UNIVERSITY OF SOUTHAMPTON

FACULTY OF LAW, ARTS & SOCIAL SCIENCES

School of Education

The contribution of online learning environments to learning in higher education: a comparative analysis of teaching strategies and student experiences

by

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ABSTRACT

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THE CONTRIBUTION OF ONLINE LEARNING ENVIRONMENTS TO LEARNING IN HIGHER EDUCATION: A COMPARATIVE ANALYSIS OF TEACHING STRATEGIES AND STUDENT EXPERIENCES

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The contribution of online learning environments to learning in higher education is examined by investigating what pedagogic approaches work and under what conditions, through comparative analysis of students' and tutors' experiences in six online learning initiatives selected as case studies, using interviews with tutors (N=7), and focus groups, nominal group technique and a questionnaire with students (N=121), to illuminate congruence and disjuncture associated with agential, practical and structural factors.

A synergy between two distinct theoretical fields, Dewey's (1933, 1938) classical pragmatist approach to education and Archer's (1982, 2000a,) more contemporary critical realist approach in social theory is combined, to propose a theory of learning as transformation of experience through praxis and reflexivity, addressing the wholeness of human beings operating with their senses, emotions and cognitions in real and challenging situations.

Findings highlight praxis differences between learning as discursive knowledge and transformational learning through experience, between ontological security and risk, reflection and reflexivity, time-space distanciation and time-space compression, and between learning as product or process (Bruner 1966, Giddens 1984, 1991, Harvey 1990, Lash 2002). The scope of online learning is challenged by the tension between learning as a "quick fix" information commodity (Lash 2002) and as a purposeful human process (Dewey 1933) with structural implications through the radicalisation of time and space.

The study reveals the significance of Archer's work as a powerful methodological framework for understanding the complexities of e-learning but also contends it is a model for understanding the learning process and enhancing educational practice. Archer's approach provides the ontological foundation for learning theories situated in practical action and reflexivity, with practice placed at the centre of learning supported by reflexivity as a key component of learning. This stance acknowledges the influence of prior experiences, situating learning in its social context and suggesting benefits of a systems approach to understanding learning where significant natural, practical and social order factors interplay, giving equal precedence to individual and structural enablements and constraints influencing morphostasis and morphogenesis in pedagogical praxis.

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This thesis is dedicated to the memory of Mary, my mother, who held a strong belief in the value of education for empowering her children to achieve their ambitions. Her approach was always encouraging and supportive and I have much to thank her for, especially as she did not have the educational opportunities that she was determined to give her children.

Chapter 1 Setting the scene

The UK higher education scene is characterised by competing demands and pressures to excel in research, enterprise, and learning and teaching, while operating in a political and economic context striving for provision of more with less (DfES 2003, HEFCE 2003, 2006). The university has been described as functioning in an age of supercomplexity and contributes to this supercomplexity through its quest to interrogate the world, make sense of it, and enable participants to engage effectively within it (Barnett 2000: 76-77).

Government policy steers the development of higher education institutions (HEIs) and in its turn contributes to the uncertainties of education activities. The UK government's White Paper, *The future of higher education,* is one example (DfES 2003) and perhaps significant in seeing universities and colleges principally as economic agents. The government's Education and Skills Committee argued there was very little in the White Paper about "intellectual or cultural life in higher education, or the broader development of the individual" (House of Commons 2003: 71). This economically-motivated agenda for higher education presents challenges and uncertainties with policy initiatives like widening participation and requirements to manage increasing, and more diverse, student numbers within the constraints of public funding per head diminishing year by year during the 1990s and the beginning of the 21st century (Dearden et al 2005). Pressures to excel in research (HERO 2005, HEFCE 2005) and teaching, with the formation of the Institute for Learning and Teaching in Higher Education (ILTHE) and its subsequent absorption into the Higher Education Academy (HEA, 2006), within an accountability agenda striving to uphold quality and standards of provision (QAA 2007), all exert influences on the university enterprise and impact on its conception of itself.

It is within this complex and changing environment that information and communications technology (ICT) is heralded by government policy and university directorates as a significant ingredient "to generate higher value for the same investment" (HEFCE 2006) by contributing to provisions for widening participation, increasing student numbers, income generation, enhancing research profiles, and improving the quality of the student learning experience. Higher education (HE) staff are encouraged to examine the potential

of ICT to support learning and teaching within their courses. Online learning technologies, consisting of various combinations of web delivered materials, computer mediated communication (CMC), and web based assessment, increasingly packaged into virtual learning environments (VLEs), are viewed as means of offering more flexible modes of provision and increasing accessibility. The pace of change in technology is very rapid (Giddens 1991a) with new technologies and drivers emerging to influence and challenge pedagogical practice. As new tools and associated concepts emerge so learning and teaching innovations are implemented capturing new technology mixes and different approaches to learning and teaching provision and engagement. While educational uses of technologies like computer conferencing (Mason & Kaye 1989) and concepts like tele-learning and telematics evolved in the 1980s and early 1990s (Collis and Moonen 2001), mobile learning associated with mobile communication devices (Lockitt 2005, Wood 2003) and blogs (Ferdig & Trammell 2004, Gurak et al 2004) and wikis (Lamb 2004, Ferris & Wilder 2006) are more recent examples where technologies are influencing learning and teaching.

As learning technologies are increasingly used, not just for distance learning, but in conventional courses, through offering what Bourner (citing Naisbitt 1984) described as "hi-tech - high-touch" learning experiences (1999), concepts like blended learning (Smith 2001, Valiathan 2002) have emerged to capture the idea of mixed mode curriculum provision. The concept is closely aligned with what Mason described as a wrap-around online course model (1998) and accounts for shifts in teaching practice as a result of increasing availability of the Web. The concept of blended learning is contested by Oliver and Trigwell as being "ill-defined and inconsistently used" (2005: 24) and while not agreeing with premises for some statements mooted, their argument portrays the wide variation in usage of the concept and is well-founded in recommending analysis from the learner's perspective. For the purposes of this study, blended learning will be used to define tutor-initiated learning and teaching initiatives combining conventional, face-to-face with online encounters to enhance learning. This debate will be pursued further in Chapter 2.

Defining the territory and boundaries

This study supports the proposition that learning technologies have a significant part to play in higher education, identified in Ehrmann's argument that HEIs "can no longer

afford to ignore technology and still maintain institutional health" when faced with the "Triple Challenge of outcomes, accessibility, and costs" (1995), summed up in the statement that institutions:

> ...will find it increasingly difficult to offer a *modern, effective* academic program that *reaches* and *retains* the students they should be serving for a *price* that those students and their benefactors can afford (1995, italics added).

There seems little doubt that university survival in an increasingly competitive HE environment is a powerful driver in encouraging policy makers to espouse the promises of ICT.

However ICT provision and developments featured in policy documents, like institutional information strategies and learning and teaching development plans (Gibbs et al 2000), need to be translated into practice by agents and it is here that the crux of this study is located due to the potential for disjuncture in interpretation between different stakeholders - students, tutors, administrators, managers, and policy makers. The premise here is that the different ways in which ICT is conceptualised and valued by different stakeholders will influence the quality and effectiveness of online provision and practice. Conceptions of the power and efficacy of learning technologies can vary between stakeholders' according to their different situations and experiences, influencing what they think about and do with technologies. For example, policy makers may praise technologies as an efficient and effective means of providing learning opportunities without careful consideration of investment costs and educational contexts for implementation (Guile & Hayton 1999). Evidence of ICT being proposed as a cost-effective solution for reduced public funding in HE can be identified in Dearing's Report which heralds ICT as holding out "much promise for improving the quality, flexibility and effectiveness of higher education" while also suggesting "scope to reduce costs" following investment in the short term in "time, thought and resources" (1997) while Ehrmann (1995) pleas for caution in wholesale adoption of technologies without asking difficult questions about the educational goals to be achieved.

Argyris and Schön's different *theories of action*, defined as principles aimed at making events happen and categorised as *espoused theory* and *theory-in-use*, is useful here:

> When someone is asked how he would behave under certain circumstances, the answer he usually gives is his espoused theory of action for that situation. This is the theory of action to which he gives

> allegiance and which, upon request, he communicates to others. However, the theory that actually governs his actions is his theory-in-use, which may or may not be compatible with his espoused theory (1978: 11).

This distinction is not just based on differences between what people say and what they do but on two distinct *theories of action*, the one guiding what people say the *espoused theory*, and the other what they do, the *theory in use*, leading to potential mismatches between the espousal of different agents compared with practices on the ground. There appears to be a mismatch between the *espoused theory* evidenced in government and HEI policy documents (Dearing 1997, Gibbs et al 2000) promoting ICT to improve the quality and effectiveness of HE compared with the *theory-in-use* which identifies predominant application of VLEs for the management of information rather than the facilitation of learning as evidenced in UK HE surveys of VLE usage (Jenkins et al 2005), and predicted by Ramsden when suggesting technologies may be promoted for their "vision of an easier and cheaper form of information-transmission" rather than the "potential for interaction and for encouraging deep approaches" (1992: 159). Thus it will be important to identify factors in online learning affecting degrees of congruence or disjuncture between espoused theory and theory-in-use.

The congruence-disjuncture continuum is measured by the ability of the individual and organisation to manage the gap through what Argyris and Schön identified as single- or double-loop learning. Where a mismatch can be dealt with by altering the strategy through action rather than underlying assumptions and values, this is described as single-loop learning. Where underlying assumptions and values are called into question such that norms, policies and objectives are challenged and modified, this is called double-loop learning (Argyris and Schön 1978: 2-3). Mismatches may be experienced by all the different stakeholders in policy implementation. Evans' multi-layered framework for comparative analysis in post-compulsory education is particularly useful for extending Argyris and Schon's approach to encompass different layers in policy implementation (2003). Where Evans identifies *policy as espoused* and *policy as enacted*, she also highlights *policy as experienced*, supporting the quest to "get inside policy as it is experienced by individuals trying to navigate the system" (2003: 419). For example, students experiencing the policy may demonstrate scepticism when engaging with VLEs, perhaps questioning why they need to spend time learning how to use the technology instead of pursuing their academic studies. The disjuncture arising from

their use of learning technologies may be reconciled with perceptions of learning about ICT as a technical or psycho-motor skill, or 'subject' in its own right, a tool to learn about, rather than a tool for facilitating learning. In this example the student's disjuncture is managed through single loop learning so they do not have to change their underlying assumptions. However tutors may want to challenge student perceptions, by setting them intellectually challenging tasks within VLEs, leading to double-loop learning, rather than simply delivering learning materials online.

Research aims

Given evidence of mismatches between the vision and claims for online learning as a means of improving the effectiveness of the student learning experience (Dearing 1997, JISC 2004) and online practice on the ground (Jenkins et al 2005), the intention is to explore how the espoused policy is played out in pedagogical practice through examining experiences of students and their tutors using learning technologies with the aim of identifying what works, what does not, and why. The study and data-gathering process was guided by the central research question:

How can online learning environments be used to achieve effective learning in higher education?

This question is predicated on two underpinning questions, permeating the study:

What does effective learning in higher education require?

Why has the anticipated transformation in the student learning experience not necessarily occurred where online learning practices are in place?

Understanding what learning is, is a precursor to analysing how online environments can be used to achieve effective learning and to identifying factors encouraging or impeding it. The Tavistock Institute Review of pedagogic research in UK post-compulsory education states that while VLEs address the notion of learning "there is considerable variation in how learning is interpreted and structured" in different educational contexts (2002: 62). This statement justifies the rationale for examining not just participants' experiences of e-learning, but their experiences of learning and teaching in relation to e-learning since it is anticipated that students' and tutors' prior experiences will influence their approaches to and expectations of e-learning. Additionally the various e-learning initiatives, which are the subject of this study, are all situated as part of conventional classroom-based taught courses so participants

experience a mixed mode of provision with combinations of face-to-face and online experiences. By asking students and tutors what learning means for them, this forms an anchor for understanding and interpreting related e-learning experiences. The concept of effective learning will be introduced in this chapter and further developed by means of an analysis of the theoretical literature in Chapter 2.

While the aim is to draw out features of online teaching strategies and student experiences that can contribute to effective learning, my contention, following a review of the literature, is that educational theory does not do justice to the complexity of human activity associated with using learning technologies. Where there is an extensive body of well-established educational research on pedagogic theories applied in conventional HE and work-based learning environments (Säljö 1979, Entwistle 1981, Entwistle & Ramsden 1983, Gibbs 1992, Gibbs 1994, Kolb 1984, Knowles 1988, Marton et al. 1993, Lave & Wenger 1991. Ramsden 1992, Wenger 1998, Biggs 2003), there is less evidence of how this literature has been applied to learning and teaching in online environments. Despite the burgeoning literature on online learning, there are not many studies providing theoretical perspectives and pedagogical models for online learning, though there are notable exceptions (Laurillard 1993, 2002, Hiltz 1994, Conole & Oliver, 1997, Reeves & Reeves 1997, Mason 1998, Jonassen & Land 2000, Salmon 2000, 2002, Tavistock 2002, Mayes 2001, Oliver 2002, Conole et al 2004).

Marton and Säljö's work on conceptions of learning, which generated two key definitions from students' descriptions of learning, a surface approach and a deep approach (Marton & Säljö 1976a, 1976b, 1984, Säljö 1979), is particularly relevant to the question of what constitutes effective learning in HE settings from the learner's perspective. The concepts of deep and surface identify a qualitative difference in student approaches to learning with a surface approach, characterised by memorisation of unconnected facts, and a deep approach by students' endeavours to make sense of what is to be learned (Gibbs 1992). This work was developed by Ramsden and Entwistle (1981), who produced the Approaches to Studying Inventory (ASI) as a diagnostic instrument for measuring student behaviour. While acknowledging what students and tutors understand learning to be will influence their perceptions and approaches to the use of learning technologies, the intention in this study is not to make any attempt to categorise students in terms of learning styles or approaches to study. This follows

Coffield and others' (2004) critical analysis of learning styles and the concern that constructs like deep and surface approaches tend to be interpreted as fixed personality traits rather than tendencies to act in specific ways according to the situation the learner finds themselves in. Such a focus on recognising and measuring learning styles and approaches would constrain understanding of the learning process by concentrating the research on characteristics of the learner, to the potential detriment of identifying factors outside the individual that can impact on approaches to learning, for example a heavy workload, excessive amounts of course material, or a threatening and anxiety provoking assessment system (Gibbs 1992: 9).

By contrast Biggs' concept of quality learning recognises and works with the social context for student learning. Like deep and surface learning approaches, it is also relevant to the pursuit of effective learning in online environments in concentrating on how tutors can improve teaching for quality learning (2003). Biggs introduces a 3P systems model of learning to identify the complexity of variables at work in learning and teaching situations and links this to the concept of *constructive alignment* to specify how desired learning outcomes need to be referenced to appropriate assessment strategies and learning activities in a "mutually supportive" system to achieve quality learning (2003: 26). The 3P model has considerable utility in assisting understanding of the pedagogical factors that need to be aligned for achieving quality learning. It is anticipated that tutors can influence the quality of students' learning by means of the teaching strategies they adopt. Further Prosser and Trigwell demonstrate how teachers' conceptions of teaching influence their approaches to teaching with consequent effects on the quality of the student learning experience (1999).

With this focus on what constitutes effective learning, it might be anticipated that learning theory would provide sufficient explanatory power for informing online practices. However even where VLEs are purposefully designed to engage students in potentially effective learning opportunities, there is no guarantee the students' experiences, the theory in action, will align with the espoused policy of tutors' aspirations. As the aim of this study is to highlight the relationships and possible tensions between tutors' intentions and student experiences through examining what happens in the spaces and encounters of online learning environments, rather than favouring tutors' experiences over students or students over tutors, the aim is to

encompass the concepts of deep learning and quality learning within the scope of effective learning, since it will be argued these theoretical perspectives both give precedence to learning while examining it from different angles with deep learning giving explanatory power to what it looks like and how to recognise and measure it whereas quality learning identifies how it can be encouraged through the manipulation of different factors in the 3P systems model. This study will examine ways in which participants' descriptions of e-learning relate to these underlying concepts and the achievement of effective learning. In this way, consideration will be given to the educational potential of different kinds of e-learning strategies for improving learning outcomes for students. Guile and Hayton's analysis of information and learning technology (ILT) in further education, supports this approach:

> It is essential that the use of ILT is firmly grounded in an understanding of how students learn and a consideration of how different types of ILT may support different types of learning (1999: 114).

The aim is to get closer to participants' experiences of opportunities and constraints, to provide insights into how the aspirations of tutors and expectations of students coincide with or diverge from tutor and student conceptions and actual practices in online learning environments. Therefore as the starting point for analysing the effectiveness of the student learning experience in online environments, it is appropriate to ask what the tutors and their students are doing with learning technologies. Hence the overarching research questions can be disaggregated into sets of sub-questions to capture tutor and student experiences summed up in the questions:

- *What are tutors doing when they use learning technologies in their teaching?*
- *What are students experiencing when they use learning technologies as part of their course?*

While the emphasis of this study is on the pedagogy of e-learning approaches distinguished from conventional learning environments by the fact that learning technology tools are mediating learning processes, this study does not presume e-learning is synonymous with other forms of learning since the technologies may open possibilities that would not be feasible without them. For example, compare the 'lost' conversation in a face-to-face seminar with the 'captured' transcript of an online synchronous debate, through the affordance of the recording facility, providing opportunities to review and revisit real time textual conversations. Constraints also need to be acknowledged in understanding the processes of stasis and change, for example,

difficulties in accessing and using the technology, or attitudes to the technology perhaps influenced by previous experiences, which could lead to disjuncture for participants and obfuscate pedagogical benefits. Similarly institutional strategies for implementing e-learning policy and organisational change could contribute to the success or failure of e-learning initiatives. Hence the purpose of more specific questions to tutors to examine:

- *Who the tutors are?*
- *Why they are using learning technologies?*
- *What do they do when they use the learning technologies?*
- *How do they define their approach to teaching?*
- *What do they say and think about learning?*
- *What do they say and think about learning technologies?*
- *What do they see as the benefits and limitations of the learning technologies?*

More specific questions to students will examine:

- *Who the students are?*
- *What do they say and think about learning technologies?*
- *What do they do when they use the learning technologies?*
- *What do they say and think about learning?*
- *What do they say and think about their tutor's approach to teaching?*
- *What do they see as the benefits and limitations of the learning technologies?*

The complexity of factors potentially impacting on the study of e-learning are highlighted in the Tavistock Review with a wide range of proximal and distal forces noted for consideration in educational research studies (2002). Proximal forces are described as "socially-supported institutional and organisational factors that directly shape the immediate process of learning within a particular scenario", including: normative elements (eg. rules and procedures); socio-cultural elements (eg. nature of group interaction); psycho-social elements (eg. previous experience of learning); and organisational elements (eg. structure of the curriculum) (Tavistock 2002: 51). Acknowledging and working with a range of proximal micro-social factors that may influence outcomes appears well within the bounds of this study as part of the grounded experience and practice of participants.

What seems harder to reconcile is the potential impact of various macro-level distal forces within this study. These encompass the meta-level environmental influences at work in the historical and contemporary cultural context "that shape teaching and learning practices at the macro-level" (Tavistock 2002: 51). This socio-cultural environment encompasses "key structural elements like demographics and socio-economic stratification systems, together with historical processes that define the cultural and social discourses and social relations in a particular period" (Tavistock 2002: 51). Three key discourses are identified, namely psychology and developmental theory, sociological and political economy theory, and policy debates and initiatives all of which are seen as influencing pedagogic theory (Tavistock 2001: 54). The question is how or why should these distal forces be constituted as part of this study?

The research study adopts an inductive approach in order for student and tutor perspectives on how learning technologies are used to emerge from a variety of qualitative approaches to data collection. In this way it is hoped to avoid the ambitious claims associated with government (Dearing 1997) and some institution views of the benefits of learning technologies without demonstrating how this can be achieved within socially and economically-constrained environments (Guile & Hayton 1999). But it is argued that the potential significance of structural factors like government policy and technology infrastructure cannot be put to one side while studying the micro-context of e-learning initiatives as if these experiences take place in a vacuum. For this reason, the author turned to critical theory (Guba & Lincoln 1998) and more specifically the work of Archer (1982, 1995, 2000a, 2005, 2007) as a means of situating the enquiry within its environmental context and acknowledging and working with the political, socio-cultural and economic influences impacting on the researched and the researcher.

Archer's critical realist perspective provides a way of understanding and working with complexity through her three orders of reality and their respective forms of knowledge (2000a), a rationale for adopting a particular methodological stance through her "morphogenetic approach" and "analytical dualism" (1982, 1995), and "explanatory leverage" (2005: 21) for the findings from this study. Archer's three orders of reality (2000a: 162) builds on her earlier work where she distinguishes the relationship between agents and structures through social interaction, identifying a model of "Structural conditioning > Social interaction > Structural elaboration" to

explain social stability and change through morphogenesis (1982: 468, 1995: 157, 2000a: 277). Crucially structural elaboration only occurs through the interplay between the "parts" and the "people" (2005: 20) and stretched out over time:

> Realists regard structural properties as emergent from and activity-dependent upon agency, whilst structural powers only exercise causal efficacy by working through agency (Archer 2005:24).

Archer's analysis of the three orders of reality - natural, practical and social, are constituted by and interlinked through practical action (2000a):

> Realism construes our humanity as the crucial emergent property of our species, which develops through practical action in the world. Our continuous sense of self, or self-consciousness, is advanced as emerging from the ways in which we are biologically constituted, the way the world is, and from the necessity of our human interaction with our external environment (Archer 2000a: 50).

The question of whether and how the micro and macro factors associated with e-learning can be accounted for will be addressed by utilising Archer's model of the three orders of reality and their respective forms of knowledge, the natural order with embodied knowledge, the practical order with practical knowledge, and the social order with discursive or propositional knowledge as represented in Figure 1: *Archer's three orders of reality* (2000a: 162). While human powers and propensities give access to these three kinds of knowledge, at one and the same time, humans as agents can also be constrained by anyone of the three orders of reality. The contention, following Archer's thesis is that, though none of these orders "has any automatic precedence" (2000a: 190), nevertheless the practical order is pivotal for understanding human activity (2000a: 178) and the interplay between structure and agency through social interaction (2000a: 307). So while the starting point for this study will be an exploration of the practical order through focusing on the micro-level practice experience of participants in e-learning, using Archer's critical realist approach will enable the study to acknowledge the use of learning technologies is context dependent, with the natural and social orders interwoven with the practical.

The learning technologies as tools are part of the material culture of practice with the potential of offering a variety of affordances and constraints which can help to guide our practical relations with them (Archer 2000a: 168). The term affordance is used to mean objects that can offer possibilities for action by agents (Gibson 1977). Using Norman's interpretation (1988) affordances can be associated with artefacts like a door, or an online discussion space, that can be manipulated and, as human agents, we need to

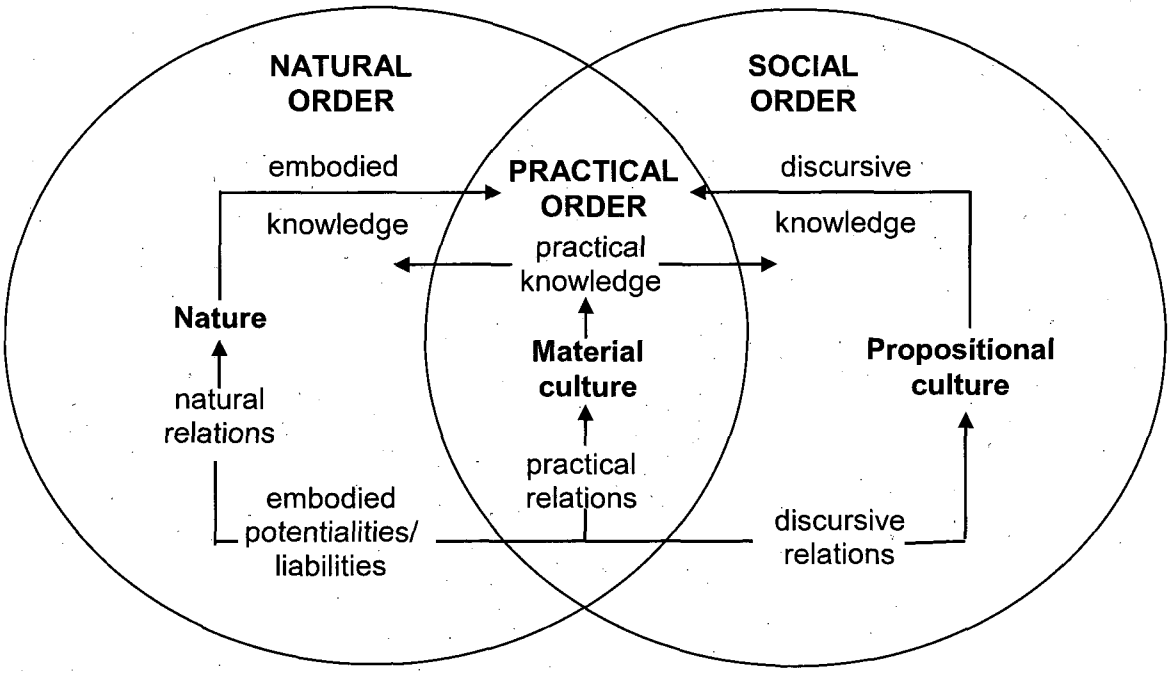

Figure 1: Archer's three orders of reality and their respective forms of knowledge. (Archer 2000a: 162 Figure 5.1).

work out what to do with them and how to do it. The designer of the door can provide clues as to where and how to open the door by means of, for example, a plate to push (Norman 1988), just as the tutor can set up a discussion space for students to share ideas and post an opening statement to advise its purpose. The objects (door and plate, discussion space and opening statement) are artefacts rather than affordances in their own right. The artifact's affordances, offering possibilities for action, can only be realised through their relationships with agents (Gibson 1977). Students may choose not use the online discussion or they may use it for alternative purposes other than the tutor intended.

While many HEIs have adopted VLEs, some bespoke systems, others engineered from commercially-available software like FirstClass for CMC and QuestionMark Perception for web-based assessment, or commercially-available products, like Blackboard, Learnwise, MOODLE and Web-CT (Britain & Liber 2004), the learning technologies included in the study were self-selecting according to the combinations of technology options and learning and teaching strategies used by participants in the research, students and tutors located in one HEI. It is participants' experiences of web based materials, CMC, and web based assessment in the context of conventional courses using mixed mode curriculum provision, associated with concepts of a 'high-tech – high-

touch' curriculum (Bourner 1999) and blended learning (Smith 2001, Valiathan 2002, Oliver & Trigwell 2005) that will define the boundaries of this study.

While the focus of the study is on the micro-level practice experience of participants in e-learning, more distal influences at work within the environmental context will be considered. The influence of government policy has already been highlighted as a key factor in encouraging HEIs and their agents to embrace e-learning opportunities. Furthermore educational theory, as discursive knowledge, will be interrogated as a means of throwing light on the research topic. By taking this wider agent-structure perspective greater explanatory power is afforded to enable the complexity of factors at work in e-learning to be acknowledged and to provide the means for explaining and interpreting ambiguities, contradictions and disjunctures in e-learning literature and practice. The intention, therefore, is not to foreground agent's experiences over structural factors associated with the technologies and contexts for learning but to consider the interplay of pedagogy, technology and situation through the narratives of students and tutors interpreted through the explanatory powers of Archer's approach to critical realism.

It will be contended that Archer's model provides the ontological foundation for learning theories situated in practical action and reflexivity. This model enables practice to be placed at the centre of learning and supports reflexivity as a key component of learning. It encompasses the influence of prior experiences on current actions and situates learning in its social context by acknowledging the complexity of factors at work in the social order. It points to the benefits of an open systems approach to understanding learning where the practical, natural and social orders are interwoven by interactive processes giving equal precedence to individual and structural actions and constraints.

Archer's critical realist stance also provides a comprehensive methodological approach for examining and understanding learning by according human agents causal powers which give validity to the research process because it is these powers:

> .....which ultimately enable people to reflect upon their social context, and to act reflexively towards it, either individually or collectively. Only by virtue of such powers can human beings be the active shapers of their socio-cultural context, rather than the passive recipients of it. Morphogenesis can

> formulate how we both shape society and are also shaped by it, through examining the interplay of the distinctive sets of causal powers (2000a: 308).

This research approach accepts that the story presented may be partial given it "can never be fully apprehended, only approximated" (Guba 1990: 22 cited in Denzin & Lincoln 1998: 9) since there may be aspects of the phenomenon that are not revealed by the research methods adopted, but it acknowledges that critical reflexivity can be applied to the online practices by researcher and researched alike. Archer defines reflexivity as "the regular exercise of the mental ability, shared by all normal people, to consider themselves in relation to their (social) contexts and vice versa" (2007: 4) and identifies it as "the means by which we make our way through the world" (2007: 5). Giddens identifies the concept of reflexivity as an essential element in the continuity of social practices, hence he argues reflexivity "should be understood not merely as 'self-consciousness' but as the monitored character of the ongoing flow of social life" (1984: 3).

Reflexivity is here similarly constituted to personal reflection associated with the reflective practice of learning (Jarvis 1999) by monitoring and making sense of social life. However Giddens also highlights changes in reflexivity brought about by modernity, where the pace of change has become so rapid that: "The reflexivity of modernity extends into the core of the self" so that "the self becomes a *reflexive project*" (cited in Cassell 1993: 304 from Giddens 1991b). So when Archer argues for the application of critical reflexivity she is doing much more than according agents permission to reflect on practices given their actions can shape or be shaped by the structural context in which they operate and it is here that Archer's critical realism differs from reflexive modernity. in according equal weight to the role of agency and structure within socially situated interactions (2000a: 2), enabling her to argue:

> ....the difference between actively making our way through the world or our passively bearing the weight of the world pivots upon the presence or absence of reflexivity (2007: 42).

What is original and distinct about this study is the focus on exploring similarities and differences through comparative analysis of aspirations and experiences of tutors with the expectations and experiences of their students in order to highlight areas of congruence and disjuncture. The goal is to throw light on e-learning practices and experiences through identifying significant factors which influence student learning and

inform pedagogical practice. The significance of Archer's model for understanding e-learning practices will be discussed further in Chapter 2.

Research strategy

The boundaries for this study have been defined as context dependent and very much a human activity. A case study approach is proposed to enable participants' experiences to be situated within a natural setting, which acknowledges the context and complexity of those experiences (Punch 1998). Each of the six cases is defined as a learning technology initiative being experienced by tutors and students as part of various conventional courses within an HEI. The term 'conventional' is used to distinguish on-campus, classroom-based, face-to-face course provision from distance learning courses and does not seek to represent these case studies as in any way typical other than the focus for the unit of analysis as a series of learning technology initiatives experienced by tutors and students in a variety of disciplines. The selection of cases was informed by, and intended to be illustrative of, the variety of 'disciplines' and academic levels within the institution including undergraduate and masters, and a mix of full-time and part-time courses (See Table 1.1 *Case study variables*). The names of the different academic schools and courses have been identified by their 'discipline' domains as recognised by QAA subject descriptors (2007) and tutors given pseudonyms to maintain confidentiality of participants taking part in the research. The term 'discipline' is associated with "a system of orderly behaviour" recognised as characteristic of, and brought about by "training in the discipline" so that these behaviours "are manifested in scholars' approaches to understanding and investigating new knowledge, ways of working, and perspectives on the world around them" (Favero 2002). The cases are not associated with long-established disciplines such as mathematics or physics and therefore seem to fit more readily with Kuhn's description of preparadigmatic fields of study, like education and sociology, where the knowledge base and methods of enquiry are argued to be more contestable (1970). However, the term 'discipline' appears more appropriate than 'subject' or 'field of study' in order to reflect associations with bodies of knowledge and practice linked with the different professional and associated interdisciplinary studies represented here. Parker's concern to distinguish between 'subject' as taught and assessed and 'discipline' as practised and engaged with is helpful here (2002).

Disciplines, academic levels and modes of study				Research subjects and methods of data collection			
Case Study	**Academic Discipline and abbreviation**	**Academic Level**	**Mode of study**	**Tutor and date interviewed**	**Cohort size**	**Data collection method and dates**	**Sample group size and composition**
CS1	Computing (Comp.)	H	F/T	Emma 28.2.03	32	MQ 7.2.03 (27R)	27 (M8) (F 19) 18-25yrs 85% 26yrs and over 15%
CS2.1 CS2.2	Engineering (Engin.)	I, H, M	F/T	Richard 28.5.03 Patrick 4.6.03	15	NGT/MQ 18.2.03 (11R)	11 (M11) 18-25yrs 82% 26yrs and over 18%
CS3	Leisure, recreation, and tourism (Leis.Rec.&Tour.)	I	F/T	Annette 16.6.03	70	NGT 3.3.03 (19R) MQ 3.3.03 (19R) FG 29.4.03 (6R) MQ 29.4.03 (6R)	NGT 19 (M9) (F10) FG 6 (M4) (F2) 2M at NGT & FG 18-25yrs 100%
CS4	Business and management (Bus.&Man.)	C	P/T	Maria 22.10.04	30	Grp 1: NGT 3.3.03 (14R) FG/MQ 28.4.03 (12R) Grp 2: NGT 3.3.03 (16R) FG/MQ 28.4.03 (10R) (8 NGT participants did not complete the MQ)	14 (M6) (F7) (NI 1) 12 (M5) (F7) 16 (M5 F10) (NI 1) 10 (M5) (F5) 18-25yrs 44% 26yrs and over 56%
CS5	Education (Educ.)	M	P/T	Sarah 17.7.03	11	FG/MQ 4.7.03 (9R)	9 (M1) (F8) 26yrs and over 100%
CS6	Business and management (Bus.&Man.)	I	F/T	Edward 19.8.04	21	MQ 5.1.04 (21R) NGT 5.1.04 (18R)	21 (M5) (F12) (NI 4) 18-25yrs 86% 26yrs and over 14%

Table 1.1 Case study (CS) variables

Key Academic levels (FEHQ Qualifications & Descriptors): C = Certificate I = Intermediate H = Honours M = Masters
Mode of study: F/T = full-time P/T = part-time Data collection method: FG = Focus Group MQ = Mini-questionnaire NGT = Nominal Group Technique
Group composition: F = Female M = Male NI = Not identified R=Returns

The term 'discipline' will be used to encompass the six representations of different subject and profession-based curricula since each is associated with some of the elements constituting a discipline, either "the presence of a community of scholars" or "a mode of inquiry that defines how data is collected and interpreted, as well as defining the requirements for what constitutes new knowledge" or "the existence of a communication network" or "a tradition or history of inquiry" (Favero 2002).

The adoption of a multiple case study approach is intended to facilitate the process of comparison, accommodating the desire to focus on differences as well as similarities among agents in different practice contexts. The emphasis is on a qualitative approach to data collection as this appears to offer opportunities for revealing richer data from the subjective experiences of individuals working with learning technologies. Theory will be built inductively from students' and tutors' experiences. This research approach has the advantage of acknowledging the contextualised nature of pedagogic practice while utilising comparative analysis to capture findings from the practice experiences of students and tutors using a variety of learning technologies. This argument is supported by Yin's statement that "evidence from multiple cases is often considered more compelling, and the overall study is therefore regarded as being more robust" (2003: 47). The strength of this multiple case study approach is in its potential for finding similarities in the experiences of using learning technologies despite differences anticipated due to the variety of disciplines, academic levels and modes of study represented. This is supported by Yin's argument that if under the varied circumstances of two or more cases, you still can arrive at common conclusions from these cases, "they will have immeasurably expanded the external generalisability of your findings, compared to those from a single case alone" (2003: 53). This comparative research strategy also goes some way to meet criticisms of the validity of case studies (Mason 2002: 29, Tavistock 2002: 3) and the Tavistock Review recommendation for research that "concomitantly recognises the micro-level contextualised nature of pedagogic practice and the need for more comparative understandings" (2002: 16).

The selection of six cases was influenced by considerations of comparability and generalisability of the findings. While not adhering to a grounded theory approach (Glaser & Strauss1967, Strauss & Corbin 1994), the intention is to seek grounding for established and emergent theories through examining reported experiences of agents in

e-learning and to build a credible narrative of online learning from the emerging themes in each case through a cross-case comparative analysis to highlight similarities as well as differences between the cases. Yin suggests a sampling logic should not be the basis for deciding the number of cases deemed necessary or sufficient for a study, but argues it is a matter of judgment depending "on the certainty you want to have about your multiple-case results" (2003: 51).

The decision to identify six cases is based on concerns to acknowledge the complexity of potential factors at work in the various cases. A key advantage of all the cases being located within the same HEI is the anticipated sharing of certain micro-social variables, such as institutional infrastructure, support services, and policy and development strategies, making the comparative analysis of distinguishing factors more feasible through the possibility of discounting some of these shared factors. This should allow for variations in other factors like discipline, academic level, mode of study and age and gender factored into the chosen cases to challenge the likelihood of emerging similarities in the six technology enhanced learning cases. As Yin suggests:

> If your rivals have subtle differences or if you want a high degree of certainty, you may press for five, six, or more replications (2003: 51).

This approach is considered essential to realise the trustworthiness and credibility of the findings in a domain where, as outlined above, the vision, aspirations and policy intentions for e-learning (Dearing 1997, Harasim 1989) may not necessarily be in step with the realities of practice on the ground (Guile & Hayton 1999, Mason 2002, Argyris & Schön 1978).

Such a methodological approach supports a variety of methods for data collection, with emphasis on description and interpretation rather than measurement and prediction. It draws on pedagogical research into student conceptions and approaches to learning (Marton & Säljö 1976), enabling phenomena like learning and learning technologies to be studied from the viewpoint of the subject, whether student or tutor (Biggs 1994: 11). The approach is based on descriptions of the phenomena and the methodology seeks to illuminate variations in ways of experiencing the learning process. The advantage of this approach is that the learning process is contextualised because that is the way descriptions are collected. Characteristics important in the learning process will emerge from the data. However a limitation of the methodology is that it cannot ensure

consistency of characteristics for individual students (Laurillard 2002: 29). With this issue in mind, the approach adopted is to use mixed methods for researching student identities, perceptions and experiences including focus groups, the use of nominal group technique (NGT), and a mini-questionnaire (MQ). The method adopted for researching staff is semi-structured interviews. Though the methods can be described as mainly qualitative, the intention is to analyse the student focus group, NGT, and interview transcripts by means of content analysis and coding to identify key themes (Miles & Huberman 1994). The desire to capture different perspectives and experiences of as many tutors and students as possible is tempered by time and human resource constraints.

This study will examine the discourse of e-learning through the praxis of e-learning. In so doing the limitations of generalisability from specific cases to the population will be acknowledged. However the research approach adopted provides the means by which understanding and explanation can be intertwoven into a single story that reflects the personal understandings and explanations of the research participants while also providing opportunities for distilling collective understandings and explanations from the cases and acknowledging what has gone before in terms of prior experiences and bodies of knowledge which have helped to shape the agents and the research process.

Role of researcher

This perspective raises important considerations for the role of researcher as agent in the research process. Using the third person to discuss questions relating to a personal perspective and stance as a researcher seem inappropriate so the intention is to employ the first person as necessary within this study. My academic practice is informed by my own conceptions of learning and teaching and by my experiences with developing and using learning technologies. The values I bring to this research study will impact on my approach to research. This position acknowledges the wider social order in which the research is situated and the potential of the various environmental factors to influence the aims, processes and outcomes of the research. My voice as researcher will be more of what Guba and Lincoln describe as a "passionate participant" rather than a "disinterested scientist", though there will also be elements of advocate and activist within this stance (1998: 215). Though important to utilise bodies of knowledge and research literature as a foundation for this study, the process of analysis will recommend

caution in accepting ideas and theories without critiquing their provenance, given the inherent dangers of reification being used to privilege certain concepts and discourses. It will be important to approach these concepts and theories critically and to situate them within their historical and socio-political contexts, identifying their influence but also displaying criticality by examining practices as the means of making sense of experiences and responding to Archer's claim that despite 'our undoubted sociality', it does not have to 'make us into society's creatures' (Archer 2000a: 189).

Archer's social theory provides a rationale for adopting a particular methodological stance when she states: "Realist social theory tackles the structure/agency problem from a position of analytical dualism" and "it is analytical because it sees great utility in differentiating the two in order to examine their interplay, something which is of particular importance to practical analysts of society" (2000b: 465). However her approach has been criticised by a number of writers (King 1999; Kivinen & Piiroinen 2006) for committing "epistemic fallacy" by collapsing ontology into epistemology, "what is with what we take it to be" (Archer 1998: 195). However Archer argues that her social realism approach, using "analytical dualism", is distinct from "philosophical dualism" since "it is not suggested that separate entities are involved" (2005: 24), and her morphogenetic diagram is continuous so "there is never a moment at which *both* structure and agency are not jointly in play" for the "analytical element consists only in breaking up the flows into intervals determined by the problem in hand" (1995: 76, 2000b: 465). This debate will be considered further in Chapter 3.

It is hoped this study will contribute to the pedagogy for effective online learning. It is anticipated that a set of key principles will emerge for the design of online learning which can foster effective learning with practical advice grounded in theory which acknowledges the impact of context. It is hoped that recommendations from this study can inform and influence learning and teaching strategies in HE. The pedagogical and resource implications of e-learning will be considered in a context which tries to answer the questions of what is possible and what is practical.

Chapter 2 Examining the literature

The purpose of this chapter is to identify the territory of e-learning by outlining associated literature and examining how learning, whether conventional or online, is situated within its context of practice. The aim is to enable a critique of what works, how and why, in order to inform the research questions. This critical literature review will identify pervasive facets of educational theory that inform and influence conventional and online learning practices and examine common ground and differences between these modes of learning. Key methodological principles, informing the research process, will be considered in more depth in Chapter 3.

While the study is necessarily situated by analysing educational practices with regard to use of learning technologies at a fixed point in time, the pace of change in technology is so rapid (Giddens 1991a) that new technologies and drivers will influence the direction and development of subsequent practice. Nevertheless it is hoped this study will add to the literature on online learning and teaching through examining salient features in e-learning practices. While not adhering to a purely grounded theory approach (Glaser & Strauss1967, Strauss & Corbin 1994), the intention is to seek grounding through examining the reported experiences of agents and to critique e-learning practices by means of established theories of learning and teaching to identify significant aspects of practice. This follows Jonassen and Land's argument for grounded approaches emphasising "deliberate alignment of core foundations and assumptions, and the linking of methods and approaches in ways that are consistent with their corresponding epistemological perspectives" (2000: 3).

Reflexivity, practice and experience

Three core concepts central to this thesis, reflexivity, practice and experience, will be introduced here to inform subsequent discussion. The definitions and territories associated with each of these terms is complex and this analysis will identify distinct features and relationships between these concepts. Reflexivity is interpreted in various ways by different writers influenced by their particular social, historical and epistemological spheres of interest (Gouldner 1971, Hammersley & Atkinson 1995, Bourdieu & Wacquant 1992, Beck et al 1994, Giddens 1984, Archer 2007). Gouldner's contribution (1971) was to argue for a more reflexive sociology as a means of

addressing the "coming crisis" in sociology brought about by postmodern challenges to the dominant techno-rational paradigm and positivist methodologies which had failed to understand the importance of the subjective in knowledge production (Kane 2007). The feasibility of conducting research as a wholly scientific-rational pursuit without acknowledging the social, historical and epistemological effects of context was challenged and led to interpretations of reflexivity as a counter, and workable alternative, to address such criticisms. Gouldner argues:

> For surely men may be led to truth no less than to falsehood by their socially shaped personal experiences in the world. Indeed, there is no other way in which they can approach truth. Surely truth, no less than error, must be born of social experience (1971: 482).

Subsequent writers have applied the concept of reflexivity to the methodological challenges faced by researchers. For Hammersley and Atkinson, interested in the implications for ethnography, reflexivity implies "the orientations of researchers will be shaped by their socio-historical locations, including the values and interests that these locations confer upon them" (1995: 16). This statement rejects the idea that social research can be conducted "in some autonomous realm, insulated from the wider society and from the particular biography of the researcher" and recognises that findings will be affected by individual and social processes (Hammersley & Atkinson 1995: 16). Hence the reflexive role of the researcher and their responsibility to articulate the underlying assumptions in their research is emphasised together with the importance of critical discourse by communities of scholars in challenging the validity of knowledge claims as part of the critical tradition (Gouldner 1971). Such a perspective is not without criticism. Gouldner considered the ethical responsibilities of this "new class" of research practitioner/academics, recognising they could be seduced by career advancement to the detriment of the pursuit of sociological understanding, hence arguing for the would-be knower's self-awareness: "To know others he cannot simply study *them*, but must also listen to and confront *himself*" (1971: 493). These communities of scholars as gatekeepers of knowledge may be usefully associated with Lave & Wenger's analysis of communities of practice (1991) and the possible implications for the research stance adopted in this thesis will be pursued further in this and subsequent chapters.

While the roots of reflexivity may be traced to methodological debates concerning the problematic nature of research and the limits of scientific rationality and objectivity, particularly focused on the role of the researcher in contributing to the production of knowledge (Gouldner 1971, Hammersley & Atkinson 1995), social theorists like Beck, Giddens and Lash (Beck et al 1994) have employed the term "reflexive modernisation" in more expansive global ways to theorise about social processes at work in modernity. In so doing these theorists highlight challenges for understanding the relationships between subject and object, subjectivism and objectivism and structure and agency.

Beck defines reflexive modernisation as "the possibility of a creative (self-)destruction for an entire epoch: that of industrial society. The 'subject' of this creative destruction is not the revolution, not the crisis, but the victory of Western modernization" (1994: 2).

> If simple (or orthodox) modernization means, at bottom, first the disembedding and second the re-embedding of traditional social forms by industrial forms, then reflexive modernization means first the disembedding and second the re-embedding of industrial social forms by another modernity (Beck et al 1994: 2).

Beck distinguishes reflexive modernisation from conventional categories of change brought about by collapses and social upheaval, though he accepts these can coincide, and suggests changes can occur "surreptitiously and unplanned", such that "the reflexive modernization of industrial society occurs on cats' paws, as it were, unnoticed by sociologists" (1994: 3). Beck makes it clear that the concept of reflexive modernisation should not be confused with the concept of reflection, arguing that: "This concept does not imply (as the adjective 'reflexive' might suggest) *reflection*, but (first) *self-confrontation*" (1994: 5).

> This type of confrontation of the bases of modernisation with the consequences of modernisation should be clearly distinguished from the increase of knowledge and scientization in the sense of self-reflection on modernization. Let us call the autonomous, undesired and unseen, transition from industrial to risk society *reflexivity* (to differentiate it from and contrast it with *reflection*). Then 'reflexive modernization' means self-confrontation with the effects of risk society that cannot be dealt with and assimilated in the system of industrial society – as measured by the latter's institutionalized standards (Beck et al 1994: 6).

Beck's view of reflexivity is focused at the macro-societal level, examining the big picture of risk society (1992), but he can be criticised for eliding structure with agency when he defines reflexive modernisation as "self-confrontation" (1994: 5). He appears

to be personifying society when he suggests modernisation processes are "blind and deaf to their own effects and threats", (Beck 1994: 6). How can society confront itself without the involvement of its agents in reflexive processes? Beck confirms this societal interpretation of reflexivity by identifying the "self-critical society" as inhabited by knowledgable experts who are challenged by other experts and by citizen, consumer and self-help groups (1994: 11). Archer contests Beck's concept of reflexivity, arguing that self-confrontation:

> ... comes from a different stable because it is not initiated reflexively by those *responsible* for undesirable side effects but by the *recipients* of those unintended consequences, who force their progenitors to confront these matters (2007: 31).

But though Beck's interpretation of reflexivity is not clearly articulated, nevertheless some of his assertions are significant with potential consequences for this study. Archer supports his claims of "an increase in social reflexivity, a pressure upon individuals to become more reflexive, as global society progressively distances itself from traditionalism" and the implications of technological developments and globalisation for encouraging "a greater amount of individual or agential reflexivity than ever before, with a far-reaching impact upon life-styles and personal biography" (2007: 32). Giddens 1999 Reith Lectures highlight the concept of a "runaway world" outpacing attempts to understand and reconcile risk management with scientific and technological information which is itself contested but Giddens distinguishes the ordinary individual's role in making choices:

> With the spread of manufactured risk, governments can't pretend such management isn't their business. And they need to collaborate, since very few new-style risks have anything to do with the borders of nations. But neither, as ordinary individuals, can we ignore these new risks – or wait for definitive scientific evidence to arrive. As consumers, each of us has to decide whether to try to avoid genetically modified products or not. These risks, and the dilemmas surrounding them, have entered deeply into our everyday lives (2002: 34)

Bourdieu's concept of habitus offers a more agent-focused interpretation of reflexivity in which individuals, as social agents, interact with structures or social fields.

> For Bourdieu, people did not live their lives according to freely made choices or strategies but, rather, under the constraints of the habitus and the objective conditions of social fields (Reed-Danahay 2005: 22).

Where the field describes the social milieu or networks in which individuals operate, habitus is identified as an underlying set of dispositions developed by the individual in

relation to the objective conditions encountered. Grenfell argues that Bourdieu's theory attempts to go beyond the dichotomy between objectivity and subjectivity as experienced by the researcher to establish a theory of practice "which is robust enough to be objective and generalisable, and yet accounts for individual, subjective thought and action" (1998:16).

By contrast Bourdieu considered this theory enabled the researcher to adopt a position of reflexivity, by objectifying his own position as well as that of agents interacting in the social field through accepting that "the social relationship to the object of study is itself a necessary object of study" (Grenfell & James 1998: 126) and that the scientific field could not lay any claim to special privilege as against other fields in the social universe (Calhoun et al 1993:3 quoted in Grenfell & James 1998: 126). Bourdieu championed the scientific study of sociology through placing himself "in the thought of agents (not through intuition or emotional participation but through theoretical and empirical effort) in order to see the logic of their practices" (Reed-Danahay 2005: 13). While Bourdieu's methodological stance is similar to Gouldner and Hammersley's arguments for reflexivity on the part of the would-be knower, his theory of habitus on which his interpretation of reflexivity rests, has been challenged as being overly deterministic (Jenkins 1992; Grenfell & James 1998; Reed-Danahay 2005). Archer pursues this criticism further in arguing that Bourdieu conflates "the human subject as inextricably entangled with his or her social position", when claiming that:

> Persons, at their most personal, are essentially the personification of exigencies actually or potentially inscribed in the structure of the field or, more precisely, in the position occupied within this field (Bourdieu 1989: 449, quoted in Archer 2007: 43-44).

Archer contends that "the main victim of this tilt towards objectivism is reflexivity itself" because "what people think, plan, determine or say is never allowed to originate 'within their own heads', because internal deliberations always have to be referred backwards and outwards to the external conditions of their formation, which their habitus reflects" (Archer 2007: 44). Jenkins effectively critiques Bourdieu's position as presenting us with "a world where behaviour has its causes, but actors are not allowed their reasons" (Jenkins 1992: 97 quoted in Archer 2007: 44).

This debate highlights the continuing challenges for understanding relationships between the individual and society, the juxtaposition of structure with agency. It leads

me to identify a fundamental premise which informs the ontological and methodological grounds for this thesis, namely the adoption of a position that recognises reflexivity as part of people's everyday lives rather than an activity confined to academic scholars and researchers. Like Beck, Giddens' analysis of reflexivity is associated with understanding social processes and changes in modern society. But Giddens identifies the concept of reflexivity as an essential element in the continuity of practices:

> It is the specifically reflexive form of the knowledgeability of human agents that is most deeply involved in the recursive ordering of social practices. Continuity of practices presumes reflexivity, but reflexivity in turn is possible only because of the continuity of practices that makes them distinctively 'the same' across space and time. 'Reflexivity' hence should be understood not merely as 'self-consciousness' but as the monitored character of the ongoing flow of social life (1984: 3).

Giddens' definition does not elide structure with agency but highlights changes in reflexivity brought about by modernity, where the pace of change has become so rapid that:

> The reflexivity of modernity extends into the core of the self. Put in another way, in the context of a post-traditional order, the self becomes a *reflexive project*. ... In the settings of modernity, by contrast, the altered self has to be explored and constructed as part of a reflexive process of connecting personal and social change (cited in Cassell 1993: 304 from Giddens 1991b).

But unlike Beck, Giddens associates reflexivity with reflection:

> I use it to mean just the generic fact that we are reasoning beings who reflect on the conditions of our activity, and that all human beings are like that; but I also use it in the sense of social reflexivity or institutional reflexivity, ... essentially a world where you have constant or organised reflection on the conditions of our existence as a means of living those conditions (Chignell & Abbott 1995: 11).

This position is close to that of Archer, who defines reflexivity as "the regular exercise of the mental ability, shared by all normal people, to consider themselves in relation to their (social) contexts and vice versa" (2007: 4) and identifies it as "the means by which we make our way through the world" (2007: 5). I will argue that the reflexivity here shared by Giddens and Archer is similarly constituted to personal reflection associated with the reflective practice of learning (Dewey 1933, Kolb 1984, Jarvis 1999) by monitoring and making sense of social life, though it is important to recognise that Archer's position differs from Giddens, who she argues privileges agents over structures in contrast to her position which accords them equal weight. Resonant with Dewey's idea of an internal conversation which is central to learning and reflective experience, Archer celebrates the significance of reflexivity for shaping our lives:

> We give a shape to our lives, which constitutes our internal personal integrity, and this pattern is recognisable by others as our concrete singularity. Without this rich inner life of reflection upon reality, which is the generative mechanism of our most important personal emergent property, our unique identity and way of being in the world, then we are condemned to the impoverishment of either 'Modernity's Man' or 'Society's Being', neither of whom play a robust and active role in who they are. They have been rendered passive because they have been morally evacuated; since they themselves are not allowed to play a major part in the making of their own lives. Realism revindicates real powers for real people who live in the real world (Archer 2000: 10).

I see the reflexivity constituted here as more than a plea to follow a particular methodological stance and more than a theoretical discourse on understanding radical changes in modern society. While these two perspectives are important aspects of my thesis, I want to propose that reflexivity as constituted by Archer is fundamental to understanding learning, informing the processes of engagement, the technologies adopted, and potential outcomes. I also want to examine the question of increasing agential reflexivity at work in today's society and to identify the potential implications this will have for my study.

When Archer argues for the application of critical reflexivity she is doing much more than according agents' permission to reflect on practices given their actions can shape or be shaped by the structural context in which they operate. It is here that Archer's critical realism differs from reflexive modernity. Archer critiques Giddens' structuration theory for privileging agents over social structures (1982) and Beck's *Risk Society* (1992) for "central conflationism" in eliding structure with agency because, despite persistent references to the concept, Beck paradoxically does not engage with reflexive processes (Archer 2007: 33-34). By comparison, Archer's own perspective accords equal weight to the role of agency and structure within socially situated interactions (2000a: 2), enabling her to argue:

> ....the difference between actively making our way through the world or our passively bearing the weight of the world pivots upon the presence or absence of reflexivity (2007: 42).

It is this perspective that will inform my consideration of reflexivity and reflection as part of learning within this study.

Experience

Given the intention of this study is to examine how espoused policy for online learning is played out in pedagogical practice through examining experiences of students and

their tutors using learning technologies with the aim of identifying what works, what does not, and why, it will be useful to outline the meanings attached to the key concepts of experience and practice central to this thesis. Jarvis recommends examining the meaning of experience as a precursor to understanding the concept of experiential learning (2004). Experiencing can be conceptualised at two levels, firstly by subjective awareness of the present situation through sensing and perceiving, and secondly informed by previous experiences and the socio-cultural context. Oakeshott (1933 cited by Jarvis) identifies two phases in the process of experiencing, firstly, the "direct encounter with the situation" and secondly, "qualification and modification of the initial encounter by the previous knowledge that the person having the experience possesses" (2004: 95). Jarvis argues that "learning always begins with experiencing", but criticises Oakeshott's assumption that consciousness is a constant, since many situated experiences tend to be "taken for granted" by individuals, suggesting the level of consciousness of the learner can vary according to the situation and perceived significance of the experience (2004: 95). Jarvis's approach provides a less deterministic view of the relationship between experience and learning, allowing for experiencing that is not confined to the cognitive but can also encompass the affective and physical. Jarvis cites examples of athletes training their bodies and musicians their arms and fingers (2004). Further the "taken-for-grantedness" aspect of experiencing can be usefully associated with Giddens' concept of reflexivity as an essential element in the continuity of practices. Jarvis reinforces this association in suggesting that:

> This taken-for-grantedness lies in the fact that people are in harmony with their socio-cultural environment, they do not have to think too deeply before they act because, almost instinctively, they seem to know how to act in those particular circumstances (2004: 92).

However Jarvis points out that the choices made to act in a certain way are not "intuitive but the result of previous learning experiences" (2004: 92). This allows for the possibility of experiencing without conscious learning if individuals are not exercising reflexivity as part of their actions.

Building from the meanings associated with experiencing and factoring in the influence of context, Jarvis argues that a great deal of learning actually begins with an experience, which he terms "episodic experience" (2003: 59, 2004: 95). The idea of episodic experiences has important implications for this research in that it will be linked to a consideration of the relationship between formal education and informal learning and to

the relationships between self- and other- initiated episodic experiences. Peters' interpretation of education as distinct from learning is helpful here (1973). Education is defined as consisting of three facets, that it is situated "in schools and universities", focused on "an organised sequence of learning experiences called the curriculum", with the aim of achieving "the development of knowledge and understanding" (Peters 1973: 5). Learning, by contrast, can take place outside formal education with Peters arguing:

> It may be an empirical fact that some forms of learning are best brought about by teaching, but it is not part of our understanding of 'learning' that it must happen this way (1973: 6).

Peters' interpretation allows us to distinguish experiences of learning from experiences of teaching in formal education and to consider opportunities for learning in different situations both within and beyond formal education environments. Jarvis's analysis of episodic experiences also takes the debate of context forward in defining different types of experience. Jarvis distinguishes between what he calls "primary" and "secondary" experience, following the work of Husserl, who argued that experience is frequently not direct because once a person describes an object or an event, the description becomes an indirect experience for anyone listening to it (2004: 97). Hence Jarvis proposes that the sensing of a situation defined as the "primary experience" is different from the indirect experience that occurs through communication which is the "secondary experience" (2004). Jarvis associates learning from primary experience with learning in a practical situation whereas he considers secondary experience is necessarily a mediated experience since the person experiencing it is not directly involved in the situation of the experience. Secondary experiences could include conversation, listening to lectures and debates and listening to media or reading books. Jarvis contends these are all secondary experiences because "the meaning being communicated is always someone else's interpretation, and never that of the learners" hence he recommends "there is always need for critical, reflective learning" in such situations (2004: 99). Jarvis acknowledges the episodic experience contains primary elements in the direct sense experience that the individual will have with other persons, the book, or the media, but he argues this experience is not the same as the person experiencing the phenomenon, event or meaning directly (2004).

While the distinction drawn between primary and secondary experience may be overstated when the focus is on interpreting participants' reactions to specific learning

experiences, Jarvis's interpretation of different kinds of experience raises important questions concerning pedagogical practice in formal education given that much learning in academic settings is what Laurillard describes as "second-order experience of the world" (1993: 25) with accumulated knowledge mediated through others whether tutors, resources, or online learning environments. An important consideration will be to distinguish what is being mediated in each pedagogical experience, the episodic experience itself, accumulated knowledge associated with such experiences or combinations of both. If the online experience is about transmission of information, it is questionable if this can be termed learning. What constitutes appropriate teaching strategies to provide effective "episodic" learning experiences is a challenge for this study hence I want to distinguish informal learning through "episodic" experience from what I propose calling "precipitate" tutor-constructed experiences. It will be argued that it is difficult to create realistic and meaningful learning experiences outside the professional practice context when the locus of learning is situated within the HE conventional classroom and that when the locus of practice is an online environment, the project is potentially even more challenging as individuals are physically distanced from human presence.

Practice

How then does the concept of experience relate to practice? Practice is the act of doing and tends to be regularised through repetition. Practice tends to be associated with the development of skills like Jarvis's observation of athletes training their bodies and musicians their arms and fingers (2004). The individual can become so proficient in the skill, for example, riding a bicycle or driving a car, the process of doing becomes semi-automatic so they do not consciously think about what they are doing and it is only when things go array that consciousness is aroused to adapt to circumstances, for example avoiding a pothole or responding to an object in the path. It is in this sense that the terms experience and practice are closely linked but practices can be more readily distinguished in that they tend to be more tangible and observable.

However practice can also be interpreted as changing and transitory which may appear contradictory (Jarvis 1999). Practice can be interpreted as social practice as it becomes more formalised by rules and procedures codified and standardised into social practices that may become associated with different communities of practice (Lave & Wenger

1991). Lave and Wenger argue that learning is a function of the activity, context and culture in which it is situated and that "learning is an integral and inseparable aspect of social practice" (1991: 31). However where norms and customs become institutionalised within communities of practitioners this can lead to conformity to norms and unwillingness to challenge practices. But I want to propose that the analysis of online practices will start from practical activity, not narrowly defined as practicing a skill, but actions, practice, doing, in which the agents can, though they may not choose to, interpret and make sense of their experiences as they engage in different practices. This stance goes further in allowing for change and transition by adopting Archer's position that the internal conversations, or potential for reflexivity, that we have as individuals "is what makes (most of us) 'active agents', people who can exercise some governance in their own lives, as opposed to 'passive agents' to whom things simply happen" (2007: 6). The belief that human beings can be 'active' agents enables concerns to be actioned by means of "projects" so that Archer can argue:

> Action itself thus depends upon the existence of what are termed projects, where a project stands for any course of action intentionally engaged upon by a human being (2007: 7).

This stance on practice supports Archer's claim that our sociality does not have to make us into society's creatures (Archer 2000a) and enables practices in six online learning initiatives to be the focus for this research, not by giving precedence to practice, but by highlighting what is before us as praxis (Carr & Kemmis 1986). Carr and Kemmis argue that thought and action are dialectically related but not in any mechanical way but an "open and questioning form of thinking which demands reflection back and forth between the elements, like *part* and *whole*, *knowledge* and *action*, *process* and *product*, *subject* and *object*, *being* and *becoming*, *rhetoric* and *reality*, or *structure* and *function*", informed by phronesis defined as "a moral disposition to act truly and justly" (1986: 33, Author's italics). This approach has methodological implications which will be further analysed within this and subsequent chapters.

Learning technologies

The literature associated with learning technologies has burgeoned. Analysis of articles cited in the Social Sciences Citation Index (SSCI) reveals the literature on online learning has expanded rapidly in recent years with only 274 articles cited in the period 1981-1995 compared with 1221 in the period 1996 to 2004. Given the vast amount of

information available, the task of filtering the literature was initiated by examining citations in books, edited works and reviews devoted to online learning to identify key sources cited (Collis & Moonen 2001, Harasim et al 1995, Hiltz 1994, Jonassen & Land 2000, Kaye 1992a, Khan 1997, Laurillard 1993, 2003, McConnell 2000, Mason & Kaye 1989, Squires et al 2000, Stephenson 2001, Tavistock 2002). This was followed by online searches using the British Education Index and SSCI and scanning of contents pages of a wide range of educational and learning technology journals with literature selected where it contributed to pedagogical theory and practice, and learning impacts of technologies rather than the technologies themselves. Many studies examined distance learning with far fewer devoted to online learning as part of conventional courses. Studies tended to identify online practice without making links to learning theories. The considerable practice available through conference proceedings like ALT-C, Networked Learning (Banks et al 2004), ISL (Rust 2002) and SEDA (Fallows & Bhanot 2002) and the many case studies available through the Higher Education Academy (HEA) were also scanned for new developments and sources frequently cited were followed up. While recognising this review presents a partial picture by concentrating on studies that move the pedagogical debate forward, this strategy enables critical issues for use of online learning within higher education to be identified.

The proliferation of literature on ICT is paralleled by rapid growth in terms associated with the development of emergent technologies and practices. As outlined in Chapter 1, my analysis will focus on those learning technologies described in the six case studies to be examined. However some clarification of terminology in use and the significance of selecting specific terms for my study will be helpful here. VLEs are defined by Britain and Liber as "software systems that synthesise the functionality of computer-mediated communications software (e-mail, bulletin boards, newsgroups etc) and on-line methods of delivering course materials (e.g. the WWW)" (1999: 3). The six cases used different combinations of learning technology options associated with VLEs - provision of web-based materials, CMC, and web based assessment - and one also included a commercially produced computer assisted learning (CAL) package. The aim is to refer to online learning environments rather than VLEs for two reasons, firstly to suggest that these online initiatives, though using a range of VLE-type tools, were not tied to a particular VLE platform whether, commercially available or bespoke (in fact the vehicle used in three of the six case studies migrated to a new platform between the

collection of data and writing up); and secondly, to reflect the idea of a distinct learning space for students and tutors which the study will examine to see how it may be different from conventional face-to-face learning spaces.

I will argue that where terms like VLE, CMC and CAL can alert the reader to the technologies in use, they can only convey a partial story, telling us what tools are in use but not necessarily how they are being used to promote learning. It is more difficult to identify the potential affordances these tools give rise to, hence the range of terms that have emerged to try to capture the relationship between the technology and its potential to enhance learning with more generic terms like online, e-, networked and blended learning. My analysis of concepts associated with the field by means of online searches reveals a longer track record for terms like computer assisted learning (CAL), computer mediated communication (CMC) (Mason & Kaye 1989, Kaye 1992a, Harasim et al 1995) and web based learning (Khan 1997) compared with relatively younger concepts like virtual learning environments (VLEs) (Britain & Liber 1999), more recent terms like e-learning, blended learning (Smith 2001, Valiathan 2002, Oliver & Trigwell 2005), and mobile learning (Lockitt 2005, Wood 2003) and current developments in social networking through blogs (Ferdig & Trammell 2004, Gurak et al 2004) and wikis (Lamb 2004, Ferris & Wilder 2006).

Online learning and e-learning are terms used interchangeably, acting as generic shorthand concepts to capture the potential rather than the actuality of the technology making learning happen. Mason argues the "literature reveals considerable ambiguity and often contradictory conceptions about what e-learning actually is" and identifies two approaches, "electronic content" associated with workplace "computer-based training", and "communicative potential", associated with HE literature (2002: 27-28). This 'communicative' strand is similar to the concept of networked learning outlined by Steeples and Jones (2002) as learning in which ICT "is used to promote connections: between one learner and other learners; between learners and tutors; between a learning community and its learning resources" (cited in Goodyear et al 2005: 473). Goodyear points out that "use of online materials is not a sufficient characteristic to define networked learning" because "human-human interaction is an essential part of networked learning" (2005: 474). The significance of online presence as a theme will be pursued further in this study.

Blended learning has emerged to capture the idea of mixed mode curriculum delivery and interaction by offering different combinations of conventional face-to-face and online experiences, making it a more overarching, generic concept for encompassing mixed mode learning encounters but also more contestable and open to wider interpretation. Oliver and Trigwell have challenged the use of the concept as being poorly defined and used inconsistently (2005), being more representative of teaching modes than learning modes and often used to define a mix of teaching media and tools, like combining a discussion board with online materials, rather than the combination of face-to-face encounters with online encounters to enhance learning as represented by the six cases under study. It will be argued this distinction is central to my study since the human-human interaction, following Goodyear's argument, is a key factor in online learning and disputes Oliver and Trigwell's notion that "there is nothing particularly special about the Internet per se" (2005: 19) when applied to interaction of human agents. While not wishing to prejudge the pedagogical approaches taking place in the cases under study, the potential for rapid access to information and search and retrieval facilities provided by e-books and journals, in association with provision for communication tools for group interaction, associated with the vast networking potential of the Internet, are distinctive affordances to be acknowledged here.

However there appears to be a gap between predictions for online learning and realities of practice on the ground. Enthusiasts for online learning have posited a paradigm shift in educational models as a result of the convergence and maturation of computing and telecommunications (Harasim et al.1995). As early as 1989, Harasim was promising:

> On-line education is more than a new delivery mode. It is a new learning domain which enables us as educators and as learners to engage in learning interactions more easily, more often, and perhaps more effectively, but also to develop qualitatively new and different forms of educational interactions (Harasim, 1989).

However the outlook for identifying pedagogical strategies that enhance online learning continues to look uncertain with commentators like Stephenson arguing: "Much online learning appears to have been developed because it was possible, technically, to do so and without explicit reference to any pedagogical principles" (2001: x), resulting in what Forsyth describes as little more than "electronic page turning" (1998: 31).

The gap between aspirations and realities of online practices appears to be aligned with two factors. Firstly, insufficient consideration has been given to how learning technologies are being used by tutors and students to achieve effective learning. A survey of web-based courses by Boshier (1997 cited in Bullen 2000) found that:

> ...most were not fully exploiting the potential of the web. They are merely delivering information but not allowing learners to create knowledge or gain access to the communities of practice that will help them become truly educated (Bullen 2000).

Secondly, shortcomings in the design of research strategies appropriate for online learning have been identified. Mason highlights the gap between research evidence and practice, by suggesting that:

> Despite a deluge of conferences, case studies and journal articles about computer conferencing and online courses over the last ten years, remarkably little evidence has emerged about best practice, how to design successful online environments, and what works well and what does not (Mason 2002: 27).

This leads Mason to conclude "online learning has been over-sold as a new paradigm in education" (2002: 31) and opens questions for investigation within my study.

Research perspectives

What are the possible reasons for such a gap between the aspirations and realities of online learning practices? If it is possible to identify what effective learning is and how it can be achieved, then pedagogically sound e-learning principles could be developed and shared as a means of closing the gap between espoused theory and theory in use. If research strategies for online learning could be developed and refined in order to capture more valid and systematic evaluation data, this evidence could be used to inform future e-learning policy initiatives. Such a research stance could be interpreted as techno-rationalist in that it anticipates a reality out there to be analysed with social phenomena identifiable as objects for investigation by the researcher. If this approach is assumed to be synonymous with what Usher and Bryant refer to as a positivis/empiricist perspective it would rest on a number of assumptions including "a clear distinction or separation between the 'subjective' knower and the 'objective' world" and between facts (which are 'objective' and belong to the world) and values (which are 'subjective' and belong to persons)" (1997: 175). It might also be assumed that such a view supports research methods formulated to demonstrate empirically derived 'cause and effect' relationships detached from the influences of values and socio-political contexts (Hammersley & Atkinson 1995, Usher & Bryant 1997).

How then does such an ontological stance sit with a research methodology predicated on giving voice to the online learning experiences of students and tutors based on the subjective awareness of participants "*constructing* the social world, both through their interpretations of it and through actions based on those interpretations" (Hammersley & Atkinson 1995: 11, Authors' italics) which favour a hermeneutic interpretative approach to understanding the world. The reader may perceive a mismatch between the researcher's realist ontological stance and a methodology that relies on the description and interpretations of participants to examine and understand particular facets of this world. The significance of these interrelationships is reinforced by Usher & Bryant's point that "every research method is embedded in commitments to particular versions of the world (an ontology) and ways of knowing that world (an epistemology) implicitly held by the researcher" (1997: 176) and Guba & Lincoln's argument that questions concerning the ontology, epistemology and methodology informing a research study are interconnected and constrained by each other (1998). But arguing for the three strands of ontology, epistemology and methodology to be interconnected does not mean that the research strategy adopted is destined to be located within one of the major research paradigms. Kuhn's work challenged the epistemological foundations of science suggesting "there is no theory-neutral observational foundation against which theories can be tested, and that judgements about the validity of theories are never fully determined by any evidence" for "all knowledge about the world is mediated by paradigmatic presuppositions" (Hammersley & Atkinson 1995: 12). This claim applies to rationalist and interpretative approaches alike and relates to the earlier discussion of reflexivity summarised in Hammersley and Atkinson's contention that:

> ...the orientations of researchers will be shaped by their socio-historical locations, including the values and interests that these locations confer upon them. What this represents is a rejection of the idea that social research is, or can be, carried out in some autonomous realm that is insulated from the wider society and from the particular biography of the researcher, in such a way that its findings can be unaffected by social processes and personal characteristics (1995: 16).

I want to argue for a critical realist stance as an alternative way forward that can acknowledge phenomena in the world as real though these may not be in the immediate purview of researchers and researched alike, for example, participants in an online discussion not realising that their 'silent' colleagues were feeling intimidated by the depth of discussion in an online debate. Linked to critical theory, which acknowledges

the relationships between human agents and social forces, the critical realist stance adopted in this study offers an alternative focus for a research strategy which acknowledges and works with the influence of context and the complexity of factors at work in real world online learning practices. Critical realism can be defined as:

> Any doctrine reconciling the real, independent, objective nature of the world (realism) with a due appreciation of the mind-dependence of the sensory experiences whereby we know about it (hence, critical) (Blackburn 1996).

But critical realism is not just about the relationship of the individual to her environment and how she perceives it and acts towards it. It is also fundamentally about the human being's situatedness in social settings which can exert forces as enablements or constraints on actions. Critical realism is particularly associated with the work of Bhaskar, who suggests:

> Social structures may be just as objective, and transfactually efficacious within their geo-historical domain, as natural laws. Moreover, both alike typically impose limits and constraints upon the kinds of action (including speech action) possible to human beings (1991: 73).

Further with regard to what Archer describes as social emergent properties (2000a), Bhaskar maintains:

> ... the identification of the source of an experienced injustice in social reality, necessary for changing or remedying it, involves much more than a redescription, even if it depends on that too centrally, It is a matter of finding and disentangling webs of relations in social life, and engaging explanatory critiques of the practices that sustain them (1991: 72).

But the question then is how these webs of relations and associated practices can be researched through description and critique and who are the arbiters in confirming the truth of possible claims? The accumulated knowledge on learning and teaching and online learning is a key starting point but my contention is that while some educational theories can be usefully applied to the question of what does effective learning in HE require, they are insufficient to address the question of why the anticipated transformation in the student learning experience does not necessarily occur despite sound online learning practices being implemented. I will argue that this is because they fail to do justice to the complexity of human activity associated with using learning technologies, an issue raised by the Tavistock Review (2002) in identifying a wide range of proximal and distal forces for consideration in any educational research study and outlined in Chapter 1. For this reason, I am proposing that my research questions will benefit from applying a critical realist perspective, specifically focusing on

Archer's work (1982, 1995, 1998, 2000a, 2000b, 2005, 2007) because my claim is that it provides a theoretical bridge between established learning theories and the realities of online practices. It does this by giving explanatory power to acknowledging and working with the complexity of factors at work in real world online learning situations, and crucially by giving equal weight to agents and structures in the analysis of what works for who and why so that possible research outcomes are not pre-judged.

Hence I want to argue that human agents' descriptions of e-learning practice experiences are essential to realise the trustworthiness and credibility of the findings particularly when the research is being conducted in a domain where the vision, aspirations and policy intentions for e-learning (Dearing 1997, Harasim 1989) may not be in step with the realities of practice on the ground (Guile & Hayton 1999, Mason 2002). But I have described practice as more tangible and observable than experience, if it is viewed as simply what is before us, so this research approach could be challenged on the validity of asking participants about their experiences of using learning technologies in preference to observing them. It could be argued that what they actually do is a more objective method for the researcher to pursue than what they say they do. Bhaskar identifies this distinction in suggesting realism "is implied by our deeds, whatever our words, and then of course by our words, once we understand them as deeds" (1997: 33).

Thus an objection could be raised that, in asking agents to describe their experiences of e-learning, we are giving accounts of their experiences rather than the real lived experience in much the same way that teaching in HE is largely concerned with second-order experiences of academic knowledge (Jarvis 1999, Laurillard 2002), albeit a real experience for the students attending lectures and seminars, reading a book, or working online. It could be argued that observations of online practices would get closer to the reality of what students and tutors are doing and how they are doing it. However there are key reasons why accounts of experiences have been adopted over the potential of observation and these are associated with the reflexivity we can all demonstrate as human beings in monitoring and making sense of social life (Archer 2007). Firstly my argument is predicated on practice being defined as more than a visible and observable skill preferring the term praxis to encompass the interplay of thoughts and actions within practices. Archer defines praxis as "a personal technology which transforms the

world in conformity with anterior human needs" and in this sense argues that "practical action is not wanton or directionless, it has a point to it given by virtue of the way subjects are and the way in which the world is" (2000a: 131). The praxis of the online learning initiatives is both real and tangible though not necessarily readily observable, for example, some students may choose not to participate online, perhaps reading information provided but not contributing to discussions. I want to argue that individuals demonstrating varying engagement with online practices will be better understood by working with their descriptions and interpretations of practice rather than just trying to observe practice since this would only reveal part of the story. This argument is associated with Geertz's concept of "thick description" (1973) in which observed behaviours, such as raising a hand or winking, only describe the behaviour as observed but do not explain the meaning and context in which the behaviour is situated.

Secondly, and related to my previous point, my reservations concerning observation relate to questions of the relationship between the researcher and that being researched at the level of interpretation. My research questions are interested in describing not only what is happening and how but also in understanding why learning may or may not be occurring in online learning environments. Interpretation of the findings is a necessary part of the research but Hammersley and Atkinson warn that the conflict between realism and methodology comes when researchers construct the social world through their interpretations of it (1995). This is why I am contending that the experiences of students and tutors need to be foregrounded before interpretations can be considered. Such a research strategy acknowledges and seeks to investigate the complexity of factors at work in real world online learning practices through exercising reflexivity and accepting Gouldner's dictum that we "may be led to truth no less than to falsehood" by "socially shaped experiences" (1971: 482).

However this raises questions concerning the credibility of a research strategy focused on specific situated cases in which online initiatives are described and documented by the tutors, who initiated them, and by the students, who experienced them, without including direct observations by the researcher as a means of checking what they say they are doing actually matches with what they are actually doing. Further defining and distinguishing boundaries and relationships in the cases is part of the problem. The decision to define the boundaries of each case study as a learning technology initiative

focused on a tutor-constructed precipitate experience highlights significant issues for distinguishing participants' experiences of particular online learning initiatives. Although Jarvis defines experiences as episodic, he acknowledges in reality experience is more than a sequence of episodes since the act of describing an experience places it in the past rather than the here and now and becomes interpretive and mediated through language. Hence Jarvis identifies experience as "seamless and we as people are never fully developed – always becoming" (2004: 92). It is recognised that the descriptions of these online learning initiatives cannot be separated from what has gone before and that they will be necessarily based on subjective awareness and influenced by participants' previous biographies. Further student experiences described may not directly emanate from the tutor generated or constructed experiences associated with each case and may be initiated by the students themselves.

These issues can be identified as limitations of the study but my purpose is to focus on the territory of e-learning rather than establish direct causal relationships between specific variables. I want to argue that it is still possible to achieve a critical realist stance and remain true to the data by pursuing a critical perspective in the data analysis stage, the aim being to seek potential synergies and mismatches between students' stories and between tutors' and students' stories through evidencing and cross-checking of findings in a comparative analysis of the different experiences both within and between case studies. In this way it is hoped to highlight areas of congruence and disjuncture reflected in Argyris and Schön's concept of espoused theory compared to theory-in-use (1978) and to acknowledge that the potential mismatches between what people say and what they do can be balanced through cross-case comparison.

How this methodological stance influences the data gathering methods chosen will be pursued further in Chapter 3. For now, in summary, this critical realist approach to research will be pursued on the basis of accepting the "double hermeneutic" that the researcher and the researched "have the same characteristic of being interpreters or sense-seekers and sense-makers" (Usher & Bryant 1997: 181). Realism acknowledges the existence of individual, practical and social constraints and enablements to be investigated and that a critical realist stance needs to proceed from established theories and evidence rather than the researcher's own constructions. Hammersley and Atkinson clearly identify the approach required in suggesting:

> ...there is no way in which we can escape the social world in order to study it. Fortunately, though, this is not necessary even from a realist point of view. There is little justification for rejecting all common-sense knowledge out of hand as there is for treating it as all 'valid in its own terms': we have no external, absolutely conclusive standard by which to judge it. But we can work with what 'knowledge' we have, while recognising that it may be erroneous and engaging in systematic inquiry where doubt seems justified; and in so doing we can still make the reasonable assumption that we are trying to describe phenomena as they are, and not merely how we perceive them or how we would like them to be (1995: 17-18).

Theoretical perspectives

Grand theories of learning like behaviourism and constructivism are frequently cited in the e-learning literature (Jonassen & Land 2000, Mason 2002, Reeves & Reeves 1997). Mason links her 'content' and 'communication' e-learning domains with different learning theories, content approaches being associated with behaviourist conceptions of learning, emphasising content, testing and multimedia features for increasing motivation while communicative approaches are linked to constructivist (Jonassen & Land 2000), and social practice (Lave & Wenger 1991) learning theories, emphasising interaction and dialogue with the tutor and other students, searching for resource materials and collaborative activities (Mason 2002: 28). Reeves and Reeves distinguish between constructivist and behaviourist approaches in interactive online learning according to the criteria outlined in Table 2.1 below (1997).

Behaviourist/ instructivist	Constructivist
Importance of objectives separate from learner	Primacy of learner's intentions, experience and cognitive strategies
Sequenced learning with progression from lower to higher order learning	Learner constructs different cognitive strategies based on their previous knowledge and what they experience in different learning environments
Direct instruction with little emphasis on learner	Learning environment needs to be rich and diverse and relevant to learner
Learner as passive recipient	Task-oriented, problem-solving activities
Knowledge is separate from knowing	Knowledge does not exist outside the minds of human beings
Learning consists of acquiring truth	Learning consists of acquiring viable strategies that meet one's objectives
Learning can be measured precisely with tests	Learning can be estimated through observation and dialogue

Table 2.1 Behaviourist and constuctivist dimensions of pedagogy (Adapted from Reeves and Reeves 1997: 60)

However a word of caution is needed in interpreting these criteria since providing clear objectives and rich content as part of the learning experience, does not necessarily point to a behaviourist approach. Gibbs (1992 citing Biggs 1989) recommends "a well structured knowledge base" to foster effective learning. The two pedagogical approaches are presented as ideal types at two ends of a continuum with learning and teaching practices situated at different points according to the mix of criteria present.

Rather than labelling particular technology affordances as behaviourist or constructivist, it is worth keeping an open mind concerning the purposes to which the different technologies are put especially where used as part of a blended learning environment with considerable scope for a variety of affordances and opportunities focused on how agents interpret and make use of them. Students, for example, could be using information provided in creative ways to solve a problem, develop their practice, or make sense of some theory, none of which can be described as behaviourist. The content rich environment without dialogue facilities would be one option in a blended learning environment where face-to-face opportunities are available for extending debates and discussion in a constructivist tradition, focusing on knowledge construction rather than knowledge representation. However Jonassen and Land (2000) warn of curricular features that can impede the effectiveness of "constructivist learning environments", identifying possible mismatches between constructivist pedagogical methods and "conventional tests and assessments of content" and "pragmatic influences" like time available for activity and access to ICT resources (2000: 16-17). This argument would suggest specific online approaches cannot be viewed in isolation from the enablements and constraints of the wider curriculum framework. The realities of pedagogical practice are better served by constructs acknowledging different mixes of learning approaches positioned at different points in a behaviourist/ constructivist spectrum according to the nature of the curriculum and the ways in which agents engage with them.

The problem with these learning theories is that they foreground the individual by focusing on the psychology rather than the social practice of learning as evidenced in the many studies on individual differences and learning styles (Coffield et al 2004). These theories can be criticised for failing to acknowledge the context of learning and the impacts of different teaching strategies. However, by focusing on the situation,

theories can then be criticised for using research strategies that make it difficult to draw conclusions generalisable to other contexts (Mason 2002). By using Archer's model, I will argue that it is possible to create a partnership between individual and social learning perspectives on learning, and between structure and agency, through focusing on the praxis of learning. It will therefore be helpful here to examine Archer's model of the three orders of reality to demonstrate its value as a framework for critiquing the educational literature before focusing on specific literature and evaluating its applicability to the issues this research is addressing. Archer's three orders of reality and their respective forms of knowledge identified in her model (2000a: 162) and outlined in Chapter 1 (See Figure 1), provides a means of understanding and working with complexity through examining the interplay between structure and agency in social interaction (2000a: 307). Archer argues:

> All knowledge entails an *interplay* between properties and powers of the subject and properties and powers of the object – be this what we can learn to do in nature (embodied knowledge), the skills we can acquire in practice (practical knowledge), or propositional elaborations we can make in the cultural system (discursive knowledge). Any form of knowledge thus results from a confluence between human powers and the powers of reality – natural, practical and social (Archer 2000a: 177).

By making a case for a critical realist perspective, I believe online practice and the actions of agents can be foregrounded in my research while acknowledging the interplay of structural factors, firstly represented by the opportunities and constraints of working in online learning environments, and secondly by the potential insights a critical review of the literature (discursive knowledge) may throw on these online practices. My argument is that this approach to analysis will enable phenomena identified to be considered holistically by encompassing natural, practical and social facets. Where this approach acknowledges a symbiosis between agency and structure, it helps meet Archer's plea that "we must neither under- nor over-privilege human agency in our analytical approach" (2000a: 21). It enables a bridge between theory as discursive knowledge and practice by ensuring that:

> Our practical observations and the theories to which they give rise are umpired by reality itself, which, as Lakatos puts it, pronounces a 'verdict of inconsistency' on the relationship between our observational theories and our explanatory theories (Archer 2000a: 145).

It is anticipated that this critical realist approach will enable closer scrutiny of individual participants' aspirations and expectations of online learning without privileging voices

of tutors over students or of students over tutors, or indeed the researcher's voice over the researched. The intention is to seek areas of convergence and divergence in practice experiences for further analysis in relation to the literature on educational theories by distinguishing relevant literature associated with the natural order covering personal characteristics of agents in the case studies, the practical order associated with online learning experiences taking place, and the social order in respect of socio-cultural and organisational elements affecting the agents engaging in the practice (2000a: 162).

While my purpose is to demonstrate how the educational literature and dominant discourses can be categorised and challenged by using Archer's model of the three orders of reality (2000a), her analysis of the defining features of each order is not clearly specified. Hence my aim here is to interpret Archer's model and apply it to educational practice themes relevant to this study. These themes are outlined in Figure 2: *Archer's three orders of reality applied to e-learning themes*. The human agent, I, is situated at the apex of the practical order, interlinked with natural and social order

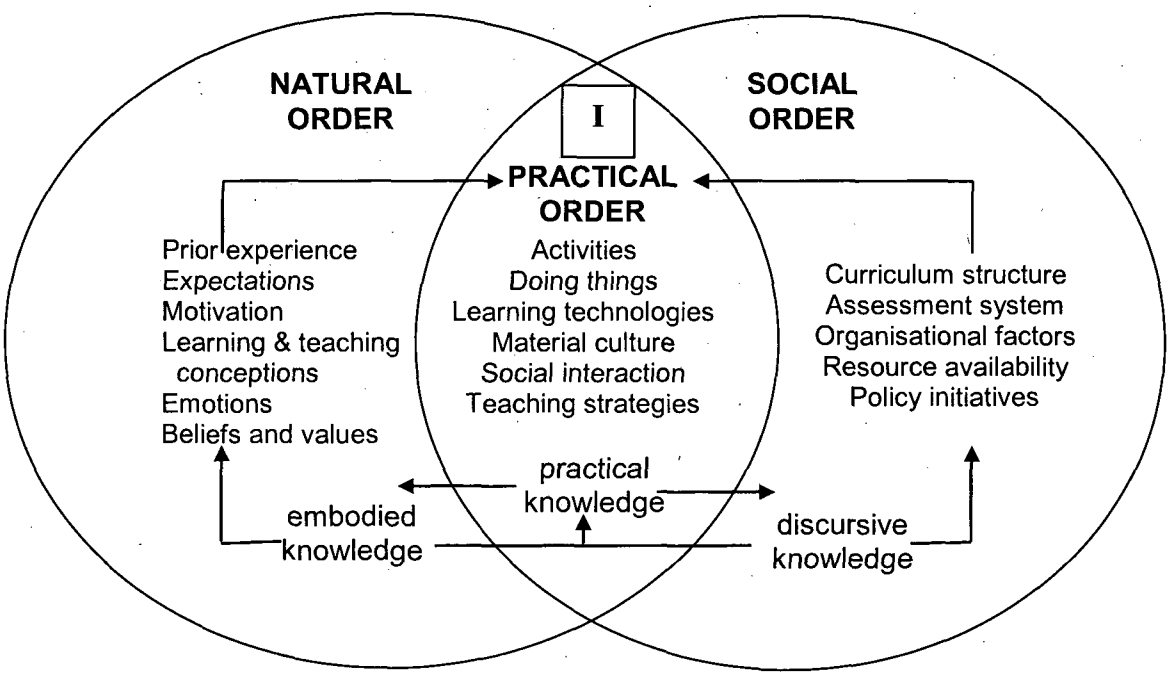

Figure 2. Archer's three orders of reality applied to e-learning themes

enablements and constraints, to identify their association and interaction with each of the orders. The efficacy of the natural order and embodied knowledge can be exemplified by reference to the agents' prior experiences. Archer gives the example of the bodily sensation of heat and cold, and the development of embodied knowledge

through the individual's learning to throw off or retrieve a duvet (2000: 113). Applying the natural order and embodied knowledge to e-learning initiatives, students previously socialised into education practices like face-to-face lectures and seminars, when encouraged to use an online learning package as part of their studies, may react with feelings of isolation and wanting to be supported by the familiar practices of lectures and sharing ideas with their peer group. My intention is to examine natural order factors through critiquing educational theories associated with personal characteristics, including prior experiences, motivations, learning and teaching conceptions, emotions, beliefs and values to identify how these may impact on online practices. The extensive research studies on learning and teaching in conventional environments suggest student's and tutor's conceptions of learning will impact on learning and teaching strategies and the potential for achieving effective learning (Marton and Säljö 1976a, 1976b, 1984, Gibbs 1992, Ramsden 1992, Entwistle 1997, Prosser & Trigwell 1999, Biggs 2003).

The practical order will be investigated by means of models and theories associated with the 'doing' of learning and teaching (Dewey 1933, Kolb 1984, Jarvis et al 2003) and their application to practices associated with e-learning initiatives. Usher, Bryant and Johnston's analysis of the relationship between theory, practice and research in adult education is critically important here in arguing its practice cannot be "reduced to a psychology of learning or a sociology of participation" but that 'practical' knowledge and 'practical' reasoning "has its own integrity" and can provide an alternative to "a technical-rationality model of practice and a positivist paradigm of research" (Usher et al 1997: vii). This supports the aim of examining practices, social interactions and material culture associated with e-learning initiatives and adds weight to Archer's thesis that the practical order is pivotal, hence her argument for foregrounding the primacy of practice (2000a) as the individual's mode of engagement with the social order. Though it will be important to identify the different learning technologies in use to examine distinct features which can be deployed to enhance learning, writers on learning technologies confirm that learning outcomes are related more to how a particular medium is used than to its intrinsic characteristics (Ehrmann 1995, Hiltz 1994, Laurillard 2002). Hiltz points out that some courses are more successful than others, arguing that it is not that "media do not make a difference", but that other factors interact with the communication medium to affect learning outcomes (1994: 20).

The activity of students communicating with each other in online environments may serve to exemplify the complexity of factors at work in the practice of e-learning. When students are asked to work together in an online asynchronous discussion as part of a conventional course, different students will demonstrate different levels of engagement in the process. Reasons given for non-engagement could include making practical choices to use their time in different ways, or perhaps to circumvent the online discussion process by meeting face-to-face. Alternatively structural factors such as limited access to the enabling technology or knowing that the activity is not assessed may prove significant factors in non-engagement (Hutchings 2002). The environmental and social context in which learning takes place contributes to the success or failure of particular innovations (Biggs 2003, Jonassen & Land 2000, Lave & Wenger 1991, Wenger 1998). This example of student activity demonstrates the potential significance of the social order as represented by proximal environmental factors, like structure of the curriculum, assessment system, organisational arrangements and resource availability, for consideration within the bounds of this study. It also links the influence of social order factors to natural order themes like the motivation of particular students to engage in online activities when social order assessment requirements or peer group pressure can contribute to engagement or when the practice can make some students feel more empowered or more at risk when engaging in such online spaces.

This practice example effectively demonstrates the complexity of factors at work in e-learning experiences and also critically highlights the inter-linkages between Archer's three orders of reality, confirming the importance of the model as a basis for analysing the question of why the anticipated transformation in the student learning experience may or may not occur. Further the example has not addressed other context-specific questions like the pedagogical design of the online discussion activity or the influence of the tutor in the process or the outcomes. Educational theory, as social and discursive knowledge, will be interrogated as a means for the researcher to illuminate the findings. Finally, while other socio-cultural and political factors, like educational policy initiatives are outside the scope of the study, they will be acknowledged as drivers influencing e-learning innovations and practice.

It is anticipated that Archer's model (2000a) will provide coherence and criticality to this literature analysis by challenging theories which concentrate on the individual or

the social situation to the potential detriment of understanding the interplay between them. Archer argues:

> Each new 'generation' of agents either reproduces or transforms its structural inheritance, but this heritage itself conditions their vested interests in doing so, their aspirations for stasis or for change, the resources they can bring to bear, and the strategies which are conducive to structural morphostasis or further morphogenesis (Archer 2000a: 307-308).

This statement challenges the researcher to focus on those aspects of the educational literature that can throw light on the research problem while critiquing aspects that privilege agents over structure or vice versa. Archer argues that it is the causal powers "proper to agency itself" that "ultimately enable people to reflect upon their social context, and to act reflexively towards it, either individually or collectively," and that "only by virtue of such powers can human beings be the active shapers of their socio-cultural context, rather than the passive recipients of it" (2000a: 308). Fundamental questions applicable to the research questions will be addressed in turn.

What is effective learning?

The starting point for examining how effective learning can be achieved in online learning environments is to foreground the concept of learning to identify what it is and what it requires so that favourable process outcomes can be attained. The conceptions of agents, learners participating in learning and tutors designing learning environments, mediated by their personal characteristics and prior experiences, provides the initial pathway for addressing this research question. In identifying concepts and theories of learning from the literature, the intention is to compare these with findings from what research participants are saying and doing about learning, to be examined in Chapter 4.

The literature on learning and teaching in higher education identifies qualitative differences in learning. Säljö's work on students' approaches to studying distinguished five categories, each identifying a distinct conception of learning (1979) and Marton and others (1993) found a similar pattern of responses, adding a sixth category with learning defined as:

1. A quantitative increase in knowledge. Learning is acquiring information or 'knowing a lot'.
2. Memorising. Learning is storing information that can be reproduced.

3. Acquiring facts, skills, and methods that can be retained and used as necessary (application).
4. Making sense or abstracting meaning. Learning involves relating parts of the subject matter to each other and to the real world (understanding).
5. Interpreting and understanding reality in a different way. Learning involves comprehending the world by reinterpreting knowledge.
6. Changing as a person.

(From: Ramsden 1992: 26; Beaty et al. 1997a)

Säljö's thinking was that these conceptions formed a hierarchy with higher conceptions founded on lower conceptions. What is particularly appealing about this model of learning is that it forms a continuum, supporting the idea of a process of learner advancement and development from one stage of learning to another and in this respect is closely linked to Bloom's taxonomy of educational objectives (1956). The conceptions can be grouped together to identify qualitative differences in learning. In conceptions 1-3, learning is viewed as something external to the learner, defined by knowledge objects or products which can be taken and absorbed by the learner. In contrast, conceptions 4-6 identify the learner's role in internalising the learning by making sense of the knowledge, constructing meanings to enable understanding in the context of the real world. In this way, Marton and Säljö's work generated two key definitions based on students' descriptions of their approaches to learning, a *surface* approach and a *deep* approach. Using the *surface* approach:

> ...the student reduces what is to be learnt to the status of unconnected facts to be memorised. The learning task is to reproduce the subject matter at a later date (eg. in an exam) (Gibbs 1994: 2).

Using the *deep* approach:

> ... the student attempts to make sense of what is to be learnt, which consists of ideas and concepts. This involves thinking, seeking integration between components and between tasks, and 'playing' with ideas (Gibbs 1994: 2).

These two approaches identify a qualitative difference in student approaches to learning which is particularly relevant to the question of what constitutes effective learning in HE settings from the learner's perspective.

But what is largely missing from this categorisation is knowledge about the process or strategies students experience, the how of learning, - triggers, incentives, reasons - to

engage with the what of learning - subject matter, skills, facts, information, knowledge, methods - in order achieve deep learning. An important consideration for this study is to find out what happens in an online learning environment to facilitate learner advancement and development of effective learning. If significant learning is seen as changes in the way individuals understand and conceptualise the world around them, the question of effectiveness will depend on how much the student is enabled to move through the hierarchy of conceptions by means of their online learning experiences.

While Marton and Säljö's conceptions of learning offer a useful model for understanding different kinds of learning, it is difficult to reconcile higher order conceptions 4-5 associated with making sense of learning with practice if this is interpreted as aligning with conception 3. Archer's thesis, identifying the practical order as pivotal for understanding human activity, and Bruner's idea that: "Knowing is a process, not a product" (1966: 72), both suggest the student needs to be actively involved in the process to encourage higher level learning. But if practical action, interpreted here as application and learning by doing is mooted as being at the heart of learning in order to transform a person (Dewey 1938, Kolb 1984, Jarvis et al 2003), it is necessary to challenge Marton and Säljö's conceptions 4-5 as in danger of privileging discourse over practice unless opportunities for reflection are included as an integral part of the learning process.

I want to challenge what could be interpreted here as a distinction between knowledge and skills through separating cognitive from psycho-motor and affective elements of learning, by suggesting all learning starts from practical activity but not narrowly defined as practising a skill but rather as the potential to develop individual knowledge through action and purposeful thinking (Dewey 1933). This approach is supported by Archer's thesis in arguing not only that practical action is pivotal for understanding human activity but "practice is pivotal to knowledge in general" (2000a 179). Learning is not synonymous with the accumulated knowledge of the social order which is out there to be acquired, used, and made sense of as part of learning but the learning process is unique to each individual with achievement of different mixes of embodied, practical and discursive knowledge according to the situation and activities in which the learner finds themselves located. Archer explains how the three orders can equally affect the subject "by shaping the situations in which he or she finds themselves, and supplying

constraints or enablements in relation to the subjects' projects" (2000a 177). Archer points out that whereas Bourdieu "endorses an epistemological break between forms of knowledge" and in so doing derogates practices as obeying a poor logic, she by contrast, only insists the three different kinds of knowledge are differentiated by their "ontological origins" (2000a 178-179). Archer sees "intercommunication is continuous between the knowledge generated in the three different orders" (2000a 177) and states:

> It is misleading to give practical knowledge an inferiority complex such that discursive knowledge can only intrude upon it by domination (2000a 180).

Archer's model provides the ontological foundation for learning theories that are situated in practical action and reflexivity as key components in learning.

Towards an alternative model of learning

Although the focus on formal education is appropriate here given the cases selected for study are all situated within HE, the danger is that discourses about learning and assessment can be skewed to academic study failing to account for practice settings and work based learning where development of lifelong learning skills for employability are paramount. Education is not the same as learning. Peters identifies three facets of the concept of education, that it is situated "in schools and universities", focused on "an organised sequence of learning experiences called the curriculum" to achieve "the development of knowledge and understanding" (1973: 5). Learning, by contrast, can take place outside formal education. Peters argues:

> It may be an empirical fact that some forms of learning are best brought about by teaching, but it is not part of our understanding of 'learning' that it must happen this way (1973: 6).

What is required of the student and transmitted by means of the curriculum, learning outcomes and assessment demands in HE may or may not coincide with the realities of work-based practices. The potential in HE is to steer approaches to and outcomes of learning to such an extent that education can be seen to be privileged over learning. Gibbs identifies the power of accreditation vested in formal education where he gives an example of students rewarded for adopting surface approaches (1992:166).

The challenge of the relationship between practice and theory is at the centre of this study on e-learning initiatives and it is the benefits of Archer's thesis in re-asserting the wholeness of human beings operating with their senses, emotions and cognitions

intertwined and interacting with objects in the world that provides the clues to understanding the complexities of any learning enterprise. Archer states:

> This natural world is not given to us by virtue of the disembodied Cartesian cogito, but through the body, its sensory reach and corresponding range of practical abilities (2000a: 128).

My contention is that it is not a case of substituting "I think, therefore I am" with "I do, therefore I am" but an interplay between acting and thinking. Archer highlights this link by explaining: "The human body is unique, because of its dual role as the source of perception which is also able to sense itself" and suggests the powers of reflexivity and praxis intertwined in human agency:

> That which looks at all other things can also look at itself and recognise, in what it sees, the "other side" of its power of looking. It sees itself seeing; it touches itself touching; it is visible and sensitive for itself. Objects are before me in the world, but the body is constantly with me, and it is my self-manipulation, through mobility and change of point of view, which can disclose more of the object world to me (2000a: 130).

Archer defines praxis as "a personal technology which transforms the world in conformity with anterior human needs" and in this sense argues that "practical action is not wanton or directionless, it has a point to it given by virtue of the way subjects are and the way in which the world is" (2000a: 131). The emphasis is on the development of praxis through the interaction of action, cognition and emotion within a social context which acknowledges prior learning experiences and the impact of the educational context.

What will be argued here is that the development of praxis, following Archer's thesis, is a holistic ongoing experience for individuals and that truly effective learning involves the whole person especially when taking place in the environment of formal education where the mind and discursive knowledge can appear divorced from the body and practical know-how. Archer explains "the resilience of skills and habits implies a bodily remembering which we can call embodied practical knowledge or know-how" (2000a: 143). She argues that: "Procedural memories, unlike declarative, do not seem to be forgotten in the same way, suggesting that they are both learned and remembered by a very different mechanism from declarative ones" and goes on to suggest that perhaps this is because procedural modes like riding a bicycle "are not confined simply to the brain but involve whole sets of other bodily memories, encoded in muscles and sinews" (2000a: 143). This argument also relates to the issue of privileging cognitive over affective and psychomotor domains of learning. If effective learning is about praxis and

the modification of one's ideas through a process of dialogue and application then the affective and psychomotor domains related to Archer's concept of embodied knowledge, should be accorded parity with the cognitive domain associated with Archer's concept of discursive knowledge (2000a).

This analysis has considerable significance for understanding the purposes of education and implications for teaching strategies adopted in conventional and online learning environments. Where cognition is so easily privileged over action and feeling, the tutor's attention to the design of authentic, realistic learning experiences will be mooted as paramount in countering the very real dangers of disembodiment from discursive knowledge. When the physical distancing of online learning environments and associated emotions are factored into the open systems model in education, the potential for achieving effective learning is even more likely to be compromised when compared to classroom encounters.

If it is accepted that learning is something the student must do, rather than something done to students, the concept of learning as praxis is a more appropriate approach and closely aligned with the idea of learning as transformation through experience, represented by experiential learning models (Kolb 1984, Jarvis et al 2003) and the much earlier work of Dewey (1933). Kolb's experiential learning theory defines learning as transformation through experience, based on the premise that much of what we learn, we learn by doing. The elements of the model represent a four-stage cycle in which *concrete experience* is linked to *observations and reflections*, leading to formation of *abstract concepts and generalisation*, and thence to *hypotheses to be tested in future action*. Thus Kolb's model encompasses thinking as well as the act of doing and suggests learners need to experience all stages of the learning cycle in order to learn effectively. The appeal of this model lies in enabling educators and learners to theorise how people can use their practice experiences to generate concepts, rules, and principles to guide their behaviour in new situations and how they can modify these to improve their effectiveness (Kolb 1991).

However Jarvis criticises Kolb's model as an over-simplification of real life experiential learning, implying experience is purely cognitive and omitting both the physical and the emotional (Jarvis et al 2003: 58). Jarvis' own model (2003: 59) is more complex,

including previous experiences represented in the learner's biography and distinguishing this from "episodic experience", which can, "but need not be created by teachers or facilitators to provide learners with a specific type of experience" (Jarvis et al 2003: 59). The design of appropriate teaching strategies to provide effective "episodic" learning experiences is a challenge for this study but I want to distinguish informal learning through "episodic" experience from what I propose calling "precipitate" tutor-constructed experiences. It will be argued that it is difficult to create realistic and meaningful learning experiences outside the professional practice context when the locus of learning is situated within the HE conventional classroom. When the locus of practice is an online environment, the project can be potentially even more challenging where individuals are physically distanced from human presence.
Kolb's idea of experiential learning is criticised by Miettinen as misappropriating Dewey's concepts of experience and reflective thought since the phases of Kolb's cycle remain separate, not connecting to "each other in any organic or necessary way" (2000: 61). By contrast, Dewey's interpretation of reflective experience is based on distinguishing it from everyday thinking:

> Reflection involves not simply a sequence of ideas, but a *con*-sequence – a consecutive ordering in such a way that each determines the next as its proper outcome, while each outcome in turn leans back on, or refers to, its predecessors. The successive portions of a reflective thought grow out of one another and support one another; they do not come and go in a medley. Each phase is a step from something to something – technically speaking it is a *term* of thought. Each term leaves a deposit that is utilized in the next term. The stream or flow becomes a train or chain (Dewey 1933:4-5).

Dewey's model of reflective thought and action in contrast to Kolb's model is "necessarily interconnected" (Miettinen 2000: 62, 65) and a more systematic and focused process, directed to solving a question or an issue. The phases of reflective thought are linked together in a sustained movement towards a common end (Dewey 1933:5). Dewey's model of reflection provides the levers necessary for effective learning, involving: "(1) a state of doubt, hesitation, perplexity, in which thinking originates", and leads to "(2) an act of searching, hunting, inquiring, to find material that will resolve the doubt, settle and dispose of the perplexity" (1933: 12). What is significant for tutors endeavouring to inspire learning, whether working online or in the classroom, is the centrality of a problem or question as the motivating force, trigger, 'episodic' or precipitate experience, to spark learning through action and reflection.

Dewey associates the state of perplexity with the idea of problem-solving, proposing that:

> ... if we are willing to extend the meaning of the word *problem* to whatever – no matter how slight and commonplace – perplexes and challenges the mind so that it makes belief at all uncertain, there is a genuine problem, or question, involved in this experience of sudden change (Dewey 1933: 12-13).

Here is the foundation and rationale for a problem-based approach to learning and teaching (Boud and Feletti 1998). What is also appealing about Dewey's theory of learning through experience is that it acknowledges a certain degree of emotion, discomfort and challenge necessary as a lever for change in the learner. This interpretation is closely aligned with the concept of *disjuncture* when there is "disharmony" between the agent's "constructed experience of a situation" and their "biography", which can make the individual unsure as to how to act (Jarvis 1999: 66). Dewey suggests solutions can emerge without thinking being reflective if people jump to conclusions, or take the first answer or solution. He insinuates a process that takes time by explaining that reflection involves the act of hunting and inquiring, and that: "One can think reflectively only when one is willing to endure suspense and undergo the trouble of searching" (Dewey 1933:16). Dewey's theory of learning through experience is similar to Archer's concept of praxis in that the emphasis is on activity and purposeful thinking within an environmental context, acknowledging the individual's prior learning experiences as embodied knowledge and the impact of the educational context of discursive knowledge. Significantly, Archer acknowledges the link between reflexivity and the work of pragmatists like Dewey, agreeing "internal conversations" are triggered to overcome problems "by reflexively generating an innovative solution" (2007: 38-39). Though Archer does not make a direct link with learning, nevertheless by acknowledging that "the scope for reflexivity *expanded* when subjects confronted unfamiliar and problematic situations" (2007: 39), I believe this asserts the transformative potential of praxis.

Embodied knowledge is important here. Archer argues that, although the idea of our physical embodiment may not sit well with social constructivism:

> The body is stubbornly resistant to being dissolved into the discursive. It does not just lie back and allow society to trample all over it. Instead, because it has properties and powers of its own, it is active in the environment and the results of its activity challenge the passivity accorded to it in this account which holds that all we are is a gift of society (Archer 2000a: 111).

The body's naturalistic trial and error learning is the starting point for embodied knowledge in the natural order. Archer considers skilled bodily activities like playing tennis and riding, where "the felt practical rightness of our movements is given equivalent importance to our bodily sensed location — 'the experience of the rightness of bodily activity is as central to our sense of "being-in-the-world" as such matters as one's sense of location at a certain point of view in space and time' (2000a: 114). She emphasises the feel of these things which can be difficult "if not completely, impossible to verbalise" and yet it is very real embodied knowledge about what is 'within reach' or 'out of reach', what is and is not possible (2000a: 164). It is "out of the bodily experimentation which constitutes our natural relations, the embodied theoretical attitude is born" (Archer 2000a: 165). So I will argue that praxis is central to learning through experience founded on building from, but also challenging, previously embodied knowledge and enabling learners to develop discursive knowledge through transformative experience. Where mathematicians, sociologists, scientists or philosophers will have concepts and formulae as tools forged in praxis, teaching students may involve sharing these concepts and formulae as tools in learning but this will not guarantee transformation of experience, effective learning, on the part of the learner, just as Biggs argues that:

> A quantitative change in knowledge does not in itself change understanding. Rote learning scientific formulae may be one of the things scientists do, but it is not the way scientists think (Biggs 1989: 10).

If however, students are challenged to solve problems, to manipulate formulae, or apply concepts and models as tools in practice, then more meaningful and effective learning may ensue. The intention of this study is to examine the design of teaching strategies used in each of the online learning case studies to see if approaches adopted act as levers and challenges associated with Dewey's and Archer's models.

If the foregoing analysis has identified what effective learning is and suggested means by which it can be attained, it should now be possible to select an appropriate mix of sound pedagogical ingredients for achieving effective practice outcomes for e-learning. But the other research question: *Why has the anticipated transformation in the student learning experience not necessarily occurred where online practices are in place?* remains to be answered. Factors associated with agency, practice or structure could be responsible for variations in the impact of e-learning innovations. To take this question

forward, this literature review will now focus on critiquing factors associated with the natural, practical and social orders that are relevant to this research question.

Natural order interventions: Is effective learning influenced by individual student characteristics?

Ramsden suggests research paints a depressing picture concerning the effectiveness of student learning in that: "It seems many students often do not change their understanding in the way their lecturers would wish" (1992: 30). Can the gap between tutor expectations and student performance be explained by attributing differences in learning outcomes to individual differences in student abilities, motivation, learning styles and approaches to study associated with Archer's natural order?

The concern to recognise learner differences has generated an extensive literature on learning styles and a proliferation of diagnostic instruments for testing and measurement as testimony to the significance placed on identifying individual differences in many practice fields, notably management and education (Coffield et al 2004, Schmeck 1988, Honey & Mumford 1992, Riding & Rayner 2000). Coffield and colleagues have examined the theory and practice of learning styles, identifying 71 models and selecting 13 for further analysis based on their theoretical importance in the field or widespread use, commercially and academically (2004: 2). Coffield's analysis is highly critical, suggesting the field is "opaque, contradictory and controversial" (2004: 3) with learning styles instruments "presented as unproblematic" and giving "clear, simple, but unfounded messages for practitioners and managers distilled" from what is described as "a highly contested field of research" (2004: 38).

Coffield is more positive about some instruments like the Approaches to Study Inventory (ASI), "influential in training courses and staff development in British universities" (2004: 25). Developed by Ramsden and Entwistle (1981) from Marton and Säljö's work, the ASI and subsequent versions (ASSIST 1997, Richardson 1996) continue to be used with students to help them question their approaches to learning, whether deep, surface or strategic, and by tutors to inform their educational practice. While the concepts of deep and surface approaches have prominence in higher education discourse and practice caution is recommended in working with and interpreting the results generated by the ASI as a diagnostic instrument. Haggis (2003)

points out that the literature critiquing deep and surface concepts and methodological approaches is limited, citing work by Webb (1997) and Malcolm & Zukas (2001). Critical analysis tends to be confined to the methods and instruments employed (Biggs 1993a, Murray-Harvey 1994, Richardson 1996). Haggis argues these concepts are so well established that they have become reified, like truths, not to be contested, and that this may be partly explained by the neatness and "scientific rigour" associated with collecting and analysing data using standardised diagnostic instruments (2003:90-91).

Further, as dualistic learning constructs, deep and surface approaches are likely to be interpreted as fixed personality traits in the learner rather than tendencies to act in specific ways according to the situation. Some constructs like Pask's concepts of *serialist* and *holist* are interpreted as fairly stable characteristics associated with individual learners (1988). Holists tend to adopt an overview, examining interrelationships between different topics, building a conceptual framework and filling in gaps in a fairly haphazard way to create a whole. Serialists, by contrast, tend to concentrate on separate topics, examining one thing at a time to build their knowledge sequentially. However Ramsden argues deep and surface approaches are not characteristics of an individual person but represent how they will approach a particular task or set of tasks (1992: 44). This analysis recognises the significance of the context in which the learning is taking place and that students learn differently in different situations. The same student, adopting a surface approach for one task, can adopt a deep approach to deal with another task or subject. Findings from the Improving Student Learning (ISL) project suggest:

> Students vary in their approach from context to context. Most students take a surface or deep approach depending on the context. A few students always take a surface approach. (Gibbs 1994 Preface).

Writers like Ramsden highlight the dangers of these concepts being misinterpreted by acquiring "a commonsense significance remote from their original meaning" (1992: 44):

> The most common mistakes are to believe that an approach is a characteristic of an individual person, like the colour of a student's hair; to believe that the approach can be inferred from a student's observable behaviour; to concatenate 'low ability' and surface approaches; or to think that surface and deep approaches to learning are in some way complementary or sequential (Ramsden 1992: 44).

Boud's analysis identifies the benefits and pitfalls when he compares the efficacy of the model with its underlying epistemology:

> The *idea of approaches* to learning is very useful in understanding why students react differently to what are ostensibly the same circumstances. It is not a learning style inherent in students which they

manifest in all situations, but a characteristic of the interaction between an individual and a learning task.

Quoting Ramsden he states:

> It is neither something inhering solely in the individual nor in the task...It only has meaning with reference to a situation and certain types of content (p 142) (Ramsden 1987 cited in Boud 1988:34).

While Marton and Säljö's conceptions of learning can be criticised for privileging discourse over practice, nevertheless their work (1976a, 1976b, 1984, Säljö 1979) is useful in attempting to answer the question of why some students achieve effective learning while others do not. However given the conceptual pitfalls identified here and being cognisant of challenges to the reliability of diagnostic instruments as predictors of learning behaviour, it seems inappropriate to utilise the ASI as a diagnostic instrument in this study (Richardson (1996). Nevertheless it will be argued that the concepts of deep and surface learning continue to have explanatory power for what the learner thinks and does and the study will examine ways in which participants' descriptions of what they do in e-learning relate to these underlying concepts and achievement of effective learning.

A further consideration is the potential impact of emotions in online learning. Archer describes emotions "as commentaries made upon our welfare in the world" relating to "our physical well-being in the natural order, our performative achievement in the practical order and our self-worth in the social order" (Archer 2000a: 9). Where these three kinds of emotional commentary may not always be in harmony, the challenge for each of us, according to Archer, is to "strike a balance" between this "trinity of inescapable human concerns" and it is this that gives each of us our personal identity (2000a: 10). Previous findings from Hutchings point to the potential significance of affective impacts in online learning with students feeling exposed and vulnerable due to the visibility of their online contributions and being judged by their peers (2002). The power of emotion in learning is, as mentioned previously, also reflected in Dewey's theory of learning through experience where a degree of challenge through perplexity is necessary for transformative learning to occur (1933) and in Jarvis's concept of disjuncture where there is a mismatch between the episodic experience and the agent's biography (1999).

O'Regan's study of emotion and e-learning points out that, although emotion and cognition have been treated as occupying separate realms at higher levels of education, they play a critical role and need to be addressed in the theory and practice of teaching and learning (2003). Salmon's five-step model developed for CMC, identifies how participants exploit the online system at each stage and how the tutor can avoid common pitfalls in designing effective courses (2000). The model is a useful practice tool for developers of online learning and may help to explain why some innovations work while others do not since it considers the more affective and psychomotor issues within engagement and participation. In this sense Salmon's model reinforces Archer's concept of the human agent experiencing a phenomenon with all their senses. It supports the argument that you cannot separate the agent's experiences of working online from the discursive knowledge of their discipline or from their psycho-motor operations, when logging on or navigating through web pages, or from their feelings and frustrations when things do not work out as they might anticipate.

Practical order interventions: Is effective learning influenced by what the tutor does in teaching?

In order to pursue the research question of what tutors are doing and what students are experiencing when their tutors are using learning technologies, it is necessary to examine the relationship between learning and teaching in more detail with the aim of identifying how different pedagogical strategies can impact on student learning experiences.

Significantly while much of the literature on learning is focused on the individual rather than social practice, Biggs argues that despite an extensive body of research on learning by psychologists, "remarkably little has directly resulted in improved teaching" (2003:11). Biggs suggests this is because researchers have concentrated on developing a grand theory of learning rather than "studying the contexts in which people learned" (2003:11). Entwistle argues that: "Staff in higher education often do not have a good appreciation of how teaching is affecting students" (1997:129), which suggests a gap between research findings and educational practice. This may be partially explained by the more limited and relatively recent research identifying direct relationships between teaching and learning (Biggs 1993b, Ramsden 1992, Trigwell and Prosser 1996, Prosser and Trigwell 1999).

Biggs' 3P systems model of learning and teaching provides a means of understanding the complexity of variables at work in e-learning initiatives by adopting an open systems, process-oriented approach to enable relevant factors associated with teaching interventions to be distinguished (2003: 18). The 3P model identifies three time periods in which learning-related factors are collated: (1) *presage*, before the learning takes place; including *student factors* like prior knowledge, interest, ability, motivation, and the *teaching context* including objectives, assessment, climate/ethos, teaching, institutional procedures; (2) *process* during learning; consisting of *learning focused activities*, which can be deep or surface; and (3) *product*, which is the outcome of learning, including: quantitative aspects of facts, skills; qualitative aspects of structure, transfer; and affective elements like involvement (2003: 18). The model identifies a wide range of variables that can be associated interactively to answer the question of what influences the effectiveness of learning outcomes. What is significant about Biggs' model is that it acknowledges relationships and interactions between the different factors through process and in this way there is a degree of parity with Archer's thesis demonstrating how structure and agency can be distinguished while they interplay:

> Structural and cultural properties only emerge through the activities of people, and they are only causally efficacious through the activities of people. The emergence of a structural property like 'centralisation' (e.g. an educational system), results from a long interaction chain of intended and unintended consequences, and it only exerts its powers of constraint and enablement by shaping the situations in which people find themselves (educationally). However, this property of 'centralisation' is a generative power which can belong to things like educational systems, but not to agents themselves, despite the fact that such an institutional form is continuously dependent upon agential activities to keep going (Archer 2000a: 307).

Biggs argues similarly that the 3P model identifies three sources associated with human agents and structural aspects that might affect the learning outcome, namely student-based factors, teaching based factors, or an "interactive effect from the system as a whole" (2003: 18). Hence I will argue that Biggs' open systems model demonstrates close alignment with Archer's thesis of the interplay between structure and agency, between properties and powers of the subject and properties and powers of the object (2000a: 177), enabling different phenomena to be identified but considered interactively and holistically. This approach supports Peters' argument that while learning is not dependent on formal teaching, nevertheless: "Teaching cannot be understood without some reference to learning" (1973: 6).

Biggs suggests these different ways of determining learning form a theory of how teaching works enabling us to answer the question of what tutors do to influence learning. He identifies three levels suggesting different tutors adopt different approaches according to whether learning is viewed as: (1) a function of individual differences between students with the focus on *what the student is*; (2) a function of teaching with the focus on *what the teacher does*; or (3) the result of students' learning-focused activities, which are engaged in by students as a result both of their own perceptions and inputs, and of the total teaching context with the focus on *what the student does* (Biggs 2003: 20). Level 1, focusing is on *what the student is,* has been considered above with learning styles criticised for failing to account for the different contexts of learning. The tutor operating with this conception can act on student differences either by adapting their curriculum to meet the variety of individual differences identified, or by relying on the explanatory powers of propositional knowledge about learning differences to justify shifting the onus of responsibility for poor learning outcomes away from the tutor to rest with the learner. Both strategies can be criticised. Coffield identifies the dangers of using learning styles instruments as valid and reliable measures for diagnosing individuals' learning needs and designing specific interventions to address them when this may lead to "labelling and the implicit belief that traits cannot be altered", promoting "a narrow view of 'matching' teaching and learning styles that could be limiting rather than liberating" (Coffield et al. 2004: 4). Biggs suggests the alternative, tutor inertia approach, can be appealing to tutors, even if misplaced:

> Blame-the-student is a comfortable theory of teaching. If students don't learn, it's not that there is anything wrong with the teaching, but that they are incapable, unmotivated, foreign, or some other non-academic defect, which it is not the teacher's responsibility to correct (2003:22).

Given the limitations of foregrounding individual learning differences as the primary rationale for developing appropriate teaching strategies for e-learning, Biggs' Level 2 teaching strategy focusing on *what the teacher does* is another option. Where experiential learning approaches have been identified as central to achieving effective e-learning, the key question here is what are the pedagogical ingredients necessary for designing effective precipitate interventions for e-learning? Gibbs suggests varying the teaching methods to put different demands on students so they develop different learning methods associated with each stage of the learning cycle as a way of encouraging development of the less dominant learning styles associated with

individual learners (Gibbs 1999b: 15). While readily acknowledging the potential learning benefits of using a variety of teaching methods, this argument gives precedence to the agents over the context of learning. Coffield describes this approach as developing a "repertoire of styles" but also points out that it can lead to what he terms as "a type of 'pedagogic sheep dip', where teaching strategies aim explicitly to touch upon all styles at some point in a formal programme" (Coffield et al. 2004: 4). The emphasis may still be "teacher-centred", concentrating on what tutors are doing, which Biggs argues is more about the *management* rather than the *facilitation* of learning (Biggs 2003: 23). When tutors are doing e-learning by distributing timetables, lecture notes, and handouts via a VLE, it could be argued they are 'managing' the learning environment, but to view this approach as 'facilitating' learning would be questionable. The art of teaching is more than acquiring a repertoire of teaching skills with Biggs arguing:

> Knowing what to do is important only if you know *when* and *how* you should do it. The focus should be not on the skills itself, but on whether its deployment has the desired effect on student learning. (2003: 24) (my italics).

This leads to Biggs' Level 3 teaching strategy, focusing on *what the student does* and interpreting teaching as supporting the learning process. It is about clarifying objectives and getting students to undertake appropriate learning activities and it is student-centred, encouraging active and purposeful engagement in learning. This approach is associated with Archer's practical order but Biggs' analysis falls short in acknowledging but not clearly addressing the question of the relationship between *acting* and *thinking* for the agents involved in learning and teaching (2003: 24). The link between what the tutor does and what they think is highlighted by Prosser and Trigwell's analysis of conceptions of teaching which they relate to underlying values and experiences that have shaped the tutors' teaching approaches (1999). This theory challenges the practice of teaching as simply a skills-based approach, for example attending a session on oral presentation in order to improve your lecturing technique or attending a web page design course to improve the presentation of your online course materials. This is not to decry the value of these kinds of staff development opportunities but to argue they are not enough to ensure effective learning. Trigwell and Prosser's study of science lecturers found strong relations between conceptions and approaches to teaching (1996). They argue that, like students, tutors have different

conceptions of learning which will influence their approaches to teaching. Some tutors hold a teacher-centred view, focusing on the content, syllabus, and textbooks, and see their role as transmitting information based on their knowledge. Other tutors concentrate on their students, adopting a student-centred focus, in planning activities and see their role as helping them develop and change their conceptions. Thus different tutors are likely to adopt different teaching approaches with consequent impacts on the effectiveness of the student learning experience.

Prosser and Trigwell's theory would suggest that when tutors are designing e-learning initiatives, what they do will be influenced by how they think about learning (1999). This is significant for this study in encouraging the examination of different e-learning scenarios from the perspective of teaching interventions to see how the tutor's practices informed by their underlying values can impact on the student learning experience. Prosser and Trigwell argue that teachers' conceptions have a powerful influence on what and how students learn, with students adopting deep or surface approaches according to the demands of the task (1999). The tutors involved in the e-learning initiatives will be asked to identify what learning means for them and their conceptions will be matched against their students' conceptions within the context of the case studies. Prosser and Trigwell's analysis (1999) is useful as a construct for understanding different conceptions of teaching but does not clearly identify what kinds of teaching strategies will make a difference to the effectiveness of student learning. The analysis appears to privilege conceptions over actions, just as Biggs' approach (2003) privileges actions over conceptions.

Like Biggs (2003) and Prosser and Trigwell (1999), Laurillard's conversational framework (2002) offers a student-centred constructivist approach to learning, requesting and encouraging active participation by agents within a constructed learning environment. The learning process is represented as a conversational framework in which both student and tutor *discuss*, *adapt, interact* and *reflect* on their conceptions and experiences through a series of interactions in which the tutor and student describe and redescribe their conceptions (Laurillard 2002: 86-89). What is significant in Laurillard's model is that it endeavours to bridge the gap between cognitive and practice realms. It is not a one-way transaction between knowledge representation through the tutor and reaction by the student because it encompasses opportunities for feedback to

and from the student and for reflection by both parties on the constructed learning environment. In this way by highlighting the pedagogical ingredients required for effective learning, it provides a useful set of guiding principles for the design and evaluation of e-learning initiatives. Additionally Laurillard's comparative analysis of interactive capabilities of different media types is particularly useful for analysing the potential affordances of different learning technologies in the enhancement of student learning (1993, 2002).

However Laurillard's model can be criticised as it appears to be separated from the realities of the social order and socio-economic constraints by modelling a one-to-one relationship between tutor and student, analogous to the Oxbridge tutorial model. The tutor appears to play a pivotal role in the learning process which does not account for the realities of resource constraints in student numbers, demands on the tutor's finite time or the potential of learning through peer interaction. But in Laurillard's defence, she acknowledges "the one-to-one tutorial is rarely feasible as a method in a system of rapid expansion beyond a carefully selected elite" (2002: 81). She also suggests "the dialogue may never take place explicitly between teacher and student" since "it could be a purely internal dialogue with the student playing both roles" (2002: 88) and provides adaptations of her original model encompassing collaborative activities in the 2002 edition of her work.

By researching practice in what tutors and students do in online environments, the intention is to identify pedagogical strategies that are effective in bringing learning benefits for students. It is hoped to identify synergies and possible mismatches between what agents say and do through a comparative analysis of tutors and students working online in order to capture differences and highlight what is unique and what is shared among the case studies. Comparisons between online and face-to-face learning experiences will form part of the study because they may highlight similarities and differences in approaches from student and tutor perspectives that are significant for the online learning and teaching experiences described. It is hoped that this analysis will identify areas where learning technologies can support deep learning and the conditions for its achievement.

Social order interventions: Is effective learning influenced by situational factors?

Biggs' 3P model identifies a number of factors associated with the proximal social order which may impact on the learning process. Key among these is the issue of assessment and what motivates learning. While motivation is a characteristic attached to individuals with different learners reacting differently, the social order, the learning context, intervenes to influence individual agents. Gibbs' analysis identifies the centrality of assessment in steering learning:

> Assessment is the most powerful lever teachers have to influence the way students respond to courses and behave as learners (Gibbs 1999a: 41).

Gibbs cites Snyder's work on the *hidden curriculum* where students learnt to see behind the formal curriculum and orient themselves to it (Gibbs 1999a: 42) and Miller and Parlett's work (1974) (cited in Boud 1988, Gibbs 1999a) where students were cued into assessment differentially as *cue seekers, cue conscious or cue deaf* to argue that, in both studies, "the assessment system was found to be the dominant influence on the way students learnt: on how much effort they put in and what they allocated this effort to" (1999a: 42).

O'Reilly outlines the benefits of online assessment and feedback strategies to motivate learning when the technology is used for regular assessment to promote learning through "continuous engagement in iterative assessment tasks" and when reduced face-to-face feedback opportunities are replaced by "participation in graded discussion" reducing "the sense of isolation often experienced by off-campus students" and encouraging "an atmosphere of collaboration rather than competition" (2002: 279). Similarly Harasim identifies assessment as a key motivational force to more active participation in online discussions (1995: 185-188).

However while assessment can be used as a lever to foster deep approaches to learning, it can also work against it, and even encourage surface approaches according to the strategies adopted. For example where the workload is considerable and the predominate approach to assessment is summative, students may be forced to adopt a surface approach. Gibbs cites the institutional system rewarding surface approaches by giving "higher marks to students who took a surface approach" (1992: 166) and Boud points out that assessment can have "inhibiting effects" on the development of learner

autonomy (1988: 36). Hence Gibbs encourages peer and self assessment to change the ways students learn (1999a).

The assessment system may not be the only motivation to learning. Beaty distinguishes between intrinsic interest in the course and extrinsic concern with the qualification to be obtained (1997b). Links can be made here between different kinds of emotions mentioned by Archer with "physical well-being" natural order emotions associated with intrinsic motivation and social order "self worth" emotions associated with extrinsic motivation (2000a: 8). Emotions and motivations may be influenced by peer group interactions in the social order. O'Reilly's and Harasim's analyses of the benefits of assessing online contributions may not be borne out in social practice where students can feel competitive pressures as well as collaborative benefits of peer group interaction.

The learning theories and models considered above have tended to focus on the individual, whether student or tutor or the relationship between the two, rather than the social situation. Laurillard's conversational framework has been criticised for excluding the potential of peer group interactions and while Biggs model (2003) encompasses factors associated with the proximal social order, the social interventions of the peer group are not prominent. Biggs three learning and teaching strategies could have been extended to include *What other students do* to enable consideration of peer group collaborative activities. Where, by contrast, the literature on CMC places considerable emphasis on the value of collaborative approaches to learning, associated with the networked learning movement (Mason & Kaye 1989; Kaye 1992b; McConnell 2000, Klemm & Snell 1996, Harasim et al. 1995, Banks et al 2002, Steeples & Jones 2002, Goodyear et al 2005), the question of the effects of the peer group and collaborative group activities in e-learning will form an important aspect of this study.

The foregoing analysis demonstrates the potential influences of individual motivation, socially situated assessment regimes and peer group collaboration as constraints and enablements in the interplay between the natural, practical and social orders. These influences will be considered in the study to see how they impact on the learning experience. Biggs 3P model is particularly beneficial in emphasising the effects of the system as a whole and highlighting the significance of *constructive alignment* of

components to ensure effective learning by specifying how desired learning outcomes need to be referenced to appropriate assessment strategies and to learning activities in a "mutually supportive" system, where: "To work properly, all components need to be aligned with each other" (2003: 26).

Biggs' approach offers a holistic interpretation of the learning and teaching process in line with Archer's thesis, enabling key questions to be asked about constraints and enablements and reminding us that learning does not take place in a vacuum. A key issue here is the question of the degree of autonomy that can be exercised by tutors in different parts of the educational enterprise. Biggs lists five critical components in the teaching context (1) the curriculum, (2) the teaching methods (3) the assessment procedures and methods of reporting results, (4) the climate we create in our interactions with students and (5) the institutional climate, rules and procedures we have to follow (2003: 26). The influence of situational factors is evident here. Tutors may exert control and autonomy over teaching methods used (2) and the climate created (4) for their students. Assessment procedures (3) however, whether using online or conventional methods, may be influenced by drivers outside the individual tutor's control with generic assessment criteria and overall course requirements for balance and sufficiency exerting their influence. The curriculum taught (1) will be influenced by subject benchmarks, quality assurance procedures, and professional body awarding guidelines. The institutional climate will also exert its influence in a variety of formal and informal ways (5).

Other writers emphasise the socio-cultural environments within which learning occurs (Brown, Collins & Duguid 1989, Collins, Brown & Newman 1989, Lave & Wenger 1991, Wenger 1998). Lave and Wenger argue that learning is a function of the activity, context and culture in which it is situated and that "learning is an integral and inseparable aspect of social practice" (1991: 31). Their notion of social practice aligns well with Dewey's theory of learning through experience and Archer's three orders of reality but they take the approach further by introducing the concept of *legitimate peripheral participation* to explain "the process by which newcomers become part of a community of practice" (1991: 29). Although their analysis is focused on work-based learning experiences rather than formal education settings, it has value in encouraging the creation of relevant and authentic learning opportunities associated with real world

experiences. It also enables accommodation of different discipline-based approaches through identification of communities of practice. But there are some inherent dangers in Lave and Wenger's thesis. A learning theory based on the customs and practices of communities of practitioners could lead to conformity to norms and unwillingness to challenge practices. This would not be conducive to developing autonomous lifelong critically reflective practitioners. Where the idea of apprenticeship is associated with a master-apprentice relationship, this could be interpreted in formal education as the master teacher transmitting expert knowledge to student apprentices. Lave and Wenger counter this challenge by emphasising "opportunities for engagement in practice" are key to learning rather than "a set of dictates for proper practice" (1991: 93).

Specific differences in teaching approaches could be associated with different academic disciplines (Ramsden and Entwistle 1981) but while the cases selected represent six different disciplines, there is insufficient data to facilitate intra- as well as inter-disciplinary comparisons. The impact of different institutional strategies is also beyond the scope of this study since all the cases are situated within one HEI. Nevertheless the discipline and institutional context will be identified to recognise drivers and possible constraints impacting on the case studies.

Realising a praxis model of learning that is socially situated

Given the significance of context for learning, the reader may perceive some contextual issues with a theory of praxis learning through experience. Where learning can and does take place outside the confines of formal education and can occur without the direct mediation of a tutor, for example, reading information in books or via the web or perhaps working with an online learning package from the Internet, how does such a theory of learning through experience relate to formal education? Miettinen, while acknowledging its continuing popularity with adult learners, criticises Kolb's concept of experiential learning and his learning style inventory, as representing "the kind of psychological reductionism that Dewey considered a misinterpretation of his anti-dualist conception of experience" (2000:70):

> The belief in an individual's capabilities and his individual experience leads us away from the analysis of cultural and social conditions of learning that are essential to any serious enterprise of fostering change and learning in real life (Miettinen 2000: 71).

Dewey's theory of reflective thought does not exclude formal education but questions how it goes about the process of educating students. His approach to experience and education situates learning in a social order by identifying experience at the heart of a philosophy and theory of education, suggesting the problem lies with the history of educational theory "marked by opposition between the idea that education is development from within and that it is formation from without ..." (Dewey 1938: 1). Dewey contrasts key principles and oppositions between traditional and progressive education, which I have presented as a table based on his analysis to demonstrate the educational challenges (1938:5-6) (See Table 2.2).

Traditional education	Progressive education
Imposition from above	Expression and cultivation of individuality
External discipline	Free activity
Learning from texts and teachers	Learning through experience
Acquisition of isolated skills and techniques by drill	Acquisition of skills as a means of attaining ends which make direct vital appeal
Preparation for more or less remote future	Making the most of the opportunities of present life
Static aims and materials	Acquaintance with a changing world

Table 2.2 Traditional and progressive education: key oppositions adapted from Dewey (1938: 5-6)

The two domains have resonance with the dualistic concepts of deep and surface approaches to learning (Marton and Säljö 1976a, 1976b, 1984) and the teacher-centred/ student-centred focus in teaching (Prosser and Trigwell 1999) discussed earlier, and they firmly situate the challenges of how to educate within the social order. However Dewey does not accept either of these domains as the way forward for education, using the challenges of these 'Either-Or' beliefs to identify the theory of experience as a way of bridging the gap between formal education and real life learning. Dewey argues that we must understand the nature of human experience in order to be able to develop a theory of education and in this respect it is possible to see how his theory aligns with Archer's three orders of reality constituted by and interlinked through practical action (2000a). Dewey identifies two key principles necessary for the validation of experience, the concepts of *continuity* and *interaction*. He states that:

> ... the principle of continuity of experience means that every experience both takes up something from those which have gone before and modifies in some way the quality of those which come after (Dewey 1938: 27).

Like Archer's theory of morphogenesis operating at the macro level of societal changes in which structural elaboration only occurs through the interplay between the "parts" and the "people" and crucially stretched out over time (2005:2) so with learning at the micro-level of the situated individual, transformation only occurs through interaction based on contact and communication. Dewey recognises the significance of the context of experience for learning in identifying that "all human experience is ultimately social: that it involves contact and communication" (1938: 32). He identifies the principle of *interaction* as a way of integrating "objective" with "internal conditions" in any situation. The internal conditions are what happens inside an individual's body and mind while the objective conditions include influences of the external environment including teachers, books, apparatus and equipment (Dewey 1938: 36). Dewey argues not for the primacy of one over the other but through interaction to enable the interplay of the internal and the external and to assure equal rights to both conditions in experience (1938: 38-39).

While Dewey's analysis is related to learning situated in formal education, by identifying learning as transformation through experience, it provides a theory of learning valid in different contexts both formal and informal. Dewey identifies the principles of interaction as giving equal responsibilities to the educator for adapting the environment and to the individual for adapting the self in a partnership when he says:

> The principle of interaction makes it clear that failure of adaptation of material to needs and capacities of individuals may cause an experience to be non-educative quite as much as failure of an individual to adapt himself to the material (1938: 46-47).

The challenge for online learning, compared with face-to-face environments, is that interaction is mediated through the technology giving rise to the question what is being mediated through the affordances made possible by the technology and how does what is mediated impact on these interactions? The development of Laurillard's model, beyond the initial tutor-student interaction into iterations that demonstrate relationships of the student to different media types so that concepts and theories replace the tutor's position within the conversational framework, reinforces the significance of these questions. The online learning environment can mediate access to what Archer describes as "our artificial memory" including "writing and cultural artefacts, from wax tablets to the internet" (2000a: 143). This can include access to information resources,

CAL packages and simulations, as well as human agents like tutors and students. The analysis of these different interactions and their effects on learning will be examined in this study. Where the tutor and the learner in formal education have responsibilities within this model of learning through experience, the tutor to design and provide support for engagement with appropriate materials and activities and the learner to engage actively with those materials and activities, the issue of this contractual relationship, responsibility for and participation in online learning environments and the effects of physical distancing, will form important questions for this study.

Vygotsky's concept of the zone of proximal development, distinguishing between the individual's actual and potential developmental level, is particularly important here in signifying the relevance of the social context by introducing the concept of scaffolding as the means of bridging the "distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (1978: 86). The supports the tutor initiates to help students carry out tasks and the influence of the peer group will provide a focus for understanding what agents are doing in e-learning initiatives to support the achievement of effective learning. It is also significant as a means of linking the teaching process with the learning process in a supportive but egalitarian environment that involves significant others, not necessarily in the formal role of tutor. Collins, Brown and Newman when discussing the concept of cognitive apprenticeship, closely aligned with Lave and Wenger's legitimate peripheral participation, suggest the process of scaffolding "involves a kind of co-operative problem-solving effort by teacher and student in which the express intention is for the student to assume as much of the task on his own as possible, as soon as possible" (1989: 482). However Oliver points out: "In open and flexible learning environments, there is often a diminished role and opportunity for teachers in providing direct teaching and the forms of assistance usually associated with scaffolding" (1999: 250). This shift is associated with the nature of the online medium such that tutors can find themselves, through choice or expediency, shifting from the idea of knowledgeable expert to guiding facilitator. This may have positive and negative outcomes to be examined in the e-learning case studies.

This critical literature review has examined learning and teaching theories associated with conventional and online learning practices in order to inform the research questions by identifying factors which may be significant in answering what effective learning requires and why the anticipated transformation in the student learning experience may or may not occur. Dominant discourses associated with learning theories that steer research in directions focusing on the psychology rather than the social practice of learning are considered less conducive to the goal of seeking what makes for effective e-learning. Malcolm and Zukas's analysis of the conceptual discontinuities in higher education, identify the dominance of "psychological versions (particularly humanistic and cognitive models) of the learner and teacher" and suggest this is associated with the language of objectives, outcomes, and competencies, which they believe, following Usher (1997), "has 'seduced' both policy makers and practitioners in many areas of education" (2001: 35). Psychological discourse and associated diagnostic tools are interpreted as scientific tools for the study of human experience and privileged in providing "explanations and prescriptions that are held to be generalisable and applicable to a variety of situations" (Malcolm & Zukas 2001: 35) over trying to examine learning experiences in a more holistic and interactive way (Dewey 1933, Archer 2000a) that acknowledges the interplay of agential and structural factors in the success of e-learning.

The socially situated nature of practice in higher education is influenced by the demands of an outcomes-led curriculum, based on increasing pressures of accountability and ensuring standards and competence within the constraints of reduced public funding (Dearden et al 2005). Where e-learning is encouraged as a means of achieving effective learning, its success in developing learner capability to operate within a rapidly changing world may be compromised by institutional pressures for measurement and accreditation. Jones argues:

> Despite the equation of computer conferencing with collaborative learning and the shift from 'knowledge-giver' to facilitator, the wider educational context remains one of assessment and accreditation. The tutor is the first line of that institutional system of accreditation of knowledge, determining what counts and how much is enough (2000: 132).

What this critical review of the literature highlights, following the arguments of Dewey and Archer, is that there is an alternative way of examining and understanding learning

and teaching through the analysis of practice experiences rather than privileging agents or structure over the realities of practice. What is particularly significant here is the synergy between two very different theoretical fields of study, Dewey's classical pragmatist approach to education and Archer's more contemporary approach to social theory founded in critical realism and their meshing together to create a valuable framework for analysis of the complexities of e-learning. This is not to deny the significance of agents or social order but to argue that a more fruitful perspective can be attained by describing and comparing practice experiences to highlight the interplay of significant factors in the natural, practical and social orders that may influence morphostasis and morphogenesis in e-learning. It is acknowledged that the agents' experiences of e-learning will be firmly situated within a social order which will influence their thinking and their practice and that to throw light on the question of what works or not and why, the focus of this study will be on what students and tutors are doing online. The challenge will be to identify stasis and change in relationships between agents where interaction is mediated through online technologies and to examine emerging factors that influence the outcomes of these online experiences. The research strategy is to listen to the voices of agents describing e-learning experiences and to be mindful of the researcher's interests by ensuring these are not being privileged over the voices of those being researched.

Chapter 3 will identify the key methodological principles which inform the process of research. Säljö's plea for "a kind of research which attempts to reveal what learning in real life is like and which furthermore in a more sensitive way tries to reveal the consequences of differences in strategy or approach for the outcome of learning" (1981:47) will inform this discussion.

Chapter 3 Methodological Approach

This chapter will identify key methodological principles informing the research process and consider the credibility of chosen approaches in furthering understanding of the practice and outcomes of different online learning initiatives. The aim is to examine and justify a methodological approach that can capture real world online learning and teaching practices encountered and relate these to the complexities of the educational contexts in which they are situated while positioning the study within the conceptual and theoretical discourses shared in Chapter 2.

The goal of this study is to gain insights into online learning and teaching strategies, which can enhance learning and to develop benchmarks for effective practice. However making credible comparisons across different initiatives when so many factors can impinge upon what works or does not work is a key concern in the choice of a robust and transparent research methodology. The Tavistock Review suggests: "Pedagogic effectiveness is highly dependent on context and the measurement of this effectiveness is itself context-dependent" (2002: 11). The starting point for this research study is to examine the practice experiences of students and tutors in real life situations using a variety of learning technologies with the intention of gaining insights into what practices and factors influence and contribute to effective learning (Gibbs 1992, Biggs 2003). The nature of that being researched, a variety of learning and teaching activities focused around e-learning initiatives, as part of blended learning curricula, associated with a variety of courses, is situated within diverse micro-social environments where variables like students' prior learning experiences, integration with face-to-face learning encounters, and impacts of working at a distance, can intervene and influence learning outcomes. The aim is to select an appropriate research methodology that can ensure richness and contextualisation of data while enabling the researcher to draw out key themes from the multiple perspectives of participants. A case study approach is proposed as an effective means of capturing the experiences of agents working with a variety of learning technologies and enabling their experiences to be situated within a natural setting, which acknowledges the context and complexity of those experiences (Punch 1998). Some experiences may be highly specific to particular contexts and it is the intention of this research to illuminate differences as well as common features across the various case studies. It will be important to describe the different online

learning scenarios through the voices of tutors and students working in them so that the researcher can identify different perceptions and experiences. These could provide keys to understanding different ways of working within online learning environments and lead to insights from the unanticipated and surprising, whether generated by uniqueness or commonality (Stake 1995).

The challenge for case study research is to steer a credible research methodology between levels of specificity associated with small scale case studies and generalisability associated with theoretical and longitudinal studies. Reviews of research into post-compulsory education in the UK (Tavistock 2002) and distance learning in the USA (Institute for Higher Education Policy (IHEP) 1999) are highly critical of research approaches adopted. The Tavistock Review argues:

> ...practices are either grounded in the day to day minutae of 'chalkface' learning delivery or, conversely, are tied to a particular 'grand learning theory' and unsubstantiated in practice (2002: 3).

This reflects criticisms of the validity and reliability of findings, either founded on the "plethora of literature based on conclusions from very small, contextualised case studies" (Mason 2002: 29), or the use of grand theory summarised in key concepts like social constructivism (Jonassen & Land 2000, Reeves & Reeves 1997) previously discussed in Chapter 2. Despite its popularity constructivism is questionable when applied as a blanket learning theory to justify the value of e-learning initiatives without analysing how different practices may, or may not, be working effectively in different settings. The Tavistock Review suggests:

> ...debates are normative and value-laden: arguing for the primacy of one approach over another rather than the appropriateness of different practices to different settings and purposes (2002: 11).

This study does not seek to deny the value of particular learning theories in understanding and assessing the effectiveness of online learning initiatives, as outlined in the previous chapter, but to argue that an alternative situated model of learning could prove more illuminating in examining what pedagogic approaches work for different agents experiencing e-learning in different micro-social contexts, an approach recommended by Guile and Hayton's work on learning technologies in further education (1999).

The issue of context will be addressed by using a multiple case study approach intended to capture the subtleties and nuances of each learning technology initiative while the issues of scale and generalisability will be addressed by means of a cross-case comparative analysis. This approach has the potential to make a useful contribution to practice by, not only identifying the particular within the various case studies, but also finding similarities through the emergence of themes, enabling cross-case findings to be generalised to theoretical propositions rather than populations (Yin 2003: 10).

However the choice of a case study approach focuses through a particular lens at a situated point in time, raising the question of the validity of findings for informing subsequent practice. Mason's call for "large-scale longitudinal studies to redress the balance" (2002: 29) away from "small, contextualised case studies" appeals as a means of capturing and analysing change through time as a result of using learning technologies. However such an approach would prove costly, involving a number of data collection points at different stages of the initiatives and would not be feasible in the timescale available for the study (Cohen et al 2000: 176). A further issue detracting from attempting longitudinal studies is the unlikelihood of the technology remaining in stasis over the period of study. Mason acknowledges this epistemological problem for researchers and practitioners, describing the technology as a "moving target" with developments bringing "confusion" over language to describe the phenomena (2002: 27). The proliferation of terms and significance of meanings was discussed in Chapter 2. The issues of dealing with context, complexity and change in real world research while also meeting the requirements for validity and generalisability will be addressed in this chapter.

Establishing a credible research methodology

Having argued for a critical realist stance as a means of reconciling the real and objective nature of the world with accounts of experience in Chapter 2, the justification of this stance as a credible research methodology needs to be pursued further here together with considerations of how it is linked to and consistent with the research methods chosen. Some consideration of the discourses associated with ontology, epistemology and methodology will be helpful here as a foundation for this debate.

The research process is influenced by the ontological and epistemological position of the researcher as well as the nature of that being researched, Guba and Lincoln suggest that basic beliefs defining inquiry paradigms can be summarised by responses to three fundamental questions:

- *The ontological question*: What is the form and nature of reality and, therefore, what is there that can be known about it?
- *The epistemological question*: What is the nature of the relationship between the knower or would-be knower and what can be known?
- *The methodological question*: How can the inquirer (would-be knower) go about finding out whatever he or she believes can be known? (1998: 201).

Guba and Lincoln argue that these questions are interconnected such that answers given to anyone of the questions constrain how the others are answered. These questions will be analysed in turn to demonstrate how they have influenced the choice of research methodology and methods appropriate to the research questions in this study.

Ontological considerations: reality and its perception

The literature is replete with concepts describing different approaches to research and these tend to be categorised into binary oppositions, each dependent on the other to distinguish its meaning (Cohen et al 2000, Denzin & Lincoln 1998, Hammersley & Atkinson 1995, House 1980, Parlett & Hamilton 1972, Robson 1993, Simons 1987). For example, Cohen identifies the "subjective-objective dimension" (2000: 7) and Robson summarises the main concepts associated with these two traditions, the "scientific" with alternative terms like "positivistic, natural-science based, hypothetico-deductive and quantitative" and the "interpretive", also termed "ethnographic or qualitative" (1993: 18-19). Parlett and Hamilton's distinction between the "agricultural-botany" paradigm and the "social anthropology" paradigm describes the two approaches more eloquently identifying their discipline domains and associated research methods (1972). While the debate between these competing paradigms is frequently couched in terms of comparing qualitative with quantitative approaches, Guba and Lincoln suggest reserving "qualitative" and "quantitative" for distinguishing different types of data analysis rather than as generic descriptors for different research paradigms, arguing "questions of method are secondary to questions of paradigm" (Guba & Lincoln 1998: 195).

Guba and Lincoln position positivism as "the received view that has dominated the formal discourse in the physical and social sciences for some 400 years" (Guba & Lincoln 1998: 202).The positivist paradigm is based on an ontological belief in realism. It assumes that "there is a reality out there to be studied, captured, and understood" (Denzin & Lincoln 1998: 9) and hence matches the "scientific" dimension described above (Robson 1993: 18). Constructivism, by contrast, starts from the premise that reality is "socially constructed" (Denzin & Lincoln 1998: 8) and distinguished by the underlying belief in relativism (Guba & Lincoln 1998: 202-209), matching Robson's "interpretive" dimension (1993: 19). While Guba and Lincoln offer interpretations of positivism and constructivism, they also identify alternative paradigms of post-positivism and critical theory which are more helpful in identifying methodological stances which are not constrained by binary oppositions and fill the middle ground (Guba & Lincoln 1998: 202-209). Postpositivism can be viewed as having the same set of basic beliefs as positivism, but includes qualitative methods to overcome problems like context stripping and inclusion of meaning and purpose in human behaviour (Guba & Lincoln 1998: 197).

Critical theory, by contrast, is used as a generic term denoting several alternative paradigms including neo-Marxism, feminism, and participatory inquiry (Guba & Lincoln 1998: 202) but central to the critical theory paradigm is the assumption of "the value-determined nature of inquiry" (Guba & Lincoln 1998: 203) with the aim of critique and social change. It is here that theories are applied to understanding the relationships between human agents and social forces. Critical theory tends to examine how research and knowledge can privilege structure as dominant discourses over agents' experiences. Lash and Wynne's discussion of farmers' complaints about the adverse effects of herbicides, which were dismissed by government on the basis of scientific literature and evidence from tests carried out under controlled conditions in laboratories is an important example of the dangers of conducting research divorced from its real world situated practice and demonstrates how the opinions of experts based on scientific method can be favoured and have influence over the realities of practitioners' experiences on the ground (Beck 1992). Hammersley and Atkinson point out that the production of knowledge by researchers can have consequences and that "findings can shape the climate in which political and practical decisions are made" (195: 17), reinforcing the significance of adopting a critical realist approach in this study.

As e-learning initiatives do not take place in a vacuum but are influenced by structural factors including government and institutional policies and the technologies themselves, a critical theory approach offers a means of situating the enquiry within its environmental context and acknowledging the political, socio-cultural and economic influences impacting on the researched and the researcher. However the critical theory approach adopted here goes further than acknowledging the influence of structural factors on human agency. Following Archer's critical realist perspective, human agents can also influence structure through their actions and in turn be influenced by the social order (2000a). Language is a good example. Guba and Lincoln suggest: "Human behaviour, unlike that of physical objects, cannot be understood without reference to the meanings and purposes attached by human actors to their activities" (1998: 197-198), an argument supported by Giddens' statement:

> Society and language do not exist as object and description of object; language is the medium both of the expression and the accomplishment of normative commitments and transactions (Cited in Cassell 1993: 319).

Wenger presents examples of different meanings attached to the concept of learning, including "images of classrooms, training sessions, teachers, textbooks, home-work, and exercises" but argues these are associated with organised rather than everyday learning, even though "learning is an integral part of our everyday lives" (1998: 8). Thus Wenger stresses the importance of an "adequate vocabulary" because "the concepts we use to make sense of the world direct both our perception and our actions" (1998: 8). If we apply the same approach to the concept of e-learning, the perspective is one of complexity as the technologies and online spaces available can provide very different affordances (Gibson 1977). Different meanings will be attached to different tools by human agents and their potential for enabling different kinds of activities. But by putting too much emphasis on the importance of meaning-making by agents, the danger is that it can be privileged over opportunities and constraints at work in the practice of online learning. Such a stance is associated with Giddens' emphasis on the logical link between action and power, described as the 'transformative capacity of human action' (Cassell 1993: 109). While Archer's "Structural conditioning > Social interaction > Structural elaboration" model (1982: 468, 1995: 157, 2000a; 277) is very close to Giddens' stance, she criticises Giddens' work as privileging agents over social structures by failing to acknowledge that structures can be constraining. Archer's

critical realist stance presents the example of Castro's policy on illiteracy in Cuba, for each literate person to teach an illiterate to read (1982). The structural facet of such an initiative was the numbers of literate people in Cuban society. If 50% of the population were literate the policy could be implemented relatively quickly but if only 1% of the population were literate the planned change would take much longer (Archer 1982). The anticipated benefits of learning technologies in education (Dearing 1997) could be structurally constrained by access to computers and networked technology.

The critical realist approach adopted in this study is informed by Archer's work (1982, 1995, 2000a, 2000b, 2005, 2007). In contrast with Giddens, Archer's perspective, gives equal weight to the role of agency and structure within socially situated interactions (2000a: 2) through the three orders of reality outlined in Chapters 1 and 2. I will argue that this model can be employed as a means of co-locating and dynamically linking the agents, the practices and the context within my analysis and identifying drivers and constraints to actions and outcomes without privileging any of the factors at work. This stance is reinforced by Archer's argument that:

> Intercommunication is continuous between the knowledge generated in the three different orders because of the manifest advantages which each form of creativity offers to the others. Simultaneously, we are not talking about a simple process of appropriation but about an elaborative synthesis where value is added at each juncture. Such interchanges are realised not only due to the fact that all three forms of knowledge have a cognitive content, but also by virtue of all three being obedient to the logical canon, which is itself emergent from practice in the world (2000a: 177-178).

It is in this sense that Archer's thesis enables realistic critiques of practice unfettered by grand theories associated with agents or structures. Where Archer's analysis argues that the practical order is pivotal in understanding what works, for whom and under what conditions, I believe she is not giving precedence to practice but highlighting the reality of what is before us as the 'praxis' and starting point for research, understanding and possible change. Her approach encourages us not to read anything into the study situation but rather letting experiences reveal themselves in the knowledge that agents and structures will meet and coalesce within the reality of everyday practices. It is this perspective that I wish to adopt. My own metaphysical position starts from a belief in reality in terms of the persons, objects and structures out there that can influence experiences, perceptions and interpretations of e-learning. This position acknowledges the reality of structural constraints like access to computers and networked technology,

time available for study and the influence of tutors and peer group, but it also accepts the human construction of meaning in making sense of practical experiences. I will argue for a research methodology that describes the realities of learning and teaching practice and contextual opportunities and constraints through foregrounding the experiences of agents, students and staff, to enable similarities and differences to be identified and concepts and models appropriate to online learning environments to be developed from this analysis.

Epistemological considerations

Lacey defines epistemology as "enquiry into the nature and ground of experience, belief and knowledge, summed up in the questions "What can we know, and how do we know it?" (1986: 63). The research approach from a positivist perspective is based on an objectivist epistemology, presupposing the researcher and the "object", that being researched, as "independent entities", with the researcher "capable of studying the object without influencing it" (Guba & Lincoln1998: 204). This contrasts with constructivism, based on a subjectivist epistemology in which "the investigator and the object of investigation are assumed to be interactively linked so that "findings" are *literally created* as the investigation proceeds" (Guba & Lincoln 1998: 207). The critical realist approach adopted here sees reality as "real" but accepts that it "can never be fully apprehended" (Denzin & Lincoln 1998: 9) since there will be aspects of a phenomenon that are not revealed by the research strategy and methods adopted. This raises questions concerning the validity of methods used in this study for subsequent discussion in this chapter.

It also raises questions about the relative values placed on established bodies of knowledge, the practice environment, and the positions of the researched and the researcher. Research strategies need to be underpinned by the accumulated body of knowledge, in this case theories and models of learning and teaching and online learning, outlined in Chapter 2 and based on Guba and Lincoln's argument that: "Dualism is largely abandoned as not possible to maintain, but objectivity remains a regulatory ideal" with special emphasis placed on "external "guardians" of objectivity, critical traditions (do the findings "fit" with pre-existing knowledge?) and critical communities (editors, referees, and professional peers) (Guba & Lincoln 1998: 205).

The critical realist approach acknowledges areas of shared understanding and provides opportunities for clarification through critical discourse and reflexivity as outlined in the previous chapter. It also recognises the institutional and socio-political context in which learning technologies are being promoted as one of supercomplexity (Barnett 2000) and rapid change with the potential of leading to Giddens concept of the "reflexivity of modernity" (1991b). Giddens maintains that individuals and organisations operating in the post-traditional order can no longer rely on pre-established precepts and practices but are subject to "chronic revision in the light of new information or knowledge" and argues "such information or knowledge is not incidental to modern institutions, but constitutive of them" (Giddens 1991b). Comparing Giddens' view with Kuhn's work on the structure of scientific revolutions (1970), consensus, following Kuhn, means agreement with the tenets of the discipline and its associated paradigms and modes of research, which though associated with agents as communities rather than individuals, is similar to the pre-established precepts and practices Giddens refers to. Conversely disciplines that are less mature are described by Kuhn as 'preparadigmatic' and characterised by controversies and disputes, while for Giddens it would appear the distinction between agent and structure has been dissolved by the pace of change into the "reflexivity of modernity". My own position in adopting a critical realist stance is that as human agents we accumulate knowledge through consensus and contingent agreement based on the knowledge available being the best we can attain at that time. For a phenomenon to be contingent, it must be open to legitimate dispute and presented as objectively as possible by adhering to values of rigour and transparency in the research process to enable it to be susceptible to critical review by communities of practice, hence the requirement for a systematic, rigorous and explicit approach to the research methodology.

But my position also acknowledges the dangers of privileging paradigms, established knowledge claims, or particular agent's positions, which is why Archer's thesis is central to this study. While subscribing to the idea of consensus and contingent agreement as a means of confirming the development of knowledge, the complexity of the world in which we function as agents, and the social impacts of rapid change highlighted by Giddens, are also reflected in the diversity of potential communities of practice in which particular knowledge claims may be ratified and sustained. Miettinen's critique of Kolb's experiential learning model, discussed in the previous

chapter, is a good example of how established theories and models can be challenged epistemologically while remaining influential and fully embedded in practice (Coffield et al 2004: 31). While the knowledge base is contested, the utility of the model holds fast.

The use of constructs as abstractions to assist understanding of human behaviour is not a technique reserved for specific academic and research communities but something we can do as normal human beings throughout our lives by exercising reflexivity to help us make sense of our world (Archer 2007). Wenger's analysis of communities of practice provides links between discourse and practice, drawing out key ideas around meaning, and enabling understanding of the relationship between personal constructs, communities of practice and historical and social contexts in which we operate (1998: 52-57). He argues: "Practice is about meaning as an experience of every day life" and that "...living is a constant process of negotiation of meaning" (Wenger 1998: 52-53). In this way "participation goes beyond engagement in specific activities with specific people" becoming "a constituent of our identities and as such, "is not something we turn on and off" (Wenger 1998: 57).

> The concept of practice connotes doing, but not just doing in and of itself. It is doing in a historical and social context that gives structure and meaning to what we do. In this sense, practice is always social practice (Wenger 1998: 47).

This argument aligns with Polanyi's concept of 'tacit knowledge' (1967) based on everyday experience and used to inform much of practice in contrast to the logic of 'technical rationality' critiqued by Schön (1983). Wenger's analysis has significant implications for the conduct of this research. It will be important to describe the experiences of students and tutors in their own words in order to capture their everyday experiences and avoid privileging theoretical over practice discourses. It is possible to see a connection between Wenger's approach and Archer's interpretation of embodied and practical knowledge where she asserts the wholeness of human beings operating with their senses, emotions and cognitions intertwined and interacting with objects in the world (2000a: 128). Further where Kuhn's theory challenges the idea of research as necessarily guided by scientific method, he identifies "exemplary problem solutions" as guiding scientific research and suggests their cognitive potential is exploited by "implicit analogies" such that: "New problems are identified in the light of solved ones, and new solutions are judged as legitimate in a like manner" (Hoyningen-Huene 2001:

8173). This description of the research process, as applicable to philosophers as to engineers, closely resembles my earlier analysis in Chapter 2 of Dewey's notion of learning as transformation through reflective experience, triggered by problem-solving (Dewey 1933).

This juxtaposition of agents practising within their social context and creating meanings through discourse and reflexivity is the basis of this research but the relationship with social structures will also inform the study because the realities of grounded learning technology experiences may look and feel very different to the espoused policy of governments and academic institutions. The rapid pace of technology developments and related difficulties of building expert knowledge founded on techno-rational approaches to research, applied to a moving target of changing practices, is identified by Giddens when pointing out the difficulties of researching practices using scientific methods:

> ...the reflexivity of modernity actually undermines the certainty of knowledge, even in the core domains of natural science. Science depends, not on the inductive accumulation of proofs, but on the methodological principle of doubt. No matter how cherished, and apparently well established, a given scientific tenet might be, it is open to revision – or might be discarded altogether – in the light of new ideas or findings (Giddens 1991b).

Academic institutions endeavouring to survive and prosper in a competitive environment look to flexible learning and learning technologies as a means of addressing change and development. But major educational policy initiatives recommending adoption of learning technologies in higher (Dearing 1997) and further education (Higginson 1996), may be influenced by the rhetoric of what Ramsden called "naïve technological determinism" (1992: 159). Guile and Hayton describe "the power and potential of information and learning technology to transform teaching and learning" as an educational orthodoxy shared by politicians and educationalists, who believe it will lead to a "socially liberating and educationally rejuvenating experience" and suggest such an image can be sorely misplaced where the introduction of learning technologies is seen "purely as a technical question" of ensuring reliable networks, widely available PCs and IT skills development for teachers (1999: 113).

While values play a significant part in any research undertaking, Guba and Lincoln suggest they can be "crystallized" or "reified" into a series of structures such that they

come to represent a "virtual or historical reality" (Guba & Lincoln 1998: 205). A particularly good example of the dangers of reification is described in Guile and Hayton's analysis of "flexible learning". While the term can describe the development of a "flexible curriculum" for "flexible delivery of knowledge and skills", it is more often used for "delivery of learning programmes", open and distance, in which the development of packages is "based on a behaviourist approach to learning and advocates use of instructional objectives in the design of materials" (Guile & Hayton 1999: 119). The concepts of "flexible learning" and "learner-centred" approaches have been reified in these specific practices, failing to do justice to their more generic intentions. Guile and Hayton suggest this has led to the "context of learning" being "totally marginalised" so that "little account is taken of how social and cultural factors influence interaction between students and between teachers and students" (1999: 120).

Personal and structural values will exert their influence on the research undertaking. It does not seem possible to be completely objective in analysing human behaviour with regard to learning and teaching activities, to see them as something detachable from the different contexts in which they occur. The meanings and purposes of individual agents are enmeshed in the contexts in which they function and influenced by their experiences of learning, teaching and learning technologies. The researcher is as much an agent influenced by practice, values and context as the research participants in this practice environment, reflected in Hammersley and Atkinson's view of reflexivity which acknowledges "social researchers are part of the social world they study" (1995: 16). It is vitally important to demonstrate rigour and transparency in the research approach adopted to enable the credibility of the process and outcomes to be judged by the reader.

The challenge for this research is to maintain "fidelity to the phenomena under study" (Hammersley & Atkinson 1995: 7) while acknowledging the effects of personal characteristics, social processes and the biography of the researcher (Denzin & Lincoln 1998: 23). It is my contention that Archer's critical realist social theory perspective enables this to be achieved through the methodological process of "analytical dualism" in which agents can be distinguished from structures for the purposes of study. Archer argues her approach "is analytical because it sees great utility in differentiating the two in order to examine their interplay" (2000b: 465). However Archer's work has been criticised for conflating ontology with epistemology (King 1999; Kivinen & Piiroinen

2006). King argues that "the notion of an objective social structure" is unsustainable but rather that "persistence of social institutions" and "manifest constraints which individuals face in their everyday interaction" can be explained by the interpretive tradition (1999: 200). However Archer contends:

> Realists regard structural properties as emergent from and activity-dependent upon agency, whilst structural powers only exercise causal efficacy by working through agency (2005: 24).

Further she argues a cultural system:

> ....has an objective existence and autonomous relations amongst its components (doctrines, theories, beliefs and individual propositions). These are independent of anyone's claim to know, to believe, to assert or to assent to them, because this is knowledge independent of a knowing subject – like any unread book (Archer 2005:25).

Analytical dualism enables phenomena to be considered without pre-judging the influences of agents or structures on the practices under study. It also gives power to the significance of utilising the research literature on learning and e-learning as discursive knowledge to be analysed from a critical perspective which acknowledges the context, practice, and values of the agents and the influence of structural factors and constraints. Archer disagrees with King's contention of philosophical dualism pointing out that:

> There is no philosophical dualism because (a) structures are only held to emerge from the activities of people, and because (b) structures only exert any effect when mediated through the activities of people. Structures are ever relational emergents and never reified entities existing without social interaction: the converse would be tenets of dualism (2000b: 465).

Rather she contends that "to realists *all* emergent properties are *relational*" (Archer 2000b: 465). Her morphogenetic model is continuous so "there is never a moment at which *both* structure and agency are not jointly in play" for the "analytical element consists only in breaking up the flows into intervals determined by the problem in hand" (1995: 76, 2000b: 465).

Methodological considerations

The practical implications of this critical realist stance are to identify a systematic, rigorous and explicit approach to the collection and analysis of data which is consistent with the methodological claims being made here. These methodological claims have been identified above and can be summarised here as: identifying social phenomena as real and objective even if not directly observable; seeking commonalities; working with the influence of situated contexts; enabling thick description of practices through the

voices of student and tutor experiences; finding the specific and particular; assuring interpretations by the researcher are not privileged over interpretations by the researched.

Given these methodological aims what methods of data generation are appropriate to meet these requirements? A number of methods of data collection were considered for this study and Table 3.1 maps the methodological requirements of a critical realist approach against possible research methods. While case study and interview potentially offer the closest fit for supporting the methodological requirements of a critical realist stance, it is worth examining why other methods were not pursued.

Methodological requirement	Case study	Interview	Observation	Survey questionnaire	Document analysis	Experiment
Identifying social phenomena as real and objective	Yes	Yes	Yes	Yes	Yes	Yes
Seeking commonalities	Yes	Yes	Yes	Yes	Yes	Yes
Working with influence of situated contexts	Yes	Yes	Yes	Possible if appropriate questions asked	Yes	No
Enabling thick description of practices	Yes	Yes	No	Possible with free text questions	Possible	No
Finding the specific and particular	Yes	Yes	Yes	No	Yes	No
Assuring interpretations of researcher not privileged over researched.	Yes	Yes	No	No	Possible	No

Table 3.1 Methodological requirements for a critical realist approach mapped against possible research methods

The choice of appropriate research methods is influenced by a number of conditions including the type of research question posed, the extent of control the researcher has (or wants to have) over actual behavioural events, and the feasibility of achieving the depth of data required through "thick description" (Geertz 1973) within the available time and human resource constraints for achieving systematic and rigorous analysis.

Yin's statement that critics of case study argue that they are only appropriate for exploratory phases of investigation, with surveys useful for the descriptive phase and experiments for doing explanatory or causal analysis (Yin 2003), suggests case studies are necessarily confined to small scale particularised and specific situations at the expense of scientific rigour and possibilities of genaralisation (Jarvis 1999).

While consideration of different research paradigms is helpful to the researcher in considering an appropriate methodological approach, the quest for research credibility can be constraining if methods are selected to suit norms of critical communities rather than choosing approaches that remain true to the research questions being pursued. For example, the US IHEP report on the effectiveness of distance learning favours an "objective observer" approach (1999: 19), identifying shortcomings in research conducted in not controlling for extraneous variables to show cause and effect, not using randomly selected subjects, using instruments to measure outcomes and attitudes whose validity and reliability is questioned, and not controlling adequately for feelings and attitudes of students and faculty (1999: 3-4). These critical criteria act as a checklist for adhering to "commonly accepted principles of good research" principally associated with a positivist/empiricist paradigm and criticise research that does not fit this mould, suggesting "the overall quality of the original research is questionable and thereby renders many of the findings inconclusive" (1999: 3). Such a strong argument challenged the researcher to consider why a more experimental approach would not be a better means of conducting research on the effects of e-learning to validate it in the eyes of the research community. There are some notable research studies identifying how online initiatives made a difference to student learning in controlled environments under quasi-experimental conditions (Harasim 1999, Hiltz 1994, Marttunen 1997). Marttunen's study describes an electronic study experiment which identified better argumentation skills among e-mail students compared with a control group engaged in self-study (1997: 208). Hiltz describes "quasi-experimental" field trials in which the Virtual Classroom was shown to increase access to and effectiveness of college-level education when compared to face-to-face meetings in the traditional classroom (Hiltz 1994: 242).

While appearing to offer a more rigorous 'scientific' approach to research, a quasi-experimental approach was rejected for this study because, in seeking to control actual behavioural events in a controlled environment, it conflicts with the nature of the

research questions being asked by excluding the influence of situated contexts which are potentially highly pertinent to the research question *Why has the anticipated transformation in the student learning experience not necessarily occurred where online learning practices are in place?* This study will challenge the experimental method on a number of grounds, the most fundamental being the desire for validity and authenticity in real world research. It will be argued that the nature of that being researched lends itself more readily to a contextual lens validated by being situated in authentic practice rather than a quasi-experimental manipulation of reality.

The case study was selected as the best fit for purpose method for collecting and presenting data because it fulfils the key methodological requirements for a critical realist approach (see Table 3.1) by allowing the research to focus on a particular phenomenon and to examine it from a number of different angles, summarized by Yin:

> ...the distinctive need for case studies arises out of the desire to understand complex social phenomena. In brief, the case study method allows investigators to retain the holistic and meaningful characteristics of real-life events – such as individual life cycles, organizational and managerial processes, neighbourhood change, international relations and the maturation of industries (2003: 2).

It is important to recognise that the case study approach is more than a particular research method, being a research strategy that comprises the logic of design, various data collection techniques and specific approaches to data analysis (Yin 2003: 14). The case study design is defined by the phenomenon under investigation and within this study these are a series of e-learning initiatives. The boundedness of each case study is defined by the specification of the phenomenon but it is recognised that the boundaries between the phenomenon and the context are not clearly evident (Yin 2003: 13-14). This means the case study strategy can acknowledge and work with a complexity of factors by relying on multiple sources of evidence and possibilities of triangulation in order to capture the unanticipated and surprising through examining differences and commonalities (Stake 1995) by including a variety of data collection techniques including observation, interview, document analysis, and survey questionnaires identified in Table 3.1. Hence the case study approach should not be confused with taking an interpretive research stance since as Yin argues:

> ...case studies can be based on any mix of quantitative and qualitative evidence. In addition, case studies need not always include direct, detailed observations as a source of evidence (2003: 15).

My purpose in employing a number of sources of evidence is to assist the process of highlighting potential synergies and mismatches between tutors' and students' stories in each of the cases for further analysis at the meta-level of cross-case comparison in order to identify areas of congruence and disjuncture in the claims for e-learning. Interviews and questionnaires have been favoured over observation as the major means of data gathering for this study for reasons associated with partiality, privileging, and feasibility. Partiality is not a criticism that can be confined to observation alone since whatever methods are chosen they can only capture a particular facet of a phenomenon at a fixed point in time, a snapshot of things as they appear, and influenced by what has gone before. Observations of online practices could assist in finding out what students and tutors are doing and how they are doing it and this would present one facet of the phenomenon helping to explore and describe what they did and how they did it. However the main criticism of observation as a method is that it combines partiality with privileging of the researcher's interpretations of praxis over the researched. It explains why learning may or may not be happening through the senses of the researcher rather than the voices of the agents situated in practice and hence is less amenable to meeting the methodological requirement of thick description associated with agents' own descriptions and interpretations of the online experiences captured by means of interviews and free text questionnaires. The example of participants in an online discussion not realising their 'silent' colleagues were feeling intimidated by the depth of discussion in an online debate is relevant here for identifying the significance of enabling thick description through individual and group interviews.

Further the question of the feasibility of observing and capturing online practice spanning six e-learning initiatives with cohorts amounting to 179 students from a variety of academic disciplines is a significant constraint with both ethical and logistical implications. Permissions would have to be sought for gaining access to student postings in online discussions and interpretations of observations by the researcher would have required verification through talking with students and tutors. Additionally some of the learning technologies in use, like CAL packages used in CS4 and online case studies used in CS2, would have required direct observation. An appropriate balance needs to be struck between attaining multiple perspectives by means of the range and diversity of student experiences facilitated through a mix of questionnaires and group interviews as against working with smaller sample sizes necessary to manage

online observations or quasi-experiments. Hence the decision was made to pursue group interviews with students, supported by a short questionnaire, and individual interviews with tutors as the main means of data gathering. Documentary evidence about the individual courses and e-learning initiatives and web site information supplied by the tutors was also used to assist in drawing up the case study overviews.

The research questions focus on agents' descriptions of their experiences of e-learning with the aim of gaining qualitative insights into what they do with learning technologies. It will be contended that such an approach can serve to highlight subtleties and nuances in the case studies that a more scientific-positivist approach would fail to capture. The use of case study is intended to facilitate the aims of exploratory, descriptive and explanatory data analysis. The case study research strategy and methods will now be considered in more detail to identify how the requirements for a systematic, rigorous and explicit approach to data gathering and analysis have been managed. This will include issues of validity, reliability, triangulation and ethical considerations in assuring the credibility of the research process.

Research strategy and methods

Case study

Following Robson's definition, the choice of a case study method reflects the desire to investigate "a particular phenomenon within its real life context using multiple sources of evidence" (1993: 5). Yin's definition is helpful in highlighting the necessary features of a case study as an inquiry "where boundaries between phenomenon and context are not clearly evident" (Yin 2003:13). Online learning is certainly a contemporary phenomenon and the boundaries between its processes and contexts of operation are very much enmeshed in human activity by agents with a variety of perceptions of what learning and teaching is about in learning environments using a mix of online and face-to-face approaches. Such an intention identifies a critically reflexive approach taking participants' statements as working hypotheses and seeking out differences as well as similarities (Simons 1987). In this context, the relationship between the "would-be knower" and "what can be known" is very much inter-related rather than an independent relationship (Stake 1995).

Cohen et al (2000) summarise some key strengths of the case study method. The ability to "catch unique features that otherwise may be lost in larger scale data" and the comment that these may "hold the key to understanding the situation", is particularly significant for this study (2000: 184 from Nisbet & Watt 1984). Jarvis's analysis of research for practitioners lends credence to the value of case study situated in practice (1999), reminding us of the example from Lash and Wynne (1992) that 'research experts' using scientific methods in the laboratory rather than examining real world practice are not always right and practitioners, in this case farmers using herbicides, know much more about their situated practices than the researchers (Jarvis 1999: 5). This example demonstrates that small-scale situated research does not have to be less credible than large scale surveys and experiments for provided "the research methods employed are rigorous, there is no reason to conclude the are unscientific" (Jarvis 1999: 83). This illustration supports my argument for wanting the voices of tutors' and students' experiences with learning technologies in real-life practice situations to be heard through the application of the case study method.

Given the importance of following a systematic and rigorous approach, disadvantages associated with case study as a method of enquiry, including lack of rigour and time-consuming nature of data collection, resulting in a mass of "unreadable" evidence, need to be addressed (Yin 2003: 10-11). The criticism of lack of rigour is associated with not being open to cross-checking, leading to bias and subjectivity (Nisbet & Watt 1984). While agreeing reliance on a single case could lead to such a criticism, standardised approaches to data collection and presentation were applied within each of the case studies (CS). The research method used with tutors was semi-structured interviews with an interview schedule to guide the researcher and ensure the same questions were asked in each interview (See Appendix 1: *Staff Interview Schedule*). All groups of students completed a standardised mini-questionnaire (See Appendix 2: *Student Mini-Questionnaire (MQ)*), capturing individual descriptions of learning experiences. The majority of students also took part in a Nominal Group Technique (NGT) or focus group (FG) and in some cases both methods were used at different stages of the unit. Three proformas were developed to assist the process of data collection in the NGTs (See Appendix 3a, b, and c: *NGT forms: E-learning experiences*). The mini-questionnaire (MQ) was used as a warm-up activity for students to engage in the process of reflecting on their online learning experiences, and these same questions

were asked in the focus group. The means by which the MQ data was collated and coded will be discussed in Chapter 4.

Yin's criticism concerning the massive amounts of "unreadable documentation" (2003: 11) seem to conflict with Nisbet and Watt's argument that case study results are more easily understood by a wide audience (including non-academics) given they can be "written in everyday, non-professional language" making them "immediately intelligible; they speak for themselves" (1984, cited in Cohen et al 2000: 184). While it was anticipated that using multiple methods would add breadth and depth to the investigation, it was appreciated that it would also lead to considerable amounts of data for sifting and sorting into illuminative themes to be presented in an intelligible, but also an explicit, form that could demonstrate rigour. One key approach adopted was the tabular presentation of findings with each case presented as a table of key contents supported by narrative, identifying the major pedagogical features of the case and standardised across the six cases to facilitate comparison. This analysis is supported by the MQ results, collated for each group of students (See Appendix 4: *MQ Responses: case study sample return*) and analysed by means of a series of tables and notes representing the main findings from each MQ (See Appendix 5: *MQ Tabular Analysis*). Internal consistency in reporting is facilitated by this discipline of identifying the key contents of a protocol for reporting each case study and supported by Yin who argues "the protocol is a major way of increasing the reliability of case study research" (2003: 67). This standardised means of reporting cases also makes it easier for the reader to interpret and assess the findings. The processes by which the data was analysed will be further explained in Chapter 4.

Data collection methods

When selecting appropriate data collection methods, Clark and Causer suggest "the ultimate test should be the utility of the methods in helping to achieve overall research objectives" (1991: 171). Their statement provides sound advice for examining the justification for choice of particular methods in this research study to assure validity. The use of multiple methods, MQs and group interviews, using NGT and focus groups with students, and semi-structured interviews with staff were planned to add breadth and depth to the investigation, giving more credibility to the research undertaking (Denzin & Lincoln 1998: 4) while also allowing a number of points of triangulation in

the data collection and analysis so phenomena could be studied from different points of view to attain a more accurate picture (Cohen et al. 2000: 112-113). The significance of triangulation and the question of generalisability of findings will be pursued further below following analysis of the rationale for choice of particular methods.

Nominal Group Technique

The NGT is a structured group meeting in which issues affecting the group are identified. The term "nominal" was adopted as the collection of individuals is a group in name only (Delbecq et al. 1975: 7). The emphasis is on generation of ideas as opposed to discussion and once a list of issues have been agreed by consensus, individuals rank these items by allocating votes. Advantages of using NGT include increasing the creative productivity of the group through stimulating the generation of critical ideas and facilitating group decisions by aggregating individual comments, while saving human effort and energy (Delbecq et al. 1975: viii). Compared with focus groups, NGT is a highly structured and controlled method for collecting ideas rapidly from a group. As the technique enables the facilitator to work with much larger groups compared to focus groups, it was seen as an efficient means of collecting data from variable size groups.

The choice of focus group or NGT for the group interviews was determined by the size of the group attending each of the data collection phases. The NGT was used with four of the six case studies with student numbers of 14 or more, excepting CS2 with 11 students where a full cohort of 15 students had been anticipated for the session. The sessions were facilitated by the researcher, who was unknown to the groups. Students were asked two key questions: *What works?* and *What would you like to change?* using the proforma (See Appendix 3a) to note their ideas individually. Each student was invited to share items with the group and lists of *Strengths* and *Advice on improvements* were compiled from responses for all to see. Then a final list was agreed by consensus through the group identifying which items were important to keep on each list. Students then voted individually by allocating 10 votes to each list (See Appendix 3b and 3c). Findings from the NGT process can be viewed in Chapter 4 (Tables 4.7, 4.9, 4.11, 4.12, 4.15). Individual votes allocated per student are included in the Vote columns. Numbers in brackets alongside the total number of votes, represent number of respondents casting a vote for that item.

The NGT allows for rapid collection of individual ideas and counters possible dominance by group members through individual voting. It provides numerical data of relative rankings of items based on the collation of individual vote sheets. Information is recorded directly within the session. The NGT also has the advantage of coping with different size groups, the groups in the study varying between 11 and 19 students (See Table 1.1), though the larger groups were split into sub-groups to share initial responses before feeding back items to the full group. While the NGT is a very efficient means of collecting ideas from variable size groups, it does not compare so favourably with focus groups for generating a shared discussion, so where there were two phases of data collection in CS3 and CS4, focus groups were used in the second phase.

Focus group

Group size is a much more significant factor for the effective operation of focus groups with between four and 12 participants recommended (Morgan 1988: 44). Focus groups were carried out in three of the six case studies, with numbers attending, varying between six and 12 participants. Wilson argues group interaction is the element distinguishing focus groups from other group interviews. Topics are supplied by the researcher but rather than alternating between the researcher's questions and research participants' responses, the aim is to encourage participants to interact with each other (Cohen et al 2000: 288, Morgan 1988: 9-10).

While knowledge and experience of the topic is a prerequisite to membership and active participation in focus group interaction, when group members have lived through the same experience, even though their individual perspectives may be very different, meaningful insights can emerge from sharing their experiences. Morgan's statement that: "The hallmark of focus groups is the explicit use of the group interaction to produce data and insights that would be less accessible without the interaction found in a group", supports this argument (1988: 12). The benefit of focus groups in challenging, extending and uncovering new ideas is highlighted by other writers (Lewis 1992 cited in Cohen 2000, Stewart & Shamdasani 1990) and the emphasis on the sum being greater than the parts is identified as a key strength, setting the focus group method above the individual interview in terms of its potential to achieve greater depth of data through deeper views and feelings being illuminated (Fielding 1993). Pilot research (Hutchings 2002) conducted with student focus groups, divided into active, mixed, and limited use

groups, demonstrated discussion in active and mixed experience groups was livelier with differences being more freely expressed compared to limited use groups where discussion did not flow as freely without prompting from the researcher. This confirmed the value of piloting focus group interviews and working with mixed groups for the main study.

Experience of facilitating focus groups in this research study highlighted the "unnatural setting" noted by Morgan (1988: 16), the strengths of peer group interaction, and the degree of intervention necessary on the part of the researcher in a method whose key strength is predicated on participant group interaction rather than researcher-participant interaction. Setting up focus groups does not automatically generate powerful group interactions without careful design and management by the facilitator. Although the focus groups employed were non-directive and open-ended, allowing participants to share their experiences of e-learning, they were also structured, using an interview schedule, based on the same set of questions as the MQ as "a frame of reference for respondents' answers" (Kerlinger 1970 cited in Cohen 2000: 275). While this approach could be interpreted as agenda setting and introducing interview bias, an examination of the questions asked and a sample of the responses given, demonstrates a series of open-ended questions designed to elicit description rather than closed, yes-no responses (See Appendix 4).

In facilitating these groups, as with the NGT, I was unknown to the focus group participants. My experience of facilitating the groups was that initially there was a sense of wariness among participants, not knowing what to expect, but as they responded to questions with the benefit of the MQ warm-up activity, the discussion started to flow more readily and students responded to each other (Field notes). Kitzinger challenges group interaction in focus groups, reporting that she "could not find a single study concentrating on the conversation between participants and very few that even included any quotations from more than one participant at a time" (1994: 104). Peer group interaction was stronger in some groups, notably in CS5, which represented a well-established group of mature students, possibly influencing the depth of interaction during the focus group. Awareness of group dynamics and influences of dominant members was managed with careful use of cues from the researcher (Stewart & Shamdasani 1990).

Group interviews, both focus groups and NGT, are considered economical, producing a large amount of data in a short period of time (Cohen et al.: 288). The NGT and FG interviews were each scheduled for an hour. Interviews with staff varied between one to three hours. Comparing use of individual interviews with group interviews, there are cost savings in terms of time involved in interviewing and processing data. "The same number of participants can be interviewed in much less time in a group format and with further savings in analysis time because fewer transcripts are required" (Morgan 1988: 19). Choice of NGT or focus group was influenced by the need to balance the richness and depth of information offered by focus groups against the efficiency of capturing ideas from more students in a shorter more economical timescale by means of the NGT.

Pilot studies, conducted with participants in online learning in two academic schools, led to the addition of some questions in the staff interview schedule and the introduction of two prompt sheets to assist the interviewee in responding to particular questions (See Appendix 1). Piloting of the MQ confirmed its usefulness as a warm-up and guide for the focus group questions. It was also used in advance of the NGT (See Appendix 2).

Group and tutor interviews were audio-taped for subsequent transcription, which proved a lengthy process, reinforcing Fielding's estimates of roughly seven hours transcription time for each hour of recording (1993: 147). The strength of fast and convenient data collection is set against the weakness of subsequent slow and laborious data transcription and analysis, though the completion of NGT individual vote sheets by students during the session made the process of collating this data much faster.

Assuring the credibility of findings

In examining the utility of different data collection methods as part of case study research, questions arise as to their validity and reliability. Validity in quantitative research can be explained by asking if the research method adopted is measuring what it is intended to measure (Gilbert 1993: 27), but qualitative methods are interpreted as "impressionistic and non-verifiable" (Allen 1991: 180). Gilbert identifies one of the ingredients of good research as "the design of methods of data collection which accurately report on the social world" (Gilbert 1991: 19). Jarvis argues the case study method cannot be representative because practice is necessarily transitory, leading to the conclusion that "it is not possible to get a scientific representative sample of practice, so

studies must always be interpretations of selective facts and must necessarily be partial" (1999: 83). He nevertheless argues the case study must aim for "internal validity" to "reflect the reality of the situation" but that it cannot achieve "external validity" (Jarvis 1999: 83).

While the controlled structure of the NGT data collection process with individual voting is more conducive to demonstrating validity, focus groups can be criticised for not enabling individual voices to be distinguished so links between the what? how? and why? of e-learning cannot be traced for each individual. Morgan states "The problem with relying on interaction in groups is never knowing whether or not it would mirror individual behavior" (1988: 21). Further he argues "The point here is not so much whether one is interested in groups or individuals, as that individual behavior is subject to group influence" (Morgan 1988: 21). I would counter Morgan's concern by saying we are as much social beings as individual beings. From a social stance, we are continually influenced by those around us and in turn may influence those who we research and from a psychological viewpoint, the hermeneutic view holds "that our perceptions are actively created rather than passively received" (Robson 1993: 58). Focus groups may not be as "unnatural" settings as we might at first interpret. When set against the individual interview, where interaction between researched and researcher may be imbued with a number of social and interpersonal overtones (Cohen 2000: 279-280), such that the "data" are not being "collected" but rather "co-authored" (Miles and Huberman 1994: 35), focus groups, depending on how they are managed, could be deemed less intrusive than individual interviews.

Reliability can be explained by asking if the research method adopted demonstrates consistency from one measurement to the next (Gilbert 1993: 27) and is "essentially a synonym for consistency and replicability over time, over instruments, and over groups of respondents" (Cohen et al 2000: 117). The simplicity of the NGT to administer suggests its reliability across different groups. However I would argue that the process needs to be facilitated effectively to ensure opportunities for active engagement by all participants. The question of the reliability of the focus group method is challenged by Wilson's statement that: "No agreed set of procedures on how to organise focus groups or analyse data has emerged" (1997: 221-222). However where this method is applied consistently and transparently by application of a group interview schedule and

standardised data analysis and reporting procedures, this criticism of lack of reliability can be countered.

A key aim in using multiple methods was to assure validity of the findings through triangulation of different data sources within each case study (Yin 2003: 14). When Clark and Causer identify "different methods may elicit different responses" but also that "individuals' opinions and responses are not necessarily internally consistent" (1991: 172), this highlights the need for cross-checking results as an important means of enhancing the validity and reliability of the data collected within and between methods. Inter-method comparisons of findings, for example, comparing what students say and think about online learning in focus groups with individual responses in the mini-questionnaire for each case study were conducted. Intra-method comparisons were also conducted by examining what different groups of students said about learning and e-learning across different cases. The value of the data supplied by the MQ responses was twofold. Firstly, it provided a method for verifying findings within each of the case studies. Secondly, it proved of considerable benefit in drawing up inter-case and intra-case tabulations of student experiences based on content analysis of individual student responses.

Case study selection and process

Yin suggests the case study method provides little basis for generalisation, a valid criticism when applied to single cases (2003: 10) but Nisbet and Watt argue the case study method is a means of gaining "insights into other, similar situations and cases" (1984). The decision to identify multiple cases for study was influenced by considerations of comparability and generalisability of findings. This argument is supported by Yin's statement that "evidence from multiple cases is often considered more compelling, and the overall study is therefore regarded as being more robust" (2003: 47). Yin suggests a sampling logic should not be the basis for deciding the number of cases deemed necessary or sufficient for a study, but argues:

> Much as the choice of "$p < .05$" or "$p < .01$" is not derived from any formula but is a matter of discretionary, judgmental choice the selection of the number of replications depends on the certainty you want to have about your multiple-case results (as with the higher criterion for establishing statistical significance the greater certainty lies with the larger number of cases) (2003: 51).

Rose explains that within quantitative research "representativeness has come to mean typicality in the sense of a statistically reliable random sample from a population" and "generalisability has come to mean the ability to extrapolate with statistical confidence from that sample to the population from which it was drawn" (1991: 192). In contrast, within case study research "it is considered more appropriate to treat representativeness in terms of a qualitative logic for the selection of cases for study, rather than a quantitative logic of sampling from a population" (Rose 1991: 192). While not adhering to a grounded theory approach (Glaser & Strauss1967, Strauss & Corbin 1994), the intention was to seek grounding for established and emergent theories through examining reported experiences of agents in e-learning and to build credibility for the research findings by means of a cross-case comparative analysis to highlight similarities as well as differences between the cases. This reinforces Yin's argument (2003:10) with regard to the generalisability of case studies to theoretical propositions rather than populations. Miles and Huberman point out that choices of informants, episodes, and interactions need to be driven by research questions, rather than a concern for "representativeness" (1994: 29).

The case studies of online learning initiatives chosen for study are situated within one HEI. The nature of each of these online learning initiatives will be described in more detail in the summary reports to follow in Chapter 4 but the process of selection of individual cases needs some further explanation here. The growing provision of online learning within the institution meant that increasing numbers of courses had a web presence though this might mean little more than a unit specification with aims and intended learning outcomes, indicative content, assessment, and reading lists available online. Given my purpose is to examine everyday experiences of participants' praxis in different online learning initiatives with the aim of identifying what online strategies can contribute to effective learning (Gibbs 1992, Biggs 2003), an assumption was made that the starting point should be to examine cases which do more than manage the student interface to document publishing. This has informed the decision-making process for inclusion of cases by applying Rose's concept of "qualitative logic" (Rose 1991: 192), the main condition for selection as a case worthy of study being evidence of the application of learning technologies by a tutor with a group of students with the intention of creating interactive learning opportunities.

The final group of cases was selected from a more extensive shortlist of potential cases. It was considered important to achieve a mix of different academic schools and disciplines in order to acknowledge and work with the complexity of factors operating in the various cases, to assist identification of both differences and similarities. The strengths of the multiple case study approach is its potential for finding similarities in the experiences of using learning technologies despite differences anticipated due to discipline, academic level or mode of study. Following Yin's recommendation, six cases were chosen in order to find differences and similarities in complexity:

> If your rivals have subtle differences or if you want a high degree of certainty, you may press for five, six, or more replications" (2003: 51).

The availability of data from a number of different case studies enabled me to look for what Gilbert calls "awkward cases" (1993: 24), which may fall into the categories of "disconfirming" or "discrepant" instances identified by Miles and Huberman (1994: 34). Student responses within NGTs and focus groups were compared with MQ responses and staff interviews. This meta-level triangulation approach is what Gilbert describes as the strategy of falsification, looking for exceptions in the course of theory building to enable development of more complex and rounded theory (1993: 24). Allen suggests triangulation is: "Using different methods cumulatively to compensate for the biases of any one" (1991: 179). I would prefer to consider triangulation as a way of enriching the data collection rather than more narrowly compensating for bias and lack of reliability.

My approach was to cross-check emerging themes and concepts, rather than isolating and labelling individual responses across each method, emphasising the social rather than the individual. So while acknowledging the uniqueness of each individual case and agreeing they represent a snapshot in time, I argue that the range of methods adopted within each case and the completion of a comparative cross-case meta-analysis facilitates the quest for generalisability to theoretical propositions (Yin 2003:10).

Case study profiles

Table 1.1 identifies the range of disciplines, academic levels and modes of study associated with each of the case studies. Subject descriptors applied by the QAA (2007) have been used to identify the disciplines rather than specifically naming the courses to

avoid identification of participants. The case studies (CS) selected represent a variety of different online learning initiatives in different disciplines including business and management (CS4, CS6), recreational studies (CS3), education (CS5), computing (CS1) and engineering (CS2). The case studies also encompass different academic levels ranging from an undergraduate Certificate (Level C) first year part-time degree (CS4), through a variety of full-time undergraduate Intermediate (Level I) (CS3, CS6) and Honours (Level H) courses (CS1, CS2) to a postgraduate Masters (Level M), part-time degree (CS5). In this way, the selection of case studies was informed by, and intended to represent the variety and complexity of disciplines and academic levels within the institution.

Where two academic schools were not represented, one was included in the pilot, and the other was in the very early stages of developing an online learning environment. Additionally the process of negotiating permission to interview staff and students sifted out other potential cases where student groups were already being researched and tutors decided not to participate due to concerns about data contamination if students experienced the Hawthorne effect (Cohen et al 2000: 127).

Data was collected over a two year period in 2003 and 2004. Seven tutors were interviewed and a composite total of 121 students were included in the study. The data collection method column in Table 1.1 identifies numbers of students by case participating in each method and the figures are aggregated here in Table 3.2.

Data collection method	**Composite student sample**	**NGT**	**FG**	**MQ**
Total numbers of Students	121	78 (5 groups)	37 (4 groups)	113
By case	CS1-6	CS2, CS3, CS4.1, CS4.2, CS6	CS3, CS4.1, CS4.2, CS5	CS1-6

Table 3.2 Student sample size by data collection method

All groups of students completed the MQ and the majority also took part in an NGT or FG. In some cases both methods were used at different stages of the unit (CS3, CS4). The only exception was CS1 where attempts to arrange a follow-up FG or NGT after meeting the whole class were unsuccessful. Students signed up for an FG on an agreed date but did not attend, despite e-mail reminders sent in advance of the day. These

students were in their final year of study and under a lot of pressure to complete their dissertations. Where it was not possible to corroborate data from the 27 MQs (representing 75% of the cohort) with an FG or NGT, it is hoped the comparative analysis with the tutor interview transcript provides a sufficiently robust means of data analysis.

Case Study	Discipline and Mode of Study	Sample size	Gender		Standard entrants	Mature students	Remote Internet access		
			Male	Female	18-25yrs	26yrs or over	Yes	No	NI
CS1	Computing Full-time	27	8 30%	19 70%	23 85%	4 15%	10 37%	15 56%	2 7%
CS2	Engineering Full-time	11	11 100%	-	9 82%	2 18%	5 46%	2 18%	4 36%
CS3	Leisure, recreation and tourism Full-time	23	11 48%	12 52%	23 100%	-	8 35%	13 57%	2 8%
CS4	Business & management Part-time	30	11 39%	17 61%	13 44%	17 56%	21 70%	1 3%	8 27%
CS5	Education Part-time	9	1 11%	8 89%	-	9 100%	8 89%	-	1 11%
CS6	Business & management Full-time	21	5 30%	12 70%	18 86%	3 14%	9 43%	10 48%	2 9%
Totals **%**		121 100%	47 41%	68 59%	86 71%	35 29%	61 50%	41 34%	19 16%

Table 3.3 Student sample group composition: gender, age, and remote Internet access
Note: Of the 121 students involved in the research study, 6 students did not identify their gender (2 in CS4, 4 in CS6) and 19 students did not identify (NI) if they had Internet access from their University term time address.

An examination of Table 3.3 *Student sample group composition*, builds on Table 1.1 to demonstrate proportions of male 41% to female 59% students, and age profiles with 71% of standard entrants, defined as reporting their age in the range 18-25 years, compared with 29% mature students reporting their age as 26 years or over. This sample of 121 students, with 113 completing the MQ, represents a reasonable cross-section of the student population. Some cases consist of predominantly one gender (CS2 being all male, CS5 being largely female). This pattern reflects the nature of the disciplines, with

industrial design (CS2) attracting predominantly males, and professional education attracting predominantly females. Both full-time and part-time courses are represented and mature students are concentrated in the part-time courses (CS4, CS5).

Table 3.3 shows CS4 and CS5 student profiles differing markedly from CS1, 2, 3 and 6 where students are full-time and the large majority in the age range 18-25 years. CS4 and 5 students are part-time, mainly in employment, and attending university one day a week, and the majority are mature (CS4 56%, CS5 100%) compared with CS1 with only 15%, CS2 18%, CS6 14% and CS3 with no mature students. Student profiles in Table 3.3 for part-time students, CS4 and CS5, show relatively high numbers with remote Internet access either at home or at work. When compared with the other cases, 70% of CS4 and 89% of CS5 students have remote Internet access compared with only 37% of CS1, 46% of CS2, 35% of CS3, and 43% of CS6 students. While the validity of these figures can be questioned, given numbers of students not answering this question, nevertheless the potential significance of numbers of students with remote access in readiness for, and commitment to, participation in online learning is a theme identified in CS3 and considered further in Chapter 5.

A key variable common to each of the case studies is the enthusiasm of the tutor for initiating and developing the interactive capabilities of learning technologies to facilitate student learning. The seven tutors interviewed included two for CS2, where they were jointly responsible for the development of the online learning initiative. Pseudonyms have been used to protect the confidentiality of the tutors.

Ethical implications

The ethical implications of the study have informed the researcher's conduct in gathering and presenting data. The research process adheres to the British Educational Research Association (BERA) *Guidelines for Educational Research* (2004). Where there may be tensions associated with the researcher's aim of reporting findings with credibility and impartiality, the importance of maintaining respect for and concern to protect the rights of those being researched is uppermost in the research design and reporting.

The researcher's responsibilities to participants were foremost with steps taken to

ensure voluntary informed consent from tutors and their students as participants in the research. The starting point was a written request to the tutors selected, with a brief outline of the proposed research and what it would entail on their part, to ask if they and their students would be willing to be involved and decisions by some tutors not to be involved were respected.

The tutors as the developers of the online learning initiatives were the route to students and time with students was negotiated through them. It was important for students to know the intention of the research was to focus on their perspective of the experience as much as their tutors, hence my emphasis on the value placed on their contributions and hearing their voices as a very important part of the research. The nature and purpose of the research was clearly outlined to potential participants when requesting time with them. All participants were informed of the scholarly nature of the research being conducted as a doctoral thesis and of the anticipated practical benefits of sharing research findings and informing subsequent online learning developments. The intention to consider publishing from the work was also identified.

It could be anticipated that some students asked by their tutors to contribute to this research might feel under some duress to comply with their tutor's request. All students who took part in the research were informed in advance of the data gathering sessions of the purpose of the research by their tutors and invited to take part or not as they chose without any detriment to themselves. Attendance at all sessions was voluntary. Experience with CS1 students not attending the arranged FG and the 2003 student cohort associated with CS6 deciding they did not want to be involved, necessitating delaying data collection for CS6 for a further year, demonstrates that students did not feel under any duress in deciding not to be involved. Voluntary informed consent took precedence over the needs of the research undertaking, so assuring the protection of the rights of participants above the needs of the research and alerting the researcher very early on in the process to the constraints of data collection strategies.

The choice to participate and the right to withdraw was emphasised at the start of all data gathering sessions. An example of the information provided for students is included as Appendix 6: *Purpose of research and request to be involved.* Participants were reminded that they could withdraw at anytime if they changed their minds about

participating without any detriment to themselves. Since I did not teach on any of the courses being researched, it was anticipated that there was no conflict of roles as tutor and researcher. However there was a possible conflict of interest with one case in which, though I had not met the students at the time of the research, I would be tutoring the group subsequently. Access to these students was negotiated through their tutor who asked if they would be willing to be interviewed, knowing that I would be meeting them later as a tutor. The students gave their consent.

Where participants, particularly students, might feel some distress when participating in a FG or NGT, steps were taken to put participants at their ease by means of clear explanations of the process and with an opportunity to raise any questions or concerns they might have with the process at the commencement of the session. The MQ warm-up activity was used with all students to ensure they had time to think individually before contributing and the group nature of the sessions meant students could remain quiet if they did not wish to comment, though in practice all students contributed comments and generally seemed very willing to participate.

The concern to protect the right to privacy of all participants in the research has been a major consideration throughout the study. Participants were assured of the confidentiality of the data with all names anonymised and no records of interviews maintained with real names attached. The fact that students were interviewed in groups assisted anonymity because it was not possible to identify individuals from audio recordings. Where individuals could be identified if they included their names on the MQ, no names of individuals associated with any of the case studies were stored online and there are no links to individual paper MQ records, which are securely held in the researcher's home. All data held online is anonymised and stored securely on the researcher's home computer.

Before commencing data collection, the researcher asked all students and tutors for permission to audio-record the sessions. This was granted in all cases. An ethical question arose with regard to choice of whether or not to identify academic school affiliations and disciplines. This was a difficult decision as findings could reveal significant differences in online learning experiences which might be attributable, directly or indirectly, to differences in disciplines and School policy. But identifying

affiliations could reveal the identities of the tutors and their students. Therefore, in the interests of protecting the privacy and confidentiality of participants, tutors were given pseudonyms and disciplines have been identified by means of their QAA subject descriptors (2007). The steps taken by the researcher assure the research process complies with the purpose and intentions of the BERA ethical guidelines.

This chapter has presented the rationale for my methodological stance as a critical realist, arguing for the primacy of practice within this research context. This field of educational research cannot be separated from the social milieu in which it is situated. I have explained the value of the case study method as a powerful means of exploring my research questions by focusing on agents' experiences. The strengths and weaknesses of the data collection methods chosen have been examined and this chapter has demonstrated how methods are being used systematically within the case studies to ensure rigour throughout the process of research. I have endeavoured to identify the researcher's perspective and assumptions and attempted to make my values and research strategy as open and transparent as possible to enable methods adopted to be scrutinised by the reader as a measure of the credibility and authenticity of the study.

The next chapter will provide an overview of the case study design and context, an analysis of the case study protocol developed, and data collection procedures followed. The analysis of the focus groups, NGT, and interview transcripts and the emergence of key themes through detailed content analysis will also be explored in preparation for further analysis in Chapter 5.

Chapter 4: The case studies: context, data analysis and findings

The aim of this research is to examine how online learning can enhance learning in higher education by extending knowledge of what works for whom and under what conditions. The research methodology chosen is a multiple case study approach and the reasons for selecting this method have been outlined in Chapter 3. Six case studies of online learning initiatives in a variety of subject disciplines within one institution will be presented with the intention of drawing out similarities and differences in strategies, experiences and outcomes for participants. The unit of analysis for each of the six cases will be defined as a learning technology initiative associated with a group of students and their tutors. The purpose of this chapter is to provide an overview of the case study design and context to include examination of the questions addressed, protocols applied, and analysis of data gathered for each of the case studies. Summary reports will be provided for each case. The learning technology initiative will be outlined together with its context, data on student characteristics, descriptions of teaching strategies, and student experiences encountered, in preparation for the cross-case comparative analysis in Chapter 5.

The case studies and data-gathering process was guided by the overarching research question: *How can online learning environments be used to achieve effective learning in higher education?* The analysis of the literature in Chapter 2 highlighted the need for an alternative situated model of learning that acknowledges the primacy of praxis as a trigger for transformation through a synergy of Dewey's concept of learning through transformative experiences (1933) with Archer's thesis reasserting the wholeness of human beings with their senses, emotions and cognitions intertwined and interacting with objects in the world through praxis and reflexivity (2000a:130). The main research question was disaggregated into two sub-questions to find out what tutors and students are doing with learning technology initiatives. The question: *What are tutors doing when they use learning technologies in their teaching?* will be considered by describing the teaching strategies used by tutors in order to identify how their online practices impact on student learning and what tutors do that can make a difference to student learning in online learning environments. The other question: *What are students experiencing when they use learning technologies as part of their course?* will be considered by examining descriptions of

students' online experiences to highlight e-learning praxis situated within individual biographies and shared experiences as a means of corroborating or disconfirming the tutor's praxis and as a means of identifying commonalities and differences in student learning experiences across the different case studies.

Institutional policy on learning and teaching developments

A brief overview of institutional policy with regard to learning and teaching developments and technology infrastructure and support will inform the reader of situated social factors shared by the six e-learning initiatives to make comparative analysis of distinguishing factors more feasible through the possibility of discounting factors common to all the cases. The institution operated with a devolved decision-making and resource allocation strategy centred in academic Schools, meaning, in effect, considerable variation in policy implementation within different Schools. However the institutional steer guiding School level strategy on learning and teaching was evident in a number of policy initiatives including development of an institutional Learning and Teaching Development Plan, integrated within School Strategic Plans as early as 1996, in advance of Dearing (1997) and HEFCE policy (1999a, b). The Directorate identified a series of organisational changes including:

- Creation of a Research Centre for post-compulsory education and the advancement of learning;
- Provision of web resources on best practice in learning and teaching (LT);
- Development of an institution-wide programme of staff development;
- Establishment of a LT Development Committee to promote strategic initiatives in the advancement of learning;
- Establishment of Senior Academic posts including Heads of LT with the remit to advance LT within Schools.

Other change mechanisms (Gibbs et al 2000) relevant to the development of an institutional LT strategy in which learning technology initiatives were promoted, included:

- Funding for LT development initiatives;
- Facility to provide guidance and advice to staff on LT with new technologies;
- Organisation of institution-wide LT development events and annual staff conferences.

These policy initiatives and change mechanisms provide evidence of an institutional climate innovative, responsive, and adaptive to local needs and national policy. It is within this climate that the development and implementation of the six online learning cases under study were situated.

Technology infrastructure and support

The technology infrastructure and support services available were also important factors in the development of online learning initiatives. Although the HEI provided a centrally supported ICT infrastructure with systems and technical support, it did not have a standard VLE platform at the time of data collection for this study. The institution used a range of commercially-available technologies engineered into online learning environments. Developments started in 1997 with FirstClass, a computer conferencing client-based tool followed by QuestionMark Perception, a web-based assessment and survey tool, to support a number of LT projects. The content management aspects of the emerging online learning environments were developed using web authoring software supported by the institution. Thus the major components, content management, communication and assessment, were configured in a variety of applications, leading to the development of a number of School-based VLEs. The institution began development of a bespoke MLE (Managed Learning Environment) in 2001, the aim being to provide student and staff portals to a range of management information systems, contributing directly or indirectly to the management of LT (JISC 2002). Alongside these VLE developments, there was a steady growth in the number of learning technologist/demonstrator appointments. These posts were initially located centrally but as the number of Schools developing LT web sites grew, so appointments to support online learning developments were made within Schools.

Presentation of cases

The data gathered for each case will be presented as a summary report with a table outlining the learning technology initiative and identifying major pedagogical features of the case, standardised across the six cases to facilitate comparisons between them. Each case is linked with a narrative identifying the main findings of the case. The case tables and narratives are supplemented by tables summarising the main findings from the MQ

analysis. NGT findings for CS2, CS3, CS4 and CS6 will be presented in tabular form within the relevant case study. The process of coding tutor and group interview transcripts, and MQ responses will be explained before identifying the method used for tabulating and summarising the MQ responses.

The aim of the coding process was to be true to the data by approaching it openly but critically, listening to the voices of participants through the descriptions of their experiences while also trying to focus on what they were saying that related to answering the research questions posed and identifying further observations. Thus the transcripts associated with each case study were coded with descriptive labels and question prompts, using the Comments box facility in Microsoft Word. The storing of all the transcripts and their coding electronically facilitated the process of reviewing codes in context for subsequent thematic analysis by means of the Find option in Word. Key content was also emphasised in bold in the interview transcripts and colour coding was used in the MQ transcripts to facilitate online browsing of transcripts and highlighting word occurrences for subsequent collation. Appendix 4 *MQ responses* and Appendix 7 *Focus Group transcript sample* provide examples of how the data was coded for each of the transcripts and MQs.

The MQ provided a valuable resource for verifying themes emerging from the other methods and proved of considerable benefit in drawing up inter-case and intra-case tabulations of student experiences based on coding of student responses. The student responses were collated together into transcripts with individual responses numbered and listed under each question before the transcripts were annotated in preparation for content analysis (See Appendix 4: *MQ Responses*). Terms coded in MQ response transcripts were translated into tabular analyses (See Appendix 5: *MQ Tabular Analysis*) in preparation for examining frequency of word occurrences (Miles & Huberman 1994). Terms students used to describe learning (Question 1 (Q1)) and how they learnt on their course (Q2), and to define e-learning (Q3) and what it meant (Q4), were distinguished by letters, for example, R designates Reading and OD designates Online Discussion. The number of occurrences by different students was then calculated to produce frequency tables collated at the top of each of the MQ tabular analyses. For example in Appendix 5, Reading is identified by nine

students (41% of the student sample in CS4). The frequency tables for each case were amalgamated to present intra-case comparative tables.

Q1. Learning as	**Rank**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**
Discipline and academic level		Comput. (H)	Engin. (I)	Leis.Rec. &Tour.(I)	Bus.& Man.(C)	Educ (M)	Bus.& Man.(C)
Knowledge (K)	3rd	52%	46%	57%	55%	56%	67%
Information (I)	4th	52%	36%	70%	50%	45%	67%
Understanding (U)	8th	26%	55%	22%	27%	22%	43%
Skills development (S)	15th	7%	-	17%	36%	45%	5%
Q2. Learning by							
Reading (R)	1st	67%	9%	70%	41%	89%	76%
Lectures (L)	2nd	59%	91%	61%	36%	33%	62%
Discussion (D)	5th	41%	9%	26%	55%	100%	76%
Face-to-face (D)	10th	15%	9%	13%	23%	100%	9%
Online (OD)	7th	26%	-	13%	41%	67%	67%
Assignments (A)	6th	7%	18%	61%	23%	67%	48%
Practice, practical work	9th	-	82%	22%	9%	56%	19%
Research (Re)	10th	44%	27%	35%	9%	11%	43%
Tasks (Ta)	12th	11%	18%	9%	18%	78%	24%
Seminars (Sem)	13th	26%	-	48%	27%	-	38%
Tutors (T)	14th	4%	18%	13%	18%	22%	19%
Practice/skills (aggregated)	-	7%	82%	39%	41%	78%	24%

Table 4.1 Learning: student conceptions and experiences
Data is based on student MQ responses to Q1: *What does learning mean to you?* and Q2: *How do you learn on your course?* (See Appendix 2 p.217). Descriptions are ranked according to their frequency of response in individual case MQ tabular analyses (See Appendix 5 p.226) and practice and skills responses aggregated from Q1 and Q2. See Table 1.1 for discipline abbreviations and details of academic level descriptors.

The tables of codes are supported by notes relating to the MQ questions, detailing numbers of students identifying different codes and student comments selected from the MQ

responses, providing illustrative comments to give voice to the students' experiences, by identifying both commonalities and differences. Where MQ comments are selected for inclusion in the case study summaries, they are used to corroborate or challenge comments from the related NGT, FG and tutor comments.

Findings from the MQ responses for individual cases have been summarised in a series of cross-case comparative tables. As the MQ was the standard method for capturing descriptions of learning and e-learning by students across all the case studies, these comparative tables will be presented in advance of the individual case summaries to inform the case study analysis. Content analysis of student MQ responses to Q1: *What does learning mean to you?* and Q2: *How do you learn on your course?* identified learning as involving the items listed in Table 4.1 *Learning: student conceptions and experiences.* Descriptions are ranked according to their frequency of response by students across all the case studies. This analysis of student conceptions of learning is revealing in identifying much higher percentages of students equating learning with gaining, acquiring, increasing, furthering, or broadening knowledge (ranked 3rd), or information (ranked 4th), compared with percentages associated with skills development (ranked 15th). When these responses are combined with those for how students learnt on the course, reading (1st) and lectures (2nd) are ranked well above practice (9th) and tasks (12th). This potential dissonance between learning *what* and learning *how* will be pursued further in the individual case summaries and comparative analysis in Chapter 5. Table 4.1 will also be useful for checking how students' descriptions of learning align with descriptions given by their tutors.

The distinction between the *what* and the *how* of learning is also found in online learning. An examination of the MQ student responses to Q3: *How would you define e-learning?* and Q4: *What does e-learning mean for you?* are collated in Table 4.2 *E-learning: student conceptions and experiences*. The majority of students gave a generic definition for e-learning as "learning or gaining knowledge via a computer or the Internet". They tended to describe what e-learning meant for them as information, electronic resources or online research rather than for forms of interaction like online discussion, online quizzes, and developing computer skills, though CS5 and CS6 were exceptions. Even where the learning

technology tool is used as the focus for student study, as with CS1 designed for students to analyse communication issues in CMC through practice experiences, CS1 students identified reading (67% of students) far more frequently than online discussion (26% of students) (See Tables 4.1 and 4.2). A closer examination of how online learning environments are used in each case study will inform further discussion of these findings.

E-Learning as	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**
Learning or gaining knowledge via a computer or the Internet (C) (O)	48%	73%	74%	59%	100%	71%
Information (I) Electronic resources (Int/lib) Online research (Re)	41%	64%	57%	18%	11%	71%
Online discussion, chat or collaboration (OD, ODCh, ODcmc, Coll)	26%	-	13%		67%	67%
E-mail	-	-	-	5%	-	-
Online tests and quizzes	-	36%	4%	-	-	-
Developing or getting computer skills	-	-	-	9%	11%	5%

Table 4.2 E-learning: student conceptions and experiences
Data is based on student MQ responses to Q3: *How would you define e-learning?* and Q4: *What does e-learning mean for you?* (See Appendix 2 p.217), summarised from individual case MQ tabular analyses (See Appendix 5 p.216).

Table 4.3 *Criticisms of e-learning* provides comparative data for the six case studies in response to Q.8: *Describe the worst moment during e-learning*. Technical issues were highlighted as more significant than any other issues identified for CS1 (33%), CS2(46%), CS4 (60%) and CS5 (44%) students and included logging on, access off-campus, slow networks, system failure and unreliability. Different issues were associated with the various learning technologies specific to individual cases and these will be discussed further in the case summaries. CS6 is exceptional with only 9% of students identifying technical issues in comparison to 57% describing student participation issues including non-participation, waiting for responses from other students, and group issues. It is important to note this table presents a partial picture of student criticisms of e-learning as it only includes data from the MQ responses. Group interview data identified factors of social distancing for CS2 (See Table 4.7) and non-participation for CS5 students (FG5), which were not mentioned in the

MQ responses. Nevertheless as technical issues were mentioned most frequently by students in their MQ responses, they warrant consideration as a factor impacting on the student e-learning experience and other factors will be discussed further in the case studies.

Worst moment in e-learning	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**
Technical issues	33%	46%	22%	60%	44%	9%
Finding research material online, too little or too much	11%	-	26%	9%	-	19%
Social distancing, isolation	11%	-	-	-	22%	-
Participation by other students	4%	-	4%	18%	-	57%
Communication issues (message ambiguity, misinterpretation)	-	-	-	-	-	14%
Task issues	-	18%	-	9%	-	33%
Time consuming	-	-	4%	5%	22%	-
Reading text online	-	27%	4%	-	-	-
Understanding parts of subject	-	-	-	-	-	14%
Cost of communicating online	-	-	-	5%	-	-
Total experience	7%	-	-	5%	-	-

Table 4.3 Criticisms of e-learning
Data is based on student MQ responses to Q7: *Describe the worst moment during e-learning* (See Appendix 2 p.217) and summarised from individual case MQ tabular analyses (See Appendix 5 p.226).

Table 4.4 *Tutor's role in e-learning: student views* provides comparative data for the six case studies based on Q.9: *What does the teacher do in e-learning that helps your learning?* Student descriptions of tutor facilitation and support in e-learning are listed in ranked order according to the number of times specified activities are mentioned by different students, a selection of student statements describing types of support provided by their tutors, and proportions of students identifying support (A), limited or no involvement (B), or don't know/not answered (C) in three columns compiled from the MQ analyses. Overall results in Table 4.4 identify student perceptions as being positive about the tutor's role in facilitating e-learning. However there are some notable differences in student experiences and this will be discussed further within the individual cases.

Case Study	Facilitating and scaffolding			Limits of involvement Not involved/not doing enough		Don't know, not answered	
	(A)	**Descriptions**	**Student comments**	(B)	**Student comments**	(C)	
CS1	37%	Facilitates, supports, provides structure Presents information Provides lecture notes Identifies reading, research, web sites Mediates and moderates discussions Encourages study System familiarisation and support	The teacher facilitates as opposed to actually teaching (MQ1/9/10) Points out further areas of research, encourages personal study (MQ1/9/14) Provides support and structure (MQ1/9/15) Mediates and moderates the discussion groups. Tells you good web sites, advises how to use the resources (MQ1/9/23)	7%	They don't even have to be involved (MQ1/9/3)	56%	**CS1**
CS2	55%	System familiarisation and support Answers questions Briefs Demonstrates	Briefs you, then you go on and use e-learning (MQ2/9/1) Answer any question academic and technical (MQ2/9/2)	36%	Teacher has little influence unless approached with a specific question (MQ2/9/8)	9%	**CS2**
CS3	65%	Facilitates, supports, provides structure Identifies reading, research, web sites Provides notes (lecture notes) Mediates and moderates discussions Demonstrates how to do things	Provides examples and background reading (MQ3/9/3) Conducts online seminars to provoke discussion and encourage communication (MQ3/9/7) Constantly on hand whilst I'm learning (MQ3/9/12)	9%	Leaves me to it (MQ2/9/8)	26%	**CS3**

Table 4.4 Tutor's role in e-learning: student views
Data is based on student MQ responses to Q9: *What does the teacher do in e-learning that helps your learning?* (See Appendix 2 p.217) summarised from individual case MQ tabular analyses (See Appendix 5 p.226).

Case Study		Facilitating and scaffolding		Limits of involvement Not involved/not doing enough		Don't know, not answered	
	(A)	**Descriptions**	**Student comments**	(B)	**Student comments**	(C)	
CS4	77%	Facilitates, supports, provides structure Gives feedback Identifies references and web sites System familiarisation Provides knowledge and instructions	As a reference and problem solver (MQ4/9/8) Explains where to go and puts in links to other sites for you. Guidance (MQ4/9/12)	5%	Not enough (MQ4/9/7)	18%	**CS4**
CS5	78%	Provides information and ideas Gives guidance and advice Encourages Gives feedback Developing and posting tasks/activities Provides direction Answers questions Marks tasks	Provides direction and guidance. Offers support mechanism via e-learning (MQ5/9/8) Facilitates with encouragement and ideas (MQ5/9/9)	22%	Being available at regular times, though this rarely coincided with when I chose to use the computer (MQ5/9/6) It is important that the teacher gives feedback, otherwise it would appear you are alone (MQ5/9/5)	0%	**CS5**
CS6	71%	Guides, mediates, monitors Presents information Gives feedback Acts as role model	Provides clarification, direction and encouragement (MQ6/9/5) Guides you through conference, suggests possible areas on Internet to look at (MQ6/9/17)	24%	Teacher is not there so people find it easier to say what they think (MQ6/9/21) Monitoring work/ conversations, but only intervening when necessary, so do not feel pressure of being watched as in classroom (MQ6/9/16).	5%	**CS6**

Table 4.4 Tutor's role in e-learning: student views
Data is based on student MQ responses to Q9: *What does the teacher do in e-learning that helps your learning?* (See Appendix 2 p.217) summarised from individual case MQ tabular analyses (See Appendix 5 p.226).

The thematic analysis for the study was carried out in two stages, firstly a case by case analysis in preparation for the second stage, a cross case comparative meta-level thematic analysis. The results of the MQ analysis informed the thematic analysis of the case transcripts. The codes emerging from the data sources for each case study were grouped under thematic headings of learning benefits, criticisms, and teaching benefits to answer the key questions of what works and what does not. Similarities and differences between tutor intentions and student perspectives will be identified within each case study and emerging themes will be highlighted for subsequent analysis in Chapter 5. Given differences in disciplines, how learning technologies are used, and aims and learning outcomes for each case, finding any similarities in student and tutor experiences across cases will be a significant aspect of the study.

The study seeks what Yin describes as "analytical generalisation", the goal of expanding and generalising theories, rather than "statistical generalisation" enumerating frequencies (2003: 10) but it is hoped that the foregoing content analysis of MQ responses demonstrates the systematic and rigorous approach employed and that subsequent tabular presentation of NGT results adds credibility to the findings. The aim is to ensure any theoretical propositions emerging from data analysis are clearly articulated against the evidence to demonstrate validity and reliability of the data through triangulation.

The intention is to describe and analyse case studies in the present tense, the rationale being a desire for the stories of the different online learning initiatives to come alive through the voices of the students and tutors. Accordingly, comments as evidence from tutor interviews (T), student focus groups (FG), nominal group technique (NGT) and student mini-questionnaires (MQ) will be included and cross-referenced to the original data sources. Tutor interview transcript quotations are referenced in the form of CS1/T1/18 where T1 represents the tutor interview transcript for Case Study 1 (CS1) and 18 the transcript paragraph number. Student comments from MQs are referenced as MQ6/4/3, with 6 being the case study number, 4 the question number, "What does e-learning mean for you?" and 3 the student number, to enable comments from different students to be distinguished. FGs will be recorded as FG3/114 with 3 being the case study and 114 the paragraph number.

Case Study 1 (CS1): Experiential peer group learning for analysing online communication effects through online discussions

Table 4.5 Case Study 1 (CS1) Overview

Case Study 1 (CS1)	
Discipline	Computing
Learning technology initiative	Online discussions (asynchronous) Affords analysis of communication issues in CMC through real practice experiences of doing it online
Academic level	Undergraduate Level H option unit
Mode of study	Full-time
Tutor	Emma (T1)
Student profile	Cohort 32 Sample 27 (M8) (F19) 18-25yrs 85%, 26yrs + 15%
Data collection method	Tutor interview transcript (CS1/T1) Student mini-questionnaire (MQ1)
Rationale, aims and intended learning outcomes	Encourage participation For experience "to be meaningful" (CS1/T1/57) "Learning of content" to:- • Gain "good grasp of empirical research conducted in the area" including research methods used and understanding findings in order to identify "online research strategies that they might use" (CS1/T1/10) "Practical element" to:- • Develop online facilitation skills by leading one of four discussions • Learn "group working skills" by leading and "being part of a group experience" (CS1/T1/10) Identify positive and negative aspects of using online discussion and "identify places and times when appropriate" "Produce design and implementation guidelines", appropriate to employers in future workplaces (CS1/T1/91)
Teaching strategy and timescale	Mixed mode blended provision: Semester **Stage 1** Weekly face-to-face lectures, workshop-based seminars with practical activities Online discussion - "general and unfocussed to get them used to the technology, so its very much practice using online discussion tools" (CS1/T1/2) **Stage 2** Four asynchronous "structured online seminars" each lasting two weeks and replacing face-to-face seminars (CS1/T1/2, 69) Emma decides topic question, asks two students to adopt one position and two students to take the other side, to debate the topic for the first week, and in the second week come to some consensus (CS1/T1/65) Supported and co-ordinated by weekly face-to-face lectures (CS1/T1/4)

	Stage 3 Two weeks at end of unit for face-to-face discussions and reflection (CS1/T1/69)
Assessment	Online contributions assessed for relevance to discussion and demonstration of critical thinking and reflection (CS1/T1/97)
Tutor's approach to teaching	Teaching as "facilitation" Debate as basis for seeing both sides of the story Letting students make "their own minds up" (CS1/T1/20) Motivating students to learn for themselves (CS1/T1/22) "Interaction" as key to teaching Practical activity or small group discussions to give students "time and space to do things"
Scaffolding	Teaching as "structured experience" with students directed to lots of extra reading, research and activities (CS1/T1/20, 51) Integration and co-ordination by tutor (CS1/T1/51) Observing the discussions Checking students are on track "going roughly in the right directions". Giving feedback through online comments (CS1/T1/12)
Tutor's concept of learning	"Learning involves relating parts that are similar to each other and to the real world. So there's quite a lot of interaction with the practical side of what's going on in the way people use online systems, and their experiences; it's all kind of integrated" (CS1/T1/18)
Tutor's concept of e-learning	"Anything in which technology plays a key part in mediating the learning experience or even materials that assist the learning". "Many different aspects of e-learning" including "e-lectures" and "online discussions" (CS1/T1/53)

Learning benefits of e-learning initiative

Emma is the tutor for CS1 in which students experience online communication effects through a series of online discussions. Emma's intentions for student learning are twofold, learning of content by getting "a good grasp of the empirical research" and development of skills, described as "the practical element" (CS1/T1/10). She sees students engaging in real practice experiences by means of online discussions enabling her to describe the learning taking place as "experiential" as students say things like:

> "Oh, do you realise we've just flamed" or "Do you realise we're self-disclosing at the moment (CS1/T1/67).

This experiential learning enables the empirical research shared by the tutor to be given authenticity by relating that knowledge to real world practices that the students are experiencing (Jarvis 2003). In this sense, the practice of online discussions is intertwined and becomes part of the subject content or discursive knowledge of the learning experience (Archer 2000a). Emma says:

> Students actually experience a lot of the communication effects that we talk about in lectures, so it links in nicely. If they didn't take part, it would be difficult to actually say to students – "well when you have online discussions... this happens" without them actually taking part (CS1/T1/57).

However there appears to be a gap between the tutor's intentions and the students' experiences. The tutor's strategy of encouraging student learning about empirical research through online experiences is not directly acknowledged by students, with only 26% associating e-learning with the practice of online discussion, chat or collaboration shown in their MQ responses (See Table 4.2) while 67% identify reading as a key factor in how they learn on the course (See Table 4.1). This finding aligns with Emma's approach to teaching (See Table 4.5, sub-heading Scaffolding), in giving students "lots of extra reading, research and activities" (CS1/T1/20, 51) and would suggest students' understanding of learning is not bounded or constrained by the technologies of engagement. But it is not clear why online discussions were not accorded a higher priority by students. The timing of data collection in early February could have been a factor, if students had insufficient time to reflect on the benefits of online practice. Additionally student comments identify other e-learning experiences not directly related to this case such as e-lectures on CD-ROM provided by another tutor, which suggests other experiences of e-learning are influencing student responses.

Emma identifies the benefits of the online discussion archives for the development of reflection skills:

> I think probably the students get a chance to reflect more than they would ever in a face-to-face learning environment because they've got the transcript there and they've got the time so they can actually go off and perhaps find a reference that somebody's just quoted (CS1/T1/111).

and as a revision tool:

> At the time of discussing often they don't have much time to think about it and just make comments and they go and get research, but then when they come to revise, they can have a re-look at the things they've talked about with the theory they now know and they can hopefully link the two together (CS1/T1/57).

Emma's comment here suggests student time is at a premium during online discussions such that they may not fully appreciate the significance of interactions while directly engaged in them. The levers for learning, the topics for debate in small group discussions,

following Dewey's concept of learning through experience (1933), are in place but the learning gains may not be recognised instantaneously and time may be needed to reflect *on* rather than *in* the learning experience through the archive facility (Schön 1983). Nevertheless some students acknowledge opportunities afforded to review and consolidate learning with comments like:

> The way you can revisit things if you haven't understood them (MQ1/6/2)
> Being able to stop/start and that Eureka moment of understanding (MQ1/6/14).

The equalising effects of online discussions over classroom discussions are identified. Emma suggests there will be more individual contributions online because "all will have a chance to say something, to put something into words" (CS1/T1/67). Online discussion encourages quieter students to communicate:

> They've said things like "oh I'd never have said that in public" or "I've never ever spoken to..", so it does develop their social skills (CS1/T1/81).

The benefits of the online discussion medium for increasing contributions are clearly recognised by students:

> There's a great amount of information and I feel I contribute more in online environments (MQ1/8/5)
> Can express yourself more clearly in chat room (MQ1/10/6)
> More interaction, more opinions relayed, uninhibited (MQ1/10/18)
> More people talk – ie. shier people (MQ1/10/26).

Students also value the flexibility and convenience afforded by the technology with comments like:

> Remote access provides flexibility of learning (MQ1/8/4)
> I missed a lecture and was able to get the notes online (MQ1/5/1)
> More freedom to work when able (MQ1/4/23)
> Being able to learn at a time and place convenient to me as opposed to a structured lecture slot (MQ1/6/10).

This finding is closely associated with the students' sense of having more control of their learning online than in the classroom with comments like: "You are more in control, can stop for breaks" (MQ1/10/11).

Assessment is seen as a significant factor influencing student participation in online discussions. Emma makes a link between "instances of learning" and assessment, stating learning "has to be tested" through assessments (CS1/T1/12), which can be linked to Biggs' concept of constructive alignment (2003). The assessment strategy relies on the affordance of the archive facility. Emma explains:

> ... because you've got the written record you can ask students to reflect. What I do in the assessment, I get them to write an essay, actually integrating parts of the discussion into their essay, so they have to reflect.... They actually have to refer back ... and reflect on what's gone on in their discussions (CS1/T1/83).

Emma believes the technology encourages less motivated students to participate bringing in:

> ... those students which wouldn't perhaps engage in traditional learning .... They just don't turn up to seminars, whereas in these e-seminars with the technology they have to and it's all there, it's all recorded and its part of the assessment, so they realise that they've got to take it on board (CS1/T1/71).

She compares participation in class, saying she:

> ....nearly always gets 100% participation because students ..... have the factor there that they're being assessed, whereas a normal seminar they perhaps wouldn't be assessed on their participation (CS1/T1/30).

Criticisms of e-learning

Various disadvantages are also highlighted in this case. Table 4.3 provides comparative data from students' MQ responses on the "worst moment" in e-learning. The time required for engaging in the online discussions is seen as an issue for students. Emma suggests students "find it much more time consuming – they spend much more time" (CS1/T1/115). Although, this was not an issue specifically identified by the students, the question of time is a significant factor in e-learning and will be considered in subsequent case studies.

Some students (11%) commented on the social distancing caused by e-learning when compared with face to face methods (MQ1/4/27). Feelings of isolation and unfriendliness were expressed (MQ1/7/17) with comments like: "There's no human element and it's a very impersonal experience" (MQ1/10/24). Emma confirms this view, saying:

> There are always a couple of students every year who say that they didn't like the remoteness and they miss the seminars (CS1/T1/113).

Emma suggests there may be resistance to the technology related to student expectations of the availability of the tutor:

> ....because the lecturer isn't there so much, because invariably if you have the technology you don't have the lecturer, so they might feel a little bit hard done by... (CS1/T1/121).

Table 4.4 provides student MQ responses on what the tutor does in e-learning to help student learning. 37% of CS1 students appreciate the role and only 7% suggest the tutor is not involved. However 56% say they don't know or leave the question blank and when compared to student views in other cases, CS1 students seem ambivalent about the tutor's role.

Teaching benefits

The online discussions facilitate the tutor's engagement with student learning. Emma argues:

> They really facilitate... they help me teach because I can actually reflect on what's going on in the discussions so I can get a view of what students are thinking, what they're understanding, what they're learning, so it's very useful for me (CS1/T1/61).

Compared to the classroom where learning might be happening but "you're not really sure whether the student's learnt it and they haven't put it into their own words" (CS1/T1/67), the written record facilitated by the CMC technology provides opportunities for checking and verifying individual learning.

Case Study 2 (CS2): Discovery based learning for engineering design through online case studies

Table 4.6 Case Study 2 (CS2) Overview

Case Study 2 (CS2)	
Discipline	Engineering
Learning technology initiative	Online case study materials, knowledge-based systems tools, quizzes, online information resources portal Affords more efficient and permanent way of presenting what tutor does and enables students to develop their knowledge and skills through student managed learning (CS2/T2.1/44)
Academic level	Undergraduate Level I unit (Also used at H and M level)
Mode of study	Full-time
Tutor	Patrick (CS2.1) Richard (CS2.2)
Student profile	Cohort 15 Sample 11 (M11) 18-25yrs 82%, 26yrs + 18%
Data collection method	Tutor interview transcripts (CS2/T2.1, CS2/T2.2) Student mini-questionnaire (MQ2) Nominal Group Technique (NGT2)
Rationale, aims and intended learning outcomes	"It can almost replace lectures. The idea is that students can spend more time learning from the site, with somebody overseeing it, but it's really designed for self-teaching" (CS2/T2.2/70) "Empower students to make judgments" in professional life (CS2/T2.2/34) by: Applying concepts to new situations and problem-solving in a logical and meaningful manner (CS2/T2.1/78, CS2/T2.1/82, CS2/T2.2/144) Preparing for use of similar media in professional life (CS2/T2.2/68) Verifying results and evaluating the quality of information (CS2/T2.2/130)
Teaching strategy and timescale	Mixed mode blended provision: 3 hour laboratory session Lectures including examination of artefacts, learning by discovery through problem-solving Laboratory work including materials identification, knowledge-based systems, online case studies, spreadsheet programming (CS2/T2.2/10, CS2/T2.2/84) Online case study as "a complete learning tool", including feedback, assessments, quizzes, information, references (CS2/2.2/94) Promoting "active learning" through using databases and knowledge based systems to assess design impacts: "They're having control over what they put in their designs and see it and they have control over assessing outcomes" (CS2/2.2/94) Online processing phase is individual but students encouraged to share results and discuss differences on completion (CS2/T2/118)
Assessment	Assessment used as trigger for student engagement with e-learning including exam question geared to having had to use the software (CS2/T2/150)

Tutor's approach to teaching	Giving students control over their learning through discovery based methods using problem based learning and interactivity (CS2/T2.2/18) Developing approaches "from learner's point of view rather than that of the teaching expert" (CS2/T2.2/26) Giving them knowledge based systems as a toolkit they have control over and can develop (CS2/T2.2/70)
Scaffolding	"Giving them a framework" (CS2/T2.2/104) Trying to make the learning relevant by endeavouring "to put things into context, try to put it into their lives" (CS2/T2.1/18) Signposting "Because we'd actually pointed them in the right direction and signposted them, they were getting right to the thing they wanted straight away. It then encourages them to go on" (CS2/T2.1/104) "Embracing technology and acting as a sort of filter to try and provide a focus within the learning environment" (CS2/ T2.2/64)
Tutor's concept of learning	For Patrick:- "Learning is like the joy of science. It's getting all the facts together and then saying what does it mean? If it means this can I test it and do another hypothesis and check it and go round and then move on" (CS2/T2.1/4) For Richard:- "It's gaining the knowledge to be able to appreciate the problem and then the skills to be able to programme the spreadsheets. The important thing is to be able to get to a stage when one is using their own judgment. I think that's the exciting part of it" (CS2/T2.2/32)
Tutor's concept of e-learning	For Patrick:- Providing teaching materials for learners to "go through by themselves or in a group" (CS2/T2.1/44) For Richard:- "Spreadsheets and knowledge based systems, web environments, and e-mail" (CS2/ T2.2/62)

Learning benefits of e-learning initiative

Patrick and Richard are the tutors for CS2 providing online case study materials, knowledge-based systems tools, quizzes, and a portal to online information resources in support of web-based case studies, to give added value by enriching the teaching environment (CS2/T2.2/184). They believe the initiative is "exciting" because:

> It's not simply somebody saying something and expecting the students to understand it. It's bringing them understanding by doing rather than understanding by watching somebody else doing (CS2/T2.2/34).

When their students were asked to identify how they learnt on their course 82% identified practical work as a significant part of how they learnt with 36% specifically identifying problem-solving. This demonstrates a close alignment between the tutors' and students' perceptions of the learning process.

From the tutors' viewpoint, this e-learning initiative is highly structured but also flexible allowing students "to go where they want to, so you have the best of both worlds" (CS2/T2.1/110). By organising and filtering key information the tutors enable students to

apply their learning to new situations. Patrick suggests when the students go and look at some external site:

> They see it much more in context and make a better interpretation of the information they gather from that site (CS2/T2.1/110).

The value of this e-learning initiative is reflected in student NGT feedback with "information resource" identified as a key strength, with the highest number of votes (30 NGT votes) (See Table 4.7 *CS2 NGT findings*) and reinforced in MQ comments like:

> Saves large amounts of notes and books, a more compact process (MQ2/8/1)
>
> Less time spent sourcing from different places (MQ2/8/3).

VOTE	Strengths of experience	Advice on improvements	VOTE
2,2,2,4,2,3,3,3, 4,3,2 Total: **30** (11)	1. Information resource	1. Feedback on quizzes	2,2,4,1,2,4,1,3,4,2 Total: **25** (10)
2,3,3,3,2,4,3,1, 3,2,2 Total: **28** (11)	2. Good concept	2. Need more examples	1,1,1,3,3,3,3,2,1,2, 1 Total: **21** (11)
3,1,3,2,3,1,2,1, 2 Total: **18** (9)	3. For review	3. Summaries – bullet points at end of each section	4,2,3,4,1,1,2,2,2 Total: **21** (9)
3,2,2,2,1,2,1,2, 2 Total: **17** (9)	4. Layout	4. Need lecture with it	1,3,1,1,1,2,2,1,3,2 Total: **17** (10)
2,3,2,2,2,1,3,2 Total: **17** (8)	5. Accessibility	5. Isolation, inability to share ideas	2,1,1,2,1,1,3,2 Total: **13** (8)
		6. Navigation for reviewing material	1,2,2,1,3,1,2,1 Total: **13** (8)

Table 4.7 CS2 NGT findings: e-learning student experiences
The table represents items agreed by consensus, ranked according to total votes received (11 respondents). Students voted individually by allocating 10 votes to each list. Votes cast per student are included in the Vote columns. Numbers in brackets represent the number of respondents casting a vote for that item.

Like CS1, benefits of e-learning "for review" (18 NGT votes) are also identified, and supported with MQ comments like: "Readily available, able to revisit at a later time" (MQ2/10/8). These benefits are closely aligned with the facility of online case studies being available "widely across boundaries" so people at different locations can benefit from access (CS2/T2.2/182). Students appreciate accessibility, identifying it as a strength (17 NGT votes). They also value the flexibility afforded by the technology with comments like:

You can progress at your own pace (MQ2/10/7).

The benefits for career preparation are identified with Richard seeing this initiative as a very positive toolkit in educating designers, by embracing:

...a lot of what's needed in the designer from interacting with different parameters and saving material (CS2/T2.2/182).

Students acknowledge its strength as a "good concept" (28 NGT votes) and comment:

You get hands on experience (MQ2/10/4).

This links to the importance given to practical work and problem-solving as a means of learning (See Table 4.1). The benefit of developing computer skills for careers is also mentioned:

Furthering my knowledge of computers. The future will depend on people being able to use computers (MQ2/4/4).

Criticisms of e-learning

Richard suggests the students are used to using computers so an e-learning approach "engages with today's students" because "they like looking at things on the screens" (CS2/T2.2/182). However 46% of student responses to the worst moment in e-learning focused on technical issues, including not being able to get on a computer and the computer crashing (See Table 4.3). Additionally 27% of students said they had difficulties reading the amount of text online despite one of the strengths identified being "layout" (17 NGT votes) and that it was simple and easy to read. This apparent mismatch between the tutor's perception and the students' experience of e-learning is a theme for further development.

Another drawback, previously highlighted in CS1, is the sense of social distancing, engendered by the use of technology and identified by both students and tutors. Patrick suggests: "It loses the intimate contact, almost the touch and the feel" and sees this as "probably the biggest drawback" in "that you can see no reaction to what you're sending" (CS2/T2.1/48). This factor is identified in the NGT advice on improvements with "isolation, inability to share ideas" recording 13 votes. It is also identified in student comments, reflecting distancing from tutors and from their peer group:

Learning without explanation (MQ2/4/1)

Individual rather than group learning (MQ2/10/5).

Students do not collaborate while interacting with the case studies. The inputting of design material choices is described by Richard as:

....insular because students are dealing with their own way of doing it (CS2/T2.2/118).

The tutors acknowledge the need for student collaboration:

I think you can't get away with the fact that they need to work together (CS2/T2/116).

Student comments on the online case study experience identify:

Less discussion and class interaction (MQ2/10/8).

Opportunities for collaboration are provided after students have printed their reports, when they are encouraged to compare results and discuss differences in class. The online environment does not include a discussion board. This could be a contributory factor in the students' sense of isolation while working online but given the online case study forms a small part of a conventional unit, it was not considered an essential element when the tutors developed this initiative.

Teaching benefits

The tutors acknowledge benefits in developing IT skills and confidence in using the technology (CS2/T2.2/168). For Patrick, the process of creating an e-learning initiative has encouraged consideration of more learner-centred approaches to teaching both online and face-to-face through thinking "about being in the student's role" (CS2/T2.1/96) and reflecting on the learning process:

You have the ability to reflect on what you've said and see what you are presenting..... Very rarely as a teacher or lecturer do you see yourself doing it. The great thing about the website is that you actually act not only as the teacher but you are also the learner because you receive the same information as the learner is going to do (CS2/T2.1/48).

It makes you think much harder about the material that you're presenting so you think much more in a learning mode than in a teaching mode (CS2/T2.1/52).

Patrick identifies assessment as a key part of the review process, providing feedback to the tutor on student learning as a more efficient and easier means of making ongoing assessments of students' progress than trying to obtain feedback in class:

The web site is so much more efficient in that the only true assessment you've got at the moment of the tutorial is the exam at the end of the year or the end of the term (CS2/T2.1/92).

Student feedback on learning via the web enables the tutor to:

> ...be able to almost tell immediately they've had a session whether they are grasping it or not. So you can do some corrective actions hopefully fairly soon (CS2/T2.1/92).

36% of the students acknowledge the role of online tests and quizzes as part of e-learning.

CS2 highlights possible tensions between provision of structure whilst allowing flexibility and control of learning by students. While the tutors' expectations of the initiative are to "empower the students to make judgments" through "understanding by doing" (CS2/T2.2/34), students appear to be asking for more tailored and succinct information in the form of feedback, summaries, and lectures with NGT votes (See Table 4.7) for improvements including "more feedback on quizzes" receiving the highest vote (25 NGT votes), "more examples" and "summaries at the end of each section" each scoring 21 votes and the "need for a lecture with it" (17 NGT votes). Students did not identify use of knowledge based systems or spreadsheets as part of e-learning but, as previously mentioned, "information resource" was identified as the most significant strength recording the highest NGT vote of 30.

Student views of what the tutor does in e-learning to help their learning are also mixed (See Table 4.4). While 55% identify the tutor's role in facilitating learning 36% suggest they are not involved or have very little influence. Two students commented on the need for more direction in task sequencing by the tutors. The situated nature of this e-learning case study and the significance of understanding the support systems that scaffold it within the wider student learning experience are revealed when these comments are compared with Richard and Patrick's approach to working with students, which highlights respect for learners as individuals and the importance of establishing a relationship:

> There's got to be some empathy with the learners. Learning and teaching is about a relationship rather than the mechanics and each year the same cohort of students are different (CS2/T2.2/58).

They acknowledge different strategies may be required for different groups. Richard says:

> You can't have one technique that works for every year even in the same subject" because teaching is "a people thing at the end of the day" (CS2/T2.2/58).

Patrick suggests:

> The teacher really needs to trigger which one of them, because there are many tools, which one will work with that particular group or that particular person. It's not only what you teach, it's how (CS2/T2.1/38).

Richard concludes e-learning can be given to students:

> ...for a chunk, for a module but I don't think it will ever take over because I think people learn so much from each other. They learn a lot from each other. They're the ones that make the course (CS2/T2.2/104).

This discussion highlights the dangers of placing "e-learning" under the spotlight separated from its situation without understanding what the concept means in the particular context.

This CS2 initiative is very different to CS1. Here the mismatch between tutor and student expectations with regard to using computers may be partly explained by students' previous experiences of using web sites which have afforded them rapid approaches to seeking information compared with this e-learning initiative which provides interaction and expects students to get involved. Patrick suggests students were shocked by the "depth" of engagement expected of them (CS2/T2.1/58 and 116). Richard reinforces this view identifying student complacency about technology which they think they are totally familiar with:

> Students think things like web systems and knowledge based systems belong to them because they've been brought up with them since they're young. Now they feel they own that technology so it's a little bit harder to try to get the student to perceive that they can learn from it (CS2/T2.2/36).

He goes on to explain the impact of such student expectations:

> I think this year, they saw it quite negatively, the web site, because basically they only stayed half the lab time and they expected to somehow be able to know everything through not doing it. Sometimes the students tend to think they know too much (CS2/T2.2/188).

The CS2 student experience identifies a feature of using the web for provision of learning experiences, which I propose calling the "immediacy effect". Add to this the "smaller part" this e-learning plays within this level I unit (CS2/T2.2/84), focused on a three hour laboratory session, and it may be seen as having further limiting effects on students' perceptions of the value of these online learning resources and time spent on them. This is a key finding that may have wider significance for our understanding of e-learning and will be further developed in Chapter 5.

Case Study 3 (CS3): Project-based peer group learning for recreational studies through online resource sharing and collaboration

Table 4.8 Case Study 3 (CS3) Overview

Case Study 3 (CS3)	
Discipline	Leisure, recreation, and tourism
Learning technology initiative	Information portal, Powerpoint presentations, online discussion spaces (asynchronous), online assessment Affords communication spaces for students to work collaboratively and learn together online when not in face to face contact
Academic level	Undergraduate Level I unit
Mode of study	Full-time
Tutor	Annette (T3)
Student profile	Cohort 70 Sample 23 (M11) (F12) 18-25yrs 100%
Data collection method	*Tutor interview transcript* (CS3/T3) Student mini-questionnaire (MQ3) Nominal Group Technique (NGT3) (19 students) Focus group (FG3) (6 students, 2 had attended NGT)
Rationale, aims and intended learning outcomes	Enhance student managed learning, encouraging students to work collaboratively and learn from each other (CS3/T3/114, 166), by sharing group resources and experiences (CS3/T3/76, 166) and encouraging feedback that is student-led, not just tutor-based (CS3/T3/114) Catching up on missed sessions (CS3/T3/227) Opportunities to review learning (CS3/T3/88) Tracking student progress (CS3/T3/150, CS3/T3/227)
Teaching strategy and timescale	Mixed mode blended provision: Term Supporting and replacing curriculum elements - face-to-face seminars (CS3/T3/184) "Once the first event starts there are no more face-to-face sessions unless they request a meeting. Basically a lot of communication is via FirstClass" (CS3/T3/92) Weekly face-to-face lecture and seminar with: Examples and exercises to encourage students to reflect on what has been said Putting it into practice with case studies, video clips, students' reading and experiences (CS3/T3/44) Supported by e-learning "whether it's getting resources or sharing things with each other or doing tasks" (CS3/T3/80) Information portal with "online links to different organisations, websites and journals" "Online electronic filing cabinet" useful for finding and reviewing information (CS3/T3/82) Completing tasks requiring "feedback from each other and me, like sharing their Gantt charts and looking at their business plan structure" (CS3/T3/136)

	Sharing resources with each other so they and their Team Leaders can co-ordinate their project work (CS3/T3/112)
Assessment	Online contributions are not directly assessed Outputs from team events, like the Business Plan, are assessed (CS3/T3/142)
Tutor's approach to teaching **Scaffolding**	Assisting, encouraging and supporting learners Takes "the first couple of steps" for students, giving them "key arguments" and "context" for further investigation (CS3/T3/76) Gives "structure to that learning, because there is so much that can be learned" (CS3/T3/28)
Tutor's concept of learning	"People progressing and learning something new, either knowledge or skill or managing to put two pieces of the jigsaw together, so it's a progressive process" (CS3/T3/6) Knowledge on its own is pointless without making sense of it through applying it in practice (CS3/T3/8) and "actually discussing it, coming up with solutions and presenting findings" (CS3/T3/10)
Tutor's concept of e-learning	Means of maximising learning opportunities outside classroom (CS3/T3/80) within a teaching programme geared to timetabled lectures and seminars rather than seeing each unit as a number of learning hours (CS3/T3/80) Way of personalising the learning experience (CS3/T3/134, CS3/T3/213)

Learning benefits of e-learning initiative

Annette is the tutor for CS3 which provides a discussion space in the VLE (FirstClass) for event teams, consisting of 6-8 students, together with shared spaces for seminar groups (12-15 students), and for the unit cohort (70 students). The VLE is viewed as an "information exchange", for setting tasks and sharing outcomes, and for creating shared work spaces for student teams (CS3/T3/88).

Annette's approach to teaching is based on the premise that: "There's no point collecting knowledge without thinking what does it actually mean in practice", so encourages students to apply their knowledge by putting it into practice (CS3/T3/8). The organisation of live events by student teams is central to this principle of "learning by doing" (CS3/T3/10). Students are motivated by the practice of doing and being assessed on the live event. Annette argues:

> The practical application of the event helps to drive things forward because otherwise they could have just left it, if it wasn't assessed (CS3/T3/54).

Student views of learning (See Table 4.1) demonstrate alignment between their tutor's and their own perceptions, 22% identifying practice and "doing things" and 17% identifying skills development and computer and research skills, with an aggregated total of 39%

identifying practice and skills development as significant ways students learn, summed up in comments like:

> Finding new ways of doing things (MQ3/1/11)
>
> Try to relate information to real life examples (MQ3/2/23).

Annette believes the VLE can contribute to student managed learning but explains:

> You've got to have the structure there to start, within which to work. You've got to have the framework so you are enhancing that (CS3/T3/132).

Students are encouraged to engage actively by sharing resources and task outputs online:

> ...going off and doing individual tasks and then bringing back the results of what they've done and sharing it electronically and then progressing the work forward" (CS3/T3/114)

The theme of linking knowledge to practice is reiterated in student comments about how e-learning can help your learning by "putting processes into practice" (MQ3/8/12) and how:

> You can reach real life examples; instead of having a lecturer standing in front of you, go out and look at real companies that do it (FG3/38).

Annette believes "reinterpreting knowledge to think outside the box is really important and to question things" (CS3/T3/24) but acknowledges the challenges for students, and uses group activities to facilitate the process:

> It does challenge, which is why I think then putting them into groups as opposed to picking on individuals does help because it's a collective responsibility ... (CS3/T3/56).

This rationale for facilitating group work is developed online where Annette uses the shared communication facilities for creating event team spaces where she can pose questions, send reminders, and give feedback on tasks (CS3/T3/92).

While Annette emphasises the communication aspects of the online learning environment, her students tend to emphasise information. When asked to identify what e-learning meant for them, although the VLE was identified by 52% of students, only 13% identified e-learning as online communication, discussion and interaction compared with 57% who mentioned its value for information (See Table 4.2). NGT responses rate the selection and filtering of information over communication and collaboration. The themes selected as strengths are largely geared to information resources like e-journals (17 votes) OPAC (the online library catalogue) (16), Internet access (16) lecture notes (15) and though FirstClass scored highest with 21 votes, the only communication strength mentioned was personal

VOTE	Strengths of experience	Advice on improvements	VOTE
Total: **21** (19)	1. First Class*	1. Slow computers	Total: **18** (18)
Total: **17** (17)	2. E-journals and databases	2. Everything should be free	Total: **17** (17)
Total: **16** (16)	3. OPAC	3. Colour printers	Total: **16** (16)
Total: **16** (16)	4. Internet access	4. More lab sessions so we know how to use databases	Total: **15** (15)
Total: **15** (13)	5. Lecture notes*	5. Low reliability of computers	Total: **15** (15)
Total: **14** (14)	6. Availability of computers	6. More computers	Total: **14** (14)
Total: **14** (14)	7. E-mail – personal and for jokes	7. More print credits	Total: **13** (13)
Total: **13** (13)	8. Placement web site	8. Printer availability	Total: **13** (13)
Total: **10** (10)	9. Keeping updated – events/ changes-lecture times, rooms	9. More information in addition to basic lecture notes	Total: **11** (11)
Total: **9** (9)	10. Search engines	10. One password to all databases/software	Total: **11** (11)
Total: **7** (7)	12. IT support	11. Awareness of product/services (multimedia computers)	Total: **10** (10)
Total: **7** (7)	13. Student portal	12. IT training staff – people skills	Total: **10** (10)
Total: **7** (7)	14. Information sheets	13. Consistency of hardware specs for computers and printers	Total: **9** (9)
Total: **6** (6)	11. Additional educational packages	14. To remove SPAM e-mail	Total: **6** (6)
Total: **5** (5)	15. Lecturer demonstrations – how to use packages	15. Online application forms	Total: **6** (6)
Total: **5** (3)	18. SPSS*	16. Bigger rooms	Total: **5** (5)
Total: **4** (4)	16. Access to labs		
Total: **3** (3)	17. Company information and reports		

Table 4.9 CS3 NGT findings: e-learning student experiences
The table represents items agreed by consensus, ranked according to total votes received (19 respondents). Students voted individually by allocating 10 votes to each list. Numbers in brackets represent the number of respondents casting a vote for that item. Votes cast per student are not included in the Vote columns as only three items marked * in the Strengths column received more than one vote per student and for each of these items one student only cast 3 votes.

e-mails (See Table 4.9 *CS3 NGT findings*). The FG findings identified that students value provision of lecture notes "to fall back on" when they miss lectures because "it gives you that second chance" (FG3/48) and "having them, for revision purposes" (FG3/56). This evidence strongly supports the tutor's description of the benefits of the VLE as an "electronic filling cabinet" (CS3/T3/82). Student comments reinforce this view:

> Using FirstClass, that's actually been really useful especially coming up to exams now where you've got all the information just ready, you can go into anything that you might have missed (FG3/12).

However some students appreciated that access to information is not synonymous with learning:

> FirstClass is alright for updating your notes. I can add to the things I've got and what I've missed. So I suppose I'm not really learning from it, I'm using it more as a resource to get things from which I learn afterwards (FG3/38).

The learning benefits of the VLE for student communication and collaboration, though not mentioned by students in the NGT, were identified in FG and MQ responses.

> We had our own little section for this unit, where we just talked to our team so we could discuss things. That was very useful because often it was quite hard to get hold of other people's mobiles (FG3/36).
>
> Using FirstClass was an extremely useful communication tool when doing my event (MQ3/9/16).

They also reflected the equalising effects of online communication:

> Some people may feel more confident in shaping ideas as they are not facing someone 'face-to-face' – reduces the risk of embarrassment (MQ3/10/7).

These comments provide evidence to support Annette's intention to enable students to "communicate and collaborate with each other for group assignments and cross-seminars when it is difficult or impossible to get together face to face" (CS3/T3/136). Where not all students actively engaged in the discussions, they still benefited from others' interactions:

> I think even though I haven't used it to communicate with anyone, I can still see that other people are because you get to see other people's messages ... (FG3/114).

Annette argues the VLE facilitates the needs of different learners by providing a framework to enable students to "see the whole picture", an approach associated with Pask's concepts of serialist and holist (1988):

> I've always tried to see things holistically. It enables you to do that and also for those students who want to see things sequentially they can actually see a programme and go back to particular topic areas for

things like end of year exams. It enables them to see the whole picture and how things are linked together and overlap (CS3/T3/128).

Annette also points out students "learn at different times and different places" and "that some students aren't able, for whatever reasons, to come into face-to-face sessions" (CS3/T3/82). Where the VLE is available 24 hours by 7 days a week (24X7) for those with access, it affords students opportunity to review their learning and work at different paces:

> Students have got different sorts of commitments and timescales but also different levels and degrees of progression and it enables them to keep dipping back into things if they need to or others to move on (CS3/T3/88).

Student comments coincide with their tutor, seeing the benefits of flexibility offered and identifying more freedom and control over how they use their time:

> You can do it on a different sort of timescale; you don't have to do it when the teacher wants to do it. You can do it whenever you want. It's got to be done off your own back, you're not being pushed to do it, you've just got to (FG3/123).
>
> When you're doing e-learning you've got the choice of whether you want to come into lectures and seminars. You haven't got someone standing in front of you that can tell you what to do. So you've got a degree of freedom which I think actually helps. If more people could do what they want to do rather than be told what to do, they'd get a lot more out of it (FG3/52).

Annette thinks the VLE enables her to provide more effective and personalised support for learning. Rather than seeing student managed learning as "telling the students to go away" she believes the 24X7 communication facility means the student learning experience can be personalised:

> It does take more time but enables students to feel that they've got a one to one contact with you. There's also a support mechanism with each other. It really does enhance student managed learning a lot more because it enables you to help them in the hours that they are not in face to face contact (CS3/T3/134).

However perceived benefits of flexibility need to be weighed against the costs of non-engagement. Freedom of choice allows freedom when to engage but also freedom not to engage. Annette did not assess participation, unlike CS1, where participation in online discussions was summatively assessed and considered a key motivating factor. However Annette actively encouraged students to participate online (CS3/T3/94) and considered

assessment of the end product, the event, would motivate students to collaborate online. This was recognised by students with comments like:

> I think it was good that Annette was really pushing us to use it, because otherwise we probably wouldn't have done it. She said she was going to check the messages and make sure that we were using it and I don't think, if she hadn't said that, we'd have used it (FG3/116).

Annette considered the cost of not engaging actively online was reflected in assignment grades:

> Those students that didn't use, or the team that didn't use First Class, were the ones that also got poorest marks because the Team Leader, if they couldn't sort out and structure their own use of their site, reflected what they did outside of First Class (CS3/T3/162).

Although this observation does not prove the value of the VLE for supporting collaborative learning, it highlights differences in student engagement which can impact on the quality of learning, whether or not facilitated online. Overall student comments were positive, summed up by:

> It's an excellent idea. I'm really glad that we've got it because it helps me be more flexible (FG3/108).

Criticisms of e-learning

The degree of engagement in the VLE could be affected by technical and resource issues. Access from home is a key factor. FG3 comments included: "Basically it would help if you had access at home, because you would probably check it everyday" (FG3/54). Of the 23 students interviewed, 57% reported that they did not have access from their term time address (See Table 3.3). Although only 21% of students experienced technical difficulties like system failure and unreliability, comments concerning human-computer interface issues included:

> There are loads of different things to click on so if you don't check all of them, then you might miss something (FG3/98).
>
> It was a hell of an effort to get onto it, because the passwords are ridiculous numbers which I've only just remembered now (FG3/46).

Students also identified resource implications of printing large amounts of lecture notes and handouts given they get "limited printer credit" and have to consider carefully what to print (FG3/90). These technical and resource issues were strongly reflected in NGT advice on improvements with "Everything should be free" attracting 17 votes, "More computers", 14

votes, "More print credits" and "Printer availability" each 13 votes, and "One password to all databases" (11 votes) (See Table 4.9).

Teaching benefits

Annette identifies a range of teaching benefits afforded by the VLE. The flexibility offered by the medium is particularly significant for her, working part-time, as it enables her to respond to messages outside of her contracted hours (CS3/T3/126).

> They just wouldn't get the support and they'd make my job more difficult. I'd be dealing with too many problems if I left them ....So it gives them support when they actually need it throughout (T3/126).

Annette suggests the VLE enables her to provide more effective and personalised support for individual students. This potential of enhancement of the personal through the electronic medium is particularly significant in view of the social distancing and sense of isolation evidenced by students and tutors in CS1 and CS2. Annette argues:

> You automatically think anonymity but it's the opposite for me. It's personalising the learning so you can see what the students are actually doing and they can feedback to each other too so you get more idea of the person rather than just an anonymous person in a mass lecture (CS3/T3/213).

Annette's position is verified by student comments on her responsiveness to queries:

> When we needed to have a question answered by Annette, she always checks her e-mails; yeah Annette's fairly sharpish on them (FG3/56).

Annette readily identifies support comes at a cost in online charges from home and her time online (CS3/T3/215). The significance of time issues and the potential for intensification of work associated with online learning environments will be pursued further in Chapter 5.

Annette also sees benefits of the VLE for locating her own teaching materials and for reviewing their efficacy:

> It's easier for me to do that (seeing the whole picture) having it all there to see whether it is more coherent, restructured or not (CS3/T3/128).

The benefits of the visibility of information in assisting the critical review and updating of teaching, also identified by tutors in CS2, is related to affordances offered by VLEs for archiving and more effective tracking of students' progress than is possible through face-to-face meetings (CS3/T3/150). This facet of VLEs could be interpreted as surveillance and will be considered further in Chapter 5.

Case Study 4 (CS4): Solution-based learning for business tasks through using ICT applications

Table 4.10 Case Study 4 (CS4) Overview

Case Study 4 (CS4)	
Discipline	Business and management
Learning technology initiative	Computer assisted learning packages and CMC software Affords students opportunities to use ECDL applications, CMC software, and information retrieval systems as a means to solving business problems and formulating a business information strategy Affords means of managing time constraints of classroom learning and teaching (CS4/T4/102)
Academic level	Undergraduate Level C unit
Mode of study	Part-time
Tutor	Maria (T4)
Student profile	Cohort 30 30 NGT X 2 (M11) (F17) (Not identified 2) 22 FG X 2 (M10) (F12) 18-25yrs 44%, 26yrs + 56%
Data collection method	Tutor interview transcript (CS4/T4) * Nominal Group Technique X 2 (NGT4.1, NGT4.2)** Student mini-questionnaire (MQ4) Focus groups X 2 (FG4.1, FG4.2) * Tutor interviewed in 2004, a year after student meetings and following some changes introduced in unit to be accounted for in analysis and comparison of student with tutor experiences ** Year groups (4.1 and 4.2) interviewed twice in 2003, (1) after students had completed the ECDL package, using NGT and (2) 8 weeks later, after they had taken part in small group online activities, using MQ and FG
Rationale, aims and intended learning outcomes	Practice of variety of ICT skills for application to task of investigating business problems (CS4/T4/2) Engaging students in "basic common applications" like Excel, databases and information retrieval with emphasis on appropriate application over learning how to use tools (CS4/T4/14) "Solution-based" (CS4/T4/14) with effective learning demonstrated when students can make "the connection between the tool and the application" by identifying "which tool will help them with the solution" (CS4/T4/14) and apply this learning in "different situations" (CS4/T4/18) "Academic aspect" where students have to construct and develop a written argument online (CS4/T4/4) Preparing students for work environment that is collaborative, global and web-oriented by developing their competence and confidence in IT skills (CS4/T4/168)

Teaching strategy and timescale	Mixed mode blended provision: Term Lectures, workshops, CMC, self-managed learning, small group tasks Diagnostic case study which students have two weeks to attempt (CS4/T4/30) Giving students practice before theory by putting them in a situation where they get things wrong (CS4/T4/28) Creating a focus "where they want to know the thing I want to teach them" (CS4/T4/32)
Assessment	Two assignments 2003 1) Portfolio of coursework - ECDL tests and CMC activities (CS4/T4/38) 2) Business information strategy report (CS4/T4/110) 2004 1)Case study with peer assessment using mark sheets (CS4/T4/42) 2) As above Where ECDL software was used as the measure, now the case study is being used for "testing knowledge of the skills in a business context". (CS4/T4/42) Contributions to discussion forum are assessed (CS4/T4/128) with marks allocated for number of messages and extent to which they have contributed to the process (CS4/T4/120) Class-based opportunities for formative assessment favoured because instant feedback can be given (CS4/T4/26).
Tutor's approach to teaching **Scaffolding**	Sees herself as a "facilitator" (CS4/T4/26) Teaching students is about "enabling them to do the learning" (CS4/T4/72) Objective based – "what do I want the students to be able to do and why and then work back" (CS4/T4/28) "Directing people towards the order in which to learn things" Providing learning pathways - a "sort of route through" (CS4/T4/82)
Tutor's concept of learning	"Being exposed to a situation which you pick up something from, which can then influence something that happens after it" (CS4/T4/12)
Tutor's concept of e-learning	Key features of interactivity, self-management, and direction: It's got to be *interactive*. I think some people think if you put something on the web that's e-learning, but actually that's just getting something from somewhere else (CS4/T4/86) It's *self managing* in as much as you can set the pace (CS4/T4/86) There is a study path to help students know they start here and finish here …some sort of *direction* (CS4/T4/88)

Learning benefits of e-learning initiative

Maria is the tutor for CS4, a CAL package to teach ICT skills and CMC software for small group work tasks. Although Maria identifies learning as "acquiring facts, skills and methods", she suggests "you've also got to have the understanding and knowledge" (CS4/T4/22) in order to be "able to then apply things in different situations" (CS4/T4/18). She argues technology is "not something in itself, it's a tool for us to use and people won't remember it unless conceptually they know what they're going to use it for" (CS4/T4/24).

Maria explains how she prepares students for learning by giving them a diagnostic case study as a trigger for learning. Maria initiates an issue, encouraging "perplexity" in Dewey's terms (1933: 12) so that students are in a state of readiness, to find solutions to the problem:

> I used to give them theory and then practice and I do it the other way round now, so I put them in a situation where they get everything wrong and they're frustrated and they're confused and then look at the theory (CS4/T4/28).

Her intention is to help students:

> ...realise what they don't know, so putting them in a situation where they want to know the thing I want to teach them. Getting them to do a case study that they can't do, which is the assignment, gives them the desire and also the focus on what to learn (CS4/T4/32).

This problem based approach to learning is supported by encouraging students:

> ...to start with the quizzes and test their knowledge and find where their weaknesses are and then go into the training. So we do it back to front, because in my view it works better that way" (CS4/T4/92).

Like CS1, Maria's approach recognises the process of learning through experience as a means of linking the development of practical knowledge with propositional knowledge (Archer 2000a). Her descriptions also highlight the emotional aspects of learning, the sense of a journey and possible struggle, using terms like "frustrated" and "confused":

> You know there's a fear if you haven't done something before, you can't do it. But actually it's having some sort of understanding of what you've got to go through to learn something, helps you then tackle it (CS4/T4/18).

Archer's concept of developing embodied practical knowledge or know-how (2000a: 143) through agents operating with their senses, emotions and cognitions intertwined and interacting with objects in the world strongly supports Maria's teaching strategy and acknowledgement of affective as well as cognitive and psycho-motor aspects of learning.

Maria's aim of linking skills development to appropriate applications is reflected in student comments highlighting links between learning and practice. When students were asked how they learnt on their course (Table 4.1), they identified skills development, including computer skills (36%) and practice and "learning how to do something" (9%), with an aggregated total of 41% with comments like:

> Putting into action what we have learned (MQ4/2/22)

An increase of knowledge, but utilising it. Not just acquiring it, but utilising it as well (FG4.2/2).

These reactions to the learning experience highlight the importance of teaching methods that provide opportunities for students to experience realistic applications (Jarvis 2003), linking development of skills with practice and cognition for stimulating the development of embodied practical knowledge or know-how (Archer 2000a).

Maria also promotes peer group interaction through online group tasks, suggesting students have "a better experience than if it had just been me talking" through opportunities for group discussion with "all sorts of input that I couldn't possibly design" (CS4/T4/196). These benefits are reflected in student FG comments where group allocations are arranged through the tutor rather than by student choice:

... it made you interact, made you communicate with other people that you wouldn't normally do so, that can be an important aspect of it... (FG4.1/134).

I think it's quite a good experience to work with people who perhaps you wouldn't normally associate with or you hadn't got to know yet, I thought that was a positive side (FG4.2/224).

Like CS1 and CS3, the potential equalising effects of online discussions are identified by Maria:

Some students who are really weak verbally and in a group particularly so, actually are putting in things and getting responses CS4/T4/196.

Student comments reinforce this view, for example:

People open up more and communicate more than they would in class (MQ4/10/18).

You can guarantee there's always two or three that don't mind talking in front of a group, but you always get two or three that don't like talking in front of a group and when they're sat at home on their own computer you've got no pressure, just crack on with it and not have a problem about doing it (FG4.2/46).

But students also identified challenges of online communication and group work, with comments like:

In this environment you can say 'Stop, this is what I said, what I actually meant was...' Whereas online you have to be very clear on what you're communicating, what the point is... (FG4.1/146).

When you're doing that sort of work in a group you don't want to be seen to be getting it and running off with it. You want everyone to contribute but when you've got another five people contributing you're worried whether its going to be done on time, is everyone going to do it (FG4.1/142).

Although students do not mention assignments as a means of learning, assessment appears

VOTE	Strengths of experience	Advice on improvements	VOTE
2,2,4,2,2,3,5 Total: **20** (7)	1. Prompt feedback on progress	1. Remote access to ECDL software needed	5,2,4,6,7,5,3,5, 5,5 Total: **47** (10)
2,2,4,3,1,5,2 Total: **19** (7)	2. Learning at own pace	2. To be awarded ECDL Certificate at end	1,5,5,4,10,10, 1,7 Total: **43** (8)
1,10,1,2,3 Total: **17** (5)	3. High pass rate	3. More practical work	1,2,3,2,2,5 Total: **15** (6)
2,2,2,10 Total: **16** (4)	4. Multiple choice questions	4. More random questions	1,1,2,2 Total: **6** (4)
2,1,2,2,4,3 Total: **14** (6)	5. Training sections – good explanations	5. Unnatural test – context specific	2,3 Total: **5** (2)
2,2,2,2,2 Total: **10** (5)	6. Positive learning experience – passed test	6. Too much mouse work	2,1 Total: **3** (2)
5,1,2,1 Total: **9** (4)	7. Easy access on campus	7. More guidance from tutors at beginning	1,1 Total: **2** (2)
1,1,2,2,1 Total: **7** (5)	8. Teaches self discipline	8. Screen font size too small	2 Total: **2** (1)
4,3 Total: **7** (2)	9. Manuals	9. Pass mark should reflect true level of understanding	1 Total: **1** (1)
3,2 Total: **5** (2)	10. Reliable equipment	10. Sections to be numbered more clearly	1 Total: **1** (1)
2,2 Total: **4** (2)	11. Course tests	11. Rushed	1 Total: **1** (1)
2,2 Total: **4** (2)	12. Easy learning through repetition		

Table 4.11 CS4 NGT4.1 findings: e-learning student experiences
The table represents items agreed by consensus, ranked according to total votes received (14 respondents). Students voted individually by allocating 10 votes to each list. Votes cast per student are included in the Vote columns. Numbers in brackets represent the number of respondents casting a vote for that item.

important as they identify the best moment during e-learning as either "finishing" (MQ4/6/10, 13, 15), "completing" (MQ4/6/1, 11, 18) or "getting assignments posted on time!" (MQ4/6/21). Students also valued the immediacy of feedback when engaging with ECDL multiple choice questions online. "Prompt feedback on progress" was given the highest score (20 votes) in NGT4.1 and "Immediate feedback online" rated third highest strength (19 votes) in NGT4.2 (See Tables 4.11 and 4.12 *CS4 NGT4.1 and 4.2 findings*).

VOTE	Strengths of experience	Advice on improvements	VOTE
5,5,3,2,5,4,3,5,5 Total: **37** (9)	1. Easy to cheat	1. Working towards 'actual' ECDL qualification	1,2,2,2,2,3,3,3,4,4,5,9 Total: **40** (12)
4,2,1,3,2,2,4,5 Total: **23** (8)	2. Individual pacing	2. Questions to be randomly selected	1,2,2,2,3,5,5,5,10 Total: **35** (9)
2,2,1,1,4,1,1,2,23 Total: **19** 10)	3. Immediate feedback on-line	3. Access to ECDL software outside university	1,1,1,1,2,2,3,3,4,4,4,4 Total: **30** (12)
4,5,1,1,2 Total:**13** (5)	4. Having a good memory	4. More hands-on practical approach to coursework	1,2,4,5,7 Total: **19** (5)
1,1,4,5 Total: **11** (4)	5. Learning specific training areas	5. Questions need to be more varied	1,2,4 Total: **7** (3)
3,1,2,4 Total: **10** (4)	6. Good course material	6. Paying for printing for assessed tests	1,1,4 Total: **6** (3)
2,1,1,2,3 Total: **9** (5)	7. Easy to access	7. Exams as practicals – worked as examples	1,5 Total: **6** (2)
1,2,2,4 Total: **9** (4)	8. Logical progression	8. Condensed information	5 Total: **5** (1)
1,2,3 Total: **6** (3)	9. Choice of book or computer	9. Some questions did not relate to course notes	1,1,2 Total: **4** (3)
1,1,1,2 Total: **5** (4)	10. Examples for practice	10. No subject depth	1,2 Total: **3** (2)
5 Total: **5** (1)	11. On-line course book – user-friendly	11. No progress record	1,1 Total: **2** (2)
1,3 Total: **4** (2)	12. Opportunity to broaden knowledge		
4 Total: **4** (1)	13. Pressurised testing - timed		
1,1 Total: **2** (2)	14. Timescales of tests - pacing		
1,1 Total: **2** (2)	15. Gives confidence to those not used to computers		

Table 4.12 CS4 NGT4.2 findings: e-learning student experiences
The table represents items agreed by consensus, ranked according to total votes received (16 respondents). Students voted individually by allocating 10 votes to each list. Votes cast per student are included in the Vote columns. Numbers in brackets represent the number of respondents casting a vote for that item.

Students valued the flexibility of e-learning, seeing learning benefits like:

> Giving me more freedom and flexibility so I don't feel so under pressure to be somewhere at a certain time (MQ4/8/4)
>
> It's a bit more convenient, that means I don't have to travel to university to attend a lecture (FG4.1/36)

You can learn from a distance very quickly (FG4.2/22)

Learning in my own time, when I'm prepared to, when I'm ready (FG4.2/24).

The NGT results supported these comments with benefits of "learning at own pace" recording the second highest score (19 votes) for NGT4.1 (See Table 4.11) and "individual pacing" receiving the second highest score (23 votes) for NGT4.2 (See Table 4.12).

Criticisms of e-learning

The ECDL package is not available off-campus so detracts from the benefits of remote access for e-learning even though the majority of students (70%) have Internet access from home or work (Table 3.3). NGT feedback highlighted advice on improvements as "Remote access to ECDL software needed" with the highest score of 47 (NGT4.1) (See Table 4.11) and "Access to ECDL software outside university" with the third highest score of 30 (NGT4.2) (See Table 4.12). The relationship between access and reliability and the benefits of flexibility are reflected in student comments. The significance of the relationship between access and time is highlighted:

Not easy to use as I do not have access to a PC at home so limited as to time able to do e-learning (MQ4/7/10).

The tension between flexibility and technology reliability is identified:

Flexibility of it – doing it in your own time is a strength, but the downside is you're actually at the mercy of the technology, so if it breaks down .... (FG4.1/184).

Maria identifies difficulties with some students not joining in, or not engaging at the level intended: "Just saying, 'oh yeah that's good' instead of constructing an argument" (CS4/T4/198). 18% of students commented on non-participation or waiting for responses by other students in online discussions with a particularly poignant comment from one participant, reflecting the transparency of non-participation online compared to the classroom:

It does make you realise that if people aren't contributing to the group, how much you miss that contribution – probably more so than if you were in a classroom (FG4.1/54).

Some students identified their preference for classroom interaction:

I think the classroom interaction is important, you kind of gel together, you pull. 'I'm struggling with this bit', 'What do you think?', 'Have you tried that?', 'Have you looked here?' (FG4.1/110).

Maria identifies perceptions of non-involvement of the tutor in e-learning:

> Sometimes people will think that they're not being helped because they have actually got to do something on their own (CS4/T4/6).

Student views of what the tutor does in e-learning to help their learning are positive with 77% of students identifying Maria's role in facilitating, guiding and supporting learning. However 18% of students said they did not know what the tutor's role was or left the question blank and one student suggested the tutor did not do enough in e-learning (See Table 4.4). Maria suggests her teaching approach can have implications for student feedback on the learning experience:

> I'm always going to have contentious feedback and I think this unit polarises, because I'm trying different learning approaches (CS4/T4/48).

Teaching benefits

Maria identifies improvements in her written skills and academic writing (CS4/T4/174), seeing online teaching as "in some ways much harder" than face to face (CS4/T4/118):

> When you're in a class and someone says, 'well what does that mean?', you deal with it there and then. But if you've written it, you seem to have to write more, but actually, by thinking it through it's probably better, it's probably what you should have done with your documentation in the first place (CS4/T4/118).

Students also identified challenges in communicating effectively online and found the process time-consuming:

> Because of the amount of communication you have to do, it's so time-consuming (FG4.1/104).

But students also recognised the communication efficiency gains for tutors, who when they wish "to tell a whole group something ....could post one message to all of us" (FG4.1/128).

Maria's approach is influenced by the resource constraints of dealing with large student numbers (300 full-time and 28 part-time students). With all these students needing to know how to use the various applications within a finite number of hours for supporting their learning, the "computer based training provides the input", affording a means of managing the time constraints of classroom learning and teaching by taking out "the hardcore, press this button, press that button, from the time" the tutor has with students (CS4/T4/102). Maria's approach like Annette in CS3, and to a lesser extent Patrick and Richard in CS2, is using the affordances of the learning technologies to shift the time constraints of class contact time to learning hours outside the classroom.

Case Study 5 (CS5): Experiential peer group learning for education through online sharing of resources and communication

Table 4.13 Case Study 5 (CS5) Overview

Case Study 5 (CS5)	
Discipline	Education
Learning technology initiative	Online learning resources, quizzes, discussion forums Affords opportunity to engage in online learning and shared interaction as experiential learning to gain insights into e-learning and appreciate it from student and tutor perspectives (CS5/T5/83) VLE "shouldn't just be used to supplement because often then people think it is a repository for documents and not to engage the students" (CS5/T5/85)
Academic level	Postgraduate Level M unit
Mode of study	Part-time
Tutor	Sarah (T5)
Student profile	Cohort 11 Sample 9 (F9) 26yrs + 100%
Data collection method	Tutor interview transcript (CS5/T5) Student mini-questionnaire (MQ5) Focus group (FG5)
Rationale, aims and intended learning outcomes	"Engaging students and getting shared interaction" (CS5/T5/85) Giving "positive and genuine learning experience which will contribute to their development" (CS5/T5/195) and enable them to: "Design good learning experiences themselves in an open and flexible way" "Present their own materials and interact with the students" (CS5/T5/148) "Make a difference back in practice" (CS5/T5/180) Influenced by policy drivers from government "on electronic provision of learning materials" and institution "strategy to increase flexible learning", meaning educators "are going to be faced with doing this anyway" (CS5/T5/83)
Teaching strategy and timescale	Mixed mode provision: Term Replacing curriculum elements (CS5/T5/85) Provision of 10 week unit predominantly online with three face-to-face meetings, introductory, mid-unit and final week (CS5/T5/116) Weekly online sessions, using template for learning materials, with session number, title, learning outcomes, material, pre-, inter-, and post- session activities (CS5/T5/89) Activities focus on shared interaction through discussion forum postings, completing checklists, questionnaires, and quizzes, and doing individual posters (CS5/T5/89). Designed to encourage "reflective work" through "thinking about previous experience in the context of outcomes and areas they work in practice" (CS5/T5/91) Quizzes allow students to experience the technology and compare with reflective activities involving "writing down their insights" (CS5/T5/91) Debate with students placed in opposing groups designed to encourage collaborative work (CS5/T5/108)

	Small group forums for students to communicate within their action learning groups (ALG) (CS5/T5/120) Online surgery hours "every morning between half eight and nine" (FG5/71)
Assessment	Feedback used to motivate and encourage "further work and learning" (CS5/T5/144) through quizzes, discussion forum and announcement pages, and online peer feedback Quizzes used at different points in unit. Where scores and immediate feedback provided, proved popular but where textual responses had to be graded by tutor, students "didn't get results straight away" and were less impressed (CS5/T5/130)
Tutor's approach to teaching **Scaffolding**	"More facilitation, certainly not delivery" (CS5/T5/22) "Thoroughly intertwined with learning" by enabling students "to participate and be interactive" (CS5/T5/20) Action learning to give "students the space to talk to each other about their own experiences" (CS5/T5/30) "Being able to engage in discussion is essential" to learning (CS5/T5/59) Guiding, facilitating and offering signposts and opportunities (CS5/T5/66)
Tutor's concept of learning	"Learning is about students experimenting and having a go at things, reflecting and developing insights"(CS5/T5/4) "Developing perspectives on the meaning of theory, the relation of theory to practice" (CS5/T5/2) by analysing experiences, good or bad to "bring some perspective to it, to take away" (CS5/T5/8)
Tutor's concept of e-learning	Sharing materials, engaging students and tutors, in order to reflect and gain insight, so it's an interactive process which is using technology" (CS5/T5/79)

Learning benefits of e-learning

Sarah is the tutor for CS5 and describes this learning experience, allowing participants "to live out that dual role" through the lenses of a student and a tutor, as a significant form of experiential learning because she argues "only really by using it, can you get insight into how you would do things differently" (CS5/T5/83). She observes "the level of debate in the discussion forums, was very high" believing this approach "encourages individuals to reflect more deeply on their own" (CS5/T5/94), an observation supported by students:

> It's made me read much, much more. I'd go off into much greater depth and it actually really made me think how are we going to put all this in practice? So it made it much more of a deeper type of learning, this whole module than say a module in a classroom (FG5/216).

Student expectations also changed over time. Sarah says:

> They didn't expect that much from it, but by the end they expected massive contributions from everybody, high level discussion and debate, interaction and most of them said if they didn't contribute they went on every single day just to see what everyone else was doing, so it did make them keep coming back (CS5/T5/189).

Student feedback reinforces this view with 67% of students mentioning discussion forums as the most significant or best moment during e-learning with comments like:

> Talking to people and discussing issues through totally new medium (MQ5/5/1)
>
> The learning really took place as we got far more into it and I wonder if that's because people were becoming more focused on the task in hand (FG5/197).

Sarah suggests sharing comments in the discussion forum can encourage development of writing skills:

> People were more challenged to write more and write differently. I think through sharing their work some of them would have developed their skills further by watching what other people were doing (CS5/T5/140).

Students certainly welcomed opportunities to review and consolidate learning through reading participants' postings:

> What I've liked about it was being able to go back, so I've looked at my assignment now and I thought right, I want to do that. I'll go back and see what other people have said about that. In class you don't always have that written down to reflect back on (FG5/224).
>
> Have time to focus thoughts, you can read other comments and digest them more in depth and return to them if necessary (MQ5/10/6).

The "take away" is a key phrase in Sarah's concept of learning, highlighting the significance of doing as praxis (Archer 2000a) supported by reflection:

> For me it is that they make a difference back in practice. They go away and do something with it (CS5/T5/180).

Sarah's intention is supported by students' comments like "to find out and to try new methods" (MQ5/1/6). When students were asked what learning meant for them (See Table 4.1) personal and professional skills development was identified by 45% and two students specifically mentioned computer skills. But where practice is also identified by 56% of the students, it is used to refer to learning in relation to professional practice, summed up in:

> Internalising knowledge relating to practice (MQ5/1/1)
>
> A process of developing in a professional and personal way (MQ5/1/2).

This relationship with professional practice is significant when compared with the other cases and will be developed further in Chapter 5.

Sarah also mentions flexibility and accessibility offered by the medium "because you can go and do it at a time and place that's convenient to you," but acknowledges this depends on student access to computers and networks (CS5/T5/81). 67% of students emphasise flexibility of e-learning and accessibility of the VLE, enabling work from home and clearly reflected in a comment about the best moment:

> A cold, wet morning, working at my PC and being able to communicate with others without going out (MQ5/6/4).

Criticisms of e-learning

Sarah reported issues with some students not engaging (CS5/T5/96) confirmed by students:

> I did read what had been put, that's the thing, I did go online, I just didn't contribute (FG5/233).

The focus group enabled students to share their feelings about non-participation with questions like:

> Are the others just sitting back and riding on what the early people are contributing? (FG5/32).

Feelings of peer pressure, commitment, competition, and intimidation were expressed:

> I feel there's quite a competition, you've got to get your answers down. Then I sort of look at it and it says, about four or five people; and I think well I can't really contribute any differently than they've actually put. I'm looking at it thinking well, am I just putting some of this for something sake and have I got to put it in a different way to be different and so I just haven't (FG5/24).
>
> I just felt really intimidated, I thought, oh god, I can't contribute anything to this (FG5/176).
>
> I feel sad that we didn't know how you were feeling, how the ones that weren't contributing were feeling, because I just presumed that they were freeloading, wrongly (FG5/331).

The visibility of the medium only gives access to a small part of the group dynamics, interaction and potential learning that can be taking place beneath the individual lens. Although not all students contributed, the transparency and asynchronous nature of the online discussion forum appears to be influencing the level and depth of contribution:

> Every time I wrote something I thought very carefully about the words I was using, but that also might have come across as being not normal type language that I would have used (FG5/181).

Students highlighted the increased workload created by doing e-learning:

> When we come here on a Friday, we're discussing things, we're learning things, but we don't go away with a task to do at the end and we haven't had homework and this has felt like homework (FG5/202).
>
> It's almost been another assignment in a way hasn't it (FG5/203).

Sarah acknowledges:

> The students all worked far harder than the normal hours they would put in and that's because they were driven by it. It was far more than they would do in the classroom (CS5/T5/185).

While the asynchronous facility of the online discussion forum appears to be contributing to greater depth of discussion, the flexibility offered by online access at anytime, is also creating tensions in group participation:

> If I didn't go in on a Friday morning and I went in another time and there'd be the complete discussion going on, I felt I was an outsider (FG5/42).

The experience was expressed by some students as isolating when unable to talk to colleagues and artificial due to lack of spontaneity and conversational language:

> Isolation - not being able to talk to colleagues about an activity I didn't understand, where to begin. You just had to wait for somebody else to contribute (FG5/161).
>
> It hasn't seemed to flow naturally to me, whereas it would in the classroom - spontaneity in what people think. I have learned from other people in the classroom by sharing ideas, but I don't think I have personally online (FG5/24).
>
> It's not conversational language either. I just think, when it's like a whole load of text, I can't read through that (FG5/172).
>
> I think that perhaps why I didn't sometimes contribute, is that I didn't get that same feeling that I get in the classroom (FG5/194).

Students also identified the potential of flaming in online communication:

> I remember I nearly put; where the hell is everyone and then I just thought, no I can't put that because this is a professional forum (FG5/181).
>
> You do lose that context of what it's about, you can take things the wrong way, when you intend something as a joke and the person on the other end thinks hang on a minute, but you don't mean it in the way it's said. So I think that's quite difficult when you're writing something down (FG5/187).

The technology was "easy to use" (FG5/141) though some students took time to acclimatise: "I think initially I was just totally consumed with the technology" (FG5/63). Although the system was available 24X7, students tended to want to access sessions on Friday mornings coinciding with when the previous term's face-to-face sessions were timetabled. Sarah believes this was partly "because they had structured time they were used to" and "thought they would find someone else online if they went on at that time" (CS5/T5/182) and additionally students needed to manage their time around negotiated

study time with their employers. Students appeared to need to retain a sense of contact and support:

> I put my debate in and kept clicking and there was nobody else there and I can remember writing this is really frustrating; because it was like I knew I only had my time today and nobody else was there (FG5/59).

Some students expressed a need for a clearer framework and to see the whole rather than week by week.

> I found it quite hard to see where the weeks fitted in with each other (FG5/205)
>
> I would have liked to have known the whole lot was on there at the beginning and I could have then gone through it at my own pace which is what the flexibility should be (FG5/208).

These comments relate to Pask's concept of holist learners (1988) identified in CS3. They also highlight questions concerning the amount of flexibility that can be provided and the degree of structure and scaffolding required for students working online in shared discussions. If all material and activities are provided from the start of the unit, it would be difficult for the tutor to ensure shared interaction and collaborative work, managing individuals working at different paces, and allowing space for catch up time.

Sarah identifies the importance of feedback to motivate and encourage students:

> Because it's not a face-to-face context they need reassurance that somebody is out there reading, taking account of what they are doing, and that they are doing ok. Without the feedback you would assume nobody was listening and so they wouldn't carry on (CS5/T5/144).

But establishing a balance between the degree of feedback given by the tutor and by the peer group in response to student contributions is a challenge:

> I didn't want to feedback to every individual's contribution, because if I missed one, people would think 'oh, she didn't worry about mine' and I soon realised how onerous that would become (CS5/T5/124).

Sarah identified feedback was "predominately from the other students" and sees this as "a key achievement because that's how they would be in the classroom" (CS5/T5/146). FG comments state the tutor "provided good feedback" (FG5/262), suggesting the balance between tutor and peer feedback was satisfactory. While students are positive about what the tutor does in e-learning to help their learning (See Table 4.4), they identified the importance of tutor availability at regular times for providing feedback, particularly valuing the online surgery hours with comments like:

> That was my safety net of just keeping at it (FG5/73).

This highlights the question of raised expectations through working online with students feeling strongly that while "it was about knowing that she was there" (FG/265), they also needed to be realistic about dealing with the immediacy of response times:

> If you sent a message to her that evening, it would be there the next day. Well if we were in a classroom, we wouldn't necessarily expect to access the tutor immediately that day would we? (FG5/266).

Teaching benefits

Sarah believes developing this e-learning initiative, has improved her skills in "creating interactive learning experiences" and challenged her "to think about new ways to do things" (CS5/T5/162). She highlights the time involved:

> I wouldn't underestimate the time it takes. It takes an immense amount of time a) to develop the materials but b) to keep the commitment to be online when you say your going to be online (CS5/T5/221).
>
> Everything was prepared in my own time. None was ever prepared in work time because there wasn't time (CS5/T5/212).

Time was also an issue for students with the commitment seeming greater and for some unacceptable:

> To type what you're thinking seems to take more time, rather than a talk in the classroom (FG5/41).
>
> Whole process too long, took time away from other learning/reading (MQ5/7/5).

This case study highlights the juxtaposition and tensions between competing claims for e-learning. While students have flexibility to learn where and when they want, they also have peer group pressure to conform through contributing academic postings. While students can use time to reflect before giving their responses, the spontaneity of face-to-face discussion is lost. While participants can benefit from the transparency of published postings, the thoughts and reactions of individuals can remain invisible. These tensions will be examined in Chapters 5 and 6 together with the question of time as a significant issue associated with these facets of e-learning.

Case Study 6 (CS6): Collaborative learning for management studies through capturing and sharing written communication

Table 4.14 Case Study 6 (CS6) Overview

Case Study 6 (CS6)	
Discipline	Business and management
Learning technology initiative	Online discussions and archiving facility Affords opportunity to capture communication in text for analysis and reflection
Academic level	Undergraduate Level I unit
Mode of study	Full-time
Tutor	Edward (T6))
Student profile	Cohort - 21 Sample 21 (M5) (F12) (Not identified 4) 18-25yrs 77%, 26yrs + 14%
Data collection method	Tutor interview transcript (CS6/T6) Student mini-questionnaire (MQ6) Nominal Group Technique (NGT6) (18 returns)
Rationale, aims and intended learning outcomes	Analyse and adapt to needs of culturally distinct interlocutors and groups Implement strategies and techniques in order to write effectively for an international audience Demonstrate proficiency in use of CMC tools and ability to evaluate their effectiveness To enable students to be more reflective in thinking before speaking Getting students to think of their own use of language, to adapt it to a different medium, particularly using it with students who maybe non-native speakers of English (CS6/T6/8)
Teaching strategy and timescale	Mixed mode provision: Six weeks Supporting rather than replacing curriculum elements (CS6/T6/4,79) Conferencing tool used over 5 to 6 week period in three staged phases (T6/38) Phases 1 and 2 supported by weekly face-to-face lectures and seminars **Phase 1** Taking "a controversial topic such as responses to September 11" (CS6/T6/38) for "...a free for all debate... quite emotive, quite controversial, but chosen deliberately to provoke a desire to communicate and use language in particular ways" (CS6/T6/40). **Debriefing session** – face-to-face Focuses on "...things students have done through language, ways of hedging, toning down views, responding to what other people say. We unpack that, look at various aspects of language and behaviour coming through language as evidenced and archived using the conferencing medium" (CS6/T6/40) **Phase 2** Students divided into conference groups they will be in, when completing assessment. Given "language focused realistic task" (CS6/T6/40) "Build on awareness of signals we send through language" and "to work within fairly tight deadlines" (CS6/T6/40)

	To develop online team working, "to force them into a situation where there will be conflict, mismanagement, they'll realise that in order to use the conference effectively someone will need to take charge of managing the process" (CS6/T6/40) **Debriefing session** – face-to-face "What went right, what went wrong, what could have been done to move the situation forward" (CS6/T6/40) **Phase 3** Taking part in an online simulation where, as representatives of their country, they have to negotiate with a different culture to acquire a valuable artefact Element of competition included as conference groups competing with each other for the artefact To demonstrate "need to use language, particularly written language sensitively" to send "the right signals in terms of respect, deference to this particular culture" (CS6/T6/42)
Assessment	**Phases 1 and 2** Formative feedback through online comments and face-to-face debriefings **Phase 3** Online simulation with assignment guidelines specifying dates for: - 3 different negotiation message submissions from each group directly to tutor, acting as representative of the different culture - CMC evaluation report from each group
Tutor's approach to teaching **Scaffolding**	"Focuses on learning" and "facilitates that process" (CS6/T6/26) "Reflecting much more on what students getting out of it" (CS6/T6/16) "Throwing the focus onto the learner, rather than onto what I'm doing as a teacher, to make the learning more valuable" (CS6/T6/16) Giving a "sense of direction" and providing a "guiding interpretative role" "Responsibility can be gradually handed over to the students" so "they can be empowered to do much more of the learning themselves" (CS6/T6/26)
Tutor's concept of learning	"Real learning" defined as "being able to apply what you have learned in an environment which is not wholly predictable" (CS6/T6/18)
Tutor's concept of e-learning	"Exploiting in a meaningful way the available technology to do what you would otherwise do in a different way" (CS6/T6/75)

Learning benefits of e-learning initiative

Edward is the tutor for CS6 where CMC is employed to engage students in exploring effective use and adaptation of language by utilising the archiving facility to capture and share written communication for analysis (CS6/T6/77).

Edward's approach is to challenge students by getting them to work through a number of learning phases, initially taking a controversial topic for debate, followed by a small group task anticipated to generate conflict, and culminating in a competitive online simulation where students negotiate for an artefact. Edward explains:

> We are actually using the technology to create certain tensions, certain difficulties that the students actually have to manage. It's not our intention to make life easier for them, it's to put certain obstacles in their way whether they are being constrained to use a textual medium, to work within a particular timeframe, with a certain number of people, on a fairly focused activity and to look at how they manage, and to provide feedback whilst they're doing it (CS6/T6/153).

The aim is to enable students to develop experiences of communicating progressively through different learning scenarios, to apply what they "have learned in an environment which is not wholly predictable" (CS6/T6/18).

When students were asked to identify how they learnt on their course the majority equated learning with knowledge and information (See Table 4.1) with only 24% identifying practice, skills, or "doing things" with comments like:

> Enabling me to do things" (MQ6/1/15)
>
> Applying knowledge to different scenarios areas of course/life (MQ6/1/2)

Though these particular views of learning demonstrate alignment with the tutor's emphasis on "real learning" through application, Edward argues it is important for students to have "a reason for learning" because:

> If the learning is there for learning's sake where there is no indication of how you apply this knowledge, there's no pay off (CS6/6/28).

Edward sees the assessment strategy as a fundamental part of his approach (CS6/T6/132), but students identified issues with assessment, recommending "changing how our marks are allocated" because sometimes they "are allocated purely for the group" (NGT6/122). This may reflect student concerns with recognition or "pay off" for their individual contributions in CMC.

The conferencing activities are designed to encourage collaboration between students and Edward argues that the spread and depth of contributions, like Sarah's experience in CS5, is greater than experienced in the classroom:

> If I were to look at the group of students participating within a conference and the quality of their interactions compared with the same group in a face-to-face mode, I think you would probably get a far greater spread of contribution, with some very high levels of contributions from particular people (CS6/T6/108)

Student comments support the tutor's argument:

> More people take part (MQ6/10/3)
>
> Exchanging ideas with a lot of people (MQ6/8/4)
>
> People being stimulated by my own ideas and expanding from them (MQ6/6/12)
>
> It is easier to put a point across than talking in class. It seems more productive (MQ6/10/8).

However as with conceptions of learning, when students were asked to say what e-learning meant for them (See Table 4.2), 71% highlighted it as information resources or materials and only 14% mentioned online discussion, computer conferencing, or online group work in response to Q3 and Q4 despite its significance as the learning medium in this initiative. But when taking into account responses to other questions, online group work was mentioned by 67% of the students with comments like:

> Liaising with others to produce collaborative work without physically meeting up (MQ6/5/5)
>
> Getting a response to something you have written from someone who you've never met (MQ6/5/7).

Edward recognises "forcing" the conferencing technology into the restrictions of the curriculum can make the experience "slightly artificial" (CS6/6/44). He explains the effects of "timetabling constraints" mean that:

> You do have people who might be free at the same time sitting at computers next to one another, thinking, hang on, why aren't we talking to one another? (CS6/T6/44).

However learning benefits were recognised by tutor and student alike. Edward identifies a range of skills that can be developed through CMC, social skills, writing skills and reflection (CS6/T6/116). He suggests the technology is appropriate for developing writing skills "essentially because it is a text based medium" (CS6/T6/118), a factor also closely aligned with the development of reflection. Edward suggests:

> Because of these interactions taking place over a period of time, with the opportunity for comment over time by both other participants and tutors I think that does help students reflect on what they're doing (CS6/T6/118).

Student comments reinforce the benefits of the CMC medium for developing writing and reflection:

> Recordable contributions assisting reflection and discussion (MQ6/10/1)
>
> I had to re-think a response and e-learning allowed me the time to do this. I didn't have to answer straight away (MQ6/5/20).

As identified in CS1, CS3 and CS4, Edward recognises the equalising effects of online discussions, pointing out "the equality of opportunity" and "democracy that can be developed through conferencing" and explaining how:

> Very often you give a voice to students who don't necessarily find one within the formal teaching and learning context" (CS6/T6/50).

He identifies how the conferencing medium can awaken participation and lead to learner "empowerment" (CS6/T6/147) in what he describes as "a defining moment" where students realise that they are "shaping" the learning (CS6/T6/143,145).

> In the years that I've used it, there have always been a handful of people who all of a sudden have engaged in a way that they've not engaged before" (CS6/T6/143).

Student feedback reinforces the tutor's statements, describing what happens in e-learning that is different to what happens in the classroom:

> People actually voice opinions that they wouldn't necessarily do in face-to-face situations (MQ6/10/13)
>
> Those who are not confident to speak out in class contribute far more (MQ6/10/5)
>
> Everyone is given the opportunity to speak freely and more confidently (MQ6/10/17).

These comments support Edward's description of the learning benefits of a "less prominent" teaching position. Where the tutor is not physically visible within the CMC medium, this provides opportunities for more peer group interaction (CS6/T6/106). When students were asked about the role of the tutor in e-learning, they were very positive but where 24% of students suggested the tutor is not involved or has limited involvement, this tended to be viewed positively by students (See Table 4.4).

Like earlier cases, time is a significant consideration in this e-learning initiative. Edward identifies the benefits of e-learning for overcoming the constraints of classroom time.

> A lot of what happens in a classroom is within a really quite brief period of time and very often I think opportunities for reflection aren't there (CS6/T6/118).

Students acknowledged the flexibility offered by e-learning with comments like:

> Freedom to study when I determine rather than in a lecture or classroom at a specific location and time (MQ6/4/5)
>
> I can do it anywhere with Internet access, any time - after work/before work, between lectures and seminars (MQ6/6/20).

Some students commented specifically on the value of added time:

> You have more time to think about and research an answer you give (MQ6/10/7)
>
> Feel freer to take my time answering, so as to produce a better answer (MQ6/10/16).

VOTE	Strengths of experience	Advice on improvements	VOTE
1,1,3,3,3,5,6,6 Total: **28** (8)	1. CMC – theory good but needs appropriate application	1. CMC properly applied	1,1,2,2,2,2,2,3, 3,3,3,8 Total: **32** (12)
1,1,1,1,1,2,2,2, 3,4,5 Total: **23** (11)	2. L&T web site good but all teachers need to use	2. Better teacher supervision	1,1,1,1,1,1,2,2, 2,3,4,4,5 Total: **28** (13)
1,1,1,2,2,2,2,2, 2,3,3 Total: **21** (11)	3. Available 24 hours per day	3. Smaller CMC group sizes (prefer 5 to 8)	1,1,2,2,2,2,2,2, 2,2,3,3,4 Total: **28** (13)
1,1,1,1,2,2,2,2, 2,2,4 Total: **20** (11)	4. Many resources – e-journals etc.	4. Efficiency – tutor's speed of response	1,1,1,2,2,2,2,2, 3,8 Total: **24** (10)
1,1,1,2,2,2,3,4 Total: **16** (8)	5. Generates more ideas and opinions	5. Marking for groups/individuals allocation issues	1,1,2,2,2,3,3,3, 6 Total: **23** (9)
1,1,2,2,3,3,3 Total: **15** (7)	6. Flexible for asynchronous learning (not everyone has to log on at same time)	6. Access to computers	1,1,1,2,2,2,3,3, 3,4 Total: **22** (10)
1,1,1,1,2,2,2,2, 2 Total: **14** (9)	7. Recordable contributions	7. Search engines: more accurate information needed	2,2,2,2,4,6 Total: **18** (6)
1,1,2,2,2,3,3 Total: **14** (7)	8. Geographical location not significant for learning	8. Risk of technical failure	1,1,1,2 Total: **5** (4)
1,1,2,2,6 Total: **12** (5)	9. Assists tutor intervention and feedback	9. Chat rooms needed	1,2,3 Total: **3** (3)
1,1,1,2,4 Total: **9** (5)	10. Lecturers can be more specific in tasks set		
1,1 Total: **2** (2)	11. Restricted access spaces for groups		

Table 4.15 CS6 NGT findings: e-learning student experiences
The table represents items agreed by consensus, ranked according to total votes received (18 respondents). 21 students were present, but one form was not returned and two forms were returned with votes not included. Students voted individually by allocating 10 votes to each list. Votes cast per student are included in the Vote columns. Numbers in brackets represent the number of respondents casting a vote for that item.

The NGT results for the strengths of e-learning included "available 24 hours per day", ranked 3rd strength (21 NGT votes) in a widely distributed vote. This strength was rated above "generates more ideas and opinions" ranked 5th (16 NGT votes) (See Table 4.15 *CS6 NGT findings*). While appreciating the accessibility of e-learning, students did not rate contributions within the CMC medium as highly. Edward acknowledges the learning benefits associated with added time are dependent on student participation and while there

is an expectation of preparatory discussions leading to each group message submission taking place online (CS6/T6/48), he acknowledges student tensions in meeting deadlines and achieving regular participation:

> Students very often are not that good at managing their own time and I think successful completion of that assessment demands that you log on fairly frequently (CS6/T6/134).

Criticisms of e-learning

Edward sees the "fragility of the technology, the dependence on technical expertise" (CS6/T6/149) as a possible drawback of e-learning., but students ranked "risk of technical failure" very low in their NGT advice on improvements (5 NGT votes) (See Table 4.15). Edward also identifies "pressure on computers" (CS6/T6/149) which is more of an issue for students without Internet access from home. "Access to computers" was ranked 6th in the NGT improvements (22 NGT votes). While 43% of students completing the MQ reported Internet access from their term time address, 48% reported not having access (9% non-response) (See Table 3.3).

When analysing MQ responses to the worst moment in e-learning (See Table 4.3), only two students (9%) identified technical issues, concerning home computer failure (MQ6/7/11) and not being able to send an assignment to the tutor (MQ6/7/16). The majority of responses (57%) were focused on group participation issues and working with peers. 7 students (33%) identified issues with the online group task with comments like:

> Not being able to keep track of people logging on/off – no guarantee work could get done (MQ6/712)
> Never knowing if everyone is going to do what they say they are going to do (MQ6/7/21)
> Bombarded with CMC activities that would be quicker and less full in a discussion (MQ6/7/9).

Edward suggests this learning approach "may not suit all students, some preferring a formal classroom situation" (CS6/T6/149) and certainly the last of the student comments above would suggest this is the case. Difficulties in managing group tasks could be due to the textual mode of communication and lack of cues. Edward says "because it's recorded, because it's archived, then offence seems to be taken slightly more easily and more permanently" (CS6/T6/151). Students' comments included:

> Misinterpretation of the way people are saying things, can result in offence/insults and misread messages (MQ6/7/6)

> Group work where other members of the group exploit the faceless nature of e-learning and let you down with poor contributions (MQ6/7/18).

The major NGT improvement recommended by students is for CMC to be "properly applied" (32 NGT votes), "regulated and supervised" as it was "over used in the first two years of our course" (NGT6/4). Edward reflects this concern suggesting:

> There's a drive to get 'more people using the learning technologies'. So maybe we've reached a stage where we need to start thinking about having an overview of who is using the technologies, for which function, so that we're not all doing the same thing, we're not all using it for the sake of using it. We're using it where it's most valuable (CS6/T6/54).

Students liked the VLE and were in favour of its use by all tutors but suggested there needed to be "better teacher supervision" (28 NGT votes):

> All teachers need to know how it works, so they can put their lecture notes on it, not just half and half (NGT6/32).

Teaching benefits

Edward sees the main teaching benefit being that "technologies in general allow us to do things that we couldn't possibly do before" (CS6/T6/75). He argues "there's got to be a reason for using" learning technologies and identifies his rationale by explaining that when:

> ...compiling a text, it's very difficult to actually do that in a classroom situation and get a lot of people producing, contributing ideas that then result in a written text ... whereas using the technological medium can achieve that in quite an efficient, realistic way (CS6/T6/93).

Key here is the facility of archiving in CMC to capture and share written communication. Edward also identifies the novelty value of the technology as a subsidiary factor in adoption: "Here was an opportunity for me to really shape what was going on in the electronic classroom" (CS6/T6/16) though he now realises things have moved on:

> Two or three years ago I was more confident, because it was new and exciting and interesting. Now it's becoming slightly old hat (CS6/T6/77).

One possible teaching benefit, Edward is keen to dispel is "a very misguided view, it's less time consuming". He argues:

> The same learning done online in terms of setting it up, moderating it, reviewing it and feeding back on it is probably far more time consuming than the same learning in a face-to-face mode (CS6/T6/157).

Various themes identified throughout this chapter will be developed further by conducting a comparative analysis of the individual cases in the next chapter.

Chapter 5 Tutor and student experiences: a cross-case comparative analysis

The main findings from the individual case studies were presented in Chapter 4. By concentrating on the two main agents at the centre of this investigation, the students and their tutors, it was anticipated that their experiences and practices would throw light on the question of how online learning can contribute to effective learning in higher education by highlighting what works and what does not within the different online learning cases. The focus on individual cases has revealed significant aspects of practice that can inform pedagogical theory and improve student learning. The second stage, a cross-case comparative analysis of the six cases, will be conducted to draw out similarities and differences in strategies and outcomes for learning to identify emerging themes for further discussion.

	Precipitate experience	**Timescale**	**Online information**	**Online discussion**	**Online assessment** Contributions	Quizzes	**Online group work**
CS1	Online debates to learn about CMC effects	Semester*	X	Yes	Yes (S)	X	Yes
CS2	Developing environmentally -friendly products	3 hour lab	Yes	X	X	Yes (F)	X
CS3	Developing and delivering a live event	Term**	Yes	Yes	X	Yes (S)	Yes
CS4	Finding solution to a business problem	Term	Yes	Yes	Yes (S)	Yes (S)	Yes
CS5	Online interaction to develop practice insights in e-pedagogy	Term	Yes	Yes	X	Yes (F)	Yes
CS6	Online debate & negotiation to capture language as text for analysis	6 weeks	X	Yes	Yes (S)	X	Yes

Table 5.1 Online cases: pedagogical features
Notes * Semester based over two terms ** Term is 10-11 weeks
F = Formative assessment S = Summative assessment

An overview of the main pedagogical features and online tools used in each case is

presented in Table 5.1 *Online cases: pedagogical features* to assist this meta-analysis. The concept of *precipitate* experiences is used to distinguish tutor-designed learning experiences from informal *episodic* experiences happening in everyday life, from the more specific experiential triggers that can be used to spark particular aspects of the learning process, for example asking students to examine a particular question in small groups, and from other important levers in learning like assessment.

Learning through the design of real and challenging experiences

What appears particularly significant in each of the cases studied is the tutor's design of experiential triggers for learning to actively engage their students in a process whose intention is to lead to learning as transformation through experience. In line with Dewey's concept of learning through reflective experience (1933), the tutors are endeavouring to inspire learning by setting a challenge or problem for their students as the motivating force to spark learning through action and reflection. The emphasis on realistic, live, active experiences is a thread running through all the cases.

In CS1 the tutor, Emma, constructs online discussions and debates designed to engage students in real practice experiences of communicating online. Emma identifies how this experiential learning approach enables discursive knowledge, "empirical research", to be made "meaningful" and hence given authenticity (CS1/T1/57) by relating that knowledge to the reality of students' practice experiences online. In CS2, Patrick and Richard engage students with discursive knowledge in the online case studies by combining resources with embedded knowledge based system tools for discovery based learning, the aim being to enable students to input design material choices and assess environmental impacts of their design decisions. The initiative is "exciting" for the tutors because:

> It's not simply somebody saying something and expecting the students to understand it. It's bringing them understanding by doing rather than understanding by watching somebody else doing (CS2/T2.2/34).

The tutors also stress "trying to make the learning relevant by putting "things into context, trying to put it into their lives" (CS2/T2.1/18).

This recognition of the primacy of praxis (Archer 2000a) as a means of making sense of knowledge is reiterated by Annette in CS3, stating "there is no point collecting knowledge" without making sense of it through applying it in practice (CS3/T3/8) and

"discussing it, coming up with solutions and presenting findings" (CS3/T3/10). The precipitate for learning here is the organisation of real live events by student teams as the focus of experiential learning, highlighting the application of Annette's strategy of "learning by doing" (CS3/T3/10). However unlike CS1 and CS2, where the different electronic media, the CMC medium for CS1 and the knowledge based tool for CS2, are the modes for achieving learning, the electronic media in CS3 are acting as a vehicle *in* rather than the vehicle *for* the learning experience. The organisation of an event is the precipitate for learning but it is not directly dependent on using learning technologies though Annette notes the cost of failing to engage actively in the VLE was reflected in poorer assignment grades (CS3/T3/162).

Maria in CS4 gives students the practice before the theory by putting them in a situation where they get things wrong (CS4/T4/28). Maria's approach, like CS1, 2 and 3, recognises the process of learning through experience as a means of linking the development of practical knowledge with propositional knowledge (Archer 2000a). Her approach uses a problem-based activity, a diagnostic case study, as a precipitate for learning (CS4/T4/30). Maria initiates an issue, encouraging "perplexity" (Dewey 1933: 12), so students are in a state of readiness to find solutions to the problem. Maria's description highlights the emotional aspects of learning, using terms like "frustrated" and "confused" and identifying the sense of a journey and possible struggle:

> You know there's a fear if you haven't done something before, you can't do it. But actually it's having some sort of understanding of what you've got to go through to learn something, helps you then tackle it (CS4/T4/18).

The significance of integrating emotional with cognitive elements for effective learning is reflected in Archer's concept of developing embodied practical knowledge or know-how (2000a: 143) through agents operating holistically with their senses, emotions and cognitions intertwined and interacting with objects in the world. What this interpretation of Archer's thesis does is to enable agents to acknowledge and utilise affective as well as cognitive and psycho-motor elements within the learning process and this approach to learning as a holistic experience will be considered as a theme and discussed further below. In CS5, Sarah immerses her students in e-learning for a whole term as the unit is delivered predominantly online (CS5/T5/116). This initiative is a significant form of experiential learning, allowing participants "to live out that dual role" by looking through the lenses of both student and tutor, Sarah's rationale being that "only really by

using it, can you get insight into how you would do things differently" (CS5/T5/83). This rationale identifies the link between the experiential learning experience and the intended outcome of learning as transformative, with students intended to "gain insights" so they can "do things differently". Sarah's description raises the question of how the online experiences can be translated into learning. Does engaging in an experience necessarily lead to learning?

Dewey argues that two key elements are necessary for learning, firstly "a state of doubt" or "perplexity" which leads to the second element, a conscious act of enquiry to resolve or settle the perplexity (1933:12). The recognition of a problem or question as the motivating force or trigger to spark learning is central to but not sufficient for effective learning. The other vital ingredient is reflection on the experience which Dewey distinguishes from everyday thinking because solutions can emerge without thinking being reflective if people jump to conclusions, or take the first answer or solution (1933:12). Where reflection involves the act of hunting and inquiring, Dewey also argues that one can think reflectively only when one is willing to endure suspense and undergo the trouble of searching (Dewey 1933:12). This analysis would suggest learning is a process taking time and effort on the part of the learner and that the tutor, designing experiential triggers, needs to build in opportunities for students to reflect on the experience. Sarah explains how activities in CS5 are designed to encourage "reflective work" by students through "thinking about previous experience, their own experiences in the context of outcomes and areas they work in practice" (CS5/T5/91). The significance of reflection as a key part of learning, the question of time, and the influence of information immediacy will form themes for further consideration below.

Edward's approach in CS6 is to challenge students by getting them to work through a number of learning phases, initially taking a controversial topic for debate, followed by a small group task anticipated to generate conflict, and culminating in a competitive online simulation where students negotiate for an artefact. Edward's rationale is for students to experience "real learning" through "being able to apply" what they "have learned in an environment which is not wholly predictable" (CS6/T6/18). The earlier learning phases prepare students for learning in a new and unpredictable third phase, the online simulation. What is particularly significant in Edward's description is the purposeful degree of controversy and challenge built into the learning experience:

> We are actually using the technology to create certain tensions, certain difficulties that the students actually have to manage (CS6/T6/153).

Edward's approach highlights another element within Dewey's theory of learning through experience, a degree of discomfort and challenge on the part of the learner as a significant lever for encouraging learning, also acknowledged by Archer in identifying the significance of problems as a trigger to reflexivity (Archer 2007). Maria's description of the learning process in CS4, "what you've got to go through to learn something" (CS4/T4/18), reinforces the affective challenges of learning. These descriptions support Jarvis's concept of *disjuncture* where there is "disharmony" between the agent's "constructed experience of a situation" and their "biography" which can make them unsure as to how to act (1999: 66). It also encompasses a more holistic picture of the learner with cognitions, emotions and actions intertwined (Archer 2000a).

In analysing these cases and describing how tutors are designing opportunities for students to learn through experience, a number of key features significant for enhancing effective learning have been identified. Archer describes praxis and in so doing demonstrates how much of day-to-day practical action is situated outside formal education (2000a: 131). This needs to be weighed against what tutors can do to construct online and face-to-face precipitates that are meaningful, relevant, and challenging, how to make them involving by acting or doing, and how to make them effective in building in time for purposeful thinking or reflection, while acknowledging learning as a student-centred process equated with timeframes and expectations that can differ between individual learners.

While analysis here has focused at the micro-level, in the design of precipitate experiences for learning, it will be important to situate these experiences within their immediate social order to identify other factors that can impinge on the learning experience, acknowledging Biggs's 3P model (2003) and working with the idea of each case being an integrative whole where a variety of influences are at work in the learning enterprise through the interaction of the natural, practical and social orders (Archer 2000a: 162). There will be other levers at work, for example in CS1 the assessment of online contributions acts as a powerful lever in encouraging "100% participation" (CS1/T1/30). Nor are these levers necessarily embedded within the online experience, for example, in CS3 the VLE tools are acting as a vehicle *in* rather than the vehicle *for*

the learning experience. When linked to levers of assessment and intended learning outcomes, following Biggs' concept of constructive alignment (2003), precipitate experiences can form a powerful combination of factors to motivate student learning.

Practice-cognition tension and the influences of discipline and profession

By highlighting the significance of engaging in experiences to encourage effective learning, practice and doing could be interpreted as taking precedence over critical thinking and discursive knowledge. Indeed Archer's thesis argues for the primacy of practice (2000a) and in so doing begs the question of whether it is valid to privilege practice over discursive knowledge. This stance appears to challenge the concept of academia as standing apart from and potentially privileged over real world practice. In fact Becher argues the view of the world of learning as an "ivory tower" is more "illusory than real" given the realities of "a fundamental conflict between quality audits and entrepreneurial pressures on the one hand and academic norms and values on the other" (2001: 159-160). Nevertheless understanding what learning is seems to be bound up with associating academia with knowledge domains as opposed to a discipline or profession focus (Parker 2002).

The conceptions of learning identified by Marton and Säljö's research, previously outlined in Chapter 2, were critiqued as privileging discourse over practice. Conceptions 4, "Learning as making sense or abstracting meaning", and 5, "Learning as interpreting and understanding reality in a different way", are placed above conception 3 which defines "Learning as acquiring facts, skills, and methods that can be retained and used as necessary" (Ramsden 1992: 26; Beaty et al. 1997), making it difficult to reconcile higher order conceptions 4 and 5 with practice and doing. If practical action, interpreted here as application and learning by doing is mooted as being at the heart of learning in order to transform a person, the concept of learning as transformation through experience (Dewey 1933, 1938, Kolb 1984, Jarvis 2003, Laurillard 2002) does not sit easily with Marton and Säljö's hierarchical model, though conception 3 appears most closely approximated to Archer's praxis (2000a). Nor is it clear from Marton and Säljö's work how these facts, skills and methods are "acquired" and transferred into practice. Given the distinctions highlighted by Säljö between a deep approach which is variously described as "active", "organising" and "reflective" and a surface approach described as "memorising" and "atomistic", it could be anticipated that the "acquiring"

process in conception 3 is achieved through a surface rather than a deep approach to learning (1981:47-65). This critique of Marton and Säljö's work has implications for the ASI in focusing on discursive knowledge and being geared to learning in higher education settings.

With Säljö's plea in mind for a more descriptively orientated approach to research in order to reveal what learning in real life is like (1981:47), students associated with each of the cases under study were asked to identify what learning meant for them and how they learnt on their course. The analysis of their MQ responses, outlined in Chapter 4 (Table 4.1) identified much higher percentages of students equating learning with knowledge (ranked 3rd) and information (ranked 4th) compared with skills development (ranked 15th). When these responses were linked with those for how students learnt on the course, reading (1st) and lectures (2nd) were ranked well above practice (9th) and tasks (12th). These findings reinforce the idea of privileging discursive knowledge over practice, the *what* of learning over the *how* of learning, unless students are considered to be operating at Marton and Säljö's conception 1 level where learning is seen as "a quantitative increase in knowledge" by "acquiring information or 'knowing a lot'" (Ramsden 1992: 26; Beaty et al. 1997). The fact that reading is ranked 1st in how these students learn on their course and followed by discussion ranked 5th and assignments 6th, challenges the proposition that students are operating at Level 1. Further, student comments reveal deep approaches to learning like "bring it together in my mind" (MQ1/2/24), "finding new ways of doing things" (MQ3/1/11), "finding out new information and ideas and seeing if they work in practice" (MQ4/1/12), "processing information that is new and using it in a constructive manner" (MQ5/1/8), "acquiring knowledge from different sources and trying to make sense of, then applying them to different scenarios/areas of course/life" (MQ6/1/2). It is only in CS2 and CS5 that practice is given more prominence and CS4 where skills development features more clearly as a category. So is there something different about these three cases? Could the difference be attributed to differences in disciplines? Is praxis more important to learning in some disciplines than in others?

When CS2 students were asked to identify how they learnt on their course 82% identified practical work as a significant part of how they learnt with 36% specifically identifying problem-solving with comments like: "Gaining information to allow you to

overcome more complex problems" (MQ2/1/4). Student responses demonstrate alignment with their tutors' intentions of "bringing them understanding by doing" (CS2/T2.2/34), supporting Prosser and Trigwell's argument that teacher's conceptions have a powerful influence on what and how students learn (1999). The preference for problem-solving through practical work may also be a feature particularly associated with the discipline.

In CS5 where students mention practice, it refers to learning in professional practice rather than practical work or skills development though, with regard to their e-learning experience, students mention personal and professional skills development and two students specifically mention computer skills. Students descriptions explain how they are applying theory to their work practice with comments like "internalising knowledge relating to practice" (MQ5/1/1) and "to find out and try new methods" (MQ5/1/6), demonstrating application of knowledge and methods to their situated working practice beyond their experience within formal education. Their emphasis on practice may be explained by their status as part-time students situated in professional practice in comparison to the full-time undergraduate students who are likely to be more distanced from real world work practices.

If the centrality of the workplace is assumed to be influencing students' interpretations of learning as privileging practice over knowledge, by examining the student experience in CS4, where students are also part-time and mostly working (CS4/T4/2), it should be possible to verify this hypothesis. But in CS4, practice was only mentioned by 9% whereas skills development, although ranked 15th in the table, was identified by 36% of Maria's students (Table 4.1). This finding is not surprising given the intended learning outcome for this unit is to practice a variety of ICT skills for application to the task of investigating business problems (CS4/T4/2). But what is significant about Maria's approach is that she links skills development to appropriate applications for business highlighting a possible solution to the important question of how practice can be linked to learning by focusing on teaching methods which provide opportunities for students to experience realistic and meaningful applications, in the case of CS4, diagnosing and dealing with a business problem they are likely to encounter in their workplace.

The challenge for much of higher education is that it is distinguished from the world of work and professional practice, making the design of realistic and meaningful learning experiences more challenging for tutors working with students situated in full-time education rather than practice environments (Lave and Wenger 1991). Indeed it could be argued that the discursive and propositional knowledge associated with academia is what academia is and does and therefore students need to be engaged with the cognitive over practical knowledge or know-how. Parker's concern to distinguish between 'subject' as taught and assessed in a variety of ways and 'discipline' which is practised and engaged with can help to move this debate forward (2002). However Candy and Crebert's (1991) study of differences between learning environments associated with the world of work and the world of the university, presenting challenges for students moving between the two, remains a concern for tutors in higher education, especially when more recent studies like Crebert et al (2004) argue that despite the increasing emphasis in many universities on work-integrated learning programmes, today's graduates continue to face the same challenges as they experienced at the time of Candy and Crebert's 1991 study.

The CS tutors expect their students to work with propositional knowledge and it would appear their students recognise and concur with this approach. In CS1 Emma wants her students to gain a "good grasp of the empirical research conducted in the area" (CS1/T1/10) and her students' MQ responses support this, saying they learn by reading (67%) and by research (44%) (See Table 4.1). In CS3 Annette highlights a fundamental aim of the student learning experience by suggesting "reinterpreting knowledge to think outside of the boxes is really important and to question things" (CS3/T3/24) and her students' NGT responses emphasise information resources like e-journals and availability of lecture notes as strengths of e-learning (See Table 4.9). In CS5 Sarah identifies learning as "developing perspectives on the meaning of theory, in the relation of theory to practice" (CS5/T5/2) by analysing experiences, good or bad to "bring some perspective to it, to take away" (CS5/T5/8) and her students support this intention of applying learning to their professional practice with comments like "Internalising knowledge relating to practice" (MQ5/1/1). In CS6, one of the intended learning outcomes is to enable students to be more reflective in thinking before speaking. Edward's students support the benefits of CMC voting for "Generates more ideas and opinions" as a strength (16 NGT votes) (See Table 4.15).

Tutors' intentions appear to support the contention that, though the doing is vitally important, it is not enough without the added benefits of making sense of the learning through working with it, discussing it, challenging it and critically reflecting upon it. The proposition is that engaging in experiences is not enough to assure deep learning but that knowledge how and knowledge why need to be intertwined to achieve effective learning. The relatively high ranking (5th) given by students to discussion as a means of learning is significant here (See Table 4.1). Sarah's experience in CS5 highlights the benefits accruing from student engagement in online discussions. She observes "the level of debate in the discussion forums, was very high" compared to what happens in the classroom. She believes online discussion "encourages individuals to reflect more deeply" (CS5/T5/94), an observation supported by student comments:

> It's made me read much, much more. I'd go off into much greater depth and it actually really made me think how are we going put all this in practice? So it made it much more of a deeper type of learning, this whole module than say a module in a classroom (FG5/216).

Rather than accepting the proposition that practice is privileged over thinking and discourse, or thinking and discourse are privileged over practice, we can seek to find ways the two interact in a non-privileged way. What this thesis is proposing is that there is a third way of approaching learning as transformation through experience represented by models of experiential learning presented by Dewey (1933) and developed by Kolb (1984) and Jarvis et al (2003). This third way does not need to privilege action over thinking or cognition over practice because it combines Dewey's model of reflective experience, where the experiential trigger is directly related to purposeful thinking for solving the problem or answering the question, with Archer's thesis re-asserting the wholeness of human beings operating with their senses, emotions and cognitions intertwined and interacting with objects in the world (2000a). Archer highlights the link between thinking and acting by explaining: "The human body is unique, because of its dual role as the source of perception which is also able to sense itself" and suggests the power of reflexivity and praxis are intertwined in human agency (2000a: 130).

Archer's praxis is "a personal technology which transforms the world" ensuring like Dewey's purposeful thinking that "practical action is not wanton or directionless, it has a point to it given by virtue of the way subjects are and the way in which the world is" (2000a: 131). The emphasis is on activity but not narrowly defined as practising a skill

but rather the development of praxis within a social context informed by prior learning experiences. In CS5, for example, the "take away" is a key phrase in Sarah's concept of learning, highlighting the significance of learning as an ongoing praxis where new perspectives gained can be carried forward by students into professional practice (CS5/T5/180). In accepting Archer's thesis, it appears to be a logical strategy for Maria in CS4 to aim at developing embodied practical knowledge or know-how by linking the development of skills with cognition through activity as representative of real practice (2000a).

Archer's thesis appears particularly influential not only because it has sound explanatory power for understanding the process of learning, even though she has not presented it as a learning theory, but also because some of her arguments have resonance with other writers discussing the theory and practice of education. Barnett's critique of the limits of competence analyses the distinction between *academic competence* associated with the "student's mastery within a discipline" and *operational competence* associated with reproducing wider societal interest in performance, especially performance likely to enhance the economic performance of UK Inc" (1994: 159). Barnett suggests these "changing definitions of competence are a microcosm of the changing definitions of the university" and believes they explain how concepts of the university have moved "from cognitive culture to economic performance" (1994: 159). Barnett argues that these competences are based on different ideological stances and that neither should take precedence, proposing a third perspective which "captures a view of human beings located neither in operations and technique, nor in intellectual paradigms and disciplinary competence but the total world experience of human beings" who develop through "reflective knowing" rather than know how or know what (Barnett 1994: 178, 180).

There is some common ground between Barnett's and Archer's ideas but while Barnett's critique appears politically and ideologically situated in the HE milieu, Archer's thesis is more encompassing and tolerant of different kinds of learning by human agents in many different social situations, acknowledging the interrelatedness of the three orders of reality and their respective forms of knowledge. I would argue that her critical realism thesis provides more explanatory power for learning emerging from

the human agents' engagement with context and structure rather than by being founded on political and ideological factors.

Situated learning and locus of practice - social presence relationships

Lave and Wenger (1991) argue that learning is a function of the activity, context and culture in which it occurs or is situated and that "learning is an integral and inseparable aspect of social practice" (1991: 31). Their theory of learning is focused on work-based learning experiences rather than formal education settings, where abstract and decontextualised knowledge can be mediated through teachers and textbooks, rather than being situated within or given authenticity by relating that knowledge to real world practices and experiences. Lave and Wenger argue that:

> ... even so-called general knowledge only has power in specific circumstances. Generality is often associated with abstract representations, with decontextualization. But abstract representations are meaningless unless they can be made specific to the situation at hand (1991: 33).

The different communities of practice associated with higher education and professional practice will exert their influence on learners through what Lave and Wenger describe as legitimate peripheral participation (1991: 29) but while Archer affirms the context in integrating the three orders of reality with their respective forms of knowledge, embodied, practical and propositional, her thesis of the human agent is neither constrained by situated factors in the social order, nor aligned with grand theories in education, psychology or sociology. Archer's thesis therefore enables the examination of learning through the praxis of the human agent by integrating rather than separating the cognitive, affective and psycho-motor elements that constitute the human agent. The praxis of the human agent is central to this theory and enables it to be linked with Dewey's theory of learning through reflective experience. The reality for individual students situated in different communities of practice will be to make space and time for reflective experience whether focused in work or academic settings.

The challenge then for tutors working with students situated in higher education is how to enhance learning effectiveness through constructing experiential learning opportunities that are meaningful and realistic and that enable the meshing together of embodied and practical knowledge with propositional knowledge when their students are distanced from locuses of practice. The cases make reference to the transfer of learning into new situations with CS1 students expected to "produce design and

implementation guidelines" appropriate and relevant to employers in future workplaces (CS1/T1/91); CS2 students empowered "to make judgments" in professional life (CS2/T2.2/34); CS3 students putting knowledge into practice to "work out what does and doesn't work" (CS3/T3/8); CS4 students asked to apply learning in "different situations" (CS4/T4/18); CS5 students able to "make a difference back in practice" (CS5/T5/180); and CS6 students applying what they have learned in "an environment which is not wholly predictable" (CS6/T6/18). The precipitate learning experiences designed by the tutors are intended to achieve these outcomes through opportunities for the development of praxis (Archer 2000a).

The starting point for effective learning by students is participating in the constructed experience but it has been argued above that the precipitate experience on its own cannot guarantee learning without students also engaging in purposeful thinking or reflection on the experience. It is in this way that effective experiential learning opportunities are closely linked to the concept of deep learning approaches which also entail a "reflective attitude towards the learning material" (Säljö 1981:47). However following the ideas of Dewey (1933) and Archer (2000a), my argument is that engagement in precipitate experiences is more likely to lead to reflection and deep learning where the experience involves the whole person with cognitive, affective and psychomotor responses intertwined. The question then posed is how effective can the experience be when not directly situated in practice and engaged in through a computer?

Emma's approach in CS1 identifies significant advantages for students in taking part in the online discussions because they are engaging in real practice experiences using CMC. Emma says:

> Students actually experience a lot of the communication effects that we talk about in the lectures, so it links in nicely. If they didn't take part in it, it would be difficult to actually say to students – "well when you have online discussions... this happens" without them actually taking part (CS1/T1/57).

Emma's design is an authentic practice experience because students are undertaking a real life experience, not mediated through the tutor, textbooks and journals, though mediated by a computer. The discipline is a contributory factor in student engagement in CS1 since both the subject content and task process are the focus of the unit. How much this discipline-technology relationship is responsible for enabling effective learning through experiential experiences is a key question and comparing it with CS3

where students organise a real live event and use the VLE to assist the process may help to address this question. Like Jarvis's (2003) 'episodic' experiences, this CS3 practice experience recognises the importance of the social context of learning and the value of the practice experience in facilitating a more holistic approach to learning, engaging a number of senses and supporting the development of psychomotor and affective as well as cognitive learning outcomes (Bloom 1956).

My purpose in questioning differences in each experience is not to critique the approach adopted by the tutors but to identify what students experience and how this is affected by being mediated through an online learning environment. In Chapter 2 it was suggested that much of learning in higher education is based on knowledge rather than practice experiences, having very little to do with the social context of the theory and practice shared. It was argued that the means of creating practice experiences outside the 'real life' context is difficult in the conventional classroom and potentially even more challenging in online learning environments where both the physical and social can appear distanced. Each of the cases provides examples of precipitate experiences taking place in different contexts and over varying periods of time (See Table 5.1). I will argue that the sense of authenticity, the reality check on practice experience, what I am terming the locus of practice, is affected by what will be described as the proximity of presence. The question of how each of these case study experiences is described by students should throw some light on their sense of authenticity and the significance of social presence.

The literature on media and social presence is significant here. Spears and Lea (1992) identify the origins of the discourse on social presence with the work of Short, Williams and Christie, who introduced the concept through investigating the communication effects of different kinds of media including telephone, television and face-to-face communication (1976). They defined social presence as "the salience of the *other* in a mediated communication and the consequent salience of their interpersonal interactions" and associated it with a number of dimensions such as unsociable-sociable, insensitive-sensitive, cold-warm and impersonal-personal (My italics. Short et al 1976: 65). Connections are also made with the concepts of intimacy (Argyle and Dean 1965) and immediacy (Mehrabian 1966, 1969; Wiener & Mehrabian 1968) (Spears & Lea 1992). The discourse on social presence was subsequently taken forward

by researchers, particularly in the field of CMC, to consider the influence of personal and social identity and group processes (Spears & Lea 1992; Garrison 1997).

What I want to emphasise here is that the concept of social presence in the form of significant others contributes to the achievement of effective learning and is particularly important in e-learning contexts since opportunities for establishing, maintaining and developing social presence will rely on the affordances offered by the media available, for example comparing asynchronous with synchronous communication facilities. But it is important, following Spears and Lea's argument, to note that "the impact of the social is not related in any simplistic or mechanical way to 'presence', and may often be inversely related to the tangible presence of other individuals" (1992: 55). Presence does not have to be physical since physical does not have to equate with social. If we think of a crowded lecture theatre with all students physically present, this does not guarantee social presence since individuals may feel unconnected perhaps with the lecturer, the surroundings, or the other students who may be largely unknown to each other. On the other hand individuals sharing the online space of a discussion board could feel very closely connected even where they do not meet physically. It is important to recognise that behaviour in CMC as with use of other media "cannot be understood abstracted from its constituent social context" (Spears & Lea 1992: 59). I want to suggest that the interpretation of social presence will be influenced by the locus of practice. Spears and Lea propose that understanding of social presence is linked to social identity theory (Tajfel & Turner 1986) and that it is important to distinguish between personal and social identity, or identities (1992). They argue that:

> Whereas personal identity corresponds to one's identity as a unique individual, social identities are those aspects of the self corresponding to valued groups or social categories to which one belongs and with which one identifies. According to this theoretical tradition, either personal identity or particular social identities may become salient and affect behaviour depending on the situation or context (Spears & Lea 1992: 45).

This means of explaining variations in online practices can be seen to have parallels with the enablements and constraints at work in different contexts of practice that have been identified by Archer's model (2000a). Like Archer, Spears and Lea appear to wish to redress the balance between agential and structural forces in arguing that "the social cues perspective has tended to define the social both theoretically and operationally in terms of the interpersonal domain only" (1992: 45) at the expense of intra- and

intergroup processes. Jones's experience of working through an avatar appears to reinforce a "more social and interactional view of presence" by viewing it as a "social accomplishment" with individuals "part of social settings which they actively constitute with others, who are also actively being present in an environment" (2005: 416).

A grid is offered as a schematic for identifying the relationship between the locus of practice, along a continuum from discursive knowledge to practice experiences. This continuum is based on the locus of practice as a stimulus to learning and is associated with degrees of knowledge mediation. It is encompassed at one end of the spectrum in the social order of accumulated knowledge residing in the published literature and within different disciplines and communities of practice and at the other end of the spectrum in the agent's practice experiences. This locus of practice continuum is juxtaposed against a continuum specifying proximity of presence, from social to individual. This proximity of presence continuum situates the agent in the practical order specifying their relationship with significant others including peer group, tutors and work colleagues, within the learning process. The schematic is a means of analysing the variations between the six case studies. The inclusion of lectures, seminars and tutorials as examples specify ideal-types rather than actual examples. Attending a lecture is a real experience but the issue here is the extent of experiential learning opportunities possible within the scenario, whether a lecture, seminar or tutorial, to make it a transformational learning experience. The practice of reading a journal article, book or other media is real and the resource will be designed with an audience in mind, perhaps including questions to encourage interaction with the individual reader. While the schematic is a simplification of a much more complex range of interacting factors with e-learning experiences varying greatly according to factors such as time-span and students' previous learning experiences impacting on the relative positions allocated to the individual cases (See Figure 3: *Practice - presence dimensions for understanding agency - structure relations*), nevertheless the case studies can be plotted according to the precipitate experience's locus of practice. For example CS3 represents an authentic practice experience in the organisation of real live events while also being socially situated through the use of the VLE to provide support and communication from tutor and peers for these events. This enables CS3 to be positioned as an anchor in the experiential-social quadrant of the grid.

By contrast the sense of distancing engendered by the use of online case studies is identified by students and tutors in CS2. Patrick interprets the loss of "intimate contact, almost the touch and feel" as "probably the biggest drawback" in that you cannot see students' reactions (CS2/T2.1/48). Students identified "isolation, inability to share ideas" (See Table 4.7 NGT2 rankings) and comments identifying distancing from tutors through learning "without explanation" (MQ2/4/1) and from their peer group identifying "individual rather than group learning" (MQ2/10/5). These findings are all the more astounding when the timescale for this learning technology experience represented a three hour session in which students were physically present yet remote. CS2 has been placed on the grid as an anchor in the experiential individual quadrant, representing a practice experience enabling students to experiment with different design choices but positioned as socially distanced since the students have identified a sense of being remote from their tutors and their peer group while working individually online, even though only for a short time period. Here the choice of a broadcast medium appears to be impacting adversely on the sense of social presence with students experiencing the loss of interaction and immediacy of feedback from significant others.

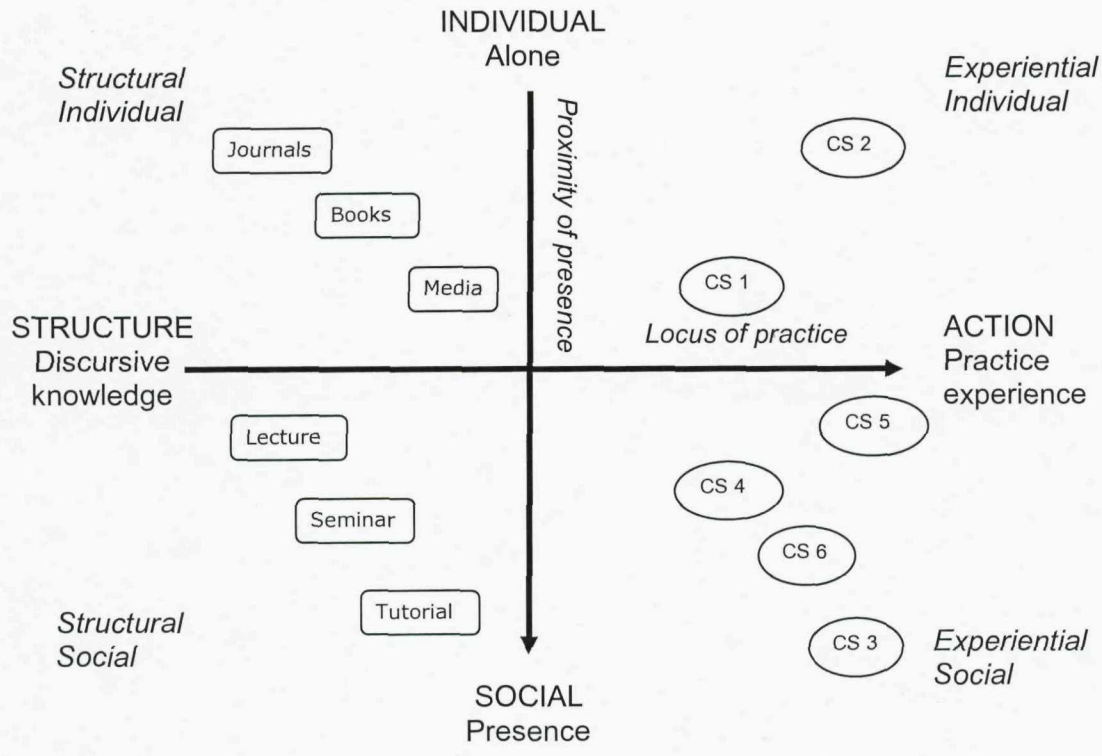

Figure 3. Practice-presence dimensions for understanding agency-structure relations

In contrast to Short's definition (1976) which places emphasis on the role of the *other* in achieving social presence through various media, Garrison and colleagues identify social presence as "the ability of participants in a community of inquiry to project themselves socially and emotionally, as 'real' people (i.e. their full personality), through the medium of communication being used" (Garrison et al. 1999: 94) highlighting the significance of the *self* more than *others* in establishing social presence. The projection of self and/or others through the medium is highly significant since it challenges the relationship between practice as doing and practice as receiving on the part of the learner with the ideal flow being a two-way conversation (Laurillard 2002) or multiple interactions with peers and with tutors. This could help to explain why the broadcast medium associated with CS2 may contribute to a less positive learning experience despite assessment and feedback opportunities built into the online case studies.

However providing opportunities for online communication and group activities cannot guarantee success in online learning. Taking the example of CS1, feelings of isolation and unfriendliness were reported by some students with comments like: "There's no human element and it's a very impersonal experience" (MQ1/10/24). This finding is surprising as the students were working in peer groups online and continued to meet for weekly lectures. Their position in the experiential-individual quadrant of the grid reflects their sense of being far less socially situated than CS3 and also somewhat less practice based given the continuation of weekly lectures. The CS1 experience could be explained by the nature of the CMC medium. Garrison and Anderson (2003) identify the potential issues for establishing social presence in an e-learning context where communication is confined to text which lacks the immediacy defined by Mehrabian as "those communication behaviours that enhance closeness to and nonverbal interaction with another" (1969: 203).

But if we then compare the CS1 with the CS5 experience, CS5 is difficult to place since findings provide conflicting descriptions with some students considering the e-learning experience as isolating, when not able to talk to colleagues, and artificial due to lack of spontaneity and conversational language when compared to the classroom, while the online presence of the group was reflected strongly in generating peer group commitment and pressure to perform. Where the precipitate experience for CS5 took place over a term, it is thought that the time period added a further dimension to the

sense of remoteness and isolation felt by some students, particularly when they had been used to meeting weekly, face-to-face, in the previous terms of their course. With these factors in mind, CS5 have been placed just inside the experiential social quadrant but in line with CS3 on the locus of practice dimension given the "genuine learning experience" (CS5/T5/195) of online practices in order to gain insights into e-learning pedagogy. Given that both CS1 and CS5 are established groups of students in the final year and third term of their courses respectively, it may be anticipated that practice has been embedded in a learning culture making it more likely that students may describe experiences of isolation, social distancing, frustration and intimidation associated with e-learning as a new medium compared with more conventional face-to-face learning experiences.

Social distancing experiences are not reiterated by CS4 or CS6 students, hence their positioning in the experiential-social quadrant. Other factors here could have included less established learning cultures (CS4 represented first year part-time students), variations in timescales (CS6 took place over a relatively short six week period compared to CS5 over a term). The potential of these other factors impacting on student experiences is supported by Garrison and colleagues comment that rather than the medium itself "the communication context created through familiarity, skills, motivation, organizational commitment, activities, and length of time in using the media directly influence the social presence that develops" (1999: 94-95). Nevertheless a key factor in all these experiences appears to reside with the relative influence of others, both peers and tutors, within the online learning environment compared with conventional face-to-face learning environments. The active roles of the tutor and the peer group are significant factors in recognising social presence and avoiding a sense of remoteness and isolation in online spaces.

Role of tutor in different forms of interaction and online presence

The role of the tutor in facilitating student learning experiences in e-learning through scaffolding is considered crucial to this study (Wood et al 1976, Vygotsky 1978). Collins, Brown and Newman, in discussing the concept of cognitive apprenticeship, closely aligned with Lave and Wenger's legitimate peripheral participation (1991), suggest the process of scaffolding "involves a kind of co-operative problem-solving effort by teacher and student in which the express intention is for the student to assume

as much of the task on his own as possible, as soon as possible" (1989: 482). However Oliver identifies the potential constraints of the online medium, suggesting: "In open and flexible learning environments, there is often a diminished role and opportunity for teachers in providing direct teaching and the forms of assistance usually associated with scaffolding" (1999: 250). The online medium may have positive and negative outcomes for relationships between tutors and students in the e-learning case studies.

CS3 presents the epitome of an authentic practice experience in the organisation of real live events and though the support and communication for these events is mediated through the VLE, Annette highlights two significant factors relevant to the student learning experience, the personalised support she provides online and the support mechanism of the peer group event teams. She argues that the VLE enables her to provide more effective and personalised support for individual students. Rather than seeing student managed learning as "telling the students to go away" she believes the 24X7 communication facility means the student learning experience can be personalised:

> It does take more time but it does enable students to feel that they've got a one to one contact with you but there's also a support mechanism with each other. It really does enhance student managed learning a lot more because it enables you to help them in the hours that they are not in face-to-face contact (CS3/T3/134).

This potential of enhancement of the personal through the electronic medium is particularly significant in view of the social distancing and sense of isolation evidenced by students and tutors in CS1, CS2 and CS5 and acts as a counter argument to the constraints of structure over agents. The personalised support element of working online is also identified in CS5, though as a more formalised relationship. Sarah provides regular online surgery hours (FG5/71) and although this online support is valued by students, it does not appear to be a sufficient resource to counter the sense of social distancing expressed by some of her students.

In CS2 students highlight social distancing from the tutor and peer group. Although the online case study constituted a very small part of the students' academic studies and was developed with a knowledge based tool to enable students to experiment with different design choices, this did not prevent students identifying distancing issues from tutors and peers. Where facilities for online communication and discussion were not

included in this initiative, this could be a contributory factor but prior experiences of learning also appear to be significant in CS2. An examination of the MQ responses (See Table 4.1) highlights the importance CS2 students attach to face-to-face learning with 91% identifying lectures as the predominant way they learn on the course, closely followed by 82% for practical work, which their tutors confirm as laboratory work (CS2.2/10). Additionally prior experiences with using computers and the Internet present a significant factor in the CS2 students' perceptions of e-learning experience and will be discussed further below.

CS1, by comparison, is focused on online group discussions mediated by weekly lectures, making student comments about social distancing all the more surprising. Emma confirms there are some students "every year who say they didn't like the remoteness and they miss the seminars" (CS1/T1/113) and suggests this could be linked to resistance to the technology and student expectations of the availability of the tutor:

> ....because the lecturer isn't there so much, because invariably if you have the technology you don't have the lecturer, so they might feel a little bit hard done by... (CS1/T1/121).

To pursue the question of student expectations of tutor facilitation and support further, a cross-case comparison based on the MQ question: *What does the teacher do in e-learning that helps your learning?* was initiated (see Table 4.4). Overall student perceptions are very positive about the tutor's role in facilitating e-learning. Over 70% of students identify ways in which their tutors support and scaffold learning online in each of three cases, CS4 (77%), CS5 (78%) and CS6 (71%). Student perceptions of the tutor's role in CS3 also appear positive (65%) and though 26% said they didn't know or did not answer the question, only 9% said there was little or no involvement. CS1 and CS2 by comparison present a different profile. CS1 student responses appear ambivalent with 37% appreciating the role but 56% saying they didn't know, or not applicable or leaving the question blank. CS2 students present mixed views with 55% identifying the tutor's role in facilitating learning while 36% suggest the tutor is not involved or has very little influence with two students commenting on the need for more direction in task sequencing by the tutors. These findings add weight to the proposition that where the tutor is perceived by students as having a more limited or ambiguous role in e-learning, this can impact on the students' sense of remoteness within the learning experience. Dissonance between tutor intentions and student perceptions is highly

significant for the success of e-learning ventures and a failure to address this could lead to adverse but potentially unfounded student feedback. Maria, for example, suggests:

> I'm always going to have contentious feedback and I think this unit polarises, because I'm trying different learning approaches (CS4/T4/48).

What is more difficult to understand is why some CS5 students are experiencing a sense of distancing given such a high percentage of students (78%) identify Sarah's role in facilitating and supporting learning. As suggested above, it is possible that the duration of the e-learning initiative is a structural factor adding to the sense of remoteness, given a whole term was devoted to e-learning when students have been used to weekly face-to-face sessions prior to this unit. Although the VLE was available 24X7, students tended to want to access sessions on Friday mornings coinciding with when their previous face-to-face sessions were timetabled. Sarah believes this was partly "because they had structured time they were used to" and "thought they would find someone else online if they went on at that time" (CS5/T5/182).

Another factor for consideration, particularly in comparison to the findings on student conceptions of learning (Table 4.1), is that learning from tutors is ranked 14th just above the bottom ranking of skills development and although lectures are ranked 2nd this raises the question of whether students are in fact exhibiting a greater degree of dependency when working online compared to their conventional face-to-face classroom experiences? Sarah highlights this issue when identifying the importance of feedback to motivate and encourage students:

> Because it's not a face-to-face context they need reassurance that somebody is out there reading, taking account of what they are doing and that they are doing ok. Without the feedback you would assume nobody was listening and so they wouldn't carry on (CS5/T5/144).

However Sarah also identifies the importance of getting a balance between the degree of feedback given by the tutor and by the peer group in response to student contributions and suggests the predominance of peer feedback is "a key achievement because that's how they would be in the classroom" (CS5/T5/146).

The CS6 experience provides an alternative angle on the student-tutor dependency relationship, enabling Oliver's statement about the diminishing role of the tutor to be interpreted as a freeing rather than constraining influence of the electronic medium (1999: 250). Edward describes the learning benefits of a "less prominent" teaching

position due to the tutor not being physically visible within the CMC medium and therefore enabling opportunities for more peer group interaction (CS6/T6/106). When CS6 students were asked about the role of the tutor in e-learning, they were very positive and where 24% suggested the tutor is not involved or has limited involvement, this was viewed positively by students as allowing more freedom and control on their part as: "Teacher is not there so people find it easier to say what they think" (MQ6/9/21). It would seem that while the role of the tutor is a crucial factor in the student learning experience, their significance in the proximity of presence continuum is a delicate balance between offering too little or too much (See Figure 3).

Power of the peer group in social interaction

Reference has been made to the significance of the peer group within these e-learning initiatives. The concept of scaffolding is not confined to the tutor's role. Vygotsky suggested it could also be "in collaboration with more capable peers" (1978: 86). So the role of the peer group in supporting of online learning within the six case studies is worthy of further examination. The value of collaborative approaches to learning online has been recognised by a number of writers on CMC and networked learning (Mason & Kaye 1989; Kaye 1992b; McConnell 1994, Klemm & Snell 1996, Harasim et al. 1995, Banks et al 2002). Given all the cases, barring CS2, made use of online discussion and peer group activities, the question posed is whether there are any distinguishing features in the way groups and tasks are structured that could impact on student collaboration, adding to, rather than easing the sense of remoteness felt by some students. Klemm and Snell point out that, by simply creating group environments for students in CMC, this does not necessarily lead to effective learning (1996). They argue that CMC environments can be more effective when students are required to do something rather than just talk about it, working together as a team to produce academic outputs. This process of engagement enables students to build their own knowledge and develop understanding by getting involved in activities and reflecting on their own experiences.

In CS3 Annette identifies the challenges of achieving deep learning through critical questioning and thinking outside the box (CS3/T3/24) and uses group activities specifically as a means of supporting and facilitating this kind of student learning (CS3/T3/56). In CS4 Maria promotes peer group interaction through online group tasks,

suggesting students have a "better experience" than if she was just talking because they provide "all sorts of input that I couldn't possibly design" (CS4/T4/196).

This idea of the sum being more than the parts is a good argument for promoting group work, both face-to-face and online. In CS5 Sarah only identifies one major structured group activity, "a debate with students placed in opposing groups designed to encourage more collaborative work" (CS5/T5/108), nevertheless arguing the continued use of the discussion forums led to growing expectations by participants so:

> By the end they expected massive contributions from everybody, high level discussion and debate, interaction and most of them said if they didn't contribute they went on every single day just to see what everyone else was doing (CS5/T5/189).

The CS5 group experience highlights how students may be extending the time directed to study for a variety of reasons. The CS5 group experience demonstrates the very powerful influences peers can exert online with a variety of feelings being expressed concerning peer pressure, commitment, competition, and intimidation. Though these students were working remotely, the range of feelings described in the group, demonstrates a strong sense of social presence. For some students these feelings motivated while for others they stifled contributions.

> It certainly felt like I had to contribute, every time, the pressure to perform. *I felt I was letting other people down if I didn't because we know we learn from each other.* By putting my point of view, I thought I might be sharing and hopefully get something back as well (FG5/29).
>
> I just felt really intimidated, I thought, oh god, I can't contribute anything to this (FG5/176).

The students in this group were very well known to each other, having worked together as a small group of 11 students for two terms prior to embarking on this e-learning experience. It is possible the previous development of a group culture in classroom meetings was a contributory factor in encouraging the quantity and depth of contributions identified by Sarah (CS5/T5/94). The student comment highlighted in italics above (FG5/29) demonstrates this commitment to supporting colleagues but there was also an element of competition expressed by students and pressure to perform which could be linked to the visibility of contributions in the online environment. Where the archiving facility allowed all students to see each other's contributions this could be linked to Foucault's idea of surveillance (1979) in which technological developments like VLEs can be viewed as supporting the control and regulation of human activity. Foucault interpreted Bentham's idea of an all-seeing "Panopticon" as a metaphor for self-discipline in society, arguing:

> He who is subjected to a field of visibility, and who knows it, assumes responsibility for the constraints of power; he makes them play spontaneously upon himself; he inscribes in himself the power relation in which he simultaneously plays both roles; he becomes the principle of his own subjection (1979: 202-203).

Such an interpretation of agents operating under self-imposed constraints, offers a plausible explanation for the drive to perform in the visibility of the online learning environment and may well be an influencing factor of the technology. However it is not clear if Foucault's theory removes the element of free will by human agents, the choice to contribute or not, suggesting the theory needs to be tempered by a critical realist stance that sees agents making choices to participate or not. Further it raises questions as to who or what the all-seeing panoptican represents, structural forces external to the agent in the guise of the state, the institution, the tutor, or in this case the peer group acting as the surveillance force in opposition to the human agent or more subtly the self playing both roles as represented in Foucault's description above (1979). This identifies a contradiction in the idea of social presence as both constraining and facilitating, with agents bemoaning a sense of isolation and remoteness while identifying a need for social presence. Returning to the starting point of this discussion, while the asynchronous communication medium offers flexibility for online access at anytime, it also creates a sense of remoteness and isolation for some students. If they missed part of a discussion, for whatever reason, they could feel excluded:

> If I didn't go in on a Friday morning and I went in another time and there'd be the complete discussion going on, I felt I was an outsider (FG5/42).

The dangers of tutors inadvertently creating new types of digital divide by not being clear about time commitments and contribution expectations are noted here but the power of the social group to go beyond expectations is also recognised.

The social distancing experienced by CS1 students could be related to tasks or group structure. Emma explains how she decides the topic question and asks two students to adopt one position and two students to take the other side in each group, to debate the topic for the first week, and then in the second week come to some consensus (CS1/T1/65). While this approach appears similar to the CS5 debate, it is feasible that the CS1 groups are less cohesive and more open to dissonance though only one student mentioned the frustration of non-participation by other students in online discussions

(MQ1/7/26). However given the limited data available from CS1 students, this can only be surmised.

The CS4 student experience also highlights challenges in online communication and group work where communications can be more easily misinterpreted and where contributions are finely balanced between everyone having their say and some individuals dominating (FG4.1/142, 146). Edward, in CS6, pointed out that "offence seems to be taken slightly more easily and more permanently" in online communication (CS6/T6/151) and students' comments agreed:

> Misinterpretation of the way people are saying things, can result in offence/insults and misread messages (MQ6/7/6).

It could be anticipated that there might be more tensions in CS4 and CS6 where students were allocated to discussion groups by the tutors rather than student choice and so would be less familiar with members than in CS5. But in both cases this experience is received positively with students in CS4 saying:

> I think it's quite a good experience to work with people who perhaps you wouldn't normally associate with or you hadn't got to know yet, I thought that was a positive side (FG4.2/224).

The potential of flaming in online communication was also identified by CS5 students despite group familiarity and cohesion. One student expressed frustration with colleagues not responding in what for her was a restricted study-time frame:

> I remember I nearly put; where the hell is everyone and then I just thought, no I can't put that because this is a professional forum (FG5/181).

Table 4.3 shows student responses to the MQ question about their worst moment in e-learning. While CS4 and CS6 students do not identify social distancing as an issue, they mention non-participation or waiting for responses from other students and group issues. Since students' contributions to online discussions were being assessed in both cases and group task outputs formed the summative assessment in CS6, it is not surprising that this was an issue for individuals in CS4 (18%) and especially significant for CS6 (57%) students. However CS1 students were also being assessed on their online contributions and yet only 4% identified participation by other students as an issue. This could suggest the discussion topics set for CS1 students required less collaboration particularly when compared to CS6 activities and that this could have contributed to the social distancing identified.

It would appear that the established peer group can act as a powerful motivator to encourage online contributions and that this can be further stimulated by the design of specific activities to encourage collaboration and peer feedback. Although some peer group experiences can isolate and exclude through competition and have greater potential for misunderstandings than face-to-face communication, nevertheless the importance of encouraging peer group collaboration to enhance social interaction and promote a sense of online social presence is highlighted here. However there are also important considerations for tutors developing online practices particularly with regard to managing time boundaries and commitment expectations so as not to disenfranchise some students which will be pursued further in this chapter.

Holistic learning and significance of integrating cognition, emotions and practice

These findings illustrate the significance of the social context of experience and its potential to contribute to the effectiveness of learning whether occuring online or face-to-face through interaction with tutor and peer group. These findings support Dewey's recognition of the significance of the context of experience in identifying that "all human experience is ultimately social: that it involves contact and communication" (1938: 32). Where Dewey identifies the principle of *interaction* as a way of integrating "objective" with "internal conditions" in any situation, he explains that internal conditions are what is happening inside an individual's body and mind while the objective conditions include the influences of the external environment including teachers, books, apparatus and equipment (Dewey 1938: 36) to which can be added the peer group. Dewey's argument is similar to Archer's natural, practical and social orders, the "internal conditions" aligning with the natural order and the objective conditions associated with the practical and social orders. Where students express social distancing, it may be related to the natural order, their internal condition and previous experiences, or to the social order, in the social presence or absence of their tutor and/or peer group. Alternatively it could be that they are uneasy about engaging in the practical order in what is for them a different and potentially challenging experience, or it could be some combination of factors operating in all three orders of reality. Dewey points out that the principle of interaction gives equal responsibilities to the educator for adapting the environment and to the individual for adapting the self:

> The principle of interaction makes it clear that failure of adaptation of material to needs and capacities of individuals may cause an experience to be non-educative quite as much as failure of an individual to adapt himself to the material (1938: 46-47).

The development of praxis, following Archer's thesis, is a holistic ongoing experience integrating rather than separating the cognitive, affective and psycho-motor elements that constitute the human agent. This argument relates to the issue of privileging cognitive over affective and psychomotor domains of learning. If effective learning is about praxis and the modification of one's ideas through a process of dialogue and application then the affective and psychomotor domains related to Archer's concept of embodied and practical knowledge, should be accorded parity with the cognitive domain associated with Archer's concept of discursive knowledge (2000a). Where cognition is so easily privileged over action and feeling in education, the tutor's attention to the design of learning experiences are key to countering the very real dangers of disembodiment from discursive knowledge. When social distancing is factored in as a result of working online, the challenge is all the greater.

This is a good reason for tutors introducing e-learning to follow the sound practice advice provided in Salmon's five-step model to assist the tutor in the design of effective online courses (2000 p.25-37). The model identifies how participants are likely to exploit the system at each stage and how the tutor can avoid common pitfalls. The model may help to explain why some innovations work while others do not by taking account of some of the more affective and psychomotor elements of engagement and participation within online learning environments. Archer's concept of the human agent experiencing a phenomenon with all their senses provides a sound rationale for accounting for affective and psychomotor issues when agents are participating in online learning environments and is reinforced by O'Regan's argument that since cognition and emotion both play a critical role in e-learning, they should be addressed together (2003). This approach reinforces the argument that you cannot separate the agent's experiences of working online from the discursive knowledge of their discipline, or from their psycho-motor operations, as when experiencing problems logging on or navigating through web pages, or from the strength of their emotions when their peers do not contribute. The tutor has a duty to anticipate, recognise, and work with these human agent factors. This analysis also highlights the significance of structural factors

that may be at work in constraining learning. Contributory factors in students feeling like "outsiders" could be related to Internet access issues or time availability.

Structural factors constraining learning

Looking beyond influences of the immediate learning environment, other factors like technology and resource considerations can affect student experiences of e-learning. Table 3.3 shows that while 50% of the students surveyed had remote Internet access from their University term time address, the other 50% needed to rely on University-based access. Table 4.3 highlights technical issues like logging on, access off-campus, slow networks, system failure and unreliability as more significant for CS1 (33%), CS2 (46%), CS4 (60%) and CS5 (44%) students than any other issues identified. The higher figure for CS4 is associated with the ECDL package not being available off-campus, so detracting from the benefits of remote access for e-learning even though the majority of students (70%) have remote Internet access from home or their workplace (Table 3.3). This is highlighted in CS4 NGT feedback where "remote access to ECDL software needed" received 47 votes and 30 votes respectively from the two CS4 groups (See Tables 4.11 and 4.12). However where just under 50% of students in CS2 and CS5 identified technical issues, social distancing by comparison was only mentioned by 11% of CS1 and 22% of CS5 students. Although it is important to note that this table presents a partial picture of student criticisms of e-learning by only including data from the MQ responses, nevertheless technical issues are mentioned most frequently by the students thus warranting consideration as a factor impacting on the student learning experience. It is also interesting to note that remote Internet access does not counter the technical issues criticism but in fact might even exacerbate it since the highest figures for remote access for CS4 (70%) and CS5 (89%) are the same two cases associated with the first and third highest percentages for technical issues with CS4 at 60% and CS5 at 44% of students.

Essence of time and flexibility of time and space

What emerges as the most significant resource factor is the use of time. Time is mentioned in each of the cases whether the initiative spans across a whole unit like CS1 over a semester and CS5 over a term, or where focused over a shorter time period, like CS6 with 5-6 weeks or CS2, concentrated into a three hour laboratory session. Theories associated with the relationship between time, place and space and technological

developments (Giddens 1984, Harvey 1990) provide a useful framework for understanding the significance of time within these case studies. Harvey uses the term 'time-space compression' to signal:

> ....processes that so revolutionize the objective qualities of space and time that we are forced to alter, sometimes in quite radical ways, how we represent the world to ourselves (1990: 240).

He explains the use of the term "compression" by identifying how the pace of life has speeded up through overcoming spatial barriers by means of transportation and communication technology developments, such that "the world sometimes seems to collapse inwards upon us" (1990: 240). By contrast, Giddens defines time-space distanciation as: "The stretching of social systems across time-space, on the basis of mechanisms of social and system integration" (1984: 377), highlighting the endurance of structuration of social systems through time and space:

> In general it is true that the greater the time-space distanciation of social systems – the more their institutions bite into time and space – the more resistant they are to manipulation or change by any individual agent (1984: 171).

Giddens explains how technology developments, like the invention of writing and electronic media for communication, have enabled the collation and storage of information, and thus contributed to the expansion of time-space distanciation:

> The invention of writing, so closely involved with the formation of states and classes, alters the character of time as lived experience, by the very means whereby it permits an expanding of time-space distanciation (1984: 182).

Giddens points out that co-presence of agents is no longer required so removing the restraints on time and space:

> The contemporary world system is, for the first time in human history, one in which absence in space no longer hinders system co-ordination (1984: 185).

The idea of system co-ordination can also be linked to Foucault's idea of surveillance (1979) since, as identified above, the potential effect of the visibility of the online contributions may contribute to and encourage compliance on the part of students and tutors alike.

How then does this link to use of time? The intention is to examine how time is described within the case studies in order to analyse how it is being interpreted and used in practice by tutors and students and to examine how this praxis relates to Gidden's and Harvey's considerations of time. Within the CS2 experience, Richard identifies the idea "that students can spend more time learning from the site" (CS2/T2.2/70) by extending

the time available for studying the online case study beyond teaching contact hours. This is similar for the CS3 experience where Annette emphasises e-learning as a means to "maximise the opportunity" for learning outside classroom hours "whether it's getting resources or whether it's sharing things with each other or doing tasks" (CS3/T3/80). She explains how students "learn at different times and different places" and "that some students aren't able, for whatever reasons, to come into face-to-face sessions" (CS3/T3/82). Where the VLE is available 24X7 for those with access, it affords students the opportunity to review their learning and proceed at different paces:

> Students have got different sorts of commitments and timescales but also different levels and degrees of progression and it enables them to keep dipping back into things if they need to or others to move on (CS3/T3/88).

Where some tutors concentrate on the benefits of extending learning hours, Annette is also describing a means by which tutors can extend their teaching hours. The flexibility offered by the medium, the 24X7 communication facility, is particularly significant for Annette, working part-time, as it enables her to respond to messages outside of her contracted hours.

> They just wouldn't get the support and they'd make my job more difficult. I'd be dealing with too many problems if I left them ....So it gives them support when they actually need it (CS3/T3/126).

Maria's approach in CS4, like Annette in CS3 and to a lesser extent Patrick and Richard in CS2, is using the affordances of the learning technologies to shift the time constraints of class contact time to learning hours outside the classroom. Maria's approach is influenced by the resource constraints of dealing with large student numbers within a finite number of hours for supporting their learning. The "computer based training provides the input", affording a means of managing the time constraints of classroom learning and teaching by taking out "the hardcore, press this button, press that button, from the time" the tutor has with students (CS4/T4/102). By using the time when students and tutor are co-present Maria can make more effective use of "class-based opportunities for formative assessment" when "instant feedback can be given" (CS4/T4/26).

Like CS2, CS3 and CS4, Edward's experience of time in CS6 identifies the benefits of e-learning for overcoming the constraints of classroom time and extending time

available for student learning but he also emphasises making space and time for developing reflection:

> A lot of what happens in a classroom is within a really quite brief period of time and very often I think opportunities for reflection aren't there (CS6/T6/118).

The tutors are acknowledging the constraints of the classroom as place-situated and time-bounded and, in describing the potential to extend time devoted to learning activities through use of the online medium, are highlighting the disassociation of place from space and time (Giddens 1984) for learning. The theme of time needed for purposeful reflection (Dewey 1933) and its relation to Lash's critique of information (2002) and student expectations of using online technologies are key here and will be developed further in this chapter.

Given the tutors' intentions, how does this match with student experiences? Students' views, across all the case studies, appear to coincide with their tutors' comments, emphasising the flexibility and convenience offered by e-learning media. CS1 students identify having more control of their learning online than in the classroom with comments like:

> More freedom to work when able (MQ1/4/23)
>
> Being able to learn at a time and place convenient to me as opposed to structured lecture slot (MQ1/6/10).

The experience of CS3 students is similar, identifying how VLE access enables more freedom and control over how they use their time by making choices about attending lectures and seminars or working to "a different sort of timescale":

> You don't have to do it when the teacher wants to do it. You can do it whenever you want (FG3/123).
>
> You've got the choice of whether you want to come into lectures and seminars. You haven't got someone standing in front of you that can tell you what to do. So you've got a degree of freedom which I think actually helps (FG3/52).

These comments are reflected by CS4 students who see e-learning as:

> Giving me more freedom and flexibility so I don't feel so under pressure to be somewhere at a certain time (MQ4/8/4)
>
> Learning in my own time, when I'm prepared to, when I'm ready (FG4.2/24)

These student comments tend to emphasise managing time for learning more flexibly, the when and where, rather than giving more time to, or maximising learning, the how of learning. However students in CS2, CS5 and CS6 identify more direct learning

benefits of the electronic media. For example, CS2 students describe the benefits of the online case study "for review" (18 NGT votes), being "readily available, able to revisit at a later time" (MQ2/10/8). CS5 students welcome opportunities to review and consolidate learning through reading participants' postings (FG5/224):

> Have time to focus thoughts, you can read other comments and digest them more in depth and return to them if necessary (MQ5/10/6).

CS6 students value added time:

> You have more time to think about and research an answer you give (MQ6/10/7)
>
> Feel freer to take my time answering, so as to produce a better answer (MQ6/10/16).

Students' experiences relate to their tutors' descriptions of making space and time for developing reflection and Dewey's concept of learning through reflective experience by taking time to work through issues purposefully (1933: 12). They acknowledge the how of learning, providing evidence of effective learning as a process taking time rather than something that is constrained by time (Harvey 1990). Where students are supported by shared information, whether tutor-designed (CS2) or student-constructed (CS5 and CS6), this provides continuity to their learning, reflecting Giddens' principle of distanciation (1984). The significance of how the information contained in VLEs is generated will be pursued further below.

Time-space variations can also have some less positive impacts for the agents involved. The online learning environment can be both facilitating and constraining of time. While tutors recognise the flexibility of time offered by using electronic media, constraints of managing time are also highlighted. Where Annette's approach in CS3 enables her to provide more effective and personalised support for individual students, she readily identifies support comes at a cost in online charges from home and her time online (CS3/T3/215, 134). Student expectations may be raised by the availability of tutors online:

> When we needed to have a question answered by Annette, she's pretty good. She always checks her e-mails; yeah Annette's fairly sharpish on them (FG3/56).

Sarah's students in CS5 identified the importance of tutor availability online at regular times for providing feedback, "it was about knowing that she was there" (FG5/265), but they also acknowledged they needed to be realistic about dealing with the immediacy of response times:

> It's about realism as well; if you sent a message to her that evening, it would be there the next day. Well if we were in a classroom, we wouldn't necessarily expect to access the tutor immediately that day would we? (FG5/266).

Sarah highlights the "immense amount of time" involved in developing e-learning both in designing materials and maintaining commitment to being online at agreed times (CS5/T5/221). Sarah points out that:

> Everything was prepared in my own time. None was ever prepared in work time because there wasn't time (CS5/T5/212).

Like Sarah, one possible teaching benefit, Edward is keen to dispel is what he describes as "a very misguided view, it's less time-consuming", arguing:

> The same learning done online in terms of setting it up, moderating it, reviewing it and feeding back on it is probably far more time consuming than the same learning done in a face-to-face mode (CS6/T6/157).

Maria points out that:

> You do end up doing a lot more work than someone who just teaches in a classroom (CS4/T4/176).

These tutor comments highlight the intensification of work associated with e-learning. Annette also recognises the structural tensions of such an approach to practice when situated within a teaching programme geared to timetabled lectures and seminars rather than seeing units as a number of learning hours (CS3/T3/80). Edward's experience of allocated time in CS6 recognises that "forcing" the conferencing technology into the restrictions of the curriculum can make the learning experience appear "slightly artificial" citing the example of students sitting next to one another, collaborating online, when they could be talking to each other (CS6/6/44). These two experiences demonstrate the impact of the curriculum and institutional climate, "the rules and procedures" identified by Biggs (2003: 26) as critical structural components that can affect the autonomy of agents operating in the learning environment.

Some students also experience increases in time required for e-learning when compared to face-to-face experiences. For example, CS5 students highlighted the increased workload:

> I actually feel that you do have to work harder doing it this way because you have the activities and everything and to actually type what you're thinking seems to take more time, rather than a talk in the classroom (FG5/41).

Sarah, their tutor, acknowledges the increased student workload:

> The students all worked far harder than the normal hours they would put in and that's because they were driven by it. It was far more than they would do in the classroom (CS5/T5/185).

Where 24x7 access offers flexibility for managing time, giving freedom and control to the when and where of e-learning, some students are devoting more time to e-learning 'homework'.

These findings support the proposition that the separation of time, place and space made possible by learning technologies has the potential to alter the essence of time and space. Harvey argues that new technologies can lead to "new modes of thinking about and experiencing time and space" (1990: 265). Harvey's time-space compression can be applied to online learning environments where the places for learning can be displaced by the spaces for learning and where there can be many more spaces for discourse. For example, CS3 students describe some of the difficulties of navigating through the different folders and messages:

> With FirstClass there are loads of different things to click on so if you don't check all of them, then you might miss something (FG3/98).

This means, in effect, that provided agents are situated in places with Internet access, they can access the online learning environment at any time, 24X7 instantaneously. This can be highly advantageous for accessing information and receiving automated feedback "on tap". It also has the potential of releasing expensive institutional fixed capital resources in buildings and infrastructure, including classrooms and equipment, which may be another driver though not the focus of this study. However time-space compression can be interpreted as the perception of agents navigating the immensity of information and communication possibilities available in real time when place has been displaced by space. It is my contention that this perception will be at its strongest for agents engaged in shared online communication spaces like e-mail and discussion boards anticipating activity between agents, unlike accessing information resources, though even here, students identified issues with managing information overload, with CS3 students highlighting the need for more advice on using databases (15 NGT votes) (Table 4.9) and CS6 students on using search engines more effectively (18 NGT votes) (Table 4.15). Agents functioning in online learning environments need to make pragmatic decisions about what activities they can and cannot fit into the real time available. Possible implications are that perceptions of a 'good' member of staff or a

'good' student may be based on how much time they put into online interactions and students could inadvertently be encouraged to adopt a surface approach to learning (Gibbs 1994) in order to cope with the large amounts of information. The findings presented here suggest an intensification of work being experienced by both students and tutors.

Additionally student experiences with learning technologies demonstrate some of the structural constraints at work within a discussion of time and space. Although the electronic media offer the potential of more flexible use of time, this cannot be assumed to be equally available to all. Not all the agents will have the necessary technology access or time available, for example, one student highlights:

> Not easy to use as I do not have access to a PC at home so limited as to time able to do e-learning (MQ4/7/10).

Another part-time student describes how her window of opportunity for engaging in flexible learning with her peer group is within a restricted timeframe:

> I put my debate in and kept clicking and there was nobody else there. I knew I only had my time today and nobody else was there (FG5/59).

These two examples of different students' experiences demonstrate how various structural factors can impact on the agent's potential to benefit from the affordances of online learning. The second example also challenges Giddens' premise that co-presence of agents is no longer required so removing the restraints on time and space (1984: 185) and observing that:

> Electronic media separate presence in time from presence in space, a phenomenon of decisive significance for contemporary forms of collectivity." (1984: 203).

Giddens' proposition raises the important question of what is encompassed within this concept of "electronic media" and how it is related to the social constituency for collectivity? Giddens' discourse is about the grand theory of the "contemporary world system" and "human history"associated with macro-level technology impacts, like writing and electronic media for communication, which means "absence in space no longer hinders system co-ordination." (1984: 185). But this macro-level structural analysis may not align with the micro-level analysis of e-learning praxis in the six case studies under scrutiny.

Three areas of related discourse are key here, the role of reflection and reflexivity in effective learning, the place of interaction and co-presence with others, and the nature of

perceived and actual information presented in the online learning environment. Following some key discussion points on reflection and social presence here, these themes will be considered further in Chapter 6. This chapter opened with an analysis of learning as transformation through experience and emphasised the vital ingredients of reflection and time and effort required on the part of the learner to achieve this transformation (Dewey 1933:12). The range of student and tutor comments about use of time, identified above, demonstrate the significance of information, stored electronically and available online, for contributing to the review, revision and consolidation of learning. Where use of electronic media are associated with content management, following Annette's "electronic filing cabinet" analogy (CS3/T3/82), this approach can help to explain Giddens concept of time-space distanciation "altering the character of time as lived experience" (1984: 182) by creating readily available and enduring resources for students to "keep dipping back into" (CS3/T3/88). Where information can be stored and discussions archived, this provides the potential for more effective learning on the part of the student. But when constructing online learning environments, tutors and HEIs need to acknowledge and plan for temporal and spacial opportunities for students to engage in and reflect on learning experiences.

The case studies provide evidence of how time and the discussion spaces are being used for learning in the form of knowledge construction on the part of students. For example, Edward in CS6 suggests:

> Because of these interactions taking place over a period of time, with the opportunity for comment over time by both other participants and tutors I think that does help students reflect on what they're doing (CS6/T6/118).

CS6 students confirm the value of additional time for learning and confirm the benefits of the CMC medium for developing writing and reflection:

> Recordable contributions assisting reflection and discussion (MQ6/10/1)
>
> I had to re-think a response and e-learning allowed me the time to do this. I didn't have to answer straight away (MQ6/5/20).

Sarah's experience in CS5 confirms the potential for reflection to encourage deep rather than surface approaches to learning. Sarah observed a high level of debate in the discussion forums and considered this encouraged "individuals to reflect more deeply" (CS5/T5/94), a view supported by student comments:

> Have time to focus thoughts, you can read other comments and digest them more in depth and return to them if necessary (MQ5/10/6).

The issue of time allowed for critical reflection as part of learning is raised by Emma's experience in CS1, highlighting the tensions and contradictions in using time more flexibly. Emma, like other tutors, suggests the medium gives students:

> ...a chance to reflect more than they would ever in a face-to-face learning environment because they've got the transcript there and they've got the time so they can actually go off and perhaps find a reference that somebody's just quoted (CS1/T1/111).

This availability of information co-created by students reflects Giddens' principle of distanciation (1984). The shared resources are maintained within the online discussion archive for students to return to subsequently. However Emma acknowledges the process of engaging in online discussions is "much more time-consuming – they spend much more time" (CS1/T1/115) compared to being in class, and when students are "discussing often they don't have much time to think about it and just kind of make comments" so that it is only when they come to revise (CS1/T1/57) that "they've got the time" or perhaps more accurately that they may choose to make time to benefit from reflection within the constraints of finite time. It would seem that Harvey's notion of time-space compression (1990) is also at work in the student learning experience and potentially negating time needed to consolidate learning.

Emma's experience identifies how availability and continuity of online space for information and knowledge sharing through time cannot be guaranteed to lead to deep approaches to learning when the reality of structural constraints can impact on the effectiveness of the constructed learning environment. Acknowledging the reality of bounded time in the classroom, while accounting for the flexible time required for learning enhancement outside the classroom, is a significant factor for consideration in any e-learning initiative.

While flexibility and convenience are central to the management and use of online time, the perceived benefits of flexibility for effective learning need to be considered against student participation and interaction in the shared spaces of learning. Edward appreciates learning benefits associated with flexible time are dependent on student participation (CS6/T6/134, 136). Maria identifies difficulties with some students not joining in, or not engaging at the level intended: "Just saying, 'oh yeah that's good' instead of constructing an argument" (CS4/T4/198) and her students support her

comments, identifying non-participation or waiting for responses from other students in online discussions. Moving the locus of presence from the classroom to online discussion spaces can encourage some students to collaborate more. CS1 and CS4 identify the equalising effects of students working online, a point also highlighted in Edward's description in CS6 where he suggests "equality of opportunity" and "democracy" can be developed through conferencing to bring learning benefits when:

> Very often you give a voice to students who don't necessarily find one within the formal teaching and learning context (CS6/T6/50).

In this way, the conferencing medium can awaken participation and lead to learner "empowerment" (CS6/T6/147):

> In the years that I've used it, there have always been a handful of people who all of a sudden have engaged in a way that they've not engaged before (CS6/T6/143).

He calls this change in individual students compared with classroom interaction "a defining moment" where students realise they are "shaping" the learning (CS6/T6/143,145).

Where electronic media are being used to precipitate learning experiences beyond storing information, Dewey's principle of interaction (Dewey1938: 36), emphasising that "all human experience is ultimately social" and "that it involves contact and communication" (1938: 32) is significant for interpreting the value of participation and interaction in the collectivity and relates to Laurillard's modes of engagement within her conversational framework (2002). The example of the student frustrated by the absence of her colleagues when working online in an asynchronous discussion board (FG5/59) challenges Giddens' argument that co-presence of agents is not required in electronic media (1984: 203). This may be acceptable where information is viewed as something out there, created by others to be read by students, but not when it is created by self or co-constructed with peers in online spaces where students need to be acknowledged and challenged by their peer group and tutors. So while the CMC medium can act to equalise interactive opportunities for learning by giving voice to students who might not speak in class, it can also create other inequalities where structural factors like lack of Internet access from home, technology reliability and other commitments affecting the real time available for study time, can impact on the possibility of participation, creating a further digital divide.

VLEs for managing information rather than facilitating e-learning

The development of online learning environments as information resource portals for the provision, management and signposting of information is seen as a universal benefit in all the case studies. Students, consistently value the benefits of e-learning for information, demonstrated in Table 5.2 below.

	Rank	CS1	CS2	CS3	CS4	CS5	CS6
Information and provision of materials	1st (48)	41%	55%	52%	41%	44%	29%
Pace and time	2nd (20)	22%	9%	17%	14%	22%	19%
Access, availability, convenience	3rd (18)	15%	9%	26%	14%	11%	14%
Academic/career/IT skills development	4th (14)	-	9%	22%	5%	67%	5%
Interactivity, responses, feedback	4th (14)	19%	9%	-	9%	11%	24%
Flexibility	6th (12)	30%	-	-	5%	33%	-
Reflection, revision and review	7th (11)	15%	9%	-	-	33%	15%
Add on to class-based sessions	8th (4)	-	-	-	14%	-	5%

Table 5.2 Benefits of e-learning
Data is based on student MQ responses to Q5: *Explain a significant moment of using e-learning* and Q6: *Describe the best moment during e-learning* and Q8: *How do you think e-learning can help your learning?* Numbers of students identifying each code are included in brackets. Data is summarised from individual case MQ tabular analyses.

Numbers of students giving these descriptions are provided as percentages of their sample cohort ranked according to their frequency of response across the six case studies. Information was mentioned more frequently by students than any other benefit. Tutors demonstrate how they help make the learning process more efficient through "acting as a filter and providing a focus" for their students (CS2/ T2.2/64), ensuring they are "pointed in the right direction and signposted" (CS2/T2.1/104). Annette highlights the benefits of the VLE as an "electronic filing cabinet", useful for finding and reviewing information for students and tutors alike (CS3/T3/82) and recognised in much of the CS3 student feedback. Edward's students are also in favour of use of the VLE by all their tutors for provision of lecture notes (NGT6/32).

Following Biggs's argument, tutors distributing timetables, lecture notes, and handouts through a VLE, are 'managing' the learning environment, but to view this approach as 'facilitating' learning is questionable (2003: 23). Sarah argues the VLE "shouldn't just be used to supplement because often then people think it is a repository for documents and not to engage the students" (CS5/T5/85). While acknowledging Sarah's concerns and seeing the dangers of reinforcing student expectations of using the web for acquiring information created by others, VLEs can be used to manage information provision and anchor student learning. This trend is found nationally as well as locally, the UCISA review of VLE surveys confirming access to course material continues to account for the greatest VLE usage (Jenkins et al 2005: 5). By providing a framework for learning that can design for linearity as well as serendipity, the VLE can be used to support students with a diversity of approaches to learning, enabling them to "see the whole picture" or to follow a sequential route through topics, in line with Pask's concepts of serialist and holist (1988). Some students in CS5 expressed the holist perspective, wanting to see the whole rather than learning modules loaded week by week (FG5/205). Seeing the whole picture was also recognised by Patrick in CS2 as important for critically reviewing his online materials and focusing on them through the eyes of the student rather than the tutor (CS2/T2.1/48).

Crafting learning through assessment

While Gibbs analysis emphasises the power of assessment to motivate learning (1999a), the influence of formative and summative assessment in crafting learning in the online learning environments of the six case studies is less prominent as a theme, though students mentioned interactivity, receiving responses and feedback, as a benefit of e-learning, ranked joint 4th in Table 5.2. O'Reilly identified two key benefits of online assessment, firstly provision of continuous and iterative assessment to facilitate learning and, secondly, grading for participation in online discussions to encourage collaboration and help reduce the sense of isolation (2002: 279), or as Harasim argues, to motivate more active participation in online discussions (1995: 185-188). Evidence of these online assessment practices is available within the six cases.

CS1 and CS6 and to a lesser degree CS4 are using assessment of online contributions as a key driver in motivating participation. In CS1, the fact that online discussions are assessed appears to be a key motivating factor, with Emma saying: "I, nearly always get

100% participation" (CS1/T1/30) compared with classroom teaching where some students are not always receptive. In CS6, Edward sees the assessment strategy as a fundamental part of his approach (CS6/T6/132), arguing students need a reason for learning and identifying the need for a "pay off" (CS6/6/28). Contributions to online discussions are assessed in CS4 with Maria allocating marks for number of messages and contribution to the discussion process (CS4/T4/120). Annette's approach in CS3 is different in that online contributions are not directly assessed though outputs from the team event, like the Business Plan are assessed.

Regular online assessment in the form of quizzes and tests are used less frequently though their benefits are recognised in CS2, CS4 and CS5. CS4 students valued the immediacy of feedback when engaging with ECDL multiple choice questions online, reflected in NGT scores with "prompt" and "immediate feedback" rated highly as a strength of their e-learning experience (Table 4.11 and 4.12) . This was a benefit also highlighted in CS5 where formative quizzes were used. Where scores and immediate feedback were provided, they proved very popular but where textual responses had to be graded by the tutor, students "didn't get results straight away" and were less impressed (CS5/T5/130). 36% of CS2 students acknowledged the role of online quizzes as part of e-learning but wanted more feedback on the quizzes (NGT2). Student valuing of the immediacy of online feedback from online assessments is supported by tutor comments. Patrick in CS2 sees the affordance of online assessment as a more efficient and easier means of making ongoing assessments of students' progress than trying to obtain feedback in class and values the immediacy of feedback on student progress to enable corrective actions (CS2/T2.1/92). Annette uses an online quiz as part of her summative assessment for the unit (CS3/T3/142) but students did not comment on this. It would appear that quizzes and tests could be used more frequently and to greater effect to reinforce learning and provide students with valued feedback on their individual progress.

Maria's approach in CS4, using a problem based learning case study scenario as a diagnostic to encourage the wanting to learn and identifying gaps in learning, is a particularly powerful assessment strategy, demonstrating close alignment with the intended learning outcomes, thus meeting Biggs' plea for constructive alignment (2003:25). She explains how it helps students:

> ...realise what they don't know, so putting them in a situation where they want to know the thing I want to teach them. Getting them to do a case study that they can't do, which is the assignment, gives them the desire and also the focus on what to learn (CS4/T4/32).

In all cases, where online assessment strategies are being used, they create time levers for reflection, what Emma calls "instances of learning" (CS1/T1/12). Designing online assessment quizzes can facilitate this learning process as can the archived discussion facility which acts as the corporate memory or living transcript of the group.

Precedence of information over learning: e-product compared to e-process

A significant finding from the study is the link between information, reflection and time. An examination of Lash's critique of information (2002) throws light on the tensions highlighted between tutors' anticipation of an expansion of time for learning and the realities of variable student engagement personified in Emma's experience of extended time for the practice of engaging in online discussion without necessarily having "much time to think about it" while it is happening (CS1/T1/57). Lash argues that the dominant medium of the information age is the message over narrative, lyric poetry, discourse and painting (2002: 2). He identifies how information is compressed to such an extent that: "There is no time for reflection" (2002: 3). Such an argument may help to explain the tension between engaging in online discussions without having time for reflection. Yet if this is the case it bodes ill for making space for critical reflection in an information age dominated by cultural objects, where Lash contends that even:

> .... the critical theory text becomes just another cultural object, consumed less reflectively than in the past, written (and often not just written, as CD-ROM, installation and Web presentation become increasingly prevalent), under conditions of time and budget constraint much more than in the past (2002:10).

Further consideration of the nature of information contained in online learning environments and how it is perceived and used may assist understanding of student engagement online. An examination of the MQ student responses on conceptions and experiences of e-learning (See Table 4.2) shows the majority of students identify e-learning as information, electronic resources or for online research. The exceptions are CS5 where online discussion was identified by a much higher proportion of students compared to information, perhaps not surprisingly as this was their main form of communication for most of the term's activities, and CS6 where information and

discussion were identified in almost equal numbers. Figures for CS3 reinforce Annette's view that the VLE acts as an information portal for students. CS4 students are interesting in that their definitions of e-learning combined information provision with information construction possibilities, linking information with correspondence, or electronic resources with communication, or reading with writing. Information and provision of materials is also ranked highest in the benefits of e-learning identified by students (See Table 5.2) and though students also mention interactivity (ranked 4th) and reflection, revision and review (ranked 7th), the frequency of response for these codes was much lower than the frequency for information.

Students also identify pace and time (ranked 2nd) and access, availability and convenience (ranked 3rd) as benefits of e-learning and this seems to be linked to student experiences of the Internet. Student expectations appear to be influenced by previous experiences of using the web, affecting their engagement with e-learning. Patrick and Richard's experiences, when facilitating student engagement with the online case studies, highlight the significance of Lash's critique of information. CS2 student expectations do not sit well with their tutors' intentions of using the online case studies as a complete learning tool, requiring "depth" of engagement. Patrick suggests the CS2 students were challenged by the focus of learning via the web, not appreciating the depth of interaction or how much they were expected to get involved (CS2/T2.1/58 and 116). Richard argues that familiarity with web based systems contributed to student complacency about technology which they think they are totally familiar with:

> Now they feel they own that technology so it's a little bit harder to try to get the student to perceive that they can learn from it (CS2/T2.2/36).

Analysis of this CS2 experience has identified a phenomenon associated with student expectations when using the web, termed the "immediacy effect". When accessing the web for e-learning, student expectations may be skewed by this "immediacy effect", where previous experiences of using web sites have afforded rapid and cursory approaches to seeking information. This phenomenon could explain why the CS2 students saw the online case materials quite negatively only staying half the laboratory time, yet Richard points out:

> They expected to somehow be able to know everything through not doing it (CS2/T2.2/188).

This immediacy effect, identified in CS2, is also highlighted in CS4 where a student remarks that:

> You can learn from a distance very quickly (FG4.2/22).

It is as if the flexibility and immediacy of information on the web is associated with immediacy of learning. Following Lash's argument (2002), the information can be consumed as objects without the necessary reflection that Dewey identified as being central to effective learning (1933) to such an extent that Lash argues "deep meaning disappears" to be replaced by "empirical meaning" which is "everyday and contingent" (2002: 17). Such a perception of e-learning on the part of students has significant implications for tutors endeavouring to create online learning opportunities to motivate and engage their students and Edward's explanation of reasons for potential student dissatisfaction reinforces this finding..

> Their perception is, all these things are their to make life easier for us, the internet's there so we can paste lots of information, ideas that other people have had and we don't have to think too much about it ourselves. All of a sudden there's this tension between the fact they've got this piece of kit which very often comes to their salvation but we're actually using it to expose them to certain difficulties they have to manage and I don't think that sometimes sits very easily with them (CS6/T6/153).

Edward's ideas highlight the perceived benefits of immediacy associated with Internet use identified in CS2 while at the same time demonstrating that e-learning is not an instantaneous quick fix for learning but can be designed to create a challenging learning experience that has the potential to change the way students look at the world.

These misconceptions point to the need for online learning activities to be closely aligned with learning outcomes and assessment strategies. However misconceptions on the part of students of what e-learning initiatives are about could lead to surface learning (Gibbs 1994). CS2 highlights a possible tension between the provision of a carefully crafted and structured learning environment whilst allowing flexibility and control of learning by students. While the tutors' expectations of the initiative are to "empower the students to make judgments" through "understanding by doing" (CS2/T2.2/34), their students are asking for more tailored and succinct information in the form of feedback, summaries, and lectures, potentially further assisting their 'quick fix' to learning.

The expectations for and visibility of e-product as opposed to e-process in online learning environments can also have dramatic effects on the student learning experience

in online discussions. Where co-participants can benefit collaboratively from the transparency of published postings the learning processes, thoughts, reactions and work carried out by individuals can remain invisible:

> The thing that you didn't see was obviously that I put in a lot of time on that and even though my name wasn't on the thing, I took a lot of my time. That's why I was so frustrated (FG5/337).

Where individuals are not seen to be contributing this can cause others to criticise their perceived non-participation (FG5/32), yet non-participation does not necessarily mean non-learning. These key issues will be discussed further in Chapter 6.

This chapter has identified key strategies used by tutors in facilitating student learning and highlighted emergent themes from a cross-case comparative analysis of student and tutor experiences of different e-learning initiatives. Chapter 6 will draw conclusions from these findings, identifying key implications for learning and teaching practice.

Chapter 6 Conclusions and recommendations

This study set out to explore how online learning environments could contribute to achieving effective learning in the context of higher education. The key focus of the research was to identify what pedagogic approaches work, for whom and under what conditions. The aim was to juxtapose tutor intentions with student experiences to identify areas of congruence and difference between the agents in e-learning. This chapter will consider the main findings from this study in order to draw conclusions and make recommendations for enhancing learning and teaching practices in online learning environments. Consideration will also be given to the limitations of the study.

The literature associated with e-learning has been criticised for falling into one of two realms, either small scale descriptive case studies lacking generalisability or grand learning theories that may not be evidenced in practice (Mason 2002, Tavistock 2002). Consequently commentators have argued that the field of e-learning provides little systematic evidence of the effectiveness of learning technologies in facilitating and enhancing student learning (IHEP 1999, Mason 2002, Stephenson 2001). A further factor contributing to shortcomings in the design of appropriate research methodologies is the pace of change in technology (Giddens 1991a) making it very difficult to analyse what Mason described as a "moving target" (2002: 27).

The aim of this study was to create a bridge between learning theories and online practices by developing two key strands for critical analysis to provide an original and distinct contribution to the research literature on online learning. One strand entailed critically assessing the established literature on learning theories to identify the terrain for e-learning and to foreground pervasive facets of educational theory so they could inform our understanding of what constitutes effective learning and how it can be achieved through online learning practices. This discourse was pursued in Chapter 2. The other strand involved examination of online practices by focusing on the experiences of agents, students and tutors, participating in a variety of online learning initiatives. Each online initiative was considered as an individual case and the aim was to identify what worked for the agents participating in these different online practices. Chapter 4 was devoted to an examination of

the individual cases. These cases covered a variety of disciplines within one institution and were examined with the aim of identifying similarities and differences in the aspirations and experiences of tutors compared with the expectations and experiences of students. A cross-case comparative analysis of the six cases was conducted to identify emergent themes and salient features of e-learning practices that could have utility for subsequent practices in online learning environments. This was presented in Chapter 5.

While not adhering to a purely grounded theory approach (Glaser & Strauss1967, Strauss & Corbin 1994), the intention of the research methodology outlined in Chapter 3 was to seek grounding for established and emergent theories through examining the descriptions of the agents' practice experiences of e-learning. This approach was considered essential to realise the trustworthiness and credibility of the findings in a domain where the vision, aspirations and policy intentions for e-learning (Dearing 1997, Harasim 1989) might not be in step with the realities of practice on the ground (Guile & Hayton 1999, Mason 2002). Argyris and Schön's concept of espoused theory compared to theory-in-use (1978) was significant here for highlighting areas of congruence and disjuncture in what people say and what they do with potential mismatches operating at a number of levels and not just between the espoused theory of policy makers and those of tutors implementing initiatives on the ground, but also between the espoused theory of tutors and the theory in use as represented by everyday online practices and the realities of students' learning experiences.

It is for these reasons that I have made a case for adopting a critical realist perspective, following the work of Archer (2000a) to enable online practice and the actions of agents to be foregrounded while acknowledging structural factors, firstly represented by the opportunities and constraints of working in online learning environments, and secondly by the potential insights a critical review of the literature would throw on these online practices. I have contended that by adopting Archer's model of the three orders of reality - natural, practical and social, this approach offers a more holistic interpretation of online practice. Where Archer's model focuses on the practical order as pivotal for understanding human activity (2000a: 178) and the interplay between structure and agency (2000a: 307),

it has enabled online practices to be examined and insights to be drawn. It is in this sense that my research journey has followed Archer's claim that:

> Any form of knowledge results from a confluence between human powers and the powers of reality – natural, practical and social. (2000a: 177).

With this perspective in mind, data collection and analysis focused around two key questions. Tutors were asked how they were using the learning technologies and how they intended their students to learn (See Appendix 1: *Staff Interview Schedule*), summed up in the research question:

What are tutors doing when they use learning technologies in their teaching?

Students were asked what they were doing and how they were using learning technologies (See Appendix 2: *Student mini-questionnaire* and Appendix 3 *NGT Forms*) summed up in the research question:

What are students experiencing when they use learning technologies as part of their courses?

However this research approach could be perceived as creating a mismatch between the critical realist stance adopted and a methodology predicated on giving voice to the online learning experiences of students and tutors, given that descriptions and interpretations of online learning initiatives appear to favour a more hermeneutic interpretative approach to understanding the world. But it was for the very reasons of ensuring trustworthiness and credibility of the findings that the voices of participants on the ground, experiencing the realities of practice (Guile & Hayton 1999), were relied on for capturing thick description (Geertz 1973) and illuminating commonalities and differences within and between case studies (Stake 1995) in order to balance and counter the espoused claims for e-learning as holding "much promise for improving the quality, flexibility and effectiveness of higher education" (Dearing 1997), to avoid research and knowledge claims which could privilege structure as dominant discourses over agents' experiences (Lash & Wynne 1992; Haggis 2003) or that privilege discursive knowledge over practical knowledge (Archer 2000, Jarvis 1999, Polanyi 1967) and interpretations of the researcher to be privileged over interpretations by the researched.

Although it could be argued that observing online practices would be a more objective method for examining praxis than asking participants to describe their experiences of online learning, my contention is that the praxis of online learning encompasses the interplay of thoughts and actions, the one following the other in a flow, very like Dewey's description of reflective experience (Dewey 1933: 4-5, Archer 2000a), to such an extent that they cannot be easily separated without losing the meaning of the actions. Hence my observations could only have revealed certain facets of the phenomenon at the risk of presenting a partial and potentially biased view and one that would privilege my interpretations of the phenomenon over those of the researched. Such a data gathering method would be less amenable to meeting the methodological requirement of thick description associated with agents' own descriptions and interpretations of the online experiences captured by means of interviews and free text questionnaires. The example of participants in an online discussion not realising that their 'silent' colleagues were feeling intimidated by the depth of discussion in an online debate is a particularly significant example of the strength of participants' descriptions over questions of research objectivity.

However it is recognised that the boundaries of each case were not clearly divisible. The purpose of the study, to examine everyday experiences of participants' praxis in different online learning initiatives, informed the decision-making process for selection of cases. The decision to define the boundaries of each case study as a learning technology initiative focused on a tutor-constructed precipitate experience highlights significant issues for distinguishing participants' experiences of particular online learning initiatives, since their descriptions of online experiences are necessarily based on subjective awareness and influenced by their previous biographies. It is recognised that tutors' and students' descriptions of these online learning initiatives cannot be separated from what has gone before. Further student experiences described may not directly emanate from the tutor generated or constructed experiences associated with each case and may be initiated by the students themselves. Further conditions for inclusion of a case specified that the learning technologies must be used interactively to enable student learning rather than managing the student interface to document publishing. Hence it was anticipated the cases chosen would

include tutors who were likely to demonstrate considerable enthusiasm for e-learning with the potential of positively skewing findings.

These factors can be identified as limitations of the study but my purpose was to focus on the territory of e-learning rather than to establish direct causal relationships between specific variables. Nevertheless the challenge remained for this research to establish credible and generalisable evidence from a strategy focused on specific situated cases. This provided the justification for a comparative analysis within and between case studies in order to identify potential synergies and mismatches operating between tutor intentions and student experiences within cases and to highlight areas of congruence and disjuncture in what participants, both students and tutors, said across the six cases (Gilbert 1993, Miles & Huberman 1994).

The question of reliability and representativeness of the findings was also considered in Chapter 3. Following Miles and Huberman' argument, the choice of cases was informed by the research questions, rather than a concern for "representativeness" (1994: 29).The aim of the methodological approach adopted was to achieve generalisability of findings to theoretical propositions rather than populations (Yin 2003:10). The cases selected (See Table 1.1) represented the variety and complexity of online learning initiatives in different disciplines and at different academic levels within one institution. The cases included both undergraduate and Masters levels and a mix of full-time and part-time students. The 121 students represented a reasonable cross-section of the student population with 41% male and 59% female and 71% standard entrants (in the age range 18-25 years) compared with 29% mature students (in the age range 26 years or more) (See Table 3.3). Data was collected over a two year period in 2003 and 2004.

A multiple methods approach was adopted in order to view the territory of e-learning from a number of different perspectives, the social through focus groups and NGT and the individual through MQs and individual interviews with staff. All groups of students completed a mini-questionnaire (M-Q) (See Appendix 2). Students also took part in a Nominal Group Technique (NGT) or focus group (FG) and in some cases both methods

were used at different stages of the unit (CS3, CS4), the only exception being CS1 where it was not possible to arrange a FG or NGT. The processes employed for analysing these sources of data were outlined in Chapter 3 with emphasis placed on cross-checking results to enhance the reliability of findings.

A key aim in using multiple methods was to assure validity of the findings through triangulation of different data sources within each case study (Yin 2003: 14). When Clark and Causer identify "different methods may elicit different responses" but also that "individuals' opinions and responses are not necessarily internally consistent" (1991: 172), this highlights the need for cross-checking results as an important means of enhancing the validity and reliability of the data collected within and between methods. Inter-method comparisons were carried out at the individual case level, firstly by comparing what students said in their NGT/FG with individual responses in the MQs, and secondly by comparing what tutors said with what students said to verify findings and highlight any differences between tutor and student experiences and presented in Chapter 4. Intra-method comparisons were then applied at the meta-level analysis of cross-case comparison in Chapter 5 to highlight emergent themes and distinct differences identified across the six cases. My contention is that the methodological approach adopted demonstrates a considerable degree of rigour and internal validity (Jarvis 1999) for each case and a degree of generalisability to theoretical propositions by means of the cross-case comparative analysis.

The significance of using a variety of methods to collect and cross-check data is highlighted in an example from CS3 where findings from the FG and MQ were not reflected in the NGT. The learning benefits of the VLE for student communication and collaboration, though not mentioned in the NGT, were identified by some of the same individuals in the associated MQ and in the subsequent FG which, though constituting a different group of students from the same cohort, included two participants in common with the previous NGT that had met a month earlier. Possible reasons for variations could be associated with the different data gathering methods used. Where the MQ enabled individual responses to be recorded, some of these were not put forward to the shared list of NGT items which

followed this warm-up activity. The NGT consisted of 19 students and perhaps some voices were not heard when students shared their responses in four sub-groups before feeding back responses to the full group. A further possible reason for variations in findings could be associated with previously noted differences between the two methods of group interviews, with FGs favoured for the potential of generating in-depth discussion compared with NGTs which were more efficient for handling data from larger groups, but not necessarily more effective for capturing thick description.

Experience of using the case study method for data collection using NGT and FG methods proved relatively speedy once arrangements had been negotiated with tutors and students but time-consuming work followed in the data analysis phase when the information collected had to be sifted through and coded to extract key themes. The adoption of a protocol for reporting each case with a tabular presentation and narrative using the same theme headings, the presentation of the NGT findings in a corresponding format, and the collation of main findings from the MQ into a series of comparative tables, provided a standardised approach to reporting the findings from all six cases, facilitating comparisons and making it easier for the reader to interpret and assess the value of the findings.

So how have the online practice experiences of students and tutors contributed to our understanding of e-learning? What are the emergent themes and factors that influence student learning in online learning environments? What findings could have benefits for subsequent practice and improving student learning? The findings will be considered as four related areas of discourse, the nature of learning as transformation of experience through praxis, the role of reflection and the challenges of reflexivity for effective learning, the radicalisation of time and space for online learning and teaching, and the interplay of human agency and structures. While discussing each of these themes in turn, they are interwoven and interdependent within this study.

Nature of learning as transformation of experience through praxis

The analysis of the literature in Chapter 2 highlighted the need for an alternative situated model of learning that acknowledged the primacy of practice as a trigger for

transformation. The position I have adopted in this thesis is to argue for a theory of learning based on a synergy of Dewey's concept of learning through transformative experiences (1933) with Archer's thesis reasserting the wholeness of human beings with their senses, emotions and cognitions intertwined and interacting with objects in the world through praxis and reflexivity (2000a:130). This theory of learning challenges teaching practices in formal education by emphasising that online learning is not about knowledge acquisition but transformation through experience. It is not enough to learn knowledge mediated through resources and human agents in the guise of tutors as knowledge experts, important as these are, without the prime ingredients of action and purposeful reflection with all the implications this has for the likelihood of privileging higher order learning over praxis. Argyris and Schön sum up this quandary succinctly:

> Integrating thought with action effectively has plagued philosophers, frustrated social scientists, and eluded professional practitioners for years. It is one of the most prevalent and least understood problems of our age. Universities have shunned it on the ground that effective action was too practical or – the best kiss of death – vocational (1974: 3).

Marton and Säljö's work on conceptions of learning ((Marton and Säljö 1976a, 1976b, 1984) and the concepts of surface and deep approaches to learning (Gibbs 1992) are seminal in assisting our understanding of what constitutes effective learning. Nevertheless, in this thesis, it has been argued that their theories present a partial picture by focusing on discursive knowledge within formal education settings. It appears difficult to reconcile practice and doing within a list of conceptions of learning focused on discursive knowledge to the exclusion or demotion of practical and embodied knowledge, which may be viewed as the poor relations on the boundaries of the territory of discursive knowledge. The ASI (Richardson 1996) developed from this work also demonstrates its pedigree in HE by using words such as exams, lectures, subjects, and essays, revealing the situated nature of these questions, though processes like reading, working on a problem, and trying to understand new ideas are also included.

This critique is not really surprising given the importance of acknowledging the situated nature of learning as a function of the context and culture in which it occurs (Brown, Collins & Duguid 1989, Lave & Wenger 1991). My own findings in this study have

demonstrated how students from one HEI have identified learning as acquiring knowledge or information ranked well above skills development and reading and lectures ranked well above practice and tasks in how they learnt on their course (Table 4.1). When these findings are compared with student conceptions and experiences of e-learning the distinction between knowledge and practice is carried over into online learning with the majority of students describing what e-learning meant for them as information, electronic resources or for online research rather than for forms of interaction like online discussion, online quizzes, and developing computer skills, though this was not true for CS5 and CS6 students where online discussion and collaboration was identified by 67% of the students in each of the cases (See Table 4.2). These findings appear to reinforce the idea of discursive knowledge being privileged over practice, the *what* of learning over the *how* of learning.

A more pragmatic interpretation of the findings could be that students, by and large, do not tend to think about the processes of learning, taking the modes and methods for granted and not recognising key ingredients in the experience unless things go wrong or change dramatically from the norm, hence the value of the ASI as a diagnostic instrument used widely in HE to assist students in questioning their approaches to learning. The implications of this argument are considerable raising research and pedagogical questions. One possible implication is to challenge the research strategy adopted here by questioning the value of asking students about *what* they think about learning if they cannot be considered to be good judges of *how* effective learning can be achieved. The other implication is that tutors, who break from the norms of HE practice by introducing innovations like e-learning, are taking significant risks, very likely to impact on the student learning experience, and it is students who are the arbitrators of success or failure judged by the outcomes of the innovation.

It would seem that this dilemma with both research and pedagogical practice implications presents a scenario of the problems of reflexivity for the modern age in microcosm. As the researcher, I contend that the second implication addresses the first by identifying the importance of students' voices, not as judges, but to provide a balanced story encompassing the different perspectives of the agents involved. Asking students about learning before

asking them about their experiences of an e-learning initiative acts as a baseline and integral part of understanding the role of online learning in conventional learning enabling comparisons of similarities and differences in the learning experiences they have encountered. The research approach pursued throughout this study has endeavoured to ensure the voices of the agents, both students and tutors are heard rather than privileging one over the other, or that of the researcher, to enable closer scrutiny of participants' aspirations and expectations of online learning. This approach acknowledges that different perceptions and experiences identified may provide keys to understanding different ways of working within online learning environments.

But this analysis of students' and tutors' experiences of online learning has not been conducted in any narrow psychological sense by endeavouring to label participants with particular learning styles, teaching styles or predispositions to behave in certain ways for such an approach could lead to Coffield's pedagogic sheep dip analogy (2004), with tutors endeavouring to respond with appropriate teaching intervention mixes that can cater for all types of learner or learners armed with their diagnostic saying "I'm an activist, it's no good asking me to keep a reflective journal, I don't learn like that". Rather the focus of the research has been on gathering detailed descriptions of online situated practice experiences by participants with the aim of identifying different facets of the six e-learning initiatives in order to find out what makes for effective learning and to understand the forces affecting the student learning experience. The views of individual agents are important with all their prior learning experiences, expectations and intentions, and variable approaches to learning according to the situation, as purposeful and holistic agents, enabling the researcher to acknowledge and work with complexity and difference. Archer's dictum that: "Subjects who are similarly situated can debate, both internally and externally, about appropriate courses of action, and come to different conclusions" (2007: 11), confirms the efficacy of celebrating the reflexive powers of individuals while also acknowledging the potential powers of structural enablements and constraints through the three orders of reality. I have tried to demonstrate through the application of Archer's model, challenges to theories which concentrate on the individual or the social situation to the potential detriment of understanding the interplay between them through a more holistic analysis which focuses

on the practice experiences rather than privileging agents or structures over the realities of practice (2000a).

This is why Archer's thesis has proved so influential in informing the research approach adopted here. Archer's analysis argues that the practical order is pivotal in understanding what works, for whom and under what conditions. The practical order is constituted by practical activity, but not narrowly defined as practicing a skill, but rather actions, practice, doing, in which the agents can, though they may not choose to consciously, interpret and make sense of their experiences as they engage in different practices. This stance goes further in allowing for change and transition by adopting Archer's position that the internal conversations, or potential for reflexivity, that we have as individuals "is what makes (most of us) 'active agents', people who can exercise some governance in their own lives, as opposed to 'passive agents' to whom things simply happen" (2007: 6). The belief that human beings can be 'active' agents enables concerns to be actioned by means of "projects" so that Archer can argue:

> Action itself thus depends upon the existence of what are termed projects, where a project stands for any course of action intentionally engaged upon by a human being (2007: 7).

This enables the focus of research to be placed on the processes of learning rather than the products of learning. This is not to deny the value of knowledge as a product of learning and its visible constitution as discursive knowledge in books and learned journals but to emphasise the need to understand the distinct features of the processes for getting there for individual learners through actively making sense of information rather than focusing on the end-product of accumulated knowledge. This approach asserts that knowledge is uniquely constituted within each individual through the interplay of embodied, practical and discursive knowledge, put most succinctly in Archer's own words:

> All knowledge entails an *interplay* between properties and powers of the subject and properties and powers of the object – be this what we can learn to do in nature (embodied knowledge), the skills we can acquire in practice (practical knowledge), or propositional elaborations we can make in the cultural system (discursive knowledge). Any form of knowledge thus results from a confluence between human powers and the powers of reality – natural, practical and social. (Author's emphasis) (Archer 2000a: 1177).

The interpretation is that individuals are thinking while acting and acting while thinking using cognitive, affective and psychomotor powers to interact with objects in the world and produce transformative learning through reflexivity and praxis. Archer explains how:

> That which looks at all other things can also look at itself and recognise, in what it sees, the "other side" of its power of looking. It sees itself seeing; it touches itself touching; it is visible and sensitive for itself. Objects are before me in the world, but the body is constantly with me, and it is my self-manipulation, through mobility and change of point of view, which can disclose more of the object world to me (2000a: 130).

Archer's approach encouraged a research stance that did not read anything into the study situation, letting the descriptions of experiences reveal themes in the knowledge that agents and structures could meet, coalesce and impact within the reality of everyday experiences. My interpretation of Archer is that she is not giving precedence to practice but highlighting the reality of what is before us as the 'praxis' and starting point for research, understanding experiences, and identifying possible social changes. This position enables the researcher to acknowledge the reality of structural constraints like access to computers and networked technology but also the human endeavour in constructing meaning to make sense of practical experiences through reflexivity. What is especially significant in Archer's thesis is that by placing praxis at the heart of making sense of individuals at work in society, she offers dual benefits for the subject of this research, by providing a means of making sense of the constituents of effective learning and for the research process itself, by offering a credible and effective means of conducting research focused in educational practice.

The challenge for much of higher education is that it is distinguished from the world of work and professional practice (Candy & Crebert 1991, Crebert et al 2004) making the design of realistic and meaningful learning experiences more challenging for tutors working with students situated in full-time education compared with practice environments (Lave & Wenger 1991) and more risky when using the affordances of different learning technologies to create these learning challenges. Dewey (1938: 5-6) argues that the theory of experience is a way of bridging the gap between formal education and real life learning and subsequent work by Kolb (1984) and Jarvis et al (2003) supports this approach. The question for this study was to identify the kinds of online experiences generating effective student learning. Since learning is not confined to formal education and experiences that

facilitate learning can and do take place within informal situations, constructed experiences purposefully designed by tutors have been termed precipitate experiences to distinguish them from everyday or episodic experiences associated with informal learning.

As identified in Chapter 5, a significant finding in each of the cases studied was the tutor's design of precipitate experiences to actively engage students by setting a challenge or problem as the motivating force to kindle learning through action and reflection. Each case described by tutors emphasised the design of realistic, live, active experiences which challenged learners with issues by actively encouraging "perplexity" (Dewey 1933: 12). The emotional aspects of learning were also identified with examples of tutors tapping into emotions as a lever to effective learning, creating a state of readiness for learning and motivation to engage with the challenges set, notably in CS4 and CS6, where tutors recognised the sense of a journey and struggle, highlighting the risk element in the strategies tutors were adopting. Jarvis describes this disjuncture as a "disharmony" between the agent's "constructed experience of a situation" and their "biography" which can make the individual unsure as to how to act (1999: 66). This approach to promoting effective learning is supported by Archer's concept of developing embodied practical knowledge or know-how through agents operating holistically with their senses, emotions and cognitions intertwined and interacting with objects in the world (Archer 2000a) and highlighted in her analysis of reflexivity where she argues that:

> ....the difference between actively making our way through the world or our passively bearing the weight of the world pivots upon the presence or absence of reflexivity" (2007: 42).

Role of reflection and reflexivity in effective learning

The conclusion of this research is that engaging in actions required of a precipitate experience, whether online or face-to-face, or a blend of both, is not enough to assure effective learning without the added ingredients of reflection and reflexivity, but how these are integrated with the precipitate experiences needs further analysis. While arguing that both activity and reflection are central to the concept of learning as transformation through experience, the question of the relative significance of time spent on task in doing and reflecting to generate effective learning is significant. Where Dewey's concept of

experiential learning is a focused process, directed to solving a question or an issue through purposeful thinking, or reflection, that reflection is distinguished from everyday thinking with Dewey arguing that: "Reflection involves not simply a sequence of ideas, but a *con*-sequence" (1933: 4-5).

An examination of the tutors' intentions in each of the cases supports the contention that though the doing is vitally important it is not enough without the added benefits of making sense of the learning, associated with the concept of deep learning (Gibbs 1992), through working with it, discussing it, challenging it and critically reflecting upon it. For example, Sarah in CS5 identified the link between the experiential learning experience and the intended outcome of learning as transformative when she explained that "only really by using it, can you get insight into how you would do things differently" (CS5/T5/83). Evidence from MQ responses identified students learnt through reading (ranked 1st), discussion (5th) and assignments (6th) with other methods ranked lower (See Table 4.1). While reflection, revision and review was ranked 7th in the benefits of e-learning in MQ responses (See Table 5.2), findings associated with the use of online discussions, notably in CS5 and CS6, demonstrated greater awareness of the part of reflection in learning. For example, where Sarah argues online discussion "encourages individuals to reflect more deeply" (CS5/T5/94), her observation is supported by student comments like:

> Have time to focus thoughts, you can read other comments and digest them more in depth and return to them if necessary (MQ5/10/6).

Edward in CS6 suggested where interactions were taking place over a period of time, more opportunities were provided for comment and this helped "students reflect on what they're doing" (CS6/T6/118), reinforced by student comments suggesting the benefits of CMC:

> You have more time to think about and research an answer you give (MQ6/10/7)
>
> Feel freer to take my time answering, so as to produce a better answer (MQ6/10/16).

67% of students in CS5 and CS6 defined e-learning as online discussions, suggesting they were making notable use of this technology in their learning (Table 4.2).

Given the association of critical reflection as a favoured learning strategy with specific disciplines and professions like education and health, one might expect it to be more prominent in a course in education like CS5. However this does not explain its use in CS6,

a course in management studies. Given the significant influence of tutors' conceptions on their students (Prosser and Trigwell 1999), it could be anticipated that where the term was used by the tutor, it is more likely to be used by students, which could help explain its occurrence in CS6. By contrast, though the tutors in CS1 and CS3 referred to reflection, their students did not use the term. But the fact that it is not mentioned by students does not mean it was not happening. Students described similar processes for review and consolidation of learning in CS1 with comments like:

> The way you can revisit things if you haven't understood them (MQ1/6/2)
>
> Being able to stop/start and that Eureka moment of understanding (MQ1/6/14).

CS2 identified the benefits of e-learning "for review" (18 NGT votes) and MQ comments like: "Readily available, able to revisit at a later time" (MQ2/10/8). CS3 mentioned the value of FirstClass for "updating your notes" (FG3/38) and preparing for exams (FG3/12).

Having time for reflection and review was a key theme in student comments. Consideration of Emma's description of the CS1 student experience helps focus some key questions for this study. Emma identifies the benefits of the online discussion archives for the development of reflection skills and suggests student time is at a premium during the online discussions such that students may not fully appreciate the significance of the interactions while directly engaged in them. The levers for learning, the topics for debate in small group discussions, following Dewey's concept of learning through experience (1933), are in place but Emma's description suggests the learning gains may not be recognised instantaneously by students and time is needed to reflect *on* rather than *in* the learning experience through the archive facility (Schön 1983).

What then is the significance of time for reflection in the HE context? Does reflection need to be an integral part of the precipitate experience to ensure effective learning, or will it be more effective if it takes place at a different time perhaps encouraged by a question, task, assignment, or personal journal entry as part of the constructed experience within an open systems model of the curriculum (Biggs 2003)? If reflection can be said to be taking place at the time of the experience is it different to the reflection that occurs, or is encouraged, following the experience? If reflection is not an integral part of the precipitate experience

does this not challenge the concept of experiential learning as integrated and holistic in ensuring learning as transformation through experience? If our starting point is Dewey's argument, that reflection, or purposeful thinking, is different to everyday thinking and that it involves the act of hunting and inquiring, such that one can think reflectively only when one is willing to endure suspense and to undergo the trouble of searching (Dewey 1933:12), unless Dewey's description is referring to internal mental processing, this analysis would suggest learning is a process taking time and effort on the part of the learner and that the tutor designing experiential triggers needs to build in opportunities for students to reflect on the experience. Such an interpretation of reflection would sit well with Schön's concept of reflection *on* action but raise questions about the meaning of the concept of reflection *in* action (1983). But if we accept the earlier proposition, building on the work of Archer (2000a), that individuals are thinking while acting and acting while thinking, then we need to ask if reflection on action is qualitatively different to reflection in action or if reflection in action is not purposeful, or alternatively not really reflection?

This is where the concept of reflexivity is so important. Giddens identified the concept as an essential element in the continuity of practices suggesting reflexivity "should be understood not merely as 'self-consciousness' but as the monitored character of the ongoing flow of social life" (1984: 3). The significance of ontological security through continuity of practice, described by Giddens as "expressing an *autonomy of bodily control* within *predictable routines*" (1984: 50) and defined as "the confidence that the natural world and social worlds are as they appear to be" (1984: 375, 1991b) should not be underestimated in online learning. The experience of CS5 students who continued wanting to meet online on Friday mornings despite the flexibility offered by the medium for 24X7 access is a key example. Following this definition of reflexivity, it would appear that it is very similar to Schön's (1983) concept of reflection *in* action where human agents can be viewed as thinking on their feet, and perhaps knowing more than they can put into words (Polanyi 1967), and being responsive to changes. Where Jarvis (1999) presents the situated nature of practitioners in the context of their professional practice, informed by rules and procedures when reflecting *in* action and making decisions, my argument is that we can

apply this approach to all human agents on the basis that rules and procedures can be interpreted as prior experiences and knowledge bases that inform the actions of individuals.

The question then is whether reflexivity is the same as reflection. There are different opinions about the connections between these concepts and some of this may be related to their provenance within different disciplinary fields (Dyke 2006). Archer's analysis of the way we make our way through the world would suggest the vital importance of reflexivity in informing social action because "the subjective powers of reflexivity mediate the role that objective structural or cultural powers play in influencing social action and are thus indispensable to explaining social outcomes" (Archer 2007: 5).

While I would argue that in the situated context of HE, critical reflection is viewed as conceptually and qualitatively different to reflexivity, with students given time and space to access resources and human agents to nurture their process of making sense of things or developing deep approaches to learning (Gibbs 1992), I would also concur with Archer that our daily practice, wherever situated and this includes formal HE, is negotiated through reflexivity. I would also agree with Giddens that the pace of change has become so rapid that what he calls the "reflexivity of modernity, now extending "into the core of the self", making the self "a reflexive project" (cited in Cassell 1993: 304 from Giddens 1991b). This is a significant issue in understanding how the enablements and constraints of learning technologies as affordances are in relationship with their agents (Gibson 1977), who are making their way through the world (Archer 2000a). Archer, in considering Dewey's work, acknowledges that reflexivity expands when subjects are faced with "unfamiliar and problematic situations" (2007: 39), which for me asserts the transformative potential of praxis as learning. But the processes of reflexivity and reflection are closely linked to real time and my argument is that technological changes like learning technology developments are impacting on the management of time in educational settings to such an extent that reflexivity and reflection can be compromised to the potential detriment of effective learning. By focusing on the case study findings on use of time and online space it is possible to pursue this question further.

Radicalisation of time and space for online learning and teaching

The growth of information networks supports the expansion of what Giddens refers to as time-space distanciation, removing previous constraints of time and place and leading to a number of benefits and issues identified in the discussion of the essence of time in Chapter 5. One of the major perceived benefits for learning enhancement in online environments is the facilitation of space, released from place and time constraints. This study has sought to identify what these spaces contain and how they have been used and interpreted by participants in each of the case studies. While the learning technologies available offer a variety of affordances including information storage, communication and assessment tools, the majority of students' MQ comments associated e-learning with information rather than communication (See Table 4.2). Information and provision of materials was also mentioned most often as a benefit of e-learning (Table 5.2).

Understanding expectations of learning technologies and their relationship with time is a key aspect of understanding how effective learning can be achieved in online environments. What then is the relationship between information, reflection, reflexivity and time identified in this study? The findings have shown that student expectations of e-learning can be influenced by previous experiences of using the web for accessing information. It has been argued that this can lead to a "quick fix" approach to online learning, where the flexibility and immediacy of online information is erroneously associated with immediacy of learning. There is support for this finding in Lash's critique of information where he argues information is compressed to such an extent that there is no time for reflection (2002). Lash contends the dominant medium of the information age is the message and all cultural objects including narratives, discourse and critical text are "consumed less reflectively than in the past" and "under conditions of time and budget constraint" (2002: 10). Where some students enter the space of online learning environments with expectations of a "quick-fix", the potential for effective learning appears to be compromised. Lash argues "deep meaning disappears" to be replaced by "empirical meaning" which is "everyday and contingent" (2000: 17). Students engaging in e-learning initiatives with such expectations are likely to demonstrate cursory surface approaches to learning, lacking the depth and critical reflection anticipated by their tutors. While this

finding does not bode well for realising the potential learning benefits of online environments, it requires some additional clarification. Though it is fair to conclude that online environments are largely perceived as information resources by students in this study, this does not mean students do not appreciate that gaining information does not equate with learning. Indeed awareness of this distinction is nicely summed up in a student comment:

> FirstClass is alright for updating your notes. I can add to the things I've got and what I've missed. So I suppose I'm not really learning from it, I'm using it more as a resource to get things from which I learn afterwards (FG3/38).

Further the significance attached to information represents only a partial picture of how participants perceive the technologies and their relationship with time. While students rated information as the most important benefit of e-learning, they also identified pace and time as another benefit (ranked 2nd) with access, availability and convenience (ranked 3rd), and flexibility (6th). Though reflection, revision and review was ranked 7th, it was identified more frequently by some groups of students (notably CS5 and CS6) (See Table 5.2). Student comments highlighted the freedom and control they were able to exert over the when and where of learning, suggesting the idea of an unbounded learning experience. This idea was reinforced in comments from tutors who saw the advantages of e-learning initiatives as extending time for learning, enabling students to work at different paces, overcoming the time constraints of class contact time, and making space and time for developing reflection. They also commented on the equalising effects of online discussions, empowering previously quiet students with more time and space to contribute, just as students had noted that shier members in class had an online voice. Thus paradoxically different expectations of the technologies appear to contradict each other with both the idea of a quick fix and an unbounded learning experience. What then is the reality of time for e-learning initiatives?

Figure 4 presents a diagrammatic representation, comparing time lines for the two ideal types of e-learning identified from student comments. The Type 1 ideal, representing quick-fix learning experiences, providing the "immediacy effect" for learning through rapid access to information, perhaps with a mix of activities and automated online feedback, is

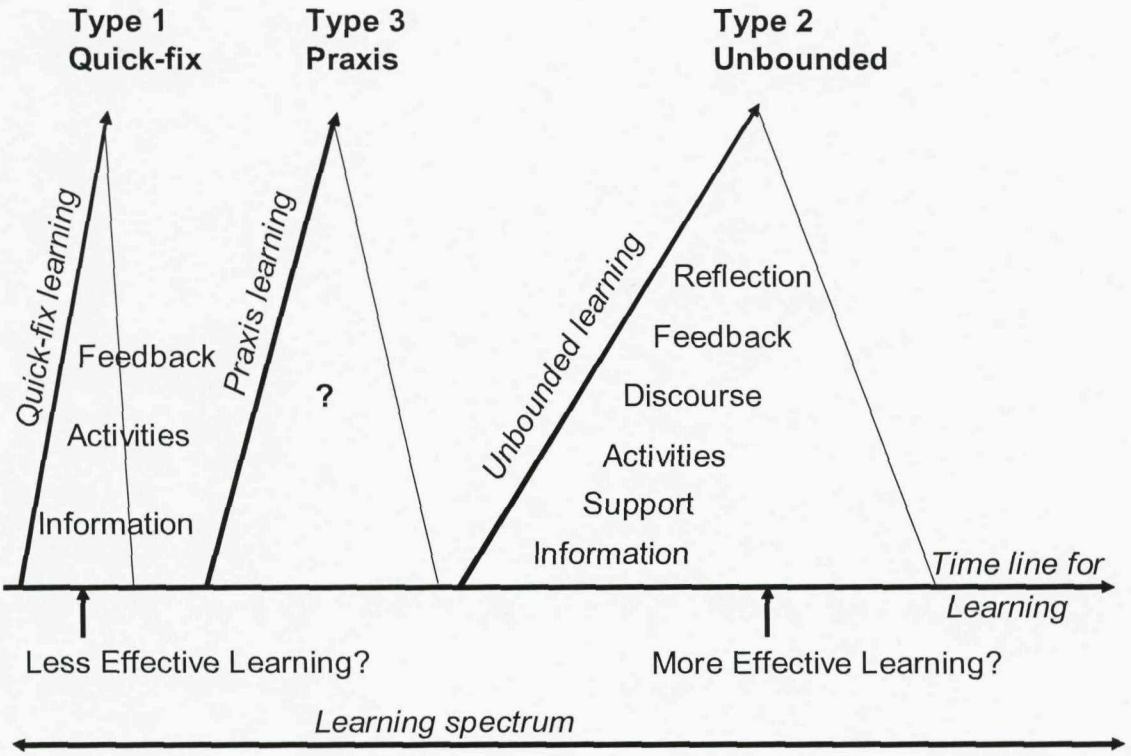

Figure 4 Time lines for the praxis of e-learning

located at one end of the learning spectrum. The Type 2 ideal, representing an unbounded learning experience, giving unlimited time and space for discourse and reflection on learning activities and discursive knowledge, is located at the other end of the learning spectrum. It is important to recognise Type 1 and Type 2 represent ideal types rather than the reality of everyday experiences in informal or formal learning hence the Type 3 model representing the reality of praxis learning sitting between the two ideal types. What it looks like and how it is constituted will be identified under practice implications following further discussion of the study's findings.

The radicalisation of time and space offered by e-learning initiatives has considerable implications for praxis in formal education. While the reality of praxis learning, whether online or face-to-face, informal or formal, can be anticipated to include elements of reflexivity and reflection, what I want to argue here is that the modern society and the HE learning enterprise are associated with the burgeoning of information. Where online encounters anticipate immediate, quick fix experiences the significance of real time for

purposeful thinking (Dewey 1933) is compressed, and opportunities for reflection and reflexivity, which this thesis has argued are central to effective learning as transformative experiences are challenged. It is my contention that the pervasiveness of information-rich online environments can lead to knowledge-poor agents if the medium is allowed to become the message transmitted and repeated without those agents entering into critical and purposeful thinking about the information transmitted or alternatively making pragmatic decisions about coping with information overload (notably CS3 and CS6) or strategically selecting those activities they can fit into the finite time available (CS1, CS5).

The implications of a heavy workload can lead to students adopting a surface approach to learning (Gibbs 1992) or to an intensification of work due to extending the time given to engaging in e-learning practices, a finding noted by students and tutors alike. Though there were learning benefits through the affordances of learning technologies in extending time for learning and teaching, the study also found costs in increased time expectations which appear to be a key issue for both staff and students working online. Tutors identified how time they gave to online work increased with development of materials, commitment to being online, setting up and moderating discussions, and giving feedback. Tutors were also more critical of the materials they presented online (CS2/T2.1/48, CS3/T3/150) and took more time responding to questions than in class (CS4/T4/118), demonstrating increasing reflexivity, assisted by the transparency of materials published online and archived messages. Where students tended to highlight the positive aspects of time, they also criticised e-learning as time-consuming (See Table 4.3). CS5 students in particular identified the increased workload with reports of logging on "every single day" in case they missed something (CS5/T5/189), and comments like: "Every time I wrote something, I thought very carefully about the words I was using" (FG5/181), suggesting they were crafting their online responses and, like the tutors, influenced by the visibility of the messages in the archive. Students also demonstrated increased expectations of tutor availability online, notably CS3 and CS5 students. These findings demonstrate the intensification of work experienced by both staff and students when working online.

Formal education and the relationships between tutors and students are being influenced by learning technologies in subtle but powerful ways. Echoing Dearing's claim that ICT "holds out much promise for improving the quality, flexibility and effectiveness of higher education" and its "scope to reduce costs" (1997) and Ehrmann's statement that institutions "will find it increasingly difficult to offer a *modern, effective* academic program that *reaches* and *retains* the students they should be serving for a *price* that those students and their benefactors can afford" (1995, italics added), there is little doubt that the growth of interest and enthusiasm for ICT developments in HE is linked to economic drivers for cost-effective courses of study. Although the question of whether learning technologies are assisting the steer towards more economical and cost-effective learning opportunities is beyond the remit of this study, it is possible to identify some of the major factors for consideration in achieving learning effectiveness from this study through the focus on practice experiences of human agents using online learning environments. This outcome appears especially pertinent when the potential impact of online learning environments in formal education systems geared towards facilitating student development of effective learning through opportunities for discourse and critical reflection is also being challenged by drivers to economise and use resources like time more efficiently.

Interplay of human agency and structure

What is clear from this study is the identification of a misalignment between perceived affordances of the learning technologies and practice experiences which may help to explain competing claims and tensions associated with learning technologies, and hence some of the gaps between espoused theory and theory-in-use (Argyris and Schön 1978). The findings have highlighted a series of apparent contradictions, for example:

- While the medium offers *flexibility* in use of time, constraints of *managing time* are also highlighted.
- While the medium offers *communication and interaction*, students tend to emphasise the value of *information*.
- While students have *flexibility* to learn where and when they want, they also have *tutor* and *peer group pressure* to contribute postings.

- While students can *use time to reflect* before giving their responses, the *spontaneity* of face-to-face discussion is lost.
- While participants can benefit from the *transparency* of published postings, the thoughts and reactions of individuals can remain *invisible*.
- While students are encouraged to *"think harder"* through the sharing of their writing, the level of debate can be *intimidating*.
- While the discussion medium can give access to *wider perspectives* from different people it can also feel *distant and isolating*.

While the notion of flexibility, predicated on developing learning opportunities unbounded by place and time, has some credence, it is both supported and confounded by human practice. It would seem that unrealistic claims can be created when conceptual interpretations of the technology's affordances are disassociated from human agents who inhabit these online spaces. The notion of the technology's flexibility, offering unbounded learning experiences, is potentially more illusory than real and one of the most significant issues for an espoused policy based on such a theory is the danger of diminishing the significance of time needed by tutors to develop and support online learning and by students to engage in precipitate experiences and reflective activities in pursuit of effective learning.

With these practice-technology tensions in mind, the Type 3 praxis learning model is intended to represent an e-learning initiative focused in the realities of time constraints and cost-effectiveness targets by acknowledging and working with the co-existence of reflexivity and reflection opportunities within an open systems framework. This would be an online learning environment in which precipitate learning experiences are constructively aligned with intended learning outcomes and assessment strategies in order to focus and enrich the learning experience, and where online learning and teaching hours are realistically accounted within the system, but where the unexpected and unplanned is also acknowledged as part of the learning process. This ideal model could accommodate those experiences where students are so busy engaging in online communication that they do not have the time to reflect *in* action and where the lever of assessment is used as a means of subsequent reflection *on* action. It could also accommodate those sudden instances of

learning like the Eureka moment described by one of the students, which could be the result of reflexivity rather than reflection. This model also contends that learning moments like the one described here can be encouraged through use of precipitate experiences and other levers like assessment to maximise opportunities for effective learning, but the realities of constraints like time and lack of remote Internet access would also need to be considered.

While such constraints have been shown to impact on students participating in online learning, some more subtle but potentially powerful drivers to more effective learning are demonstrated in the social presence of co-participants. While agents, tutors and peer group, are not physically co-present, the affordance of the technology's transparency of published material and archived messages, can influence the standard of published input, depth of contributions, and degree of interaction online. Whether this is viewed positively as the technology affording reflexivity on the part of human agents, both students and tutors, engaging online or whether it is seen more negatively as the power of the VLE to assure self-surveillance (Foucault 1979) is open to debate, but the combination of technology affordances and social presence (Garrison et al. 1999), and the interplay between human agents through and with technologies, is a strong factor supporting achievement of more effective learning. It also reinforces the power of Archer's theory of a holistic ongoing experience re-asserting the wholeness of human beings operating with their senses, emotions and cognitions intertwined and interacting with objects in the world (2000a).

Contribution to knowledge

Following this discussion, a number of key knowledge claims which have emerged from this research can be summarised here. It is important to recognise these claims are associated with the situated practice context of online learning initiatives introduced as part of conventional courses in a HE institution and that they offer different mixes of face-to-face and online learning opportunities. Each of these claims has associated practice implications which will be discussed following identification of these claims which are that:

1. **A theory of praxis learning as transformation of experience through praxis and reflexivity is proposed for online learning**

   This theory acknowledges the primacy of praxis as a trigger for transformation, the prime ingredients being action and purposeful reflection associated with real and challenging experiences. The theory is based on Dewey's concept of learning through transformative experiences (1933) with Archer's thesis reasserting the wholeness of human beings with their senses, emotions and cognitions intertwined and interacting with objects in the world through praxis and reflexivity (2000a). The theory is significant in representing a synergy between two distinct theoretical fields, Dewey's (1933, 1938) classical pragmatist approach to education and Archer's more contemporary critical realist approach.

2. **Reflexivity is a significant aspect of learning in guiding and informing social action**

   Daily practice is negotiated through reflexivity which enables agents to monitor and change their practices (Archer 2007, Giddens 1991b). It is not something that is specifically associated with learning but something we do as human beings to assist us in making our way through the world (Archer 2007). The significance of reflexivity in learning is identified by the knowledge that it expands when subjects are faced with unfamiliar and problematic situations, which asserts the transformative potential of praxis learning (Dewey 1933, Archer 2007).

3. **Promoting social presence is an important factor in overcoming physical distancing from the locus of practice and significant others**

   Formal education settings are associated with second-order learning (Laurillard 1993), secondary experiences (Jarvis 2003) where abstract and decontextualised knowledge is mediated through teachers and textbooks, rather than being situated within or given authenticity by relating that knowledge to real world practices and experiences (Lave and Wenger (1991). While agents, tutors and peer group, were not physically co-present, the affordance of the technology's transparency of published material and archived messages, influenced the standard of published input, depth of contributions,

and degree of interaction online, though it was also recognised the outcomes for individuals varied with positive or negative experiences recorded (Foucault 1979).

4. **The pervasiveness of information-rich online environments may lead to knowledge-poor agents**

   Modern society is associated with burgeoning information. The development of online learning environments as information portals for the provision, management and signposting of information is seen as a universal benefit in all the cases reported here. Active learning opportunities offered by the learning spaces for communication, discussion and networking appear secondary to the information resources provided. Where the affordances of learning technologies are perceived as sources of information rather than sites of learning activity, learning can be compromised if it is considered to be more about knowledge acquisition than about transformational learning experiences.

5. **Technology and the pace of change is leading to the radicalisation of time and space for online learning and teaching**

   Where the constraints of time and place can be reengineered by the affordances of networked learning technologies, outcomes can appear contradictory. The flexibility and immediacy afforded by the technologies create paradoxical descriptions of unbounded (Type 1) learning experiences compared with quick-fix (Type 2) learning experiences.

6. **Effective learning through reflexivity and reflection may be compromised by the pace of change in modern life**

   The processes of reflexivity and reflection associated with achieving effective learning are closely linked to real time constraints and this point is related to the previous claim. Transformational learning experiences are challenging and can take time to work through (Dewey 1933). The question of the relative significance of time spent on task in doing and reflecting to generate effective learning is significant with students needing time and space to access resources and human agents to nurture their process of making sense of things or developing deep approaches to learning (Gibbs 1992). The

consequences of the radicalisation of time for online activities is that time on task may be compromised by Type 1 or Type 2 perceptions held by different stakeholders.

7. **Learning technologies and networks are impacting on the management of time**
   The benefits of flexibility and immediacy coupled with visibility and transparency in the online learning environment is leading to an intensification of work experienced by students and tutors working online.

8. **Significant contribution of Archer's critical realist theoretical and methodological stance**
   Archer's theoretical model of the three orders of reality and their respective forms of knowledge provides a powerful conceptual framework for analysing the complexities of factors at work in the processes of stasis and change associated with online learning and the wider HE context of this study. The critical realist stance is crucial for acknowledging the interplay of structure and agency and enabling a focus on online practice experiences as a means of making sense of the territory of e-learning.

Practice implications for e-learning focused in praxis and reflexivity

There are a number of implications for e-learning practice that support the promotion of effective learning in online learning environments. Having demonstrated the value of Archer's thesis throughout this study it seems appropriate to use her schema as a means of organising a set of key principles for fostering the development of effective online learning that have emerged from the findings for this study and that can be applied to the ideal Type 3 model discussed above. Archer identified three orders of reality linked to three respective forms of knowledge, the natural order with embodied knowledge, the practical order with practical knowledge, and the social order with discursive or propositional knowledge, constituted by and interlinked through practical action (2000a: 162). While human powers and propensities give access to these three kinds of knowledge, at one and the same time, humans as agents can also be constrained by anyone of the three orders of reality. The association between affordances of the technologies and practices of human agents is key to

understanding what works, what does not, and why. The key practice principles are presented as a charter of recommendations for effective e-learning in Figure 6.1.

Principle	Rationale
Effective e-learning constituted through the practical order:	
Focuses on transformative experience	For learning to be transformative, it needs to focus on a question or problem, which is perplexing and challenging, and entails purposeful thinking, taking time and effort (Dewey 1933). The purposeful thinking is directed to an end, a transformative experience, an insight or Eureka moment through praxis and reflexivity (Archer 2000a, 2007).
Gives primacy to praxis and reflexivity	Learning through experience is achieved by the process of engaging in and doing activities, not narrowly defined as practising a skill, but rather the development of praxis, where thinking and acting interact in a non-privileged way (Archer 2000a). This approach gives primacy to practice as a trigger for transformation. It is something the participant does, not something that is done to the participant.
Reasserts time and space for reflection	Everyday contingent learning (Lash 2002) is challenging the criticality (Barnett 1994) associated with HE learning, such that information can be consumed uncritically to the potential detriment of effective learning. To counteract this trend, it is important to plan time and space for engaging in and reflecting on learning experiences, balancing activity time with reflective time, supported by reflective levers like questions, assignments, and learning journals.
Promotes e-praxis over e-product	Learning about what learning is needs to be acknowledged by agents in the learning enterprise to promote e-process over e-product. Where discursive knowledge can be privileged over embodied and practical knowledge in formal education, information can be received uncritically and yet be equated with learning.
Effective e- learning constituted through the natural order:	
Views individuals holistically	When human distancing, remoteness, and isolation are associated with working online, the concept of wholeness of human beings with their senses, emotions and cognitions intertwined and interacting with objects in the world through praxis and reflexivity (Archer 2000a), becomes all the more significant and challenging. If effective learning is about praxis and the modification of one's ideas through a process of dialogue and application then the affective and psychomotor domains, related to embodied and practical knowledge, need to be accorded parity with the cognitive domain and discursive knowledge (2000a).
Builds social presence	Where learning is specific to individuals, it is also necessarily social, involving interaction through contact and communication (Dewey 1938), a process that can be conducted through resources like books and journals, and through human agents like tutors (Laurillard 2002) and peers. Where the physical and social can appear distanced when using technologies (Short et al. 1976), lack of practice realism and authenticity may be compensated by group processes to encourage social presence (Garrison et al. 1999), explaining the significance of practice-presence dimensions and relationships.
Gives priority to interaction with others	Where collaborative approaches to learning online are recognised in CMC and networked learning literature (Mason & Kaye 1989; Kaye 1992; McConnell 1994), nevertheless information, in the form of course materials, appears to be the dominant medium of online learning environments (Jenkins et al. 2005).

	Where real time is necessarily bounded, the value of participation and interaction, Laurillard's conversational framework (2002), over information is recommended. However a blended learning approach, may give precedence to face-to-face in class interaction, preferring use of the online environment for supporting information.
Employs different modes of scaffolding	Tutors and significant others, like the peer group, can contribute to scaffolding of learning (Vygotsky 1978). The tutor can scaffold learning by presenting information, identifying readings, mediating and moderating discussions, answering questions, giving feedback, setting tasks, and acting as a role model. The roles of directing and facilitating are finely balanced and the tutor needs to negotiate clearly with participants to avoid any dissonance between tutor intentions and student perceptions. The peer group can be an ally in scaffolding, encouraging, supporting and providing feedback to the learner. Where members can dominate and intimidate (Foucault 1979), agreed guidelines for contributions can be helpful. Activities to encourage peer group collaboration and feedback can enhance social interaction and promote social presence online (Garrison et al. 1999).
Effective e-learning constituted through the social order:	
Recognises the situated nature of learning	The presence of appropriate learning technologies should not be equated with learning. The context of experience is significant and will exert influences on the process and outcomes. Precipitate experiences designed at the micro-level will be situated within their immediate social order where other factors, like those highlighted in Biggs's 3P model (2003), can impinge on the learning experience. Such an open systems model is useful for identifying factors for consideration in planning and development. The sense of human distancing can be reduced by personalising the experience through promoting and encouraging social presence (Garrison et al. 1999) Where cognition is so easily privileged over action and feeling in higher education, the tutor's attention to the design of learning experiences are key to countering the very real dangers of disembodiment from discursive knowledge (Marton & Säljö 1976a, 1976b, 1984).
Builds in levers for learning	While the principle of interaction gives equal responsibilities to the educator for adapting the environment and to the individual for adapting the self (Dewey 1938), various levers for learning can be employed. Learning can be encouraged by aligning the precipitate experiences with intended learning outcomes and assessment strategies, using Biggs' principle of constructive alignment (Biggs 2003). Assessment can be used to motivate learning (Gibbs 1999a). The provision of regular online assessment supported by scores and immediate feedback can be informative and encourage learning.
Acknowledges and works with the displacement of time and space from place	Where the technology affordances support more flexible working, this can diminish the significance of time needed for effective learning. Use of real time for learning and teaching can be extended by the affordances of the learning technologies but the costs need to be recognised and technology expectations acknowledged so intended purposes can be achieved in realistic time frames.

	This can be achieved by reasserting time as finite and divisible to account for time required for learning through more accurate forecasting of learning hours required, and infrastructural changes to account for time focused on learning hours and tutor facilitation and support outside the classroom.
Appreciates and manages the impacts of structural opportunities and constraints	By according equal weight to the role of agency and structure within socially situated interactions (Archer 2000a), it will be possible to manage student expectations and improve the e-learning experience. The significance of structural factors like Internet access from home, technology reliability and other commitments affecting the finite time available for student study time needs to be acknowledged within e-learning initiatives, but the opportunities provided for working at different times and in different spaces has some real benefits for e-learning.

Table 6.1 Charter for effective e-learning

There is considerable potential to make new and exciting things happen through e-learning focused on praxis learning. The challenges are great but the scope is considerable. The availability of technologies for creating online spaces for information and knowledge sharing through time does not necessarily equate with effective learning. Where learning technologies are introduced, human agents have the enthusiasm to construct and engage in learning experiences that support learners as complex and holistic individuals who can learn with and from each other. But the potential impacts of structural factors like access and time as constraints cannot be ignored. There is a very real concern that information transmission predominates over opportunities for reflection to the potential detriment of effective learning in online learning environments. Technology is a force in these social changes affecting agents, either as a means of enriching or diminishing the effectiveness of learning. In acknowledging the reality of bounded time in the classroom, while accounting for the flexible time required for learning enhancement outside the classroom, the value of facilitating online learning in online learning environments is championed, but the hidden costs of such initiatives also need to be recognised, particularly by educational policy makers and managers. While Dearing recommended ICT as a way forward for HEIs, he also identified the need for investment in "time, thought and resources in the short term" (1997). But the "short term" may be in danger of suggesting development of e-products rather than appreciating effective e-learning is about transformation through experience, the process of engaging with and making sense of things through doing and making time for reflection, supported by other human agents as scaffolds. This is e-process and involves human agents whose time is a fixed commodity, not unbounded, and necessarily influenced by competing demands.

This study has presented a particular perspective on e-learning focused on the descriptions and experiences of students and tutors, trying to capture and report on reality, a snapshot at a particular point in time, in order to throw light on the complex phenomenon of learning in online learning environments. The technologies available are developing at a tremendous pace, and the study could be considered dated as soon as it commenced if it was simply examining the uses of learning technologies in learning without interweaving it with the experiences of the agents involved. But by concentrating on the particular and exploring the design and development of six different e-learning initiatives through the perspectives of the participants, my argument is that the practices explored and the principles for effective e-learning developed can be applied generically and can encompass a diversity of disciplines and professions under the umbrella of holistic experiential learning (Dewey 1933, Archer 2000a). While Archer affirms the context in integrating the three orders of reality with their respective forms of knowledge, embodied, practical and propositional, her thesis of the human agent is neither constrained by situated factors in the social order, nor aligned with grand theories in education, psychology or sociology. It was through developing an appreciation of Archer's thesis that this study could examine learning through the praxis of human agents.

The suggestion of a new concept of praxis learning to inform and assist implementation of e-learning, encompassing criticality while acknowledging contingency due to the pace of change and developments within the world we live in is offered as a means of enhancing the effectiveness of learning in online learning environments and making sense of e-learning. It seems only right that a study affirming the precedence of agents' voices involved in e-learning should give the last words to the students in drawing this work to its conclusion. One student sums up the benefits of e-learning very simply and the other challenges our appreciation by expressing how learning can take different forms and be approached in different ways according to the demands of the situation:

> You can learn in your pyjamas! (FG4.1/182)
>
> Hard work, time-consuming, understanding general ideas and bigger pictures, short term learning of details for exams" (MQ6/1/18).

Appendix 1. Staff Interview Schedule

My research question is:
How can online learning environments contribute to learning in higher education?

This breaks down into two key sub- questions:

- *What are students experiencing when their teachers use learning technologies in their teaching in higher education? (experiences and perceptions)*
- *What are teachers doing when they use learning technologies in their teaching in higher education? (intentions and experiences)*

Procedures: I am proposing to ask you some questions about your use of learning technologies and your approaches to learning and teaching.

Assurances and permission: You will remain completely anonymous and no records of the interview will be kept with your name on them.
With your permission, I will record the interview using a tape recorder.
Any queries before we start recording?

Context:
I would like you to relate our discussion to a particular HE course that you are teaching and in which you use learning technologies/online learning environments (virtual learning environments VLEs), e-learning strategies.

Can you briefly describe the course/unit/programme for me?
Title, rationale, student numbers, where your unit fits, distinctive features, online, face to face, mixed mode?

Learning and teaching

1. What do you think learning is?.... in the course you teach? ....in your discipline?
2. How would you describe 'good'learning?

Use Marton and Säljö's Conceptions of Learning Prompt card after initial reaction.

3. What do you think teaching is?
4. How would you describe your approach to teaching?
5. What approaches/methods/techniques do you find particularly useful in encouraging student learning?
6. Describe this (each of these) approach(es) in more detail
7. What do you see as the values of this (each of these)approach(es)?
8. Do you see any tensions in the (each of these) approach(es) you are creating?
9. Describe your best experience of teaching
10. Describe your worst experience of teaching
11. Describe your best experience of learning
12. Describe your worst experience of learning
13. How do you think teaching can help learning?

Learning technologies
Now I would like to ask you some questions about learning technologies and online learning environments (VLEs) (defined as computer assisted learning or web based learning, and perhaps including computer mediated communication (CMC) and online assessment).

I would like you to try to relate your answers to the same course/unit.

14. How would you define e-learning?
15. What does e-learning mean for you?
16. Why are you using learning technologies? What issue are you trying to address?
17. Does e-learning supplement existing practices? Does it replace some aspects, or deliver whole in online mode?
18. What role do learning technologies play in your teaching?
19. How do you use learning technologies?
20. What do you ask your students to do online? What sort of activities are they asked to engage in?
21. What happens in e-learning that is different to what happens in the classroom?
22. Have you changed your methods/approach to teaching as a result of working with learning technologies?
23. Does the technology support particular teaching approaches? Does the specific technology (ies) you are using influence your teaching approach?
24. Does the approach used in this unit encourage or discourage collaboration between learners?
25. What do you use learning technologies for?
    Prompt card: Descriptions and uses of Learning Technologies
    Which of these have you developed?
    What aspect(s) of the learning technology makes it appropriate for you?
    Which of these do you think is most important to student learning?
    Why?
26. What would you like your students to be able to do (or do better) as a result of working with learning technologies?
27. How did you learn about how the technology could be useful to your learning and teaching strategies?
28. Did you need to review your learning outcomes as a result of engaging with e-learning?
29. What role does assessment play in relation to your use of learning technologies?
30. What skills have you found to be necessary to use learning technologies?
31. Do you think that using learning technologies has enabled you to develop any new skills?
    Could you describe them and give some examples?
32. What kinds of technical and administrative support have you required/do you require to take your innovation forward?
33. How much time does your School give you to develop e-learning and related skills?
34. Describe a significant moment for you in using learning technologies in your teaching?
35. Describe a significant moment for you in using learning technologies in your own learning, how you felt as a learner?
36. What do you see as the benefits of online learning environments?
37. What do you see as the drawbacks of online learning environments?
38. Can you identify any particular issues for students?
39. What are student expectations of learning technologies?
40. What skills do you the students need to develop, if they are to use learning technologies effectively?
41. Why do you think learning technologies are being encouraged and promoted?
42. What are your main reasons for adopting learning technologies? What does it achieve for you?

43. What position do you think learning technologies hold at present?
44. How do you think the use of learning technologies will change teaching and learning in higher education over the next 5 years?
45. How would you describe your level of general IT skills?
    - Novice, Competent, Expert
46. How would you describe your experience of learning technologies?
    - Minimal, Adequate, Confident
47. How would you describe your frequency of use of learning technologies?
    - Daily, Once a day, Once every few days, Once a week, Once a fortnight
48. On average how many hours do you spend using your computer per day?
    - Less than 1hr, 1-3hrs, 3-5hrs, More than 5hrs
49. Do you have Internet access at home?

Closing comments

50. I would like to draw the interview to a close. Is there anything else you would like to add?

Thank you for sharing your thoughts and giving up your time to assist me.
I would like to reiterate that you will remain completely anonymous and no records of the interview will be kept with your name on them.

Is there anything you would like to ask me?

Thanks again.

Prompt Cards

Conceptions of learning

1. Learning as a quantitative increase in knowledge. Learning is acquiring information or 'knowing a lot'.
2. Learning as memorising. Learning is storing information that can be reproduced.
3. Learning as acquiring facts, skills, and methods that can be retained and used as necessary (application).
4. Learning as making sense or abstracting meaning. Learning involves relating parts of the subject matter to each other and to the real world (understanding).
5. Learning as interpreting and understanding reality in a different way. Learning involves comprehending the world by reinterpreting knowledge.
6. Changing as a person.

(Marton and Säljö's conceptions taken from Ramsden 1992: 26; Beaty et al. 1997)

Descriptions and uses of learning technology

1. Content (information, text, video clips, Powerpoint slides)
   - sharing information
   - reading students' contributions

2. Communication (computer mediated communication - e-mail, text conferencing, video conferencing)
   - setting tasks
   - encouraging discussion

3. Feedback
   - giving feedback to students
   - getting feedback from students
   - peer feedback

4. Assessment (online assessment)
   - setting assignments
   - delivering assessments
   - receiving submissions

5. Skills development
   - using technology
   - social skills
   - writing skills
   - reflection skills
   - problem solving
   - practical skills

Appendix 2. Student mini-questionnaire (MQ)

E-learning : your experiences*

1. What does learning mean to you?

2. How do you learn on your course

3. How would you define e-learning?

4. What does e-learning mean for you?

5. Explain a significant moment of using e-learning.

6. Describe the best moment during e-learning.

7. Describe the worst moment during e-learning.

8. How do you think e-learning can help your learning?

9. What does the teacher do in e-learning that helps your learning?

10. What happens in e-learning that is different to what happens in the classroom?

Your Name: Course & Year: Your Tutor:

Do you have Internet access at your University term time address? Tick YES NO

All your comments will be treated in strictest confidence.

* Please concentrate on your current experiences of the course programme where your tutor is providing you with, for example, web pages, computer mediated communication, or learning and teaching web sites.

Appendix 3a. Nominal Group Technique (NGT) form

E-learning: your experiences

What works?	What would you like to change?
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Appendix 3b. Nominal Group Technique (NGT) form

E-learning: your experiences

Strengths of the experience

VOTE	No.	Statement
	1.	
	2.	
	3.	
	4.	
	5.	
	6.	
	7.	
	8.	
	9.	
	10.	
	11.	
	12.	
	13.	
	14.	
	15.	
	16.	
	17.	
	18.	
	19.	
	20.	
	21.	
	22.	

You have 10 votes to cast in any way you wish for this section. Do not vote for statements which you do not agree with. You may give more votes to certain statements, which you strongly agree with up to your maximum of 10 votes.

Appendix 3c. Nominal Group Technique (NGT) form

E-learning: your experiences

Advice on improvements

VOTE	No.	Statement
	1.	
	2.	
	3.	
	4.	
	5.	
	6.	
	7.	
	8.	
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	10.	
	11.	
	12.	
	13.	
	14.	
	15.	
	16.	
	17.	
	18.	
	19.	
	20.	
	21.	
	22.	

You have 10 votes to cast in any way you wish for this section. Do not vote for statements which you do not agree with. You may give more votes to certain statements, which you strongly agree with up to your maximum of 10 votes.

Appendix 4. Mini-questionnaire responses: case study sample return

E-learning : your experiences* - CS6 21 responses 5.1.04

Student cohort: 21
Mini-Q: 21 responses
Group composition: Male 5 Female 12 Unidentified 4
Age range: 18-25yrs 85% 26 years and over 15%
Internet access from home Yes: 9 No: 10 Non-response 2

1. **What does learning mean to you?**
   New ideas, theories and/or facts, sharing of knowledge (1)
   Acquiring knowledge from different sources and trying to make sense of, then applying them to different scenarios areas of course/life (2)
   Left blank (3)
   Finding out new information (4)
   Uncovering and discovering new facts, ideas and styles, either randomly through experience or part of a structured program, eg. a University course (5)
   Gaining an understanding of new topics, skills and experiences (6)
   Gaining knowledge (7)
   Expanding my knowledge and experience in order to make me more employable (8)
   Gaining knowledge that is previously unknown (9)
   Acquiring and interpreting knowledge (10)
   Gaining knowledge and understanding not previously known (11)
   Extending and building upon ideas and knowledge (12)
   A process of development and progression to broaden your knowledge (13)
   Educating myself, furthering my knowledge of certain subjects (14)
   Broadening knowledge and enabling me to do things I could previously not (15)
   I feel it is important to keep developing my knowledge and challenging myself (16)
   Finding out new information and trying to understand it (17)
   Hard work, time consuming, understanding general ideas and bigger pictures, short term learning of details for exams (18)
   Finding out new information which I didn't already know (19)
   To increase the amount of knowledge that I have and continue to do so continuously.
   To process and expand on info given to me (20)
   Grasping of new ideas/concepts etc (21)

2. **How do you learn on your course?**
   Reading, various research methods, lectures, seminars (1)
   Writing notes from lectures and books; reading (2)
   Through lecturers and resources (3)
   Listening to teachers (4)
   Listening to lecturers, practical activities, discussion in seminars, assignments, revision for tests and exams and any of the above methods that are carried out on computers/Internet methods (5)
   Reading, expanding lecture notes, research (6)
   Try to understand the concept, then memorise the theories and examples (7)
   Through tutors, books, internet resources and use of computer conferencing (8)
   Reading lecture notes, background reading (9)
   Lectures, seminars, books, articles, others, news, real-life examples (10)
   Using a number of different medium (11)
   Listening, writing notes, reading textbooks (12)
   Seminars, lectures, assignments, reading, internet (13)
   By attending lectures, seminars, reading books and interesting articles (14)
   Going to lectures and seminars. Reading textbooks. Carrying out assignments (15)
   Through lectures and seminars and via computer conferences (16)
   Getting taught by lectures and reading around topics to do assignments (17)
   Through lectures, seminars, the internet, books and revision (18)
   By going to lectures and seminars and reading round the topic in a variety of books (19)
   I listen to tutors and lecturers, read and re-read any notes. Research using the Internet for assignments. Read books if I do not understand something or ask questions during seminars if something is not clear (20)

Appendix 4. Mini-questionnaire responses: case study sample return

E-learning : your experiences* - CS6 21 responses 5.1.04

Study, read, research (21)

3. **How would you define e-learning?**
Technology, conversation, recording data (1)
Learning through the use of online facilities (2)
Left blank (3)
Learning online (4)
Learning through computer mediated methods, independantly (5)
Learning via computers/Internet (6)
A method of learning without a 'teacher' in front of you. It guides you through work 'on screen' (7)
A useful resource intended to support and expand in-class learning (8)
Learning online (9)
Learning aspects delivered online or accessed through online mediums (10)
Using computer mediated forms of information (11)
Learning from using internet, computer conferencing (12)
Using the internet as a means for learning and gathering information. Also using the computer as a medium to learn (13)
E-learning is the use of computer technology to further my knowledge (14)
Using electronic resources to further my knowledge (15)
Learning via an electronic mode, such as a computer, which may or may not be interactive (16)
A form of learning using online resources (17)
Any learning done on electronic media (18)
Learning and finding out information on the internet (19)
Computer assisted teaching. Learning regardless of time or location, independently of a tutor being present (20)
Learning on a computer (21)

4. **What does e-learning mean for you?**
Access to information without relying on people (1)
Learning from fellow students and their knowledge; reflected on their knowledge/views and so adding to mine (2)
Using computers/technology to learn (3)
Learning online (4)
Freedom to study when I determine rather than in a lecture or classroom at a specific location and time (5)
Having access to another source of information to aid my learning experience (6)
I don't find it very effective, because I am very responsive to auditory learning (7)
I find e-learning much easier to learn from/to take in. there is no danger of 'missing the point' (8)
Learning online, covering endless material even if you already know it (9)
Internet and web based resources (10)
Another form of learning (11)
More chance to participate, work at own pace, log on at whatever time (12)
As above (13)
It means I can use a vast range of resources in order to find what I'm looking for (14)
A mountain of information that is easily accessible. Am able to work at a time and pace that suits me (15)
Important as it allows me to have a much wider range of resources available (16)
Finding out information on the internet and doing work in computer conferences (17)
Variety in learning styles, familiarity with computers, easy access to information (18)
Means I can gain access to a huge amount of information without leaving my house (19)
The ability to learn regardless of location or time. I can leave something I don't fully understand and come back to it when I know what it means. Flexibility is an issue as well:- no specific time to learn (20)
I find it easier to learn this way than from books! (21)

Appendix 4. Mini-questionnaire responses: case study sample return

E-learning : your experiences* - CS6 21 responses 5.1.04

5. **Explain a significant moment of using e-learning.**
Finishing my first web site (1)
Left blank (2)
Left blank (3)
Online conferencing (4)
Liaising with others to produce collaborative work without physically meeting up (5)
Finding the Learning & Teaching Website and using it for most information (6)
Getting a response to something you have written from someone who you've never met (CMC) (7)
Left blank (8)
Smartforce in Year 1 gave me a brief background to IT, although all I did was memorise A,B,C, D answers (9)
Conducting repeat tests using a computer in order to revise a certain subject (10)
Left blank (11)
Get other people's opinions or ideas (12)
Using the internet to research for assignments (13)
Finding out specific work related information (14)
Left blank (15)
Allowing me to reach more sources when researching on the internet (16)
Submitting first assignment online completed within a conference (17)
Left blank (18)
When I had an assignment to do, limited books were available to me so I found the info online (19)
I had to re-think a response and e-learning allowed me the time to do this. I didn't have to answer straight away (20)
Discovering the L&T website and using it to get info from (21)

6. **Describe the best moment during e-learning.**
Left blank (1)
Left blank (2)
Left blank (3)
Exchanging ideas (4)
Large-scale group discussion on a specific topic (ie. the opinions of response the UK made to 9/11) (5)
Left blank (6)
Finding exact and useful information that is up to date (7)
Submitting the finished assignment to the plenary conference board (8)
CMC was novel in the first year (9)
When it is quick and accurate and relevant (10)
Left blank (11)
People being stimulated by my own ideas and expanding from them (12)
Getting good information (13)
None (14)
When a large group worked well together on an international capability assignment – only group to get final comments in (15)
Left blank (16)
Researching for an assignment and being able to provide group with information that helped their understanding (17)
Feeling of accomplishment when you post an assignment (18)
When the research I am looking for is easy to find (19)
I can do it anywhere with Internet access, any time (after work/before work, between lectures/seminars) (20)
CMC – learning and using it (21)

7. **Describe the worst moment during e-learning.**
Being stuck with an unhelpful group (1)
BIS scenarios – found them hard and unnecessary (2)
Left blank (3)
BIS (4)
Not understanding an area in a subject and not being able to get help (5)
Misinterpretation of the way people are saying things. Can result in offence/insults

Appendix 4. Mini-questionnaire responses: case study sample return

E-learning : your experiences* - CS6 21 responses 5.1.04

and misread messages (6)
Where you read something and need more explanation to understand it or need practical examples (7)
Not being able to see ideas coming together. Repetition of ideas with no result.
Having to wade through 'hundreds' of messages after logging on for the first time in days (8)
Bombarded with CMC activities that would be quicker/less full in a discussion (9)
The opposite (10)
When my computer crashed and I had to walk to Uni to the open access centre (11)
Not being able to keep track of people logging on/off – no guarantee work could get done (12)
Filtering through to get good results (13)
Not being able to find what you are looking for (14)
Motivating people to carry out their part of assignment (15)
Having to send in a final draft of an assignment to my tutor, which would not send!! (16)
Not understanding a question in an assignment and feeling left out of the group and behind as a result (17)
Group work where other members of the group exploit the faceless nature of e-learning and let you down with poor contributions (18)
When it took me hours to find any relevant information for my assignment (19)
Ambiguity between members of conferences. I posted a message and the response came quickly. However by the time I read the response, the conference had developed to an extent where it would not have been worth it to reply (20)
Never knowing if everyone is going to do what they say they are going to do (21)

8. **How do you think e-learning can help your learning?**
Good for facts and reviewing history (1)
As for Q4 (2)
Left blank (3)
Exchanging ideas with a lot of people (4)
It can be useful to reduce the volume of face to face meeting (5)
See Q4 (6)
It is good to use different methods of learning and helps you to become more competent in the use of PCs (7)
Offering a wider range of resources (8)
Learning in remote locations. Sharing information (9)
By being readily available and convenient – offering new mediums (10)
Lets you work on a subject at your own speed (11)
Another perspective on learning. Course mates can help with problems as well as teachers (12)
By giving you another means or medium to learn through (13)
It can provide me with a vast range of resources in order for me to better understand a subject (14)
Can learn at own pace to ensure you fully understand (15)
Allowing me to set my own pace (16)
Forcing you to interact with people you wouldn't normally under changing conditions.
Having a huge amount of information to look at, at your convenience (17)
Left blank (18)
Because it is easy accessible for me and I enjoy using computers (19)
Have time to develop my answer. Can research while I am online anything I don't understand (20)
All info is recorded in order. Group members can go away and think about ideas then restate to the group in an orderly way (21)

9. **What does the teacher do in e-learning that helps your learning?**
Monitor and assist when needed (1)
There is usually no teacher input in CMC (2)

Left blank (3)

Appendix 4. Mini-questionnaire responses: case study sample return

E-learning : your experiences* - CS6 21 responses 5.1.04

Nothing (4)
Provides clarification, direction and encouragement (5)
Presents information in an organised and orderly fashion which is available for everyone to view (6)
Giving feedback (7)
Mediates our conferences. Interjects with useful comments when he feels necessary (8)
Leave the room. Teacher has no involvement (9)
Guides you to resources (10)
Not much. Gives feedback sometimes (11)
Is there in the background to help ideas and keep conversation moving on. To demonstrate how to communicate effectively (12)
Comments on our comments (13)
Explain the subject in detail, give handouts and encourage further reading on interesting facts (14)
Guides/pushes you in correct direction (15)
Monitoring work/conversations, but only intervening when necessary, so do not feel pressure of being watched or chastised such as in the classroom (16)
Guides you through conferences and suggest possible areas on internet to look at (17)
Fast and constant feedback is the most valuable (18)
Provides me with info I need as well as a lot of other info which broadens my knowledge (19)
Post encouraging messages which help our train of thought and encourage more response and debate (20)
Teacher is not there so people find it easier to say what they think (21)

10. **What happens in e-learning that is different to what happens in the classroom?**

Recordable contributions assisting reflection and discussion (1)
Lots more complements to each other. Use of phatic talk to keep offence to minimum (2)
More people take part (3)
People don't take it as seriously (4)
Those who are not confident to speak out in class contribute far more (5)
Left blank (6)
You have more time to think about and research an answer you give (7)
It is easier to put a point across than talking in class. It seems more productive (8)
It happens online without a teacher. You cannot get immediate feedback, or judge tone/feeling (9)
Less interaction than in a seminar (10)
You can go at your own pace when and where you want to (11)
More people can give their opinions, especially people who otherwise don't speak in face to face situations (12)
People actually voice opinions that they wouldn't necessarily do in face to face situations (13)
You are free to explore what you want to explore (14)
Pace of learning etc (15)
Feel freer to take my time answering, so as to produce a better answer (16)
Everyone is given the opportunity to speak freely and more confidently (17)
You can go at your own speed (18)
I can find the info I want, when I want and can expand on what I look for (19)
More thorough answers. Nobody is 'afraid' to answer (20)
See Q8 (21)

Appendix 5 MQ Tabular Analysis CS4

CS4 **I**nformation id 11sts (50%) **K**nowledge id 12 sts (55%) **R**eading id 9sts (41%) **Re**search id 2sts (9%)
Understanding id 6sts (27%) **M**emorising(Repet) id 2sts (9%) **S**kills/practice id 9sts (41%) **L**ectures id 8sts (36%)
Assignments id 5sts (23%) **Ta**sks id 4sts (18%) **A+Ta** id 9sts (41%) **Sem**inars id 6sts (27%)
Discussion id 12sts (55%) with 9sts(41%) id computer conferencing/groupware (CC) and 5sts(23%) id D **T**utors id 4sts (18%)

Internet	Concep	Q1	Q2 Stdt focus	Q2 Tutor focus	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Grp 1												
S1	Y	1 & 2	S	Gp Lib	T L Sem	C RWr	I Instant access	IntCrrctuse	ODAGp	Pooraccss	Iaccess	Explains	Self discipline
S2	Y	1 & 3	K S	M R D		CAcsConv	24hr online,support	I Discovery	Re GpA	Nonpartici	KbaseExpa	Guidance	Self discipline
S3	Y	1, 3 & 4	K	R U		Okgetgoin	C	MatsDistC	Interactoth	Crashing	Otherpeopl	Guidance	Independent lrng
S4	Y	1	K S	R OD	L Sem	S Int	Freedom wk whentime	P	Pyjamas	Access	FredmFlex	PstsAnsw	RTa Writtenrecrd
S5	Y	n/a			L SemF2F	K Diff way			ODWkothe	Slow ntwk	Add on	KOD	Self discipline
S6	Y	2 & 4		Rbks CInt	L Sem	C O	New modern	OD	U new subj	Syst down	U Involving	Guidance	Self taught
S7	Y	3 & 6		R Re	Tut	O	Ownpace whereverwa	Noneyet	Findingrele	No.srchrslts		Notenough	Nottutorial suppt
S8	Y	1 & 3	S	R D	L Sem	Email	Email	I GpOD	I fast	Connectfai	Believe	RefProbsol	Onown ownpace
S9	Y	1			L SemF2F	OCnonTle	Don't have to attend	ECDLtests	ECDL test	Tech faults	Access	Feedback	Less Tinteraction
S10	**N**	3 & 6	SU	RbksLib C	L	C	Addit support to LSem	Chainmess	OD	Nohmeacc	Add on	Guidance	Self taught
S11	YS	3,4,5,6		Not well		C	Flexibility	Discov I	Ta	Partip Tecl	Flexibility	Instructions	Nohumancontact
S12	Y	1 & 3	I P	Rbks Int	L	IInt	AccsslearnCovenFlexi	1stmesspo	PosRespor	No.srchrslt	Add on	LinksGuid	OwnpaceSelfdisc
Grp2													
S13	Y	12356	S K	R D		C	K	Gp	FinishA	NotU	I	Feedback	More Gp work
S14	Y	1 & 3	S	Othersexperience		C	C	Gettngstar	Feedbk	Cost respo	Speedoflng		NoGpDorveryslow
S15	Y	1, 2 & 5	I	ExpCpkge		CS	Good addition	Grdeintest	FinishA	Rsponstim	S	Addit help	I More isolated
S16	Y	3	K	Study Assimilation		C	Ease of access			Modemfau	I	Feedback	Self regulation
S17	Y	1 & 3				Dist quickly		1sttimeweb			I	Techdetails	loseoutF2Fintera
S18	Y	2, 4 & 6	K	Gp	T	Wayforwar	More convenient	GpTa	CompletTa	Systfailure	Convenient	TaGuidanc	Openupmore
S19	Y	4, 5 & 6	K	M	Tfeedbk	Cemail LN	Own time			NotURespl	LNWhenever		ChoicepaceXAdv
S20	Y	1	K	Expnewmethds		OD CAL	Flexibility	OD	WkinginGp	UnsureTa	RLib		Not F2F
S21	Y	1 & 3	K	I OD D		C	Flexibility(remote accs	Remote Ac	A posted	Gpsize	K I	Structures	Notverymuchtalk
S22	NR	2	K	P		C Int	Don't U	Right Attach		NotUAllofit	I		

Notes
(Q1) Learning (15sts - 68%) equated with gaining, acquiring, building, developing, increasing....knowledge (K) -12sts, information (I) -3sts
S+P (9sts - 41%) Skills (S) identified by 8sts (36%) (computer skills by 2sts, generic by 6sts)
Practice (P) id by 1st and "learning how to do something" by 1st
See additional process comments highlighted in MQ transcripts Q1,2 & 8
Summed up in "Putting into action what we have learned" (MQ4/2/22)
(Q2) Student focus on how learn, includes reading (R), discussion with peer group, face-to-face (D) and online (OD),
using the library (Lib) and Internet (Int).
1st mentioned study and 2sts mentioned repetition (M) helps them to learn.
Grp2 contrast with Grp1 - only 1st id reading compared with 8sts in Grp1.
(Q2) Tutor focus includes lectures (L), seminars (Sem), tutors (T)
9sts (41%) in Grp1 id lectures, seminars or tutorials, but none of Grp2 id and only 2sts (9%) in Grp2 id role of tutor.

(Q3/Q4) Definitions of e-learning
13 out of 22 (59%) learning via a computer/Internet with sts referring to electronic medium(C) or online (O)
Of the remaining sts:
4 out of 22 (18%) defined as a combination of information (I)/electronic resources AND communication (OD):
reading and writing (MQ4/3/1), information and correspondence (MQ4/3/12), presentations and email (MQ4/3/19)
CAL and groupware (MQ4/3/20)
1 out of 22 (5%) defined as electronic mail
2 out of 22 (9%) id developing or getting computer skills
1st commented it was "Ok when you get going" (MQ4/3/3)

(Q4/Q5/Q6) E-learning experiences
Terms students used to describe e-learning included here

(Q7) Worst moment
12 sts (55%) identified technical issues concerning system failure and unreliability, compared with 1st who left blank
1st (5%) id "not easy to use" as no Internet access at home so "limited as to time able to do e-learning" (MQ4/7/10)
1st (5%) id cost of communicating online
4sts (18%) commented on non-participation or waiting for responses by other students in online group discussions
2sts (9%) commented on not understanding the task
1st (5%) id "Frustration at not understanding something and waiting for hours or days before you get a response" (MQ4/7/19)
2 sts (9%) said they had problems finding too many information search results online
1st (5%) commented "All of it. I don't understand computers enough to benefit from it" (MQ4/7/22)

(Q8-Qs5,6) How can e-l help learning
Information (8) and access to "computer presentations" (1) Total 9
Interactivity with other people (1)
Motivating by being involving (1)
Skills development (1)
Flexibility (1) including convenience (2), freedom of time (2), access (1) Total 6
Add on to classroom based sessions (3)
Speed of learning (1)

Q9 Role of tutor in e-l
17 out of 22 (77%) appreciated the role of the tutor in facilitating, guiding and supporting student learning
4 out of 22 (18%) did not know what the tutor's role was, or left the question blank
1 out of 22 (5%) suggested the tutor did not do enough

2 sts Provides knowledge and instructions
3 sts Identifies references and web sites
10 sts Facilitates, supports, provides structure
3sts Gives feedback
3sts System familiarisation

Appendix 6. Purpose of research and request to be involved

My name is Maggie Hutchings

I am ..... in the University

I work with staff across the University promoting, encouraging and supporting the use of learning technologies.

I am not a technical whiz. I leave that to other colleagues. My background is in staff development and supporting student learning. I used to teach students. Now I work with staff.

I am currently carrying out research into how online learning environments (VLEs/MLEs) can contribute to learning in higher education.

I am looking at: What approaches work, for Whom, and under What conditions.

I would like to ask for your help in this research because student's voices are a very important part of the picture.

I am looking at a number of case studies, working with staff and students, across the University and have asked if I can examine .....work with you as one of my cases.

I am really keen to have the student perspective, to share your e-learning experiences, not just the staff I am working with.

Please will you help me in this endeavour. I would like your help in two ways:

- Today by filling in two brief questionnaires which I will circulate with your agreement
- Next Friday 14th Feb to have volunteers to attend a focus group from 1-2pm. Lunch will be provided.

I will send a sheet round and ask you to jot down your names and e-mails if you are willing to attend. I will then contact you by e-mail to confirm details.

If you do not wish to participate, please feel free to leave now.

Thank you for listening.

7.2.03

Appendix 7. Focus Group (FG) transcript sample

.....

S38 FirstClass is alright for **updating your notes**, so if you missed anything or something or when I've got a lot of time, I can just sort of add to the things I've got and what I've missed. **So I suppose I'm not really learning from it, I'm using it more as a resource to get things from which I learn afterwards.**

M39 Is that because you've got notes up on, lecture notes and things on there?

S40 Yeah, you've got lecture notes on there.

M41 Yeah, yeah, what about seminar things?

S42 No, not really. I mean, for specific... might actually say like some quick task or something but very rarely. Because sometimes they don't put all your lecture notes up there, some lecturers don't do that, so it's like a lot better if you do put them up there, but some of them I suppose don't because they want you to go to their actual lectures.

M43 Do you think you wouldn't if they, I mean I presume it's your choice anyway isn't it really. But would..?

S44 Normally if I know I could get all the lecture notes off there, I wouldn't...

M45 Does it make a difference going to the lecture do you think, do the notes give you enough?

S46 No, you still have to get the extra reading, some lecturers just read through their sheets, especially **if you don't make your own notes, if you don't make your own notes on top of them, then their notes are pointless half the time**; especially if you don't understand what they're saying.

M47 Yeah, because I think it's like you were saying earlier, sometimes the first time you hear it you don't necessarily kind of absorb it, relate to it.

S48 Yeah, but I still think it's better to have it there, than not really because it's just something to fall back on. I mean, obviously you try and go to as many as you can, but at least it gives you that second chance, otherwise you don't have any.

M49 Sure, and what about for communication... because I think you used it for event management, is that right?

S50 Yeah, only really event management wasn't it.

M51 Just for that one, yeah? What did you use it for in that context?

Appendix 7. Focus Group (FG) transcript sample

S52 **Asking tutor questions**, so you don't have to just go up to see her, find her all the time, you can just e-mail her, and that **if you wanted to speak to the rest of your group and they weren't there you could just put a message up there and they can read that**, the whole group should get it and should read it. I think its picking up a lot more at the end of the year than at the start, I still think that if we'd know to use it to its full potential.

M53 Do you know why? Do you have a feeling for why you don't use it to its full potential?

S54 Basically **it would help if you had access at home** wouldn't it, because you would probably check it everyday.
(Another student agreeing: Yeah, much better, yeah, true.)
You'd know everyone would check it as well.

M55 Ok, lets look a little bit more precisely at **explaining a significant moment in your use of e-learning**, is there anything that was really important in the process of the experiences that you've had, with using the internet, with using conferencing, with accessing things?

S56 Suppose it's not really a specific moment but again just getting the lecture notes, just pressing print and having them, **for revision purposes** especially for this one we've just had, its quite good for using them. And again when we needed to have a **question answered** by Annette, she's pretty good when she always checks her e-mails; yeah Annette's **fairly sharpish** on them.

.....

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