Learning (ECEL'08)*, Cyprus.
- Cohen, L., Manion, L., & Morrison, K. R. B. (2007). *Research methods in education*. Routledge.
- Connell, J. P. (1985). A new multidimensional measure of children's perceptions of control. *Child Development*, 56, 1018-1041.
- Cordova, D. I., & Lepper, M. R. (1996). Intrinsic motivation and the process of learning: Beneficial effects of contextualization, personalization, and choice. *Journal of Educational Psychology*, 88(4), 715-730.
- Covington, M. V. (1992). *Making the grade: A self-worth perspective on motivation and school reform*. Cambridge: Cambridge University Press
- Covington, M. V. (1998). *The will to learn: A guide for motivation young people*. New York: Cambridge University Press.
- Covington, M. V. (2000). Goal Theory, Motivation, and School Achievement: An integrative review. *Annual Review of Psychology*, 51, 171-200.
- Cramton, C. D. (2001). The Mutual Knowledge Problem and Its Consequences for Dispersed Collaboration. *Organization Science*, 12(3), 346-371.
- Cramton, C. D. (2002). Finding Common Ground in Dispersed Collaboration. *Organizational Dynamics*, 30(4), 356-367.
- Cress, U., & Kimmerle, J. (2008). A systemic and cognitive view on collaborative knowledge building with wikis. *Computer-Supported Collaborative Learning*, 3, 105-122.
- Creswell, J. W. & Plano Clark V. L. (2011). *Designing and conducting mixed methods research* (2<sup>nd</sup> ed.). Thousand Oaks, CA: Sage.

- Creswell, J. W. & Plano Clark V. L. Gutmann, M. L. & Hanson, W. E. (2003a). Advanced mixed methods research designs (Chapter 8). In A. Tashakkori & C. Teddlie (Eds.) *Handbook of mixed methods in social & behavioural research* (pp. 209-240). Thousand Oaks, CA: Sage.
- Creswell, J. W. (1994). *Research design: Qualitative and quantitative approaches*. Thousand Oaks, CA: Sage.
- Creswell, J. W. (2002). *Educational research: Planning, conducting, and evaluating quantitative and qualitative approaches to research*. Upper Saddle River, NJ: Pearson Education.
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2<sup>nd</sup> ed.). Thousand Oaks, CA: Sage.
- Creswell, J. W. (2007). *Qualitative Inquiry and Research Design: Choosing among Five Approaches*. CA: Sage.
- Creswell, J. W., & Plano Clark, V. L. (2007). *Designing and conducting mixed methods research*. Thousand Oaks: Sage.
- CRLI (Centre for Research on Learning and Instruction) (1997). *Scoring key for the approaches and study skills inventory for students*. Available at: <http://www.ed.ac.uk/etl/questionnaires/ASSIST.pdf> [Accessed 28<sup>th</sup> June 2011]
- Cummings, J. N., Butler, B., & Kraut, R. (2002). The Quality of Online Social Relationships. *Communications of the ACM*, 45(7), 103-108.
- de Freitas, S., & Neumann, T. (2009). The use of 'exploratory learning' for supporting immersive learning in virtual environments. *Computers & Education*, 52(2), 343-352.
- Denzin, N. K. & Lincoln, Y. S. (2005). *The Sage handbook of qualitative research* (3<sup>rd</sup> ed.). Thousand Oaks, CA: Sage.
- Denzin, N. K. & Lincoln, Y. S. (Eds.) (1994). *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Denzin, N. K. (1978). The logic of naturalistic inquiry. In N. K. Denzin (Ed.) *Sociological methods: A sourcebook*. New York: McGraw-Hill.

- Denzin, N. K. (1989). *The research act: A theoretical introduction to sociological methods*. Englewood Cliffs, NJ: Prentice Hall.
- Dewey, J. (1938). *Experience & Education*. New York: Simon & Schuster.
- Dickinson, W. B. (2010). Visual displays for mixed methods findings. In A. Tashakkori & C. Teddlie (Eds.) *Sage handbook of mixed methods in social & behavioural research* (pp. 469-504). Thousand Oaks, CA: Sage.
- Dillenbourg, P. (1999). What do you mean by 'collaborative learning'? In P. Dillenbourg (Ed.) *Collaborative-learning: Cognitive and Computational Approaches* (pp. 1-15). Oxford: Elsevier.
- Dillenbourg, P. (2005). Designing biases that augment socio-cognitive interactions. In R. Bromme, F. Hesse & H. Spada (Eds.), *Barriers and biases in computer-mediated knowledge communication and how they may be overcome*. Dordrecht, Netherlands: Kluwer Academic Publisher.
- Dillenbourg, P., & Hong, F. (2008). The mechanics of CSCL macro scripts. *Computer-Supported Collaborative Learning*, 3, 5-23.
- Dweck, D., & Leggett, E. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95(2), 56-273.
- Dwyer, N., & Suthers, D. D. (2005). A study of the foundations of artifact-mediated collaboration. *Paper presented at the international conference of Computer-Supported Collaborative Learning (CSCL 2005)*, Taipei, Taiwan.
- Eccles, J. (1983). Expectancies, values, and academic behaviours. In J. Spence (Ed.), *Achievement and achievement motivation*. San Francisco, CA: Freeman.
- Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology*, 53, 109-132.
- Eccles, J. S., Wigfield, A., & Schiefele, U. (1998). Motivation to succeed. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology* (Vol. 3, pp. 1017-1095). New York: Wiley.

- Egea, K. (2006). Relationship Building in Virtual Teams: An Academic Case Study. Paper presented at the *Proceedings of the 2006 Informing Science and IT Education Joint Conference*, Salford, UK.
- Elliot, A. J., & Sheldon, K. M. (1997). Avoidance achievement motivation: A personal goals analysis. *Journal of Personality and Social Psychology*, 73, 171-185.
- Elliot, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology*, 54, 5-12.
- Engeström, Y. (2008). Enriching activity theory without shortcuts. *Interacting with Computers*, 20(2), 256-259.
- Entwistle, N. J. & Ramsden, P. (1983). *Understanding Student Learning*. London: Croom Helm.
- ETL Project (2001). *Enhancing Teaching-Learning Environments in Undergraduate Courses*. Available at: <http://www.etl.tla.ed.ac.uk/publications.html> [Accessed 7<sup>th</sup> August 2011].
- Fleming, N. D. (2006). *The VARK Questionnaire version 7.0*. Available at: <http://www.vark-learn.com/english/page.asp?p=questionnaire> [Accessed 8<sup>th</sup> June 2011].
- Fry, H., Ketteridge, S. & Marshall, S. (1999). Understanding student learning (Chapter 3). In *A Handbook for Teaching And Learning in Higher Education* (pp. 21-40). London: Kogan Page.
- Fry, H., Ketteridge, S. & Marshall, S. (2003). Understanding student learning (Chapter 2). In *A Handbook for Teaching And Learning in Higher Education* (2<sup>nd</sup> ed.) (pp. 8-26). London: Kogan Page.
- Fullarton, S. (2002). *Student engagement with school: Individual and school-level influences*. Camberwell, Vic.: Australian Council for Educational Research.
- Fung, Y. H. (2004). Collaborative online learning: interaction patterns and limiting factors. *Open Learning*, 19(2), 135-149.
- Furst, S., Blackburn, R., & Rosen, B. (1999). Virtual team effectiveness: a proposed research agenda. *Information Systems Journal*, 9, 249-269.

- Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: computer conferencing in higher education. *The Internet and Higher Education*, 2, 87-105.
- Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. *The American Journal of Distance Education*, 15(1), 7-23.
- Glasser, W. (1998). *The quality school: Managing students without coercion*. New York: Harper Perennial.
- Goel, S. (2010). *Learning & Computing Education: Reflections and Ideation*. Jaypee Institute of Information Technology. Available at: <http://goelsan.wordpress.com/2010/07/20/theories-that-can-help-teacherstrainers-to-think-like-educators/> [Accessed 28<sup>th</sup> June 2011]
- Grabinger, S., Aplin, C., & Ponnappa-Brenner, G. (2007). Instructional Design for Sociocultural Learning Environments. *e-Journal of Instructional Science and Technology (e-JIST)*, 10(1).
- Green, J., Martin, A. J., & Marsh, H. W. (2005) Academic Motivation and Engagement: A domain Specific Approach. *Association for active educational researchers (AARE)*. Available at: <http://www.aare.edu.au/05pap/abs05.htm#G> [Accessed 28<sup>th</sup> June 2011]
- Greene, J. C. & Caracelli, V. J. (Eds). (1997). Advances in mixed-method evaluation: The challenges and benefits of integrating diverse paradigms. In *New Directions for Evaluation*, No. 74, San Francisco: Jossey-Bass.
- Greene, J. C., & Caracelli, V. J. (1997). Defining and describing the paradigm issue in mixed method evaluation. In J. C. Greene & V. J. Caracelli (Eds.), *Advances in mixed methods evaluation: The challenges and benefits of integrating diverse paradigms* (New Directions for Evaluation No. 74, pp. 5-17). San Francisco: Jossey-Bass.
- Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed methods evaluation design. *Educational Evaluation and Policy Analysis*, 11, 255-274.



- Guba, E. G. (1978). *Toward a methodology of naturalistic inquiry in educational evaluation*. Los Angeles: University of California, Graduate School of Education, Center for the Study of Evaluation.
- Guba, E. G. (1990). The alternative paradigm dialog. In Guba, E. G. (Ed.) *The paradigm dialog*. CA: Sage.
- Guba, E. G., & Lincoln, Y. S. (1988). Do inquiry paradigms imply inquiry methodologies? In D. M. Fetterman (Ed.), *Qualitative approaches to evaluation in education* (pp. 89-115). New York: Praeger.
- Guba, E. G., & Lincoln, Y. S. (1989). *Fourth generation evaluation*. Newbury Park, CA: Sage.
- Hammersley, M. & Atkinson, P. (1995). *Ethnography: Principles in Practice* (2<sup>nd</sup> Ed.). New York: Routledge.
- Hammersley, M. & Atkinson, P. (2007). *Ethnography: Principles in Practice* (3<sup>rd</sup> Ed.). New York: Routledge.
- Harter, S. (1986). *Manual for the self-perception profile for adolescents*. Denver, CO: University of Denver.
- Harter, S. (1996). Teacher and classmate influences on scholastic motivation, self-esteem, and level of voice in adolescents. In J. Juvonen & K. Wentzel (Eds.), *Social motivation: Understanding children's school adjustment* (pp. 11-42). New York: Cambridge Univ. Press
- Harter, S. (1998). The development of self-representations. In W. Damon (Ed.), *Handbook of Child Psychology* (Vol. 3, pp. 553-618). New York: Wiley.
- Harter, S., & Jackson, B. J. (1992). Trait vs. nontrait conceptualizations of intrinsic/extrinsic motivational orientation. *Motivation and Emotion*, 16, 209-230.
- Haythornthwaite, C., Kazmer, M. M., Robins, J., & Shoemaker, S. (2000). Community Development Among Distance Learners: Temporal and Technological Dimensions. *Journal of Computer-Mediated Communication*, 6(1).
- Heath, C., Hindmarsh, J., & Luff, P. (2010). *Video Analysis and Qualitative Research*: Sage.

- Hickey, D. T. (1997). Motivation and contemporary socio-constructivist instructional perspectives. *Educational Psychologist*, 32, 175-193.
- Hidi, S., & Harackiewicz, J. M. (2000). Motivating the academically unmotivated: A critical issue for the 21st. century. *Review of Educational Research*, 70, 151-179.
- Hidi, S., Renninger, A., & Krapp, A. (2004). Interest, a motivational variable that combines affective and cognitive functioning. In D. Y. Dai & R. J. Sternberg (Eds.), *Motivation, emotion, and cognition*. (pp. 89-115). Mahwah, NJ: Lawrence Erlbaum.
- Holbrook, B., & Jackson, P. (1996). Shopping Around: Focus Group Research In North London. *Area*, 28, 136-142.
- House, E. R., & Howe, K. R. (1999). *Values in evaluation and social research*. Thousand Oaks, CA: Sage.
- Howe, K. R. (1988). Against the quantitative–qualitative incompatibility thesis or dogmas die hard. *Educational Researcher*, 17(8), 10-16.
- Huberman, A. M., & Miles, M. B. (1994). Data management and analysis methods. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 428-444). Thousand Oaks, CA: Sage.
- iCOM (2008). Centre for Research in Information Computing and Communication. Available at: <http://www.rhul.ac.uk/icom/home.aspx> [Accessed 2<sup>nd</sup> December 2011]
- Jang, E. E., Mcdougall, D. E., Pollon, D., Herbert, M., & Russell P. (2008). Integrative Mixed Methods Data Analytic Strategies in Research on School Success in Challenging Circumstances. *Journal of Mixed Methods Research*, 2(3), pp. 221-247.
- Jaques, D. & Salmon, G. (2007). *Learning in groups: a handbook for face-to-face and online environments* (4<sup>th</sup> ed.). New York: Routledge.
- Jarvenpaa, S. L., & Leidner, D. E. (1999). Communication and Trust in Global Virtual Teams. *Organization Science, INFORMS*, 10(6), 791-815.

- Johnson, B., & Gray, R. (2010). A history of philosophical and theoretical issues for mixed methods research. In A. Tashakkori & C. Teddlie (Eds.) *Sage handbook of mixed methods in social & behavioural research* (pp. 67-94). Thousand Oaks, CA: Sage.
- Johnson, B., & Turner, L. A. (2003). Data collection strategies in mixed methods research. In A. Tashakkori & C. Teddlie (Eds.) *Handbook of mixed methods in social & behavioural research* (pp. 297-320). Thousand Oaks, CA: Sage.
- Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33 (7), 14-26.
- Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, 1(2), 112-133.
- Kaplan, A., & Maehr, M. L. (2002). Adolescents' achievement goals. Situating motivation in sociocultural contexts. In F. Pajares & T. Urdan (Eds). *Academic motivation of adolescents*. Connecticut: Information Age Publishing.
- Kaplan, A., & Midgley, C. (1997). The effect of achievement goals: Does level of perceived academic competence make a difference? *Contemporary Educational Psychology*, 22, 415-35.
- Kearsley, G. (2009). The Theory Into Practice Database. Retrieved from: <http://tip.psychology.org> [Accessed 22<sup>nd</sup> May 2011]
- Kearsley, G., & Shneiderman, B. (1999). Engagement Theory: A framework for technology-based teaching and learning. Available at: <http://home.sprynet.com/~gkearsley/engage.htm> [Accessed 2<sup>nd</sup> December 2011]
- Kimmerle, J., & Cress, U. (2008). Group awareness and self-presentation in computer-supported information exchange. *Computer-Supported Collaborative Learning*, 3, 85-97.
- Kirsch, I., de Jong, J., Lafontaine, D., McQueen, J., Mendelovits, J., & Monseur, C. (2002). *Reading for change: Performance and engagement across countries. Results from PISA 2000*. Paris: OECD.

- Kock, N., Verville, J., & Garza, V. (2007). Media Naturalness and Online Learning: Findings Supporting Both the Significant and No-Significant-Difference Perspectives. *Decision Sciences Journal of Innovative Education*, 5(2), 333-355.
- Krapp, A., Hidi, S., & Renninger, A. (1992). Interest, learning and development. In A. Renninger, S. Hidi & A. Krapp (Eds.). *The role of interest in learning and development*. (pp. 3-25). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Kreijns, K., & Kirschner, P. A. (2001). The Social Affordances of Computer Supported Collaborative Learning Environments. *Paper presented at the 31st ASEE/IEEE Frontiers in Education Conference*, Reno, NV, USA.
- Krueger, R. A. & Casey, M. A. (2000) *Focus Groups: A Practical Guide for Applied Research*, CA, Sage Publishing: Thousand Oaks.
- Kuhn, G., Lievonen, M., Doerner, R. & Rosenberg, D. (2007) Augmenting the Information Space in Computer-Mediated Communication: Employing AR and Game Controller in Deictic References, *Proceedings of 10th International Conference on Humans and Computers*, 30-44, Tokyo.
- Kuutti, K. (1995). Activity Theory as a potential framework for human-computer interaction research. In B. Nardi (Ed.), *Context and Consciousness: Activity Theory and Human Computer Interaction* (pp. 17-44). Cambridge: MIT Press.
- Laurillard, D. (1993). *Rethinking University Teaching: A Conversational Framework for the Effective Use of Teaching Technology*. RoutledgeFalmer: London and New York.
- Laurillard, D. (2002a). *Rethinking University Teaching: A Conversational Framework for the Effective Use of Teaching Technologies*. (2<sup>nd</sup> Ed.) RoutledgeFalmer: London and New York.
- Laurillard, D. (2002b). Rethinking Teaching for the Knowledge Society. *EDUCAUSE Review*, 37(1), pp. 16-25.
- Laurillard, D. (2005). Harnessing technology to personalise the learning experience. In C. Yapp & S. de Freitas (eds), *Personalising Learning in the 21st Century*: Network Educational Press.

- Lee, A. S. (1999). Rigor and Relevance in MIS Research: Beyond the Approach of Positivism Alone. *MIS Quarterly*, 23(1), 29-33.
- Lehtinen, E. (2003). Computer-Supported Collaborative Learning: An approach to powerful learning environments. In E. De Corte, L. Verschaffel, N. Entwistle & J. Van Merriëboer (Eds.), *Unravelling basic components and dimensions of powerful learning environments*: Elsevier.
- Leidner, D. E., & Jarvenpaa, S. L. (1995). The Use of Information Technology to Enhance Management School Education: A Theoretical View. *MIS Quarterly*, 19(3), 265-291.
- Lewin, K. (1938). *The conceptual representation and the measurement of psychological forces*. Durham, NC: Duke Univ. Press.
- Lincoln, Y. S. & Guba, E. G. (1985). *Naturalistic Inquiry*. Newbury Park, CA: Sage.
- Lincoln, Y. S. & Guba, E. G. (2000). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2<sup>nd</sup> ed., pp. 163-188). Thousand Oaks, CA: Sage.
- Linnenbrink, E. A., & Pintrich, P. R. (2002). Motivation as an enabler for academic success. *School Psychology Review*, 31, 313-327.
- Luff, P., Hindmarsh, J., & Heath, C. (2000). *Workplace Studies: Recovering Work Practice and Informing System Design*: Cambridge University Press.
- Majchrzak, A., Malhotra, A., & John, R. (2005). Perceived Individual Collaboration Know-How Development Through Information Technology-Enabled Contextualization: Evidence from Distributed Teams. *Information Systems Research, INFORMS*, 16(1), 9-29.
- Majchrzak, A., Rice, R., Malhotra, A., King, N. and Ba., S. (2000). Technology adaptation: the case of a computer-supported inter-organizational virtual team. *MIS Quarterly*, 24(4), 569-600.
- Malinowski, B. (1922). *Argonauts of the Western Pacific*. London: Routledge & Kegan Paul.

- Martin, A. J. (2002). Motivation and academic reliance: Developing a model of student enhancement. *Australian Journal of Education*, 47, 88-106.
- Martin, A. J. (2003). *How to motivate your child for school and beyond*. Sydney: Bandam.
- Marton, F. (1975). What does it take to learn? In N.J. Entwistle (Ed.), *Strategies for research and development in higher education*. Amsterdam: Sweets and Zeltlinger (pp. 32-43).
- Marton, F. & Säljö, R. (1976). On qualitative differences in learning, I: Outcome and process. *British Journal of Educational Psychology*, 46, 4-11.
- Mathison, S. (1988). Why triangulate? *Educational Researcher*, 17(2), 13-17.
- Maxwell, J. A. (1992). Understanding and validity in qualitative research. *Harvard Educational Review*, 62, 279-300.
- Maxwell, J. A., & Loomis, D. M. (2003). Mixed methods design: An alternative approach. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social & behavioral research* (pp. 241-271). Thousand Oaks CA: Sage.
- McConnell, D. (2000). *Implementing computer supported cooperative learning*. Routledge.
- McGrath, J. E. (1997). Small group research, that once and future field: An interpretation of the past with an eye to the future. *Group Dynamics: Theory, Research, and Practice*, 1(1), 7-27.
- Meece, J. L., & Holt, K. (1993). A pattern analysis of students' achievement goals. *Journal of Educational Psychology*, 85, 582-590.
- Meece, J. L., Blumenfeld, P.C. & Hoyle, R. H. (1988). Students' goal orientations and cognitive engagement in classroom activities. *Journal of Educational Psychology*, 80, 514-23.
- Merriam, S. B. (1988). *Case study research in education: A qualitative approach*. San Francisco: Jossey-Bass.
- Merriam, S. B. (1998). *Qualitative research and case study applications in education*. San Francisco: Jossey-Bass.

- Midgley, C., Kaplan A., Middleton M., & Maehr M. L. (1998). The development and validation of scales assessing students' achievement goal orientations. *Contemporary Educational Psychology*, 23, 113-31
- Miles, M. B. & Huberman, M. (1994) *Qualitative Data Analysis: An Expanded Sourcebook*, Sage.
- Miller, R. B., Greene, B. A., Montalvo, G. P., Ravindran, B., & Nichols, J. D. (1996). Engagement in academic work: The role of learning goals, future consequences, pleasing others, and perceived ability. *Contemporary Educational Psychology*, 21, 388-422.
- Milrad, M. (2002). Using Construction Kits, Modeling Tools and System Dynamics Simulations to Support Collaborative Discovery Learning. *Educational Technology & Society*, 5(4), 76-87.
- Mingers, J. (2001). Combining IS Research Methods: Towards a Pluralist Methodology. *Information Systems Research, INFORMS*, 12(3), 240-259.
- Mitchell, M. (1993). Situational interest: Its multifaceted structure in the secondary school mathematics classroom. *Journal of Educational Psychology*, 85, 424-436.
- Moghaddam, F. M., & Harré, R. (1995) But is it science? Traditional and alternative approaches to the study of social behaviour. *World Psychology*, 1, 47-78.
- Morgan, D. L. (1998). Practical strategies for combining qualitative and quantitative methods: Applications to health research. *Qualitative Health Research*, 8, 362-376.
- Morse, J. M. (1991). Approaches to qualitative-quantitative methodological triangulation. *Nursing Research*, 40(2), 120-123.
- Morse, J. M. (2003). Principles of mixed methods and multimethod research design. In A. Tashakkori & C. Teddlie (Eds.) *Handbook of mixed methods in social & behavioural research* (pp. 189-208). Thousand Oaks, CA: Sage.
- Murphy, K., & Alexander, P. (2000). A motivated exploration of motivation terminology. *Contemporary Educational Psychology*, 25.

- Namey, E., Guest, G., Thairy, L., & Johnson, L. (2007). Data Reduction Techniques for Large Qualitative Data Sets. In G. Guest & K. M. MacQueen (Eds.), *Handbook for Team-based Qualitative Research* (pp. 137-162): Rowman Altamira.
- Neeman, J., & Harter, S. (1996). *Manual for the self-perception profile for college students*. Denver, CO: Univ. of Denver.
- Neuman, W. L. (2000). *Social research methods: Qualitative and Quantitative approaches* (4<sup>th</sup> ed.). Boston: Allyn & Bacon.
- Nicholls, J. G. (1984). Achievement motivation: conceptions of ability, subjective experience, task choice, and performance. *Psychological Review*, 91, 328-46.
- Nicholls, J. G. (1989). *The Competitive Ethos and Democratic Education*. Cambridge: Harvard University Press.
- Nicholls, J. G., Patashnick, M., & Nolen, S. B. (1985). Adolescents' theories of education. *Journal of Educational Psychology*, 77, 683-692.
- Nichols, J. G., & Miller, R. B. (1994). Cooperative learning and student motivation. *Contemporary Educational Psychology*, 19, 167-178.
- Nunamaker, J. F., Briggs, R. O., Mittleman, D. D., Vogel, D. R., & Balthazard, P. A. (1997). Lessons from a Dozen Years of Group Support Systems Research: A Discussion of Lab and Field Findings. *Journal of Management Information Systems*, 13(3), 163-207.
- Ocker, R. J., & Yaverbaum, G. J. (2001). Collaborative Learning Environments: Exploring Student Attitudes and Satisfaction in Face-to-Face and Asynchronous Computer Conferencing Settings. *Journal of Interactive Learning Research*, 12.
- Olson, G. M. & Olson, J. S. (2000). Distance Matters. *Human-Computer Interaction*, 15, 139-178.
- Onwuegbuzie, A. & Teddlie, C. (2003). A framework for analyzing data in mixed methods research. In A. Tashakkori & C. Teddlie (Eds.) *Handbook of mixed methods in social & behavioural research* (pp. 351-384). Thousand Oaks, CA: Sage.



- Onwuegbuzie, A. J. & Combs, J. P. (2010). Emergent data analysis techniques in mixed methods research: A synthesis. In A. Tashakkori & C. Teddlie (Eds.) *Sage handbook of mixed methods in social & behavioural research* (pp. 397-430). Thousand Oaks, CA: Sage.
- Onwuegbuzie, A. J. & Johnson, R. B. (2006). The Validity Issue in Mixed Research. *Research in the schools*, 13(1), 48-63.
- Orlikowski, W. J., Yates, J., Okamura, K., & Fujimoto, M. (1995). Shaping Electronic Communication: The Metastructuring of Technology in the Context of Use. *Organization Science, INFORMS*, 6(4), 423-444.
- Overdijk, M., & van Diggelen, W. (2008). Appropriation of a shared workspace: Organizing principles and their application. *Computer-Supported Collaborative Learning*, 3, 165-192.
- Patton, M. (1988). Paradigms and pragmatism. In D. M. Fetterman (Ed.), *Qualitative approaches to evaluation in education: The silent scientific revolution* (pp. 116-137). New York: Praeger.
- Patton, M. Q. (1980). *Qualitative Evaluation Methods*. Beverly Hills, CA: Sage.
- Patton, M. Q. (1990). *Qualitative evaluation and research methods*. Newsbury Park, CA: Sage.
- Patton, M. Q. (2002). *Qualitative evaluation and research methods*. (3<sup>rd</sup> ed.). Sage Publications.
- Perrow, C. (1986). *Complex organisations* (3<sup>rd</sup> ed.). New York: Random House.
- Pintrich, P. R. (1994). Continuities and discontinuities: Future directions for research in educational psychology. *Educational Psychologist*, 29(3), 137-148.
- Pintrich, P. R. (2003). A motivational science perspective on the role of student motivation in learning and teaching contexts. *Journal of Educational Psychology*, 95, 667-686.
- Pintrich, P. R., & Schunk, D. H. (1996). *Motivation in education: Theory, research, and applications*. Englewood Cliffs, NJ: Merrill Prentice-Hall.

- QSR (2011). NVivo9. Available at:  
[http://www.qsrinternational.com/products\\_nvivo.aspx](http://www.qsrinternational.com/products_nvivo.aspx) [Accessed 2<sup>nd</sup> December 2011]
- Qureshi, S., & Vogel, D. R. (2001). Adaptiveness in Virtual Teams: Organisational Challenges and Research Directions. *Group Decision and Negotiation*, 10(1), 27-46.
- Qureshi, S., & Zigurs, I. (2001). Paradoxes and Prerogatives in Global Virtual Collaboration. *Communications of the ACM*, 44(12), 85-88.
- Ramsden, P. (1988). *Improving Learning: New Perspectives*. London: Kogan Page.
- Ramsden, P. (1992). *Learning to teach in higher education*. London: Routledge.
- Renninger, A., & Hidi, S. (2002). Student interest and achievement: Developmental issues raised by a case study. In A. Wigfield & J. Eccles (Eds.), *Development of achievement motivation*. (pp. 173-195). San Diego, CA: Academic Press.
- Riemer, J. W. (1977). Varieties of opportunistic research. *Urban Life*, 5(4), 467-77.
- Rigby, C. S., Deci, E. L., Patrick, B. C., & Ryan, R. M. (1992). Beyond the intrinsic-extrinsic dichotomy: Self-determination in motivation and learning. *Motivation and Emotion*, 16(3), 165-185.
- Roberts, T. S. (2004). *Online Collaborative Learning: Theory and Practice*. Idea Group Inc (IGI).
- Robey, D., Khoo, H. M., & Powers, C. (2000). Situated Learning in Cross-Functional Virtual Teams. *IEEE Transactions on Professional Communication*, 43(1), 51-66.
- Roeser, R. W., Midgley, C., & Urdan, T. (1996). Perceptions of the school psychological environment and early adolescents' psychological and behavioral functioning in school: The mediating role of goals and belonging. *Journal of Educational Psychology*, 88, 408-422.
- Roschelle, J., & Teasley, S. (1995). The construction of shared knowledge in collaborative problem solving. In C. O'Malley (Ed.), *Computer-supported collaborative learning* (pp. 69-197). Berlin, Germany: Springer Verlag.

- Rosenberg, D. (2000). 3 Steps to Ethnography: A Discussion of Inter-Disciplinary Contributions. *Artificial Intelligence and Society*, Special Issue, 15(1).
- Rosenberg, D., Foley, S., Lievonon, M., Kammas, S., & Crisp, M. J. (2005). Interaction spaces in computer-mediated communication. *Artificial Intelligence and Society*, 19(1), 22-33.
- Sandelowski, M. (2000). Combining qualitative and quantitative sampling, data collection and analysis techniques in mixed-method studies. *Research in Nursing & Health*, 23, 246-255.
- Sarason, I. G., & Sarason, B. R. (1990). Test anxiety. In H. Leitenberg (Ed). *Handbook of social and evaluation anxiety* (pp. 475-495). New York: Plenum Press.
- Saville-Troike, M. (1982). *The Ethnography of Communication: An Introduction*. University Park Press.
- Schmidt, K. (1998). The critical role of workplace studies in CSCW. In P. Luff, C. Heath & J. Hindmarsh (Eds.), *Workplace Studies: Recovering Work Practice and Informing Design*. Cambridge University Press.
- Schoonenboom, J. (2008). The effect of a script and a structured interface in grounding discussions. *Computer-Supported Collaborative Learning*, 3, 327-341.
- Schunk, D. H. (1991). Self-efficacy and academic motivation. *Educational Psychologist*, 26, 207-232.
- Shuell, T. J. (1986). Cognitive conceptions of learning. *Review of Educational Research*, 56, 411-436.
- Silva, T., & Nicholls, J. G. (1993). College students as writing theorists: Goals and beliefs about the causes of success. *Contemporary Educational Psychology*, 18, 281-293.
- Simonsen, J., & Kensing, F. (1997). Using ethnography in contextual design. *Communications of the ACM*, 40(7), 82-88.
- Skaalvik, E. (1997). Self-enhancing and self-defeating ego orientations: relations with task and avoidance orientation, achievement, self-perceptions, and anxiety. *Journal of Educational Psychology*, 89, 71-81.

- Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology*, 85(4), 571-581.
- Smith, J. K. (1983). Quantitative versus qualitative research: An attempt to clarify the issue. *Educational Researcher*, 12(3), 6-13.
- Smith, J. K., & Heshusius, L. (1986). Closing down the conversation: The end of the quantitative–qualitative debate among educational researchers. *Educational Researcher*, 15(1), 4-12.
- So, H., & Kim, B. (2005). Instructional Methods for CSCL: Review of Case Studies. *Paper presented at the Proceedings of the 2005 conference on Computer support for collaborative learning*, Taipei, Taiwan.
- Soller, A., Martínez, A., Jermann, P., & Muehlenbrock, M. (2005). From Mirroring to Guiding: A Review of State of the Art Technology for Supporting Collaborative Learning. *International Journal of Artificial Intelligence in Education*, 15(4), 261-290.
- Sommaruga, L. & De Angelis, K. (2008). Blended Learning in Action. *Paper presented at the 7th European Conference on e-Learning (ECEL'08)*, Cyprus.
- Spielberger, C. D. (1985). Assessment of state and trait anxiety: Conceptual and methodological issues. *Southern Psychologist*, 2, 6-16.
- Stacey, E. (1999). Collaborative learning in an online environment. *Journal of Distance Education*, 14(2).
- Stahl, G., Koschmann, T., & Suthers, D. (2006). Computer-supported collaborative learning: An historical perspective. In R. K. Sawyer (Ed.), *Cambridge handbook of the learning sciences* (pp. 409-426). Cambridge, UK: Cambridge University Press. Available at: [http://GerryStahl.net/cscl/CSCL\\_English.pdf](http://GerryStahl.net/cscl/CSCL_English.pdf) [Accessed 2<sup>nd</sup> December 2011]
- Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage.
- Stake, R. E. (2005). Qualitative case studies. In N. K. Denzin & Y. S. Lincoln (Eds.). *The Sage handbook of qualitative research* (3<sup>rd</sup> ed., pp. 443-466). Thousand Oaks, CA: Sage.

- Stansfield, M., Connolly, T., Cartelli, A., Jimoyiannis, A., Magalhães, H., & Maillet, K. (2008). The Development of Models for Identifying and Promoting Best Practice in e-Learning and Virtual Campuses. *Paper presented at the 7th European Conference on e-Learning (ECEL'08)*, Cyprus.
- Suchman, L. (1994). Do Categories Have Politics? The language-action perspective reconsidered. *Computer Supported Cooperative Work (CSCW)*, 2(3), 177-190.
- Tait, H., Entwistle, N. J., & McCune, V. (1998). ASSIST: A re-conceptualization of the Approaches to Studying Inventory. In C. Rust (Ed.) *Improving students as learners* (pp. 262-271). Oxford: Oxford Brookes University, Center for Staff and Learning Development.
- Tashakkori, A. & Teddlie, C. (1998). Mixed methodology: Combining qualitative and quantitative approaches. *Applied Social Research Methods*, No. 46, Thousand Oaks, CA: Sage.
- Tashakkori, A. & Teddlie, C. (eds.) (2003). *Handbook of Mixed Methods in Social and Behavioural Research*. Thousand Oaks, CA: Sage.
- Tashakkori, A. & Teddlie, C. (eds.) (2010). *Sage Handbook of Mixed Methods in Social and Behavioural Research* (2<sup>nd</sup> ed.). Thousand Oaks, CA: Sage.
- Teddlie, C., & Tashakkori, A. (2006). A general typology of research designs featuring mixed methods. *Research in the Schools*, 13(1), 12-28.
- Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research: Integrating quantitative and qualitative techniques in social and behavioural sciences*. Thousand Oaks, CA: Sage.
- Thomas, D. R. (2003). A general inductive approach for qualitative data analysis. *Population English Edition*, 27(2), 237-246.
- Thorkildsen, T. A., & Nicholls, J. G. (1998). Fifth graders' achievement orientations and beliefs: Individual and classroom differences. *Journal of Educational Psychology*, 90, 179-201.
- Urdu, T. C., & Maehr, M. L. (1995). Beyond a two-goal theory of motivation and achievement: A case for social goals. *Review of Educational Research*, 65, 213-243.

- Vallerand, R. J., Pelletier, L. G., Blais, M. R., Brière, N. M., Senécal, C. B., Vallières, E. F. (1992). Academic Motivation Scale (AMS-C 28): College (CEGEP) Version. *Educational and Psychological Measurement*, 52.
- Wasson, B., & Morch, A. I. (2000). Identifying collaboration patterns in collaborative telelearning scenarios. *Educational Technology and Society*, 3(3), 237-248.
- Weiner, P. (1994). Integrating social and personal theories of achievement striving. *Review of Educational Research*, 64, 557-573.
- Wenger, E. (1998). *Communities of Practice: Learning, Meaning, and Identity*. New York, USA: Cambridge University Press.
- Wentzel, K. R. (1989). Adolescent classroom goals, standards for performance, and academic achievement: An interactionist perspective. *Journal of Educational Psychology*, 81, 131-142.
- Wentzel, K. R. (1991). Relations between social competence and academic achievement in early adolescence. *Child Development*, 62, 1066-1078.
- Wentzel, K. R., & Asher, S. R. (1995). The academic lives of neglected, rejected, popular, and controversial children. *Child Development*, 66, 754-763.
- Wigfield, A. (1994). Expectancy-value theory of achievement motivation: A developmental perspective. *Educational Psychology Review*, 6, 49-78.
- Willms, J. D. (2003). Student engagement at school: A sense of belonging and participation. *Results from PISA 2000*. Paris: OECD.
- Wolcott, H. F. (1994). *Transforming qualitative data: description, analysis, an interpretation*. Thousand Oaks, CA: Sage.
- Wolcott, H. F. (1999). *Ethnography: A way of seeing*. Walnut Creek, CA: AltaMira.
- Wulf, V., Pipek, V., & Pfeifer, A. (2001). Resolving function-based conflicts in groupware systems. *AI & Society*, 15(3).
- Wynarczyk, P. (2005). The impact of connectivity technologies on e-flexible working practices of small and medium-sized enterprises in the North East of England. *New Technology, Work and Employment*, 20(3), 234-247.

- Yaverbaum, G. J., & Ocker, R. J. (1998). Problem Solving in the Virtual Classroom: A study of Student Perceptions Related to Collaborative Learning Techniques. *Paper presented at the WebNet 98 World Conference of the WWW, 3<sup>rd</sup> Internet and Intranet Proceedings*, Orlando, FL.
- Yin, R. K. (2003). *Case study research: Design and method* (3<sup>rd</sup> ed.). Thousand Oaks, CA: Sage.
- Zimmerman, B. J. (2001). Theories of self-regulated learning and academic achievement: An overview and analysis. In B. J. Zimmerman & D. H. Schunk (Eds). *Self-regulated learning and academic achievement: Theoretical perspectives* (pp. 1-38). Mahwah, NJ: Erlbaum.

## Bibliography

- Clark, H. H. (1996). *Using Language*. Cambridge University Press, New York
- Creswell, J. W. (2010). Mapping the developing landscape of mixed methods research. In A. Tashakkori & C. Teddlie (Eds.) *Sage handbook of mixed methods in social & behavioural research* (pp. 45-68). Thousand Oaks, CA: Sage.
- Creswell, J. W., Tashakkori, A., Jensen, K., & Shapley, K. (2003). Teaching mixed methods research: Practice, dilemmas and challenges (Chapter 24). In A. Tashakkori & C. Teddlie (Eds.) *Handbook of mixed methods in social & behavioural research* (pp. 619-638). Thousand Oaks, CA: Sage.
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine.
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105-117). Thousand Oaks, CA: Sage.
- Kendon, A. (1990). *Conducting Interaction: Patterns of Behavior in Focused Encounters*. Cambridge University Press.
- Saville-Troike, M. (2003). *The Ethnography of Communication: An introduction* (3<sup>rd</sup> ed.): Blackwell Publishing.
- Tang, C. (1994) Assessment and student learning: Effects of modes of assessment on students' preparation strategies. In G. Gibbs (Ed.) *Improving student learning: Theory and practice*. (pp. 151-170). Oxford, UK: Oxford Brookes University, The Oxford Centre for Staff Development.



## Appendix A – Ethics Approval Form

<b>Student</b>	Andriani Piki
<b>Supervisor</b>	Prof. Duska Rosenberg
<b>Advisor</b>	Prof. Yiannis Gabriel
<b>PhD Director</b>	Prof. Christopher Napier

### ***Research Rationale***

The research aims to explore and understand the main practices and behavioural norms that govern collaborative learning activities in technology-mediated and hybrid contexts. To accomplish this aim, the research will focus on investigating the cognitive and social activities that occur in collaborative learning endeavours with the view of informing the design of useful and usable systems in support of these endeavours.

### ***Data Collection and Ethical Considerations***

Data will be collected primarily through face-to-face semi-structured interviews, focus groups and participant observation. The participants will primarily be students but lecturers, professors, and technical staff will also be interviewed for collecting supplementary information. The afore-mentioned data collection methods raise a number of ethical issues. This study plans to deal with these issues by using an informed consent form. This form will describe in writing the purpose of the research, confidentiality issues and the level of consent endowed by the participant (full or partial). Also, in case any sessions will be recorded on video all the participants will be aware of this in advance and the camera will be placed in a visible position. In some situations participants will be asked to participate in post-experimental interviews with the aim of capturing the essence of user experience with collaborative technologies.

### ***Declaration***

I am aware that with ethnography, and participant observation in particular, as a researcher I might come across very sensitive and private information. Nevertheless, I will maintain anonymity and confidentiality throughout the course of the study. I will not disclose any private information (names, position held, etc) without the prior consent of the participants. I will not use any data to harm the participants in any way. Finally, I will conduct my research based on ethical values.

Andriani Piki

## Appendix B – Informed Consent Form

**Research Title:**

**Exploration of collaborative learning patterns in technology-enhanced learning environments in postgraduate Business/IT education**

The aim of this research is to explore how group work and the use of information and communication technologies (ICT) affect learning practices. The research will look at how learners collaborate and learn through technology and which factors affect student engagement, knowledge acquisition, and skills development.

**By participating in this research, I agree to:**

- Be interviewed and allow the interview to be audio-recorded and transcribed.
- Participate in learning activities which might be observed, video-recorded and/or photographed.
- Allow the researcher to publish the findings resulting from the research.

**Data protection and confidentiality:**

- I understand that any information collected will be held and processed solely for research purposes and will remain confidential at all times unless permission is given otherwise.
- I understand that no identifiable personal information will be published or disclosed to any third parties.

**Withdrawal from study:**

- I am aware that my participation is voluntary and that I am free to discontinue participation at any time.

**Consent:**

I have read the information above and had the opportunity to ask any questions. I understand the purpose of this research project and I am willing to participate and give:

- **Full consent**

(I agree to participate and the researcher can use pictures and/or videos of me for research purposes)

- **Partial consent**

(I agree to participate and pictures and/or videos of me may be used as long as my face is blurred)

- **No consent**

(I agree to participate but pictures or videos of me should not be used)

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## Appendix C – Focus Group Template

Date: \_\_\_\_\_

GROUP number: \_\_\_\_\_

GROUP members: \_\_\_\_\_

### Aims:

- To explore how students reflect on their engagement with CSCL learning tasks;
- To explore which factors affect the students' engagement with CSCL tasks and why;
- To gain an understanding of how students think their engagement affected their learning.

### I. Students' learning style / preferences:

- In general, do you prefer learning in groups or individually? Why?
- What difference would it make (for your learning) if you only had the lecture and no workshops afterwards? What did you learn during the group discussions and while preparing group presentations that you wouldn't learn otherwise?

### II. Collaboration:

- What are the advantages and disadvantages of working in a group of people (coming from different backgrounds and whom you have never met before)?
- How did you organise the maintenance of your group blog, who is going to write what and how often?
- What difference does the presence of a group leader make? Do you prefer having clear roles within the group or having a more informal structure? Why?

### III. Technology:

- What is the difference between discussing face-to-face and contributing on the blog or talking through ColLab?
- What other technologies do you find useful for your learning? What are you using them for?

### IV. Engagement with CSCL tasks:

- What do you think about the blog tasks? How did you approach the blog tasks? What are the advantages and disadvantages of using blogs as part of the course?
- What do you think about the videoconferencing tasks? How did you approach the videoconferencing tasks? What are the advantages and disadvantages of using ColLab as part of the course?
- What affects your level of contribution on the blog, and how much you participate?
- Did you contribute to other groups' blogs? Why or why not?
- What could motivate you to engage and contribute more on the blog or while using ColLab?

### V. Learning outcomes:

- How did CSCL affect your learning outcomes?
- How did the blog affect your learning? What did you learn by using it?
- How did ColLab affect your learning? What did you learn by using it?

### VI. Closing questions:

- Are there any other prominent issues, experiences, concerns or stories you want to share?
- Do you have any suggestions regarding the CSCL tasks?

## Appendix D – Student Background Questionnaire

Please fill in the following information and return to Andrie Piki by Thursday 8th October 2009. If you have any questions please email me at: [a.piki@rhul.ac.uk](mailto:a.piki@rhul.ac.uk)

Note: Please provide truthful and correct information.

### Section 1 – Personal details

Full Name (as registered with college): \_\_\_\_\_

Nickname: \_\_\_\_\_

Personal email address: \_\_\_\_\_

RHUL email address: \_\_\_\_\_

Student Number: \_\_\_\_\_

Facebook: \_\_\_\_\_

Age: \_\_\_\_\_

Nationality: \_\_\_\_\_

Gender: Female  Male

### Section 2 – Academic Background

(1) Please state your previous degree(s):

*(please be as specific as possible e.g. BSc (Hons) in Business Information Systems)*

---

---

(2) Please state other relevant qualifications and certificates you have:

---

---

### Section 3 – Work Experience

(1) Do you have any work experience? Yes  No

*If no, please proceed to question no. 5.*

(2) What type of work experience do you have? Full-time  Part-time  Both

*Kindly proceed to question no. 5 if you have no work experience.*

(3) How long have you been working?

Less than 2 years       Between 2 and 5 years       More than 5 years

(4) Please state your previous positions and job roles (full-time and/or part-time).

---

---

(5) Do you have any experience working in a group project lasting more than 3 months?

Yes       No

(6) If YES, was your group working experience at work or university?

Work       University       Both

Kindly describe the nature of the project and your role in the project:

---

---

(7) Do you have experience writing a project / team report?

Yes       No

If your answer is YES, explain which parts of the report you were responsible for (e.g. the whole report, financial section, product development section, analysis, research etc.)

---

---

---

End of questionnaire - Thank you!

## Appendix E – Motivation & Learning Styles Questionnaire

### PART 1 - Why did you do this MSc?

This part of the questionnaire has only one question: Why did you do this MSc?

For each of the statements (1-28) please tick ( ✓ ) whether it does not correspond at all, corresponds a little, corresponds moderately, corresponds a lot, or if it corresponds exactly with the reason you did an MSc in Business Information Systems. Thank you!

Why did you do this MSc?	Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds a lot	Corresponds exactly
1. Because with only an Undergraduate degree I would not find a high-paying job later on.					
2. Because I experience pleasure and satisfaction while learning new things.					
3. Because I think that Postgraduate (MSc) education will help me better prepare for the career I have chosen.					
4. For the intense feelings I experience when I am communicating my own ideas to others.					
5. Honestly, I don't know; I really feel that I am wasting my time.					
6. For the pleasure I experience while surpassing myself in my studies.					
7. To prove to myself that I am capable of completing a Postgraduate (MSc) degree.					
8. In order to obtain a more prestigious job later on.					
9. For the pleasure I experience when I discover new things I have never seen before.					
10. Because eventually it will enable me to enter the job market in a field that I like.					
11. For the pleasure that I experience when I read interesting authors.					
12. I once had good reasons for doing a Postgraduate (MSc) degree, however now I					

wonder whether I did the right thing.					
13. For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.					
14. Because when I succeed in my MSc it makes me feel important.					
15. Because I want to have "the good life" later on.					
16. For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.					
17. Because this will help me make a better choice regarding my career orientation.					
18. For the pleasure that I experience when I feel completely absorbed by what certain authors have written.					
19. I can't see why I came to do a Postgraduate (MSc) degree and I couldn't care less.					
20. For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.					
21. To show myself that I am an intelligent person.					
22. In order to have a better salary later on.					
23. Because my studies allow me to continue to learn about many things that interest me.					
24. Because I believe that a few additional years of education will improve my competence as a worker.					
25. For the "high" feeling that I experience while reading about various interesting subjects.					
26. I don't know; I can't understand what I am doing at the University.					
27. Because Postgraduate (MSc) education allows me to experience a personal satisfaction in my quest for excellence in my studies.					
28. Because I want to show myself that I can succeed in my studies.					



## PART 2 – Open questions

Please write a few things about the following topics.

(They are open questions so you can write as much as you like, you can talk about different situations, and please use as many examples as you can from your experiences from the BIS.)

1. Why did you decide to do this MSc in Business Information Systems? What was your GOAL at the beginning? What was your MOTIVATION?

2. What do you expect to achieve after you complete this degree? What are your CAREER aspirations for the future?

3. What SKILLS did you develop? What knowledge and experiences do you think are going to be the MOST important in your future career and WHY?

4. How do you generally prefer to learn? Do you learn best when you study on your own (individually) or with other students?

5. Can you describe your overall experience from the BIS using a METAPHOR? (For example, one metaphor could be the following: “Doing this Master’s was **like** walking in the forest”).

### **PART 3 - How Do I Learn Best?**

Please go to this website and fill in the questionnaire (you can choose more than one answer in each question):

<http://www.vark-learn.com/english/page.asp?p=questionnaire>

When you click ‘OK’, you will get a message similar to this:

Your scores were:

- Visual: 5
- Aural: 1
- Read/Write: 3
- Kinesthetic: 7

You have a mild Kinesthetic learning preference.

Please copy your Scores here:

- Visual:
- Aural:
- Read/Write:
- Kinesthetic:

You have a: .....

If you have any questions please contact me at [andriel@gmail.com](mailto:andriel@gmail.com)

Thank you VERY MUCH ☺

## Appendix F – Approaches to Studying Questionnaire

This questionnaire asks you to indicate your relative agreement or disagreement with comments about studying again made by other students. Please work through the comments, giving your **immediate** response. In deciding your answers, think in terms of **this particular degree**. It is also very important that you answer **all** the questions. Try not to select ‘unsure’, unless you really have to, or if it cannot apply to you or your course.

Question	Agree	Agree somewhat	Unsure	Disagree somewhat	Disagree
1. I manage to find conditions for studying which allow me to get on with my work easily.					
2. When working on an assignment, I’m keeping in mind how best to impress the marker					
3. Often I find myself wondering whether the work I am doing here is really worthwhile.					
4. I usually set out to understand for myself the meaning of what we have to learn.					
5. I organise my study time carefully to make the best use of it.					
6. I find I have to concentrate on just memorising a good deal of what I have to learn.					
7. I go over the work I’ve done carefully to check the reasoning and that it makes sense.					
8. Often I feel I’m drowning in the sheer amount of material we’re having to cope with.					
9. I look at the evidence carefully and try to reach my own conclusion about what I’m studying.					
10. It’s important for me to feel that I’m doing as well as I really can on the courses here.					

11. I try to relate ideas I come across to those in other topics or other courses whenever possible.					
12. I tend to read very little beyond what is actually required to pass.					
13. Regularly I find myself thinking about ideas from lectures when I'm doing other things.					
14. I think I'm quite systematic and organised when it comes to revising for exams.					
15. I look carefully at tutors' comments on course work to see how to get higher marks next time.					
16. There's not much of the work here that I find interesting or relevant.					
17. When I read an article or book, I try to find out for myself exactly what the author means.					
18. I'm pretty good at getting down to work whenever I need to.					
19. Much of what I'm studying makes little sense: it's like unrelated bits and pieces.					
20. I think about what I want to get out of this course to keep my studying well focused.					
21. When I'm working on a new topic, I try to see in my own mind how all the ideas fit together.					
22. I often worry about whether I'll ever be able to cope with the work properly.					
23. Often I find myself questioning things I hear in lectures or read in books.					
24. I feel that I'm getting on well, and this helps me put more effort into the work.					
25. I concentrate on learning just those bits of information I have to know to pass.					
26. I find that studying academic topics can be quite exciting at times.					
27. I'm good at following up some of the reading suggested by lecturers or tutors.					

28. I keep in mind who is going to mark an assignment and what they're likely to be looking for.					
29. When I look back, I sometimes wonder why I ever decided to come here.					
30. When I am reading, I stop from time to time to reflect on what I am trying to learn from it.					
31. I work steadily through the term or semester, rather than leave it all until the last minute.					
32. I'm not really sure what's important in lectures so I try to get down all I can.					
33. Ideas in course books or articles often set me off on long chains of thought of my own.					
34. Before starting work on an assignment or exam question, I think first how best to tackle it.					
35. I often seem to panic if I get behind with my work.					
36. When I read, I examine the details carefully to see how they fit in with what's being said.					
37. I put a lot of effort into studying because I'm determined to do well.					
38. I gear my studying closely to just what seems to be required for assignments and exams.					
39. Some of the ideas I come across on the course I find really gripping.					
40. I usually plan out my week's work in advance, either on paper or in my head.					
41. I keep an eye open for what lecturers seem to think is important and concentrate on that.					
42. I'm not really interested in this course, but I have to take it for other reasons.					
43. Before tackling a problem or assignment, I first try to work out what lies behind it.					
44. I generally make good use of my time during the day.					

45. I often have trouble in making sense of the things I have to remember.					
46. I like to play around with ideas of my own even if they don't get me very far.					
47. When I finish a piece of work, I check it through to see if it really meets the requirements.					
48 Often I lie awake worrying about work I think I won't be able to do.					
49 It's important for me to be able to follow the argument, or to see the reason behind things.					
50. I don't find it at all difficult to motivate myself.					
51. I like to be told precisely what to do in essays or other assignments.					
52. I sometimes get 'hooked' on academic topics and feel I would like to keep on studying them.					

## **Appendix G – Reliability and Validity of the Instruments**

This appendix discusses the reliability and validity issues pertaining to the use of the instruments used in questionnaires.

**Academic Motivation Scale (AMS):** Various investigations (e.g. Cokley et al. 2001; Fairchild et al. 2005; Vallerand et al. 1993) have offered insight into the scale's functioning in order to examine the factor structure underlying item responses and the reliability of the AMS. These investigations provided evidence for the validity and reliability of its scores and attempted to compare it with other scales. In particular, the study by Fairchild et al. (2005) conducted data analysis using a sample of 1406 students provided construct validity evidence in the form of a well-fitting seven-factor model and adequate internal consistency of the item responses. Using responses from the AMS obtained from a large sample of students, the study examined the fit of a seven-factor model of academic motivation in comparison to the fit of five-factor and three-factor models. The fit of the seven-factor model to the data was supported. The authors also estimated the internal consistency of the scores for each subscale and evaluate their adequacy. Given the adequate fit of the seven-factor model they calculated the reliability of the scores. The Cronbach's coefficient alpha values indicated that the subscales demonstrate adequate internal consistency.

References:

Cokley, K.O., Bernard, N., Cunningham, D., & Motoike, J. (2001). A psychometric investigation of the academic motivation scale using a United States sample. *Measurement and Evaluation in Counseling and Development*, 34, 109-119.

Fairchild, A. J., Horst S. J., Finney, S. J., & Barron, K. E. (2005). Evaluating existing and new validity evidence for the Academic Motivation Scale, *Contemporary Educational Psychology*, 30(3), 331-358.

Vallerand, R.J., Pelletier, L.G., Blais, M.R, Brière, N.M., Senécal, C., & Vallières, E.F. (1993). On the assessment of intrinsic, extrinsic and amotivation in education: Evidence on the concurrent and construct validity of the academic motivation scale. *Educational and Psychological Measurement*, 53, 159-172.

**Visual, Aural, Read/write and Kinesthetic (VARK):** A recent paper by Leite et al. (2010) provides evidence of the validity of the VARK for measuring learning styles and also presents its limitations. The paper suggests that the estimated reliability coefficients were adequate. The reliability estimates for the scores of the VARK subscales were 0.85, 0.82, 0.84 and 0.77 for the Visual, Aural, Read/write and Kinesthetic subscales, respectively. The study found preliminary support for the validity of the VARK scores. Potential problems related to item wording and the scale's scoring algorithm were identified, and cautions with respect to using the VARK with research were also raised.

References:

Leite, W. L., Svinicki, M. & Shi, Y. (2010). Attempted Validation of the Scores of the VARK: Learning Styles Inventory With Multitrait-Multimethod Confirmatory Factor Analysis Models. *Educational and Psychological Measurement*, 70(2), 323-339.

**Approaches and Study Skills Inventory for Students (ASSIST):** Many investigations exist in the literature which attempt to examine the validity of ASSIST inventory (e.g. Byrne et al. 2004; Gadelrab 2011). In particular, the findings of the study conducted by Gadelrab (2011) confirmed the underlying constructs of three distinctive approaches to learning. ASSIST main scales' and subscales' scores showed appropriate internal consistency and predictive validity to academic achievement. Therefore it was concluded that ASSIST is a valid research tool for the assessment of approaches to learning, however caution should be taken with respect to the interpretation of particular subscales and possible sample effects. Furthermore, Byrne et al. (2004) using factor analysis found that the three expected learning approaches (deep, strategic and surface apathetic) were clearly identified.

References:

Byrne, M., Flood, B., & Willis, P. (2004). Validation of the approaches and study skills inventory for students (assist) using accounting students in the USA and Ireland: a research note. *Accounting Education*, 13(4), 449-459.

Gadelrab, H. F. (2011). Factorial Structure and Predictive Validity of Approaches and Study Skills Inventory for Students (ASSIST) in Egypt: A Confirmatory Factor Analysis Approach.



## **Appendix H – List of Publications**

### **Journal papers**

Piki, A. (2008). The visions and challenges of ICT for collaborative learning: A review of the literature. *Themes in Science and Technology Education (THESTE)*, Klidarithmos Computer Books. Vol. 1(2), pp. 113-134.

Piki, A. (2010). Post-Implementation Evaluation of Collaborative Technology: a Case Study in Business Education. *The Electronic Journal of Information Systems Evaluation*, Vol. 13(1), pp. 77-86. Available online at: [www.ejise.com](http://www.ejise.com)

Córdoba-Pachón, J. & Piki, A. (forthcoming) Facilitating project management education through groups as systems. *International Journal of Project Management*.

### **Conference papers**

Piki, A. (2009). Portraits of Learners: An Ethnographic Study of Computer-Supported Collaborative Learning (CSCL) Practices. *The Proceedings of the 8th European Conference on e-Learning (ECEL 2009)*, Bari, Italy, 29-30 October 2009. pp. 458-465.

Piki, A., & Córdoba, J. R. (2009). Using E-Learning 2.0 Tools in Business Education: A Case Study. *The Proceedings of the 5<sup>th</sup> International Scientific Conference on eLearning and Software for Education (eLSE 2009)*, Bucharest, Romania, 9-10 April 2009, pp. 297-306.

Piki, A. (2010). Towards a holistic conceptual framework of learner engagement in CSCL environments. *The Proceedings of the 9th European Conference on e-Learning (ECEL 2010)*.

Piki, A. & Rosenberg, D. (2010). An interdisciplinary analysis of experiential learning with Collaborative Technology. *The Proceedings of the Social Interaction Design Conference (SID 2010)*.

### **Conference presentations**

Piki, A., & Rosenberg, D. (2009). An empirical investigation of collaborative learning in technology-enhanced learning environments. *eLearning 2.0 Conference*, Brunel University, Uxbridge, UK, 6-7 July 2009.

Piki, A., & Rosenberg, D. (2010). Blogging for Collaboration and Blogging for Reflection. *Web 2.0 Conference*, Brunel University, Uxbridge, UK, 8-9 April 2010.