On the relationship between student approaches to learning and the use of technology in blended learning environments: a cross-case study analysis

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Abstract

As blended learning becomes ever more pervasive in the context of technological advances claimed to enhance learning, it is important to evaluate the impact of these advances on the quality of student experiences. Early phenomenographic research in academic, face-to-face environments extracted qualitatively different characteristics of student approaches to learning and revealed associations between approaches to learning and the quality of learning outcomes. Relatively little, however, is currently known about the attributes of these approaches in blended learning environments where online facilitation and resources supplement face-to-face teaching.

The thesis therefore aims to explore the relationship between student approaches to learning (deep, strategic, surface) and the use of technology in blended settings. The research question was addressed by conducting four case studies across distinct subject areas in a single higher education institution. The findings were analysed within each case study and subsequently across all four studies to expose their relatability. The results show that the existence of a student-centred approach to teaching can induce extended use of selected facilities in the online environment by students who adopt a deep approach. Similarly, a strategic approach can be consistent with higher level of online activity, provided that the teacher approach places significant emphasis on assessment and student achievement.

The current cross-case analysis makes a two-fold contribution: firstly, it underlines the relational nature of student approaches to learning when using technology in blended learning settings; secondly, it indicates that teacher approaches to teaching in the face-to-face context can impact more on student approaches to learning online than any features of the technology per se. The implications of these assertions are discussed in terms of disciplinarity, teaching and programme design, and the quality of student experiences in a changing university landscape.

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CHAPTER 1

Introduction

This thesis draws on a substantial body of research claiming that how students go about their learning, and how well they learn, are both intimately related to how they perceive their learning and the overall academic environment. Most recent studies of this stream of research have demonstrated —although not conclusively—the validity of these findings for non-traditional modes of teaching, including distance education using online platforms (Ginns & Ellis, 2007). However, there is currently limited literature about how campus-based students' experiences of the online component of their programme of study are related with their experiences of the programme in its entirety. The perceived polarity of these domains (online vs. face-to-face) appears to permeate teaching, learning, institutional strategies and inquiries pertaining to the above.

1.1   Aim of the study

The aim of this thesis is to examine the relationship between student approaches to learning and the use of technology in blended learning environments, where online content and computer-mediated interactions support programmes of study that are predominantly conducted along traditional (i.e. face-to-face) lines. In doing so, I explore whether patterns of using technology correspond to face-to-face student approaches to learning. The thesis approaches this research question by investigating four case studies in a modern, teaching-oriented British university. The study aims to expand the existing research literature in 'student approaches to learning', particularly its recently developed areas of inquiry, which reported on student learning experiences in blended learning environments as a discerning context.

The conceptual and, to some extent, methodological core of this research is influenced by the stream of work that places its attention on student approaches to learning whilst in higher education, a field of study whose development and ideas are reviewed in the next chapter. More specifically, the main research

question investigates whether undergraduate students with different approaches to learning and studying in higher education, i.e. a deep, surface and strategic approach (Marton & Säljö, 1976a; Entwistle, 1988; Biggs, 1993; Ramsden, 2003), demonstrate discerning strategies in the way they utilise technology in the context of blended learning environments. Secondary exploratory research items emerge from the principal question, drawing associations with findings in early literature and anecdotal evidence:

- Do students who adopt a strategic approach to their learning tasks make more extensive use of technology compared to students who adopt a deep or a surface approach?

- Is a surface approach to learning challenged or reproduced within technology-mediated environments?

- Do students who adopt a deep approach to learning use technology to achieve context-specific, desirable learning outcomes, and if so, how is this pursued?

The research aims to frame findings and conclusions in terms of the theory of 'student approaches to learning' theory (Marton & Säljö, 1976a; Biggs, 1987a; Entwistle, 1988; Prosser & Trigwell, 1999; Trigwell et al., 1999; Ramsden, 2003; Entwistle, 2009; Biggs & Tang, 2011), and enrich the themes emerging from most recent contributions to the field (e.g. Ellis et al., 2008; Goodyear & Ellis, 2008; Bliuc et al., 2010; Ellis & Goodyear, 2010). These approaches are examined within a university, which as an institution reflects economical, social, political and cultural pressures, outlined in the next section.

1.2 Globalisation, technology and the transformation of the university

The operation of universities appears to be increasingly dependent upon the globalisation of its organisational form and 'services', and is characterised by the development of stronger alliances between the business sector and universities (Peters, 2007). This is evident with regards to research funding as well as development of the university as a global organisation with international presence, as in the case of the university where I conducted the case studies. The form of such an institution was clearly outlined in the Dearing report [National Committee for Inquiry into Higher Education (NCIHE), 1997] and, in broad terms, it begins to bear resemblance to that of a global service corporation

(Walker & Nixon, 2004). Organisations such as the European Union or the World Bank emphasise the importance of formal education alongside more flexible forms of training for the development of 'human resources' that contribute to the enhancement of research and scientific knowledge (e.g. European Commission, 2013). Consistently with this understanding, governments endorse processes to reshape academia with a focus on merging 'education' and 'training', a merge that presupposes a massified university sector (Peters, 2007). Most importantly for the scope and context of this research, a link has often been made between technology, innovation and knowledge, with the aim of assimilating the university more fully into the mode of production (Slaughter & Leslie, 1997; Kwiek, 2006).

Moreover, the definition of the functions and services of the university as an institution has been affected by important changes in how knowledge is created and distributed beyond territorial boundaries, and the expansion and diffusion of 'flows of knowledge' (Delanty, 1998). In such a world of competition for skills and markets, and with a constant demand for innovation and flexibility (Välimaa & Hoffman, 2008), Jarvis (2001) identified the following areas of change in the sector: the status of the university, the student clientele, the universities and the 'marketplace' for learning, the forms of knowledge, the nature of research, the methods of 'delivery' of programmes, and the role of the academic.

These contextual pressures were followed by radical or incremental transformations in curriculum, pedagogy, and an accelerating shift towards accessibility, marked by the enthusiastic championing of 'open', 'flexible' access (Watson, 2009). The process raised concerns that education has been commodified and reduced to a product to be sold in the marketplace of learning (Shumar, 1997), whilst other commentators claimed that the process has been intensified by advances in technology (Jarvis, 2001). Indeed, Lyotard (1984: 5) prophetically saw that technological transformations could considerably impact on knowledge, and highlighted the significance of knowledge in the 'post-modern condition':

> Knowledge in the form of an informational commodity indispensable to productive power is already, and will continue to be, a major—perhaps the major—stake in the world-wide competition for power.

In the narrative often constructed by higher education policy makers, the private sector has been replacing the public, students are treated as 'customers'

and teaching staff as 'service providers' (Lewis, 2010). These transformative changes impact on the role and function of contemporary higher education institutions; the recent focus on graduates' employability (Pegg et al., 2012) underlines that universities prepare people for the world of work and maintain them in it, rather than preparing society's elite (Castells, 1996; Trow, 2006). As the twenty-first century unfolds, this statement is supported by the raising rates of participation in higher education and the diversification of ways in which the universities respond to both new and expanding student 'markets' (Altbach, Reisberg & Rumbley, 2009). Estimates predicting the rise of international students highlight evidence that the student body is increasing and becoming more mobile, demonstrating thus one of the most visible aspects of globalisation [Organisation for the Economic Co-operation and Development (OECD), 2013)]. Major changes in the infrastructure and capacity of higher education institutions across the world explain why there has been such growth in such a short period of time (Verbik & Lasanowski, 2007).

1.3 Rationales for integrating technology in teaching and learning

In parallel to these developments, nations accelerated the pace of transforming universities, making use of advanced learning technologies to increase access and decrease costs (Daniel, 1996; Watson & Wei, 2007). There has been a drive to benefit from Internet-based technologies as a way of responding to a number of challenges. Institutions have had to adopt and cope effectively with new kinds of educational needs for flexible learning practices and target-oriented learning which is free of time, place and pace limitations. Consequently, there has been a shift in the way universities are financed, with their organisational targets focused more tightly on generating income from new sources and increasing student numbers (Dickinson, 2009). The growth in numbers has inadvertently questioned the efficiency and sustainability of the existing teaching systems. Investment in a promising array of learning technologies was deemed as one of the most appropriate responses, yet there remained the need to rethink higher education pedagogies that would enable the optimal use of these newly available technologies. In defiance of high expectations, well-established methods of teaching are difficult to change and, as Laurillard (2002: 3) insightfully noted, traditions, values and infrastructure all

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'create the conditions for a natural inertia'. Modern day higher education, therefore, appears as a challenging landscape:

> the coming of mass higher education has brought larger classes, more diverse students and learner unit costs, but keener interest in teaching quality and graduate attributes.
>
> <div align="right">(Entwistle et al., 2007:1)</div>

Most recently, a new communication culture around socially-oriented and mobile technologies has been reshaping communication and the expectations of those involved in university teaching and learning. Conventional processes for the development of academic knowledge often contradict the pace of sharing and producing information that is facilitated by these new technologies (Armstrong & Franklin, 2008). The rapid expansion of information accessible via the web, and the pervasiveness of media that can be used to create new and repurpose existing knowledge, have formed a new scene, one that is vividly captured in the ubiquitous sight of students typing into their mobile phones during a lecture. Universities are complex, nevertheless, and mutli-faceted organisations, and this has a direct impact on the degree to which digital technologies can be immersed in institutional contexts (Berger & Thomas, 2011). Institutions are influenced by a range of motives such as national policies and funding opportunities, accessibility and the drive to widen participation (Conole et al., 2007). Additionally, globalisation means that institutions have become more interested in exploring international alliances and cost-efficient business models for distance learning. The impact of Information and Communication Technologies (ICT) across all aspects of human lives is one of the key features of this, and newly constructed understandings of the ways in which technologies change institutional practices are only just the beginning.

These global trends are inevitably reflected at national level. In accordance with the developments described, the British higher education system underwent a phase of expansion during the last two decades that was attributed to, and massively reinforced by, a constant demand from the labour market for new skills; this expansion eventually contributed to a rise in student population [Higher Education Statistics Agency (HESA), 2012]. As early as 1997, the Dearing report highlighted ICT as a means of fulfilling the emerging needs:

> we believe that the innovative application of ...C&IT [Communication and Infromation Technology] holds out much promise for improving the quality,

flexibility and effectiveness of higher education. The potential benefits will extend to, and affect the practice of, learning and teaching and research.

(NCIHE, 1997: 13.1)

Moreover, one of the most distinguishable aspects of this process of change in British universities has been the multiple diversification of the student body. Higher education institutions are now attracting a wider spectrum of students than before. Although 'traditional students' still constitute the majority of the participants, an increasingly high proportion of the student population comes from a plethora of socio-economical, cultural and learning backgrounds (YouthSight, 2013) and can have a different outlook on the learning process compared to more 'traditional' students (O' Lawrence, 2007). This trend was further consolidated, by government initiatives that aimed to further widen participation, until very recently. The Labour government aimed for a participation rate of 50% in higher education from within the age group of 18 to 30 (House of Commons Public Accounts Committee, 2009). The targets were met with scepticism from some (Scott, 2004; Smithers, 2005) whilst others considered the policy to be inadequately funded, and resulting in overcrowded lectures, high drop-out rates and inflated degree results (Observer, 2009). Despite the fact that the government withdrew its commitment to that objective, data from the Department for Business, Innovation and Skills showed that by 2009, 45% of 17- to 30-year-olds participated in some form of higher education (IRHEFSF, 2010).

In the process of these transformations, traditional and less traditional students alike have been experiencing technology enhanced learning as an integral part of their studies at colleges and universities. Supporting teaching and learning with a range of online platforms is not the main business for universities accommodating exclusively distance learners anymore, but their financing is being exploited by institutions which mostly cater to a campus-based audience. Much of this integration typically combines face-to-face and online activities, a teaching design named 'blended' learning, a conceptually difficult term (Bonk & Graham, 2012) which will be discussed in the next chapter. The volume of publications in research journals, and the relevant streams of activities of national bodies overseeing teaching and learning in higher education, testify to the increased attention given to technology enhanced learning or 'e-learning' [see indicatively Higher Education Funding Council for England (HEFCE), 2005;

Joint Information Systems Committee (JISC), 2008]. Policy directives have also reflected increased expectations of the use of new technologies, and this emphasis is evident in major policy documents of the higher education sector. Back in 2005, certain aspects of the proposed HEFCE policy highlighted the need for life-long and student-focused learning (HEFCE, 2005). The document ambitiously declared that HEFCE was stirring to:

> promote learning research, innovation and development that begin with a focus on student learning rather than on developments in technology per se, enabling students to learn through and be supported by technology.
>
> (HEFCE, 2005: 6)

This statement implied a shift towards more pedagogically led approaches. A Department of Education and Skills report, released in the same year, reflected similar priorities and concerns using political rather than technological language: the first priorities were the improvement of access for everyone, the extension of 'personalised support' for learners, and an acceleration of the move to the next generation of e-learning activities and resources (Laurillard, 2005). Four years later, HEFCE's (2009) policy statement prioritised investment in technology through resources from JISC and the Higher Education Academy (HEA). The 'Committee of Inquiry into the Changing Learner Experience' considered the impact of technologies such as social media and portable devices on learners' attitudes, and identified two fundamental issues that bear on policy and practice: addressing the digital divide and developing information literacies [Committee of Inquiry into the Changing Learner Experience (CICLE), 2009)]. Institutions are seen as enablers of informed choice and supporters of the effective deployment of those tools (JISC, 2008). More recently, the ongoing global, financial turmoil constructed a narrative that demands a return on investment and tangible benefits [for example, see the Browne report (IRHEFSF, 2010) and the White Paper 'Higher Education: Students at the heart of the system' (Department for Business Innovation and Skills, 2011)]. The focus is on realistic solutions for improving teaching and research while engaging with employers and meeting the challenges of global competition. The Online Learning Task Force, on behalf of HEFCE, explored how the UK higher education sector might lead developments in the area of online learning (Online Learning Task Force, 2011). In a rather aspiring tone, its conclusions maintained that online learning was an opportunity for the sector to

develop teaching and learning which can deliver 'quality' and cost-effectiveness whilst meeting what the Task Force identified as students' expectations for 'flexible learning' (Online Learning Task Force, 2011: 3).

Within that context of policy-driven attention, and expectations from the large-scale use of ICT in higher education, Virtual Learning Environments (VLEs)—or Learning Management Systems (LMSs) outside Britain—were introduced as a response to that new set of educational demands. Predominantly promoted by commercial vendors and, to a relatively small extent by university-based projects, these systems are now considered an integral part of the teaching systems in the majority of British higher education institutions (Jenkins et al., 2005; Browne et al., 2008; Browne et al., 2010). Britain and Liber (2004) reported that the main advantages of using VLEs in universities were flexibility of time and space, coping with increased student numbers, sharing and reusing of resources, collaborative work, and reduction of the administrative burden. Sharpe et al. (2006) note that institutional motives for integrating VLEs as part of blended learning amalgamate flexible provision, supporting diversity, enhancement of campus life, global competition, and the need to be efficient. Yet the choice of adopting a VLE was often a reactive move to challenges that staff faced regarding student feedback or matching up with the requirements of professional bodies (Sharpe et al., 2006). The widespread adoption of VLEs also initiated a debate on their financial benefits for institutions. It was contented that it was difficult to find evidence suggesting the financial cost of a VLE can be balanced with the resulting subsequent increases in the universities' finances (Chiner, 2008). Although a VLE may not directly increase revenue, investing in one was seen as a way of reducing future risks, such as the institution appearing less attractive because of lack of technological infrastructure. Lacking a VLE may also lead staff to use a range of external systems to support their teaching and learning which could lead to breaches of copyright and issues of ownership and/or data protection. When looking at implementing VLEs many universities and colleges have invested heavily in the technical implementation, but under-financed the staff development and technical support that was also needed (Salmon, 2005).

Besides the financial and organisational driving factors, investment in new learning technologies, including VLEs, was widely expected to enhance teaching and learning (Jenkins et al., 2001) and play a central role in the development of

student-centred learning and the promotion of an independent 'deeper' approach to learning (Collis & Monen, 2001; Atherton, 2002). Enhancement or improvement is often associated with the adoption of student-centred approaches to teaching and learning; with earlier research identifying a strong link between higher quality learning outcomes and a 'deep' approach to learning (Marton & Säljö, 1997), as well as associating between the deep approach to learning and a student-focused approach to teaching (Prosser & Trigwell, 1999; Ho, Watkins & Kelly, 2001; Gibbs & Coffey, 2004).

Conflicting claims have also been made about the role and potential of VLEs in university teaching. Some propose that central provision of VLEs promotes a degree of pedagogical inflexibility (Konrad, 2003); whilst others highlight potential threats arising from paying attention only to the 'affordances' of a VLE, which can lead to a transposition of traditional approaches to the computer, and a poor learning experience (Stiles, 2000). On a similar note, it was also contested that VLEs have been instrumental in reinforcing 'managerialist' approaches in higher education, where the role of the education system is deemed to be not to imbue learning but to 'manage' processes; they are, therefore, alert to the threat of assimilating technologies solely to improve the 'efficiency' of teaching and learning (Attwell, 2009). These systems were criticised for being built as a secluded area outside the wider web environment (including most recently the social web), as spaces where students must learn in isolation. Although open source VLEs such as 'Moodle' have an increased presence in higher education, these systems are mostly developed and promoted by the private sector e-learning technology industry (Attwell, 2009). Most recently, the spread of more socially-orientated applications such as podcasts, blogs and wikis, has questioned the benefits to be derived from the centralised and inflexible architecture of the VLEs, and actively brought to the fore alternative possibilities (Eisenstadt, 2007; Selwyn, 2011).

All these arguments around the use of technology are framed in the wider context of a debate around if/how technologies configure learning. Several sources observed that when curriculum design is led by technologies, it is common to encounter a concern with technology use per se and inattention to the underlying learning theories, design principles and pedagogic approaches (Hannafin & Land, 1997; Dyke et al., 2007; Beetham & Sharp, 2013); under this approach, technology is often being used as a repository of materials and is

seen as useful for administrative (i.e. student-'managing') purposes (Conole, 2004). Such use of online learning platforms typically prioritises their application focusing on interoperability and discoverability of resources, and access and management of information flows (Goodyear & Jones, 2003; Goodfellow, 2004).

On the opposite side, approaches that are guided by pedagogical principles reflect a learning design approach and give priority to learning outcomes over content; these take into consideration models for good learning, scaffolding, and modeling of teaching practice for effective teaching and learning, particularly in blended and distance mode (Garrison & Anderson, 2003; Laurillard, 2012). These perspectives point out that while online learning technologies provide a platform for course 'delivery', they often lack appropriate design and the supporting teaching mechanisms, yet an online programme may involve rich materials and a multiplicity of tools, sometimes there is no direction given as to how the learning activities and student learning are meant to relate to each other (Goodfellow, 2004). Others highlight that more in-depth research is essential to unveil predominant underpinning pedagogies pertaining to how online courses are delivered, identify mismatches between pedagogical models and their application in educational settings, and gather evaluative evidence from a diverse range of contexts for validatory purposes (Reeder et al., 2004; Price & Kirkwood, 2014). Regardless of how beneficial the deployment of VLEs is, and despite the devise of evaluation frameworks for learning technologies (Jonassen, 1991; Reeves, 1994; Britain & Liber, 2004), other authors noticed that the role of the individual learner and the dynamic characteristics they bring into a learning situation were widely neglected (Richardson, 2001; Hoskins & van Hoof, 2005; Ellis & Goodyear, 2010). It is within the framework of such debates and opposing arguments, that this research places the focus on students' use of educational technologies whilst they study at university. In doing so, I attempt in the following section to delimitate the boundaries of this inquiry and define its key terms.

1.4   Delimitations and definitions of terms

This section consists of two parts. In the first part I explain the importance of delimiting this research, whereas in the second part I provide definitions of the key terms and concepts pertinent to this inquiry. In brief, delimitation defines the limits or scope of the research, including its

boundaries, exceptions and caveats (Creswell, 2003). Researching the entire range of technology enhanced learning activities of the university, inevitably leads to an investigation of wider aspects of how the university functions. Moreover, considering the aims of this research, the limited time and resources available would have certainly rendered such an exercise difficult, if not impossible. It was, therefore, necessary to delimitate the research focus into a more defined and manageable area, relevant to the objectives of the inquiry.

At the preliminary stage of this research, I considered many factors as possible criteria for selecting cases and implementing a cross-case study analysis. These included, amongst others, students' cultural (Collis, 1999) and organisational (Ramsden, 1983) backgrounds and different VLE platforms. While I acknowledge that the educational reality is complex and learning is shaped in a multitude of ways, these factors were not explicitly addressed in the research design nor did they define the analysis of data obtained from the case studies. On the contrary, the research design acknowledges disciplinary differences across subject areas and any potential variations in the use of technology deriving from them. Earlier studies endeavoured to reveal the epistemological assumptions and the knowledge structures of disciplinary areas (Kolb, 1981; Becher, 1994; Neumann et al., 2002). Becher and Trowler (2001) proposed a widely used categorisation of disciplines—namely 'pure hard'/'pure soft' and 'applied hard'/'applied soft' disciplines—drawing on their epistemological differences, while Ylijoki (2000) maintained that the core of a subject area can be seen as a moral order which contains the beliefs, values and norms of the local culture. Nevertheless, no significant research literature was identified that explored the impact of the disciplines on teaching when technology is an integral part of the teaching environment. The lack of any readily available conclusions from such research motivated me to explicitly address disciplinary differences as a factor to be reviewed in this cross-case study analysis.

Secondly, at a micro level the current study is delineated to explore how the most important aspects of the learning environment shape students' experiences of using learning technologies, as well as their approaches to learning. In the case studies analysed, more critical factors are examined, including student approaches to learning, the design of the online learning

environment, and the teachers' face-to-face and online strategies. Other factors may explicitly or implicitly encourage learning and teaching with a VLE in the context of a blended learning environment. In fact, student approaches to learning involve a number of dimensions of the teaching and learning setting; student qualities (such as personality traits, habitual study skills, attitude to programme of study), characteristics of teaching (e.g. pace, structure, clarity) and departmental structure and ethos (e.g. standarised assessment and feedback processes, freedom of choice) (Vermunt, 2005), all affect student approaches to learning and the quality of their learning outcomes (Entwistle, 2009). Broad references are made in the introduction and literature review chapters, yet I acknowledge that not all factors were subjected to scrutiny. Additionally, assessment exerts a powerful impact on student approaches to learning (Boud, 1990; Jones, 1996, Ramsden, 2003); most importantly, the crucial factor is how students perceive the demands of the assessment (McFarlane, 1992; Scouller & Prosser, 1994; Boud, 1995; Gibbs, 2010b). When students perceive assessment as requiring passive reproduction of content, they are likely to adopt a surface approach; conversely, when students perceive an assessment as requiring a high level of cognitive processing, then they tend to manifest a deep approach [(Tang, 1994)—for nuances of the association between assessment and approaches to learning, see also Tang, 1994; Entwistle, 1997; Gijbels, Segers & Struyf, 2008]. So, whilst I was aware of the significance of assessment in terms of student approaches, this aspect has not been investigated to the level of, for example, considering module grades or analysing in detail the assessment regime.

In brief, I define the key terms of this thesis as a means of achieving clarity and delimiting the scope of this research. The terms of student approaches to learning, learning styles, motivation and strategies are typically articulated differently for different purposes by a range of sources (Coffield et al., 2004). In order to navigate my way through this field, I adopted the following definitions to clarify my research approach and avoid any misleading of the inquiry.

Approaches to learning

As Entwistle (1991) clarifies, 'approaches to learning' comprise of the intention of the student when initiating the task *and* the learning processes and

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strategies used to complete the task. Students differ in the way they approach their learning and this is further explored in the literature review chapter. Succinctly put, a deep approach consists of an intention to understand, and a strategy for relating ideas to previous knowledge, looking for patterns and critical inquiry. A surface approach consists of an intention to reproduce and the strategy of routine and unreflective memorisation. Finally, a strategic approach consists of an intention to obtain the highest possible grades and the strategy of organised study and management of one's effort. (Marton & Säljö, 1976a; Entwistle, 1981; Biggs, 1993; Ramsden, 2003; Biggs & Tang, 2011).

A common misconception exists with regards to learning styles and approaches to learning, which quite often considers the latter to be one of the former. The literature on learning styles is extensive and inherently confusing; I embrace the recommendations of Coffield et al. (2004) who reviewed over seventy different types of so-called 'learning styles'. The authors argued that the popularity, continued development and reliance on the use of learning styles had not diminished. They maintained that the complexity and practicality of learning styles as a tool to assist practitioners and learners should be carefully negotiated against issues and claims of stereotyping and labelling learners into fixed patterns and readily 'identifiable' learning traits. Indeed, the very term 'learning style' is seen differently by researchers, teaching practitioners and policy strategists alike (Smith & Dalton, 2005). Two key terms are a learner's style and strategy. I have adopted Smith and Dalton's (2005) explanation of these two terms. Learner style reflects the way that information, knowledge and skills are acquired over time based on a comfortable manner adopted by the learner, while learner strategy is used to describe a type of behaviour, revolving around attitudinal and motivational circumstances.

1.5   Summary

In the last two decades universities have been striving to enhance their provision with, by and for learning technologies. Central to this choice is the deployment of learning management systems, which accommodate a variety of teaching, communication, content management and administrative needs. I provided an overview of how policy makers in the UK have been encouraging the use of information technology along with teaching methods that seek to

accommodate a new generation of learners (NICHE, 1997; HEFCE, 2005, 2008). These stakeholders recognise the benefits offered by technology, such as flexibility and efficiency in time, space and cost, and enhanced access and information retention for a diverse body of students. However, the same policies focused on technology infrastructure, digital competencies and availability of information, whilst evidence suggests that improved availability of technology did not necessarily lead to the development of critical skills, learner engagement and collaboration [Centre for Information Behaviour and the Evaluation of Research (CIBER), 2008; Beetham, McGill & Littlejohn, 2009].

These concerns highlight what scholars have identified as the important role of critical engagement and collaborative work in higher education (Biggs, 2003; Ramsden, 2003). Their theoretical approaches explored how students engage with the material in the process of developing critical thinking. Marton and Säljö (1976a) argued that what is learned depends on the student's intentions, thus shifting the focus of the learning process to the experience of students rather than other factors external to the students. Marton's work was followed up by Entwistle with Ramsden and Biggs, to propose the categories of surface and deep learning that can be demonstrated by a student; a surface approach features rote learning of often isolated facts and a deep approach typically involves engagement with and, challenge of, what is learned. These perspectives may be seen as organically linked to the theory of social constructivism (Vygotsky, 1962), a stream of theory that firmly centres on the student's role in creating knowledge, and historically has been a dominant paradigm in the field of learning technologies.

1.6   The organisation of the thesis

The thesis is divided into nine chapters, which are supported by material in the appendices at the end of the thesis. The first chapter outlines the aims and context of the thesis, and defines some of the key terms. I also state the research questions and give an overview of the organisation of the thesis. The second chapter provides a summary of certain developments of technology-enhanced teaching and learning in higher education, and it reviews the stream of research in student approaches to learning and studying. It specifically looks at how the literature in this area came to prominence and influenced thinking and practice in higher education. The chapter contemplates the complexities

associated with student learning in technology enhanced learning environments. An overview of the literature on approaches to learning and a review of literature on what VLEs are, how they function and what is their level of institutional use, provide an essential understanding of the main focus of this inquiry. Also, conclusions that have been drawn about individual differences (social, affective, cognitive) and the use of VLEs are discussed with a particular focus on the volume of studies which explore the relation between VLEs and student approaches to learning in higher education. Chapter 3 introduces the methodological approach of this research. It states its aims and objectives as well as the limitations of the research design, and describes the development of the relevant ethical framework. The fourth chapter sets the scene by providing the institutional context of the case studies and reporting on the first case study in Information Systems. Chapters 5, 6 and 7 present the reports of the following three case studies in Marketing, Management and Education respectively. Chapter 8 compares the findings of the four case studies and proposes relevant assertions, which correspond to the initial research propositions. Chapter 9 discusses the issues and implications arising from the analysis and suggests areas for further work. Proposed recommendations apply to the design of teaching and learning environments that integrate learning technologies at local level and further afield.

CHAPTER 2

Literature reviews: mapping out the intersection between learning theories, teaching and learning in higher education and technology enhanced learning

In this chapter, I explore three areas of study. I attempt to draw convergencies and divergencies in an area that is delineated by contemporary learning theories, teaching and learning in higher education and technology-enhanced learning, including the role of VLEs in blended learning environments. I deliberately adopt the term 'literature reviews' in the title of this chapter instead of the most commonly encountered 'literature review'. This is done to denote that while this chapter summarises and evaluates what others have contributed in the aforementioned fields of inquiry, there is not a monolithic research canon and, most importantly, the current thesis draws on a broad spectrum of non-discipline specific references and areas of academic inquiry and practice. This effectively produced a polymorphic amount of research output, which was not necessarily directly relevant to the scope of this research. The next section illustrates the approach to undertaking the literature reviews and provides an account of how I conducted them.

2.1   Methodology of literature reviews

Prior to addressing the themes of the literature reviews, I concisely explain my method of approaching this task. I conducted literature reviews to locate papers relevant to the scope of this inquiry using search engines such as the Education Resources Information Centre (ERIC) and the British Education Index (BEI). Certain of high impact, widely known journals in the field such as the British Journal of Educational Technology, the Association for Learning Technology Journal (ALT-J), Computers & Education, Journal of Computer Assisted Learning, Innovations in Education and Teaching International, were searched separately and I frequently monitored their published articles. I did several other searches and personal communications aiming to locate relevant developments through the websites of the Learning and Teaching Units of the University of Edinburgh, the University of Hong Kong and the University of Gothenburg in Sweden, all of which constitute established centres of producing

original research in the field of teaching and learning in higher education. I monitored the research activities and output of the e-learning Unit and the Centre for Research on Computer Supported Learning and Cognition, both based at the University of Sydney. I also regularly monitored the publication of relevant reports commissioned by the HEA and I sought additional resources or literature items at their web site. I located through Google Scholar a limited number of doctoral theses, some of them only remotely relevant to the scope of this research yet useful in terms of identifying wider developments in the field. I systematically collected reports, unpublished records and online material from a range of institutions and professional bodies such as the JISC, ALT, HEFCE, SURF NL (the Dutch partnership for networked services in higher education), HEA, DfES and a number of university educational development or learning technology units. Additionally, I subscribed to a number of mailing lists, of which the most relevant was the JISC VLE and the Staff and Educational Development Association (SEDA) mail list. The main keywords that I inserted in the searches of the bibliography of the indices were: 'approaches to learning', 'approaches to learning', 'approaches to learning and studying', 'blended learning', 'online', 'web-based', 'distance education', 'e-learning' in various combinations. These searches produced a volume of papers in excess of 500, so I further refined the search by selecting papers with an empirical focus and firmly based in evidence. Furthermore, I eliminated all papers not reporting on studies at higher education level; most importantly, I did not examine papers where 'approaches to learning' were not referred to as a term distinct from 'learning styles' or similar terms with the same intent.

I have been frequently browsing conference proceedings of numerous national and international academic conferences, workshops, symposia or other conventions in the area of technology enhanced learning and teaching and learning in higher education. In the course of this research, I presented a paper to some of these conferences or else I attended as a participant. A full list of paper presentations is provided in Appendix I. Three residential research-intensive schools, organised by a consortium of European projects in technology enhanced learning, were influential in terms of directing me to recent streams of thinking on orchestrating learning in technology rich environments; in two of them I presented the progress of the current research (see 'STELLAR' Schools at the end of Appendix I).

I provide an overview of the method of the literature reviews with the aim of signaling the main sources of this research and pointing towards certain channels of influence. It is obviously acknowledged that not all the sources were recognised by this method, nevertheless it is hoped that this account sheds some light on the overall process. Certain readings of key texts occurred before I embarked on this research. A critical presentation of these is presented in the next section starting with an overview of some key theories on how individuals learn.

2.2   Theoretical underpinnings of differentiation of learning

Psychologists have long held an interest into variability in ways that an individual processes and evaluates information, solves problems and makes decisions. As early as 1923, Carl Jung (1971) listed four psychological functions, which he believed were available to everybody (sensation, intuition, thinking, feeling) and assumed that individuals differed as to which of the four they favour in preference over the others. Jung had a significant influence on the development of one of the most well known psychometric instruments, the Myers-Briggs Type Indicator (MBTI) (Myers, 1962). The MBTI instrument was initially created during World War II to help individuals to identify a job that would suit their personality (Myers, 1980). Kurt Lewin (1936) significantly influenced the field of individual differences with his book 'A dynamic theory of personality', a collection of independent research papers. Lewin viewed psychological differentiation as an interplay between the conditions of the environment as well as the individual characteristics of the person (Armstrong, 2006). Kagan and Kogan (1970) remark that Lewin's contribution was fundamental to virtually all theories of cognitive development, without excluding the work of Jean Piaget (1952), and is considered the theoretical foundation for the development of Kolb's theory of experiential learning (Kolb, 1981). Later work into cognitive styles led to a plethora of dimensions along which the construct was differentiated: reflective-impulsive,   converger-diverger,   serialist-holist, simultaneous-successive, wholist-analytic (Armstrong, 2006). Over the past forty years, a parallel term has emerged called 'learning style', which encompassed not only cognitive but also affective and psychological behaviours which may allegedly serve as indicators as to how a learner perceives—and responds to—

the learning environment (Keefe, 1979). Teachers and educational programme designers were encouraged to focus on students' 'learning styles', 'diagnose' them, motivate students to reflect on them and design their programmes around them. The rationale was that students become more engaged with learning by knowing their 'style'; teachers, on their end, can respond appropriately to individuals' preferences and therefore achievement will be more likely to increase [Cheminais, 2002; Burnett, 2005; Demos, 2005; Reid, 2005].

Nevertheless, conceptual, methodological and empirical problems exist. Research on learning styles, which began as early as the beginning of 20th century, has produced several conceptual constructs and corresponding instruments. The review by Coffield's et al. (2004) identified more than 70 models of learning style and reported that only few studies offered valid evidence explaining what the implications are for practice. The use of a plethora of instruments, they dispute, has acquired life of its own, with the concept of 'learning styles' itself going accepted without questioning. I personally realised how deeply ingrained these perceptions were in a dissemination workshop on the findings of this inquiry. I presented a conference audience of twenty academics with the statement that 'there is no such thing as learning styles'; I subsequently asked them to indicate their agreement, relative agreement, relative disagreement or disagreement. The overwhelming majority indicated their disagreement and only a few indicated their relative disagreement. None approved or moderately approved of the statement.

Newble and Entwistle (1986) summarized the literature on learning styles by separating them based on two sets of ideas: the North American and the mainly European approach. The North American approach is based on cognitive theories, for which intelligence comprises a set of mental representations and a set of processes that operate them, and psychometric theories, which see intelligence as a combination of abilities that can be measured by mental testing such as analogies and series completion. The European approach, with contributions from Australia and America, focuses on explaining how students approach a learning task and how this affects learning. Biggs (1993) argued for a similar distinction with regards to the theoretical underpinnings of the students learning inventories: the 'information processing' tradition originating from cognitive psychology—for example, Moreno and Vista (1991) and Schmeck et al. (1977)—whilst the 'student approaches to learning' stream of ideas stems from

qualitative reports of student's study processes as demonstrated in the Approaches to Study Inventory (ASI) (Entwistle & Ramsden, 1983), the Revised Approaches to Studying Inventory (RASI) (Entwistle & Tait, 1994), the Approaches and Study Skills Inventory for Students (ASSIST) (Entwistle, Tait & McCune, 2000) and in the Study Process Questionnaire (SPQ) (Biggs, 1987b). Coffield et al. (2004) roundly suggested that the proliferation of concepts, and the sheer number of dichotomies in the literature led to theoretical incoherence and conceptual confusion. Moreover, they pointed out that some of the inventories show noticeable psychometric weaknesses and that others are difficult to translate into hands-on recommendations for improving learning environments and teaching (Coffield et al., 2004; Apfelthaler, 2006).

2.3 Reviewing the literature on 'student approaches to learning and studying'

The aforementioned critique on learning styles received considerable publicity and has been useful since it encouraged debate and further research on this area (Abrams, 2005; Hastings & Jenkins, 2005; Stringer, 2005; Evans, Cools & Charlesworth, 2010), shedding light on a number of conceptual and methodological grey areas. Most importantly for the scope of this research, the Coffield et al. review recognised the theoretical robustness and validity of the instruments used by the 'student approaches to learning' tradition, and avowed that 'their methodology and data […] offer a rich, authentic account of learning in higher education' (Coffied et al., 2004: 110). Drawing on the review, recommendations were made to the effect that educational practice should 'embrace student approaches to learning theories […] more fully' (Evans & Sadler-Smith, 2006: 79).

So what are the origins of this theoretical tradition and in what context did these ideas emerge? Additionally, why has it been so influential in terms of interpreting student learning in higher education? Biggs (1999) contends that although there was a long history of psychological research into learning, remarkably little has had a direct impact in terms of enhancing teaching; he proposed that this was due to psychologists being more focused on articulating grand theoretical schemes than researching the educational environments where people learned (Biggs, 1999). In the 1970s educational research introduced an

understanding of learning, which examined behaviour as being determined by the phenomena of experience rather than by external reality (Cohen, Manion & Morrison, 2011). These research approaches mainly employed qualitative methods in order to assess students' learning and how they tackled their academic tasks. By focusing on these micro-contexts, and by problematising grand educational narratives, research literature proposed that students manifest contrasting approaches to learning; these depend on the context, the content and the demands of the academic task (Marton et al., 1984). The approach to learning, and thus the quality of the learning outcomes, is affected not just directly through developing 'skill in learning', but indirectly by teaching and assessment procedures and other aspects of the learning environment as a whole (Entwistle, 1992). The key contribution of this group of researchers was that the shifted the focus away from the idea of personality traits and stable characteristics of the individual; instead the focus was placed on the active choices a student makes in selecting specific approaches to prescribed learning tasks.

The 'inceptive' piece of this research was conducted in Sweden. In their highly influential papers 'On Qualitative Differences in Learning' (I and II), Marton and Säljö (1976a, b) reported on their work with students and the students' ways of tackling academic talks. Students were given a text to read and were expected to answer questions afterwards. They reportedly replied to the interviewers in two distinct ways. The first group of students learned by waiting for the questions and focusing on the facts and details that might be asked. Conversely, the second group attempted to capture the meaning of what the author intended to say. Echoing existing distinctions in linguistics, most notably the Saussurean semiotic distinction of the 'signified' and the 'signifier' (Saussure, 1983), Marton and Säljö proposed two levels of processing corresponding to the ways students tackled the assigned tasks: a *deep* and a *surface* level of processing. Subsequently, the term 'approach to learning' was preferred as a more accurate description of the meaning of the concept; the term 'approach' included both 'intention'—which is what the learner was looking out for—but also 'process', which is how that intention was carried out (Entwistle, 1988; Laurillard, 1997; Struyven et al., 2006; Entiwstle & McCune, 2013). This is an important point that will be referenced frequently in this thesis, particularly how students' intentions

are carried out with the aid of technology. Biggs (1993) notes that the term 'approaches to learning' came to be understood in two ways:

- the processes adopted prior to the outcome of learning, which directly have an impact on the outcome's quality; this is how it was used originally by Marton and Säljö (1976a) in their description of surface and deep approaches in their phenomenographic studies.

- predispositions to adopt particular processes which Entwistle (1988) refers to as 'orientations'; these are captured by questionnaires asking students how they usually go about their learning (Entwistle & Ramsden, 1983).

Both sets of constructs are important, but play different roles in understanding student learning, and this should be clarified when inventories such as ASI or ASSIST are administered in educational settings (Biggs, 1993). A deep approach has been deemed consistent with the aims of higher education (Kember, 1995; Biggs & Tang, 2011). The support and flare demonstrated by the lecturer (Ramsden, 1979), relating to students' interests (Biggs, 1999), and providing opportunities for students to regulate their studying (Ramsden & Entwistle, 1981) are generally conducive to a deep approach to learning. Inversely, a surface approach is likely to result from anxiety, assessment methods which reward reproducing information or a heavy study workload (Ramsden & Entwistle, 1981; Trigwell, Ashwin & Millan, 2013). Relying on rote-learning and memorisation without connecting to other ideas are also characteristics of a surface approach to learning (Kember, 1996), although research literature questioned the cultural specificity of these assertions (Watkins & Biggs, 1996; Webb, 1997; Marton, Watkins & Tang, 1997; Price et al., 2011).

Phenomenography, the term revisited by Marton (1981) to refer to the set of ideas that was developed from his work with Säljö, was originally used in clinical psychology. The term refers to the notion that it is the learner's view that defines what is learned, not necessarily what the teacher expects to be learned; teaching is therefore viewed as a matter of transforming a learner's perspective (Prosser & Trigwell, 1999). Phenomenography shares with constructivism the view that understandings of the world are not transmitted or transferred from one side (the teacher) to the other (the student); instead, it is held that meaning is (co-) created by the students' learning activities (Marton, 1981). Constructivism established a long tradition in cognitive psychology; Lev Vygotsky in the late

1920's introduced the notion of social interaction as a fundamental factor behind cognitive development. Following his first studies with children, Vygotsky (1978: 57) asserted that:

Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals.

Piaget (1952) independently drew similar conclusions and constructivism has ended up taking several forms such as individual, social, cognitive, post modern (Steffe & Galle, 1995). Their common denominator remains that learners construct knowledge through their own actions by extending what they already know. As a consequence, teaching is not considered as a transmission of any sort but rather a process by which students are engaged in active learning, drawing on what they already understand (Biggs, 1999). Both constructivism and phenomenography maintain that effective learning transforms how individuals view the physical and social reality. Unlike constructivism, however, phenomenography does not appear to make any epistemological and philosophical assumptions; instead it is presented as an approach to understanding certain dynamics of context-specific attitudes towards teaching and learning (Marton, 1981). The acquisition of information in itself does not induce change; however, how participants structure the acquired information and what they do with it, does. As a result, the purpose of education should be about conceptual change, beyond the mere acquisition of knowledge (Vosniadou, 2008).

What is extrapolated from the above claims is how aspects of student learning at university level relate to each other, and what is the impact of such dynamics. Posterior research proposed ways of conceptualising these variables and their interrelationships, with one of the models summarising this work being the '3P' model, initially proposed by Biggs (1993). The model conceptualised learning in higher education as a system of interdependent variables—'Presage', 'Process' and 'Product'—which interact with each other. Figure 2.1 depicts the relation of the components of the '3P' model to each other. Gibbs (2010a) notes that presage variables are features of the university environment before a student is admitted to it; such variables include resources, the students' selection

system, their educational background or the skills and competencies of the teaching staff. These variables do not fully shape the ways that learning will take place, however, they often enable or constrain the form this process takes. Process variables contain factors such as cohort sizes, the time of student contact and, how and when students receive feedback. They can contain the consequences of such variables, e.g. how the size of a cohort may impact on students' level of engagement, or what is the impact of a formative online assessment activity. Finally, product variables refer to the outcomes of the teaching and learning processes such as student marks, progression rates and employability (Gibbs, 2010a). The '3P' model of student learning is useful in that it can assist in mapping relationships amongst research studies that have investigated aspects of university students' experiences of learning. These studies revealed that some of the most salient aspects of student learning are:

- student perceptions of the context, e.g. how clear are the goals and the specifications of a programme (Ramsden, 2003).
- students' conceptions of their learning—what they believe they are learning (Prosser & Trigwell, 1999).
- students' approaches to learning—what they do with what they learn, encompassing both strategy and intent (Entwistle, 1991).
- characteristics of the student, crucially that knowledge or prior experiences that they bring to learning (Biggs, 1987a).
- the programme of study and departmental context (e.g. Ramsden, 2003).
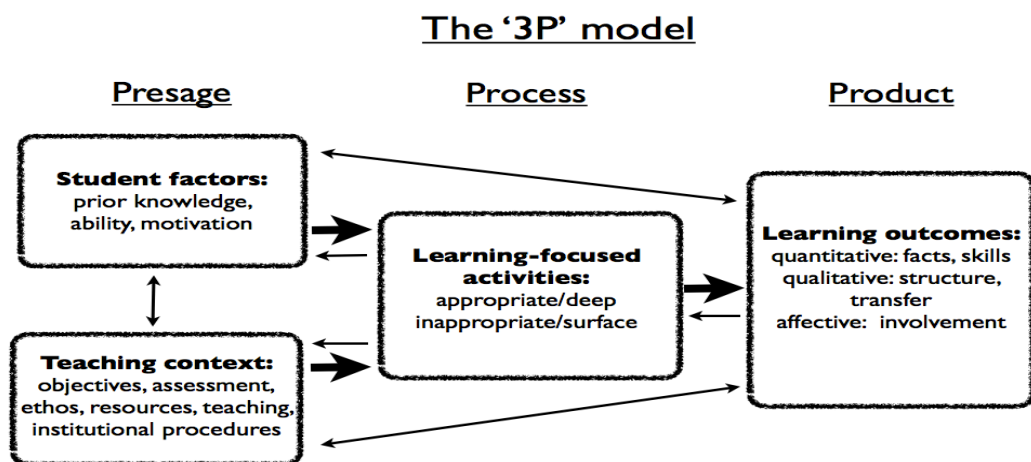
Figure 2.1: The '3P' model as initially proposed by Biggs (1993)

One strength of the model is that it can reveal connections between the work of researchers who may hold different epistemological beliefs about how to represent the experience of learning (Ellis & Goodyear, 2010). Within this nexus of variables, I will focus on the constituents of student approaches to learning as a core, dynamic feature of the learning process in higher education.

2.3.1 Deep, surface and strategic approaches to learning and studying

As previously explained, the deep approach results from the need to engage with an academic task meaningfully and is characterised by a genuine preference, and ability, for working conceptually rather than with unrelated detail (Entwistle, 1988; Ramsden, 1992). On the teacher's side, a deep approach is encouraged by teaching which requires students' active participation, builds on their prior knowledge, and cultivates an environment where students are allowed to err and learn from their errors (Biggs & Tang, 2011). In the preceding section, the '3P' model illustrated how student factors are not independent of teaching. Desirable student learning is dependent upon student-related factors (ability, relevant prior knowledge, clearly accessible new knowledge) as well as teaching-related factors (good management, instilling curiosity, appropriate resources). University teachers essentially have to work with the students enrolled in their programmes; whilst lectures and tutorials might have worked with 'elite' students who were leaning towards 'deep' approaches, these methods appear to be less attractive or efficient when employed in massified universities, as described in the introductory chapter.

On the other hand, a surface approach rises from an intention to tackle an academic task with little effort, while appearing to address their programme's requirements (Entwistle & McCune, 2009). It is widely held that memorisation in itself indicates a surface approach (Tang, 1994; Chalmers & Volet, 1997). However, memorising content—even verbatim—can be a legitimate learning strategy, such as when learning a formula by heart in maths. Memorizing becomes a feature of a surface approach only when it is employed to create the impression that understanding has occurred. It is obvious that under certain conditions of teaching and assessment, a student may choose a surface approach to learning. When manifesting a surface approach, students concentrate on the 'signs' of learning (Marton & Säljö, 1976a): phrases, facts,

items used in isolation to each other. Students are then inadvertently prevented from seeing what the signs signify; such an approach is promoted by an intention to achieve only the minimum required, a lack of time for study, perception of excessive workload, coupled with anxiety or confusion over the programme and assessment requirements. Again, on the teacher's side a surface approach may be induced by an assessment regime testing independent facts, emphasis on content coverage over depth and creating low expectations of success (Ramsden, 1992; Biggs & Tang, 2011).

While, at first sight, this dichotomy may appear simplistic, the identification of different intentions that can lead to contrasting learning processes has proved to be a fairly accurate descriptive, as well as explanatory, scheme. Further work on the study process identified another component; the 'strategic' [or 'achieving' (Biggs, 1987a)] approach, which derives from an intention to achieve the highest possible grades and involves focusing on assessment requirements and task demands very closely, as well as employing well-organised and rewarding methods of study (Biggs, 1987a; Entwistle, 1992). The student does not focus on the task but on the external recognition that results from good performance (Biggs, 1993). The strategic approach has been related both to extrinsic motivation, and competitive or achievement-led motivation: the intention of the student is to achieve the best performance and to outperform others (Entwistle, 1988; Entwistle et al., 2000) while there is a high level of organised effort (Entwistle & McCune, 2004; Entwistle & Peterson, 2004).

Many factors can determine eventual learning success including, among others, the intrinsic motivation of students and relevance of the structure of learning (Marton & Booth, 1997). Provided, however, that all other factors are equal, learning and teaching strategies that foster a deep learning approach are preferable (Entwistle & Ramsden 1983; Atherton, 2002). As mentioned earlier, it has also been shown that student approaches to learning are dependent on how they perceive the study demands placed upon them; it is therefore perfectly possible that a student can use a surface approach for one subject but a deep approach for another (Laurillard, 1997; Beaty et al., 2005).

A variety of individual differences associated with student approaches to learning have been identified in both face-to-face and distance education, such as self-esteem (Abouserrie, 1995), age (Richardson, 1995), gender (Richardson, 1995; Hayes & Richardson, 1995), socio-economic status (Aharony, 2006),

race/ethnic background (Richardson, 2010) and other personality traits (Duff et al., 2004). Based on research done with Open University students in the UK, Richardson (2007) also contented that the relationship between students' motivation and attitudes, and their approaches to learning, is bidirectional with variations in students' motives and attitudes leading to variations in their approaches to learning and vice versa. In addition to the evidence that individual differences affect approaches to learning, specific contextual factors such as departmental teaching culture (Ramsden & Entwistle, 1981) or assessment, have been reported to exert an influence (Newstead & Findley, 1997; Ramsden, 1997). Scouller (1998) concurred that the type of assessment affects student approaches to learning, while Boud (1995) pointed to the impact of assessment in more general terms, or to students' perceptions of the demands of the assessment. Finally, various sources reported disciplinary variation in approaches to learning (Lonka & Lindblom-Ylänne, 1996; Ylijoki, 2000) with students in the sciences and applied fields more inclined to adopt a surface approach to learning, whereas those in the humanities and social sciences are more inclined to adopt a deep approach (Lindblom-Ylänne et al., 2008; Parpala, 2010). Whilst this might be a contested area, I note these contributions in conjunction with the expected outcomes from contrasting disciplinary contexts of the cross-case analysis of the current study.

2.3.2 Critique of approaches to learning

The notion of approaches to learning has had a powerful influence on theory and an equally significant impact on practice, yet their perspectives have also been critiqued on grounds of their intent, application and methodology. Firstly, it was claimed that evidence cited to support the existence of relatively stable individual characteristics was not strong enough, consequently it is useful to see approaches as being in interaction with the learning situation (Laurillard, 2002). Moreover, the categories are broad labels, which do not necessarily capture the intricacies of how individuals learn and study (Entwistle, 2000). There is a very common misconception that student approaches to learning are similar to learning styles, therefore students adopt a particular approach regardless of the academic tasks or the features of the learning environment (Schmeck, 1988). Others refer to approaches as if they are absolutely dependent

on context as though students have no preferences with regard to their way of learning (Marton & Säljö, 1976a). The current research regards students as having predispositions or preferences for a certain approach; those, however, may or may not be manifested in practice, depending on the teaching environment. It is more of an interaction (Biggs & Tang, 2011) between individual and contextual factors, very much like the interplay between heredity and environment—a central, if not *the* central, theme in the history of educational psychology. From an academic development point of view, higher education practitioners may find it more helpful to see approaches to learning as something that teachers can change rather than as 'styles' about which little can be done (Sharpe et al., 2006). Consequently, scores on questionnaires such as the ASSIST (Tait, Entwistle & McCune, 1998) or the SPQ (Biggs, 1987a) are most useful when treated as measurements of the quality of teaching rather than of individual differences. They were treated as such in this inquiry and this understanding was shared with audiences to whom I presented the findings of the case studies.

Haggis (2004) offered criticisms of the literature on student approaches to learning, by claiming that its concepts have been absorbed into teaching practice without posing some critical and necessary questions. She argued that 'student approaches to learning' theory reflected elitist values, a point that is reinforced by Winter (2003), who challenged the notions of 'deep learning' as a mere representation of professional aspirations of teachers, and 'surface learning' as a reflection of professional failure, frustration and disappointment. The aforementioned objections are useful since they emphasise that approaches to learning have an acquired, motivational quality. Moreover, in methodological terms, Haggis (2004) contends that students' responses through surveys may represent impressions rather than credible reports of how they go about their learning. She is alert to student responses as a reaction to the implicit hierarchy of values, which are inherent in the descriptions of approaches to learning or in the actual questionnaires that intend to measure student approaches to learning.

2.3.3 A crucial link: the impact of teaching

As discussed, students who adopt a deep approach to learning tend to employ a range of learning activities but move beyond these activities to apply

them to new examples, while students who use a surface approach manage all tasks with low-level processes. Teachers are requested ideally to prevent the employment of these low-level processes hence their role is fundamentally crucial. Many of the studies discussed in the previous sections of this chapter looked into the relationship between high quality teaching and the quality of student learning outcomes, and have been based on students' perceptions of the quality of learning. Nevertheless, relations between teachers' reports of their approaches to teaching and their students' approaches to learning have been overlooked (Trigwell et al., 1999). In one of the first studies to establish this area of inquiry, Trigwell et al. (1994) identified five qualitatively different approaches to teaching:

- a teacher-focused approach focusing on transmitting information.
- a teacher-focused approach focusing on students acquiring the concepts of the subject topic.
- a teacher/student interaction approach focusing on students acquiring the concepts of the subject topic.
- a student-focused approach aimed at developing students' conceptions.
- a student-focused approach aimed at changing students' conceptions.

The last approach is one where the student is the focus of the activities, and the teacher makes time for students to debate the issues they encounter, assesses for conceptual change and develops a 'conversation' with students in lectures. Trigwell et al. (1999: 57) reported on empirical studies that established that 'qualitatively different approaches to teaching are associated with qualitatively different approaches to learning'. Their reports consist an important research focus, which gradually influenced the development of the current research. More specifically, their findings indicated that where teachers self-reported their approach to teaching as one that focuses on them and the transmission of knowledge, students are more likely to report that they adopt a surface approach to learning (Trigwell et al., 1999). Conversely, although less strongly, where students report that they adopt a deep approach to learning, teachers are more likely to report an approach to teaching that focuses on students and aspires to transform their conceptions. The result of their study endeavoured to map out and interpret a chain of phenomena in synergy, extending from the way teachers think about their teaching to how well students learn. Along with other studies, they determined relations between teachers'

conceptions of, and approaches to, teaching and approaches to learning as well as correlations between a deep approach to learning and higher quality learning outcomes (Kember, 1997; Kember & Kwan, 2002; Chan & Elliott, 2004; Postareff & Lindblom-Ylänne, 2008).

Additional to these studies, others established substantial links between teacher conceptions of teaching with technology, design and teaching practice with technology (Reeves & Reeves, 1997; Roberts, 2003; Ellis et al., 2009; Steel, 2009; González, 2009, 2010; Kirkwood & Price, 2011). In sum, all these studies highlighted to varying extents the importance of replacing teacher-focused, information-transmission teaching with higher quality, student-focused approaches to teaching which aims for conceptual change (Trigwell et al., 1999). Most importantly for the scope of this research, these links will be considered at the stage of framing the assertions arising from this cross-case study analysis. The figure below depicts links established between teachers' conceptions of (their own) teaching and learning and the quality of students learning outcomes.
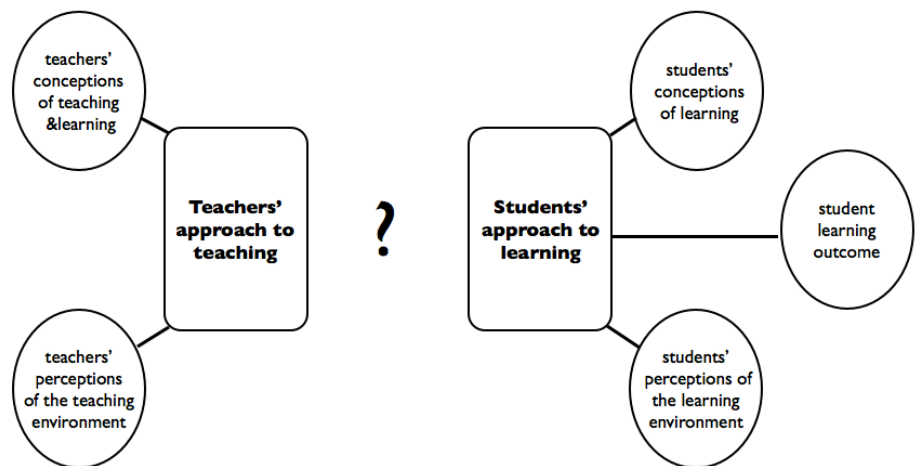
Figure 2.2: Teachers' conceptions of teaching and learning, and students' learning outcomes (Trigwell et al., 1999).

Since perceptions of the learning environment affect students in their academic performance, and VLEs are now considered an integral part of the learning environment in modern universities, it is important to review the

development of VLEs along with their impact on teaching and learning. It is equally important to review the existing body of research on the relationship between approaches to learning and use of VLEs as part of blended teaching strategies.

2.4   Definitions of blended learning

Numerous definitions of blended learning exist in the literature. Graham (2012) defined the term as a combination of traditional methods of teaching, i.e. face-to-face and online teaching, and this appears to be the most common understanding the term. Others give more specific definitions; the Sloan Consortium identify blended learning in any course where face-to-face is blended with online delivery and 30-79% of the content is delivered online (SLOAN Consortium, 2010). Definitions may also refer to a blend of media, a blend of teaching methods (Oliver & Trigwell, 2005), or a blend of didactic methods and delivery formats (Kerres & De Witt, 2003). Graham (2012: 5) defines blended learning as 'the combination of the instruction from two historically separate models of teaching and learning: traditional face-to-face learning systems and distributed learning systems'. He proposes a 'temporal' dimension of blended learning where the two learning environments converge. His additional dimension might be an interesting theoretical contribution, yet the danger of conceptual confusion should not be overlooked. I adopt the following definition of blended learning as a relevant and conceptually accurate description of blended environments in higher education:

> Blended learning describes learning activities that involve a systematic combination of co-present (face-to-face) interactions and technologically-mediated interactions between students, teachers and learning resources.
> (Bliuc et al., 2007: 234)

In addition, Sharpe et al. (2006) distinguish three broad characterisations for blended learning in practice. The first one refers to the offer of learning materials for programmes facilitated along traditional lines, through centrally managed VLEs. Secondly, blended learning can refer to transformative practices underpinned by programme designs that often use technology to replace other modes of teaching. Thirdly, blended learning may promote a holistic view of technology and learning, encompassing the use of the learners' own

technologies to support their learning. Driscoll (2002) believes that the wide range of dimensions of blended learning is a potential strength of the term; on the contrary, Oliver and Trigwell (2005: 21) comment that:

> By any definition there is little merit in keeping the term 'blended learning' as it is currently understood. It is either inconsistent or redundant, because it simply describes practice within higher education more generally, and it attributes to learning something that, in terms of what we know, only applies to teaching or instruction.

They view blended learning as a combination of face-to-face with online teaching approaches or a combination various media and tools within an online learning; a third possible definition is that of blended learning as a mix of pedagogic approaches, no matter whether technology is part of the mix or not (Oliver & Trigwell, 2005; So & Bonk, 2010). When the term is used to refer to these three facets alone, there is minimal challenge to the established teaching and learning regime, which remains traditional. Despite students appearing to be in favour of access to online resources, supplementary to the weekly lecture, the roles effectively remain unchallenged. The learner therefore assumes a passive role and learning is still an institution- and teacher-centred issue. Within this model of practice, the VLE is just as a content repository (Stiles, 2000; Cann et al., 2006).

I deemed as necessary an overview of definitions of blended learning along with some clarifications of conceptual nature. The next section elaborates on the development of VLEs as a tool of blended practice. I accept that there is a great deal of variety in the ways these practices take place across national contexts (see, for example, the massive scale implementation of such technological advances in North American universities), however, references to organisational developments will be limited to UK higher education. This will also help to place the focus in the next chapter on the institution where this research took place, Middlesex University.

2.5   VLEs in the UK higher education: development and key functions

I examine the term VLE here as the most widely known in the UK educational context amongst a wide range of relevant terms, all attempting to describe a more or less identical software system with a comparable set of

functions. Learning Management Systems (LMSs), collaborative learning software, online learning environments are some of the terms to be encountered. For a long time, the terms Managed Learning Environment (MLE) and VLE were often erroneously interchanged. Gradually VLEs achieved higher integration with the universities information infrastructure and thus the term VLE is now widely used to denote the whole set of functions that support teaching, learning and associate administrative functions. Therefore, VLEs are defined as learning management systems that combine the functionality of computer-mediated communications and online delivery of content (Britain & Liber, 2004). Users of VLEs are divided into two main groups: tutors and students. Tutors are normally given a wider range of choices within the VLE; they can add or subtract materials, create new pages with resources or track students' activities or assessment. The basic components of a VLE are subsequently classified below drawing on Ryan et al. (2000), Laurrillard (2002) and Britain and Liber (2004).

Noticeboard: typically consists of a welcome announcement and a site map.

Course outline: this section provides all the necessary information for the conduct of the learning sessions. There could be an overview of the course structure as well as details about practical issues such as dates for assignments, tutorials and video conferences. Course pages with all the relevant material could be found here, accessible through hyperlinks to the course pages and presented in chronological or thematic order.

Conferencing: conferencing and discussion groups used for collaborative exchange about specific topics of the programme, usually introduced during a lecture or a seminar. As an asynchronous function it is characterised by a lower level of interaction between the participants.

Assignments and assessments: teachers are able to set assignments for completion and students to return their completed coursework for grading and feedback. A range of assessments, e.g. multiple choice and text submissions, could be offered. Formative or summative assessments could be either automatically graded or manually marked.

<u>Synchronous collaboration:</u> some VLEs may feature a chat or an option of using a shared whiteboard with varied degrees of functionality and effectiveness. Group browsing and video-conferencing are less frequently encountered synchronous facilities of VLEs.

<u>Multimedia:</u> VLEs provide means of storing and accessing resources as an integral part of the course package.

<u>File upload area</u>: an upload area enables teachers and students to download or upload materials from the environment.

<u>Calendar, search tools and bookmarking:</u> VLEs normally provide users with search tools, which can lead to a specific source like a text, a link, a web page, without navigation. Bookmarking allows the user to access previously visited pages directly without them without having to navigate the environment.

Minshull (2001) summarised VLEs' potential range of functions as: providing controlled access to the curriculum, student tracking and recording of teaching, access to learning resources, assessment and guidance, communicating and linking, and customisation which allows the creation of standarised course templates. In terms of the sector-wide implementation of VLEs, the University Colleges and Information Systems Association (UCISA) and JISC have undertaken longitudinal studies examining issues pertinent to the use and support of VLEs in higher education. A Joint UCISA/JISC survey in 2005 provided a framework of the development of VLEs and a longitudinal comparison of the previous surveys, conducted in 2001 and 2003 (Jenkins et al., 2005). The survey reported that centralisation increased and noted that 'modern', former polytechnic universities continued to centralise VLEs faster than pre-92 universities with the overall usage rates already above 90% in the majority of the surveyed cases (Jenkins et al., 2005). A follow-up survey in 2008 reported that Blackboard continued as the most used institutional VLE (Browne et al., 2008), while the results in 2010 confirmed Moodle as the most commonly used VLE as well as a wider prevalence of centrally supported plagiarism detection, e-submission and e-assessment tools along with wikis, blogs, e-portfolios and podcasting platforms (Browne et al., 2010).

Since the first reports highlighted the potential benefits of VLEs, a large volume of studies have been conducted with the aim of assessing the width and depth of their impact in higher education institutions. From these studies, the next section reviews the studies that investigated pedagogical aspects of VLEs, those who looked into individual differences, and finally the ones that specifically focused on VLEs and student approaches to learning.

2.5.1 VLEs: Pedagogical aspects and individual differences

As explained in the first chapter, social constructivism theorists maintain that learning is a situated phenomenon affected by the social environment and shapes a learner's cognitive, emotional, social and cultural development; learners therefore make choices about their learning within a structure provided by their teacher (Vygotsky, 1962; Brown et al., 1989; Lave & Wenger, 1990; Land & Hannafin, 2000). If VLEs are thus expected to facilitate changes in student approaches to learning, a change in teaching approaches would also be expected, (González, 2012) and this entails changes in the teacher's role (Minshull, 2004) or a wider programme redesign strategy (Sharpe & Oliver, 2007). Certain strategies of online facilitation and moderation such as scaffolding seem to be consistent with this expectation (Salmon, 2004; Kim & Hannafin, 2010), whilst effective teaching approaches within VLEs include promoting participation, reflective thinking and collaboration (Jonassen, 1999). Garrison (2011) considers motivation as a prerequisite for encouraging 'deep learning' while Goodyear (2002) highlights the role of goal orientation and problem solving in online environments.

Nevertheless, problems can also appear: low level of online participation, for example, limits the number of student perspectives to be shared. Lobry de Bruyn (2004) suggests that online discussions are linked to student learning outcomes as a means of improving the quality and quantity of student participation, a point that was addressed at the first stages of this research. Jonassen (1999) claims that problem-based approaches should be referred to contexts where the presentation of the problem engages learners in cognitive challenges similar to those in real life. By making resources easily accessible, VLEs can make possible these links to context and practices (Oliver & Herrington, 2003) and the learner's sense of autonomy or ownership could be

enhanced, although perceptions of being controlled in the environment may well have a disempowering effect (Burnett, 2011).

The social experience of learning was reported to be of benefit since communication tools provide an opportunity for facilitating collaborative leaning and encourage students to be both active and interactive (So & Brush, 2012). Goodyear (2002) highlights the significance of the learner's self-awareness of their activity as well as their ability to act upon their reflection of their learning. Closer to the focus of this research, others agreed that a well-designed VLE could help students of 'all learning styles' experience a better educational environment compared to traditional lecture-centred environments where, for example, teaching benefits auditory learners (Vigentini, 2009). Consequently, several studies focused on other aspects of using VLEs, among which many investigated the extent individual variation affects the use of these systems and the benefits, which may come as a result of their use. An early large-scale evaluation of a VLE at the University of Staffordshire pointed out the importance of individual differences (cognitive, social, and affective) within this medium (Richardson & Turner, 2000). Amongst other findings, the authors reported that most students positively perceived the availability of materials through the VLE, although they preferred them being sources of support rather than replacing the teacher. Students also preferred to have hard copies of the materials presented on their VLE, rather than reading them online. Those with a holist cognitive style, who tend to view a situation as a whole, had a more negative perception of VLEs than those with an analytic style.

Based on the premise that learner identities are (re-) constructed in the learning environment and vary according to wider social issues, another study in the University of East London attempted to provide an insight into 'online learning identity positions' and questioned who is enabled or disabled by the adoption of VLEs. The study presented the following identities of online learners: 'model' students, who are further enabled by technology-based media like VLEs; 'disenchanted' students who are successfully resistant to online learning; and 'maladaptive' students who are unsuccessfully resistant (Hughes & Lewis, 2003). A more detailed search through the literature revealed a cluster of studies that looked into student approaches to learning and use of VLEs in the context of blended learning environments in higher education; these are presented in the next section.

2.5.2 VLEs and approaches to learning and studying

I placed further attention upon research literature that derived from local, small or medium scale studies. In a small-scale study at the University of Northampton, a short version of the ASSIST had been used with the aim of examining whether the student approach to learning affects their perception of the value of the local VLE. It was concluded that students who tended to develop a deep approach to learning preferred independent studying, and that was reflected in the positive perception of their educational gains from the use of the VLE (Jelfs & Colbourn, 2002). Conversely, students who developed a surface approach complained about lack of time and had not completed the online tasks set. Meanwhile, what the authors had classified as 'strategic learners' defined the VLE as a means of developing their organisational and time management skills (Jelfs & Colbourn, 2002). A similar study involving Business Studies students of the same institution reported that an appreciation of the value of the VLE correlated negatively with a surface approach whereas there was no significant correlation with the scores on the 'deep approach' scales. A 'reliable relationship' emerged between student approaches to learning and their overall enjoyment of the programme, along with a positive correlation between students' level of ICT competency and 'deep' learning (Enjelvin, 2002).

Adopting a different perspective on the issue, a study at Huddersfield University investigated to what extent the use of a VLE contributed to the demonstration of a deep approach to learning in the social sciences. The ASSIST inventory was administered to identify approaches to the module tasks adopted by the students. It was reported that students active in online discussions had higher scores in the deep learning scales of the questionnaire, while those with lower participation had higher scores on the scale of surface approach to learning (Gibbs, 1999). Frequent use of the VLE was associated with higher scores on the deep and strategic scales. The author also reported evidence that 'strategic learners' demonstrated their approach by actively choosing online activities, which presupposed a certain degree of flexibility in how they went about their learning, as well as skills in organising their time and study (Gibbs, 1999). Hoskins and van Hoof (2005) explored student utilisation rates of a VLE-based programme; they observed that individual differences

determined the extent to which the students used the available communication tools, although active discussion board users outperformed the more passive users. Their analysis pointed to associations between a strategic approach and a more extended use of the discussions on the module's bulletin board. In a Swedish study with medical students, Masielo (2005) observed 'significant correlations' between student approaches to learning and their 'attitudes' toward ICT. Masielo suggested that by identifying student approaches to learning and attitudes toward ICT at an early stage, practitioners may help them in the process of transition to higher education and may inform the design of new learning environments. At last, it was asserted that students who expressed confusion about their learning conveyed confusion about using technology for learning too (Masielo, 2005).

In his research study in another British university, Bromage (2004) identified 46% of students as predominantly adopting a 'meaning orientation', 30% a 'strategic orientation', and 21% a 'reproducing orientation'. Whilst there was a slight differentiation between the three groups in terms of how they used the VLE, students who adopted a 'meaning orientation' were found more likely to perceive benefits from the facilities offered by the VLE. Only a few students in any group enjoyed discursive online activities or perceived them as being helpful for developing their ideas, regardless of where they took place—on campus or online. Many students viewed the VLE in a positive light as a space where learning materials and essential information about the module were made available (Bromage, 2004).

Phenomenographic research into student approaches to learning explored pedagogical interactions within online discursive spaces, which occurred mostly within VLEs (Jones & Asensio 2002; Roberts 2003; Ellis et. al., 2004; Goodyear et al., 2005). Studies focusing on the nature of these interactions signaled associations between what students believe they learn through discussion and how they approach these discussions in face-to-face and online contexts (Ellis & Calvo, 2004; Ellis & Calvo, 2006). Their results showed qualitatively different experiences of learning through discussion; a deep understanding of how the discussions were related to their learning outcomes was associated with an approach to discussions of a more meaningful flavour. In the face-to-face setting, their approach draws on learning through the experience of others and, in the

online setting, they prioritise reflection on the problems discussed from different angles.

In a third-year undergraduate module, students used face-to-face and online discussions as a means of enabling them to write a final project report on e-commerce (Ellis & Calvo, 2004). The results showed the way students viewed the discussions was associated with some elements of their experiences: what they believed they learned from the discussions, how they perceive the teaching of the subject, and how they relate the goals of the taught subject to the discussions. Moreover, a deep understanding of how the discussions were related to their learning outcomes was linked to seeing these discussions in more meaningful ways (Ellis & Calvo, 2004).

Ellis and Calvo (2006) also researched students' experiences of learning through online discussions in an engineering programme offered by an Australian university. They employed three questionnaires and identified two groups of students. The first one perceived online discussions as a means of understanding the topic being studied, which was characterised by 'positive scores on deep approaches, cohesive conception and perception subscales' (Ellis & Calvo, 2006: 66). The second group had an experience leaning towards reproduction, which was characterised by a positive score on the 'surface approaches and fragmented conception subscales and negative scores on the perception subscales and final mark' (Ellis & Calvo, 2006: 66). A similar study by Yang and Tsai (2010) looked into students' learning within a VLE which was used for facilitating online peer assessment; they found that conceptions of, and approaches to, learning in this context were along the same line with previous studies (Ellis & Calvo, 2006; Ellis, Goodyear, Calvo & Prosser, 2008); hence they reported qualitatively different categories of conception of, and approach to, learning via online peer assessment. Their inquiry showed that conceptions linked to a fragmented learning experience are more likely to associate with surface learning, while conceptions of cohesive learning are more likely to be linked with deep learning. Cohesive learning conceptions and deep learning approaches were likely to contribute to substantial progress in the first phase of the online, peer assessment activities (Yang & Tsai, 2010).

Studies of similar methodology centred on what teachers think of their teaching and how they go about it. Morón-García (2006) argued that how teachers conceive of their own teaching is one of the factors that often

complicate the integration of technology into university teaching. Ellis et al. (2006) reported on qualitative research with teachers in Australian universities; twenty-two participants were interviewed and reported qualitatively varied categories of conceptions and approaches. Conceptions of blended learning that see the role of technology as a means of achieving learning outcomes, tend to be linked with conceptions of blended learning that prioritise students' construction of meaning. The analysis of interviews pointed towards qualitatively different categories of ways teachers conceive of learning technologies, as well as different approaches to design and teaching in settings where face-to-face teaching is supplemented by online instruction. The authors reported that there seemed to be significant variation in conceptions of, as well as approaches to, how technologies are used in terms of design and teaching. They underline that certain conceptions of the role of technology in teaching centre on efficiency and the technological media themselves; conversely, other teachers conceive teaching with technologies as a means of enabling student learning. This is a crucial remark and a very familiar feature of the work of academic developers and learning technologists when they train or advise teaching staff on the design and development of online or blended learning. Conclusively, Ellis et al. (2009) highlight that while some teachers focus on the whole experience from a student perspective, other approaches to teaching with technologies appear to centre on technologies without fully incorporating them into a holistic approach. The importance of similar studies lies in the fact that these were the first studies convincingly arguing that the experience of teaching across face-to-face and online settings is not the same for all teachers.

2.6   Studies parallel to the current research

Most recent studies conducted parallel to the present study aimed at exploring students' experiences of learning with technology from a phenomenographic perspective, exposing qualitatively different ways in which students conceive learning with technologies. Ellis, Ginns & Piggott (2009) pondered the relationship between student approaches to learning and their experience of 'e-learning'. They argued that without an understanding of how key aspects of online learning relate to significant aspects of face-to-face learning, the quality of the student learning experience is likely to be put at risk. They also

rightly maintained that, although there was a growing interest in this area of student learning, more specific studies into how core aspects of online learning relate to students' face-to-face experience were sparse. Their study investigated how technology facilitated the support of face-to-face teaching in the final year of Business Studies students. They delved not only into how students perceived core constituents of online learning, such as the design of their programme online space, but also how these perceptions were associated with student approaches to study. They identified positive correlations between deep approaches, their observed e-learning variables (e-teaching, design, workload, interactivity), and perceptions of e-learning and achievement (Ellis, Ginns & Piggott, 2009). Most importantly for teaching practice, their research indicated that students who felt negatively about the quality of teaching, design, interactivity and workload, were more likely to approach their studies in a relatively inadequate manner and underachieve in the online context.

In a similar research investigation Godwin, Thorpe and Richardson (2008) examined the impact of interaction in computer-mediated interactions in distance learning programmes. They looked into the effects of interaction on student's performance, their perceptions of academic quality, and their approaches to learning and studying. In all three of these dimensions variations within the groups of programmes was proved to be more important than variations between the groups. The results suggested that the introduction of interactive environments within online learning does not necessarily produce in itself positive learning outcomes. They also underlined that their study did not find evidence to support this with regards to perceptions of academic quality or approaches to learning (Godwin, Thorpe & Richardson, 2008).

Drawing on the use of questionnaires measuring student approaches to learning as well as on studies which evaluated student experiences in distance and blended learning programmes, Ginns and Ellis (2009: 60) developed a 'construct to help measure the quality of e-learning', which they proposed to be particularly useful in blended learning contexts. They developed a five-scale questionnaire on e-learning, which was used as an extension to the Course Experience Questionnaire (CEQ) inventory, widely used in Australian universities (Ramsden, 2003). They reported that their suggested scales captured a distinct aspect of the overall student experience, with the items demonstrating sound psychometric properties. A need was acknowledged to focus more closely on

possible correlations between the e-learning scale and, amongst other variables, approaches to learning (Ginns & Ellis, 2009).

A number of more recent studies (Ellis et al., 2009; Ginns & Ellis, 2009) exclusively concentrated on the experiences of campus-based students, who utilised VLEs in their programmes. These studies agreed that there is limited research about how important facets of online instruction might be constituted and, equally importantly, how these associate with facets of the overall student learning. Ellis et al. (2009) set out to investigate how online instruction supplemented the traditional teaching of a final year, Business Studies cohort. They extracted, through frequency analyses, what students felt were the most relevant factors: e-teaching, design, workload and interactivity. The main outcome of the study was that these four factors were identified corresponding to distinct sides of students' learning. More specifically, they noted significant correlations between e-learning and student approaches to learning and achievement, the last one comprising of marks and satisfaction indices (Ellis et al., 2009). The results indicated a positive association between deep and strategic approaches and students' perceptions of learning in a networked learning environment, and a negative association with a surface approach. In a similar earlier study, Goodyear et al. (2003) reported lack of strong association links between approaches to study and perceptions of networked learning. Interestingly, in a separate study adopting a different methodological design, Buckley et al. (2010) observed a relationship between expectations about the worth of networked learning and student approaches to learning; how students valued networked learning positively correlated with a deep approach to study and negatively with a surface/apathetic approach to study.

A review of the preceding studies leads to a number of remarks, pertinent to pedagogical and methodological issues of integrating VLEs in blended learning. It is noted that a first round of studies examined 'approaches to learning' as single variables of the learning and teaching context. As becomes evident in the summary of these studies (table 2.1) they did not yield any conclusive results that convincingly point towards any level of consistency in their research claims. Most recent studies, however, endeavoured to see the online context more holistically instead of treating it in isolation from the interactions of the institutional environment; for it is assumed that the field of inquiry progresses to a more mature understanding of the contextual issues

involved, and researchers thus begun considering more aspects of the environment rather than narrow down to the examination of two or more variables. These studies drew on and extended the phenomenographic tradition of research and build a useful framework of reference for the current inquiry. In summary, table 2.1 and 2.2 provide an overview of the respective phases and their key studies; they summarise the relationship between student approaches to learning and the role of technology as part of blended learning, although each one of them reflects a different research scope and methodological intent.

The sample sizes presented in this section were in most cases satisfactory. However, there were no follow-up studies and no comparisons with in other settings were undertaken. A lack of comprehensive reviews of what others had contributed to the field was evident in most of the reports contained in table 2.1, and represented the exploratory and mono-dimensional character of these studies. From the early studies the only case where the complexity of the educational context is explicitly recognised, and which clearly formulates its methodological approach, is the one conducted by Richardson (2001), who, nevertheless, examined only generic cognitive approaches; based on her findings, Richardson maintained that a holist cognitive approach should be associated with a more negative perception of VLEs than an analytic cognitive approach. Research studies presented in table 2.1 investigated online usage and interaction, but failed to adequately describe the interactions happening at the face-to-face level. In that sense, online learning functions appear to be autonomous and detached even though teaching staff in all of these studies used the VLE as a key constituent of a blended learning design strategy. This was not explicitly mentioned in the reports of the studies, thus concealing the wider programme context and giving the false impression of an exclusively online context. Table 2.2 presents the key findings of the more recent studies, which situate student approaches to learning in a wider context, and shift attention from the cost accrued by the VLEs to explore the interplay between what happens in the classroom and what takes place online. Researchers of this cluster of studies also endeavoured to investigate alternative methodological approaches and identify variation in the experiences of students and staff when technology is part of the mix.

The more recent round of research studies, which I summarised in Table 2.2, are important for the scope of the study. Firstly, they expand the stream of

Table 2.1: Overview of studies exploring the relationship between approaches to learning and use of VLEs

Study	*Deep approach associates with*	*Strategic approach associates with*	*Surface approach associates with*
Gibbs (1999)	High participation in online discussions. Frequent use of the VLE.	Online activities as a means of demonstrating learning and organisational skills.	Non participation in online discussions.
Enjelvin (2002)	ICT competency.		Negative perception of the VLE.
Jelfs& Colbourn (2002)	Positive perception of the VLE.	Development of organisational and time management skills through the VLE.	Non completion of online tasks.
Goodyear et al. (2003)	No associations between any of the approaches and students' judgements about networked learning.		
Bromage, (2004)	Similarities across the three approaches. Perception of greatest benefits	Similarities across the three approaches	Similarities across the three approaches.
Hoskins & van Hoof (2005)		High use of discussion boards.	
Buckley et al. (2010)	Correlates with positive perception of networked learning.		Correlates with negative perception of networked learning.

research, which draws upon the theoretical and methodological contributions of phenomenographic approaches of research in higher education. Secondly, these studies are important because they propose research approaches, which are characterised by higher level of complexity that results from an attempt to capture the richness of the emerging learning phenomena in higher education. Both clusters of studies, however, do not delve deeply into the ways students actually use online tools and these ways can be modified to enhance their learning. The first round of studies adopts a reductionist approach by which only

Table 2.2: Overview of studies exploring approaches to learning in the wider learning and teaching context from a phenomenographic perspective

Study	Conclusions/ directions for further research which are relevant to the current study
Ellis et al. (2004)	Students' lack of understanding between their online postings, their presence in face-to-face discussions and the quality of their learning outcomes, led to poor performance.
Masielo (2004)	Approaches to learning correlate with students' attitudes towards ICT. Confusion about learning correlates with confusion about using technology for learning.
Morón-Garcia (2006)	How teachers conceive their teaching may be a barrier in the integration of technologies
Ellis et al. (2006)	Conceptions of blended learning that focus on the use of technology as a means of achieving learning outcomes linked with conceptions of blended learning that prioritise students' construction of meaning.
Ellis, Ginns & Piggot (2009)	Correlations between deep approach e-teaching, design, workload, interactivity. Perceptions of e-learning quality linked to achievement.
Godwin, Thorpe & Richardson (2008)	Adoption of computer-mediated environments not enough in itself to enhance student approaches to learning and achieve desirable learning outcomes.
Ginns & Ellis (2009)	A five-scale instrument measuring quality of student experience in blended learning.
Yang & Tsai (2010)	Findings on conceptions of, and approaches to, online peer assessment corroborate with previous studies (Ellis & Calvo, 2006; Ellis, Goodyear, Calvo & Prosser, 2008).

particular variables are examined whilst the second round of studies centred on revealing emerging constructs encapsulating students' understandings in blended learning settings. These gaps in the themes of both clusters of studies map the area of contribution of the current study.

2.7   Summary

This chapter delved into aspects of the comparatively recent field of research into student learning that takes place in higher education institutions. A body of theory has been established which has direct connection with teaching practice, and was mostly shaped by constructivism and phenomenography. They

proposed that meaning is created by the learner and constructivism placed further emphasis on the nature of the learning activities. Within this theory, the concept of 'approaches to learning' has emerged as an influential framing notion for interpreting student learning in higher education (Cousin, 2009). The concept asserts that students who tend to adopt a deep approach engage with the material with the intention to understand it; students demonstrating a surface approach, on the other hand, find it difficult to interact with the material or search for meaning in what they are learning. A third approach, the strategic, gives priority to the achievement of the highest possible marks (Ramsden, 1979; Biggs, 1997). Studies on how students perceive their learning experiences suggest that learning is a contextual matter, hence departing from any notions of pigeonholing learners and suggesting strong individual learning preferences or styles (Duff, 2003; Coffield et al. 2004). On the contrary, an approach to learning is seen as influenced by a matrix of personal and environmental factors. As Ramsden (2003: 51) succinctly clarifies:

> Although it is abundantly clear that the same student uses different approaches on different occasions, it is also true that general tendencies to adopt particular approaches, related to the different demands of courses and previous educational experiences, do exist. Variability in approaches thus coexists with consistency.

While studies leading to the theory of student approaches to learning were conducted in environments where certain instructional media already existed, a pressure for structural changes in higher education and the advent of web-based technologies raised further, often perplexing, questions about the quality of learning and teaching in modern, technology-rich and globalised universities. Therefore, the literature reviews initially sketched out the nature of the field relevant to the inquiry and indicated some of its historical development over the last 30 years. The review presented the development of key ideas and concepts and the strategy of institutions to introduce and embed technology-mediated support for teaching and learning. Additionally, I reviewed ideas and methods in this area of inquiry and the process helped me to map out the contribution of the current study. It primarily strives to extend the existing body of research into student approaches to learning and, by doing this, to inform current pedagogical practices of technology enhanced learning in higher education. The study also contributes to pedagogically-centred evaluations, which aim at generating more

theoretical accounts of how technology may best support teaching and learning in the changing landscape of higher education. This could be achieved by relating the conclusions of the current study to previously developed efforts of the phenomenographic stream of research. These efforts have been presented and reviewed in this chapter. It is now important to explore appropriate methodologies for examining student approaches to learning in blended learning, an endeavour, which I undertake in the next chapter.

CHAPTER 3

Research approaches for blended learning in higher education: case study as an exploratory tool

I began this study with an understanding that I would inevitably position my research close to the quantitative or the qualitative approach. This dichotomy seemed to be a powerful, ubiquitous distinction dominating debates and exchanges of argument in research seminars, conferences and other scholarly conventions. I initiated my research with a fair amount of training in the use of quantitative methods and statistical analysis. I was, however, inclined to explore qualitative approaches, which would better serve the exploratory nature of this inquiry and yield richer accounts of students' learning in technology-mediated environments. The latter was reinforced by recent methodological approaches employed in settings where the use of technology is intended to be an integral part of the students' learning experiences (for a summary see Ellis & Goodyear, 2010).

This chapter sets out to outline the epistemologies pertinent to research into learning with technologies and the inquiry into teaching and learning in higher education; for at the intersection of these two areas lies the nascent area of study, which examines blended learning in universities. Moreover, I justify the choice of case study as an appropriate methodology for exploring how students demonstrate their approaches to learning by appraising different types of case study analysis. Particular details are given about the data-gathering techniques with the aim of providing a transparent account of this stage. Finally, I reflect on my own position within this study and in the wider academic environment, a process that is an important element of the ethical framework of the cross-case study analysis.

3.1   Epistemological considerations

Initially, I examined a number of qualitative and quantitative approaches and I contemplated their wider epistemological assumptions. The process was formulated in the context of research seminars at Middlesex University and was supplemented by the reading of relevant educational research literature. In

summary, positivist approaches typically endorse an 'objective' view of the social sciences (Cohen, Manion & Morisson, 2011), affirming that there are strong analogies between the social and the natural world. Contrary to this assertion, interpretive approaches centres on the individual and how that individual understands and interprets the world; its theoretical claims therefore arise from particular instances being 'grounded' in the data collected (Glaser & Strauss, 1967). There is a strong positivist legacy within research into technology and learning which rejected any need for accounts of minds and argued that what was necessary was an account of how learners acted and how their actions could be influenced (Skinner, 1976). Part of his work is the idea of operant conditioning (Domjan, 2009). This concerns the strengthening of desire patterns of response and the weakening of others through combinations of positive and negative feedback. The influence of these areas is evident from the literature about the impact of assessment on study (Scouller, 1998; Biggs, 1999; Boud, 2000).

Alternatively, constructivism emerged as the most widely recognised paradigm within computer-assisted learning research, and has come to dominate the field over the last two decades. It is indicative that in a list of most cited papers in the globally recognised Ed-Media conference, Vygotsky's seminal book 'Mind in Society' (Vygotsky, 1978) topped the table by a wide margin (Ochoa, Mendez & Duval, 2009). Constructivism emphasises the centrality of social interaction and a more personalised process of constructing knowledge (Jonassen, 2006). Crucially, most constructivists share an interest in the role of technology for developing knowledge, resulting in a strong link between this stance and what preceded online strategies for learning (Duffy & Jonassen, 2013).

The above two positions serve as useful points of reference; it should, however, be emphasised that a large number of other traditions exist: action research, activity theory, cognitive science, discourse analysis, artificial intelligence, literacy, management studies (Conole & Oliver, 2007). Relevant to this study is a new critical approach that acknowledges the mismatch in much learning and teaching practice between what teachers claim to be doing and what they actually do—their espoused and their enacted values (Conole & Oliver, 2007). This informed my decision not to ask lecturers to self-assess their approach to teaching by filling out a questionnaire—for example, the Approaches

to Teaching Inventory (ATI), (Trigwell & Prosser, 1999). On the contrary I opted for observation of their teaching sessions. Quite similarly, students' self-reported data on the questionnaires was cross-referenced with the logs recording their use of the VLE; this was deemed preferable to questionnaires asking students to report on their usage of the VLE. Thorpe (2002) noted that it is common for teachers to assert constructivist credentials, while still using behaviourist motivators. This is indeed my personal experience from attending conferences and learning technologies conventions, where it was quite usual for presenters or practitioners to claim constructivist credentials to design whilst they reproduced teacher/content-centred approaches to teaching in the online arena. I also took into account complaints by lecturers who believed that self-reporting of students provided ideal evaluations of the learning experience (Cook & Campbell, 1979). Therefore these were of little help in designing interventions for improvement based on understandings of what goes wrong in their teaching [see Haggis (2004) in the literature reviews].

3.2   Considering the case study methodology

Beyond the two poles, I considered methodological triangulation, which proposes the collection of data from a variety of sources using a range of methods. Triangulation can be used to corroborate findings from experimental trials, improving reliability and thus allowing a wider perspective to be taken (Denscombe, 1998). Moreover, I recognized that the planning of the research was subject to particular limitations: financial resources, administrative support and time constraints regarding data-gathering. After mapping out the gaps identified in the literature reviews, I decided to exploit the advantages of the case study approach as 'an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident' (Yin, 2009: 13). Researchers defined and classified 'case study' in different ways; Yin is close to the positivistic paradigm whereas others such as Stake (1995) are closer to the interpretive paradigm. According to Stake's (1995) classification, the present study may be defined as 'instrumental' since it sets out to examine the case studies, not for learning about the cases themselves, i.e. the teaching modules, but in order to understand an outside concern, i.e. how students demonstrate their approaches

to learning within VLEs in a blended setting. As an inquiry with the aim of understanding these concerns, I strove to produce theoretical accounts of the processes or relationships which link with existing ideas in the area of student approaches to learning. I intended to conduct this research study with the minimum possible intervention in the learning habitat, and I did not prioritise initiating change in the field of teaching and learning practices. As the process unfolded, I also acknowledged that the research questions might be modified or replaced, and I saw the case as an arena to bring many relationships together and facilitate appropriate inquiries. By choosing the case study approach, I effectively recognised that social truths are complex and embedded (Adelman, Jenkins & Kemmis, 1980) and that it is difficult to capture these solely through controlled experiments or pre-determined statistical analysis. On the contrary, the case study offered the opportunity to investigate issues where they occurred and to produce descriptive and analytical accounts that invited readers and relevant communities to make judgments about their credibility.

Qualitative understanding of the cases requires 'experiencing the activity of the case as it occurs in its contexts and in its particular situation' (Stake, 2006: 2). This thesis endeavours to describe what the case's activity was and what its effects appeared to be in relation to student approaches to learning. In cross-case study research, the individual cases share a common characteristic and thus are categorically bound together (Stake, 2006), a condition fulfilled here by choosing appropriate undergraduate teaching modules. Both case studies and cross-case studies are more inquiries rather of particularisation than generalisation (Elliott & Lukes, 2008), aiming for a holistic understanding of cultural systems of action (Feagin, Orum & Sjoberg, 1991). I, therefore, did not choose the case study as a research instrument of sampling, although I selected the cases with a view to maximise what I could learn within the time available for the investigation. Simons (1980) claims that a drift towards multi-site case studies risks neglecting this research approach as essentially a science of the singular. Stake (1995) points out that forms of small-scale generalisation can be an important element of single case study research. For example, it might be discovered that when students are asked to form online discussion groups, they repeatedly do so in particular ways; a generalisation can therefore be made about its repetition. Alternatively, a case study might confirm or contradict a pre-existing large-scale generalisation. If the literature suggests that students always

group together according to IT competency and a case study finds that this is not so, then it potentially modifies this generalisation. Stake (1995) prefers the term 'assertion' to 'generalisation', and warns researchers to adopt an ethic of caution when they make assertions. And yet it is this very attention to the depiction in the analysis of the uniqueness of a case that allows for a form of generalisation to be made, not by the researcher but by the readers.

The aforementioned issues highlight why it is hard to adopt a prescriptive approach about the design, implementation and analysis of case study research; in any case, a supportive theoretical literature, appropriate methods to use, and analytical, preparatory work are needed. Yin (2002) suggests that case study research largely requires 'why' and 'how' questions because they invite an investigation into meanings and explanations. Case studies also require an engagement with promising literature and available documents from the case to support the induced assertions. These concerns stimulated the formulation of my research questions and motivated me to engage with relevant theoretical contributions throughout the process; evidence of this is provided in section 2.6 of the literature review, where developments unfolding parallel to this study are reviewed. Since the aim of this case study is to examine phenomena in their natural settings, I decided that a hypothesis-led method is not appropriate to this study. Instead the term 'propositions' is adopted, largely because of the focus on the 'how' questions that invite an investigation into explanations and meanings in student learning.

3.2.1 Case studies as a tool of researching blended learning

Research in technology enhanced university learning, including blended learning, is relatively immature, particularly in comparison with other fields of inquiry into how students learn in higher education. A considerable amount of investigations into students' e-learning experiences consists of case studies (Phillips, McNaught & Kennedy, 2012) since many researchers and practitioners are still at the stage where they endeavour to distinguish the constituents of the online learning experience and, most importantly, what makes for higher quality learning when face-to-face learning is supported by online teaching strategies. Consequently, they appear to be more at ease when conducting case studies so that they avoid the pitfalls of employing some variables that are not adequately

determined. Bluic et al. (2007) comment that teachers often research their own practice and this is a crucial dimension that is often overlooked in the process of evaluating the robustness of these studies. Case studies in blended learning are usually evaluative studies and they may centre on various aspects of the learning context with a narrow or a wide focus. Their methodology designs tend to be unsophisticated; case studies, nevertheless, can serve as useful tools to unearth key features of a particular setting and provide a teacher's views on the programme of study, how students engage with learning and how the institution supports teaching and learning.

Surveys also have a long tradition in social sciences as well as in education, and typically investigate how different aspects of the learning environment relate to each other (Gideon, 2012). A variety of methods are employed here with a focus either on blended learning (Aspden & Helm, 2004; Ausburn 2004) or exclusive online delivery (Jelfs, Nathan & Barrett, 2004). I presented survey-type studies in section 2.5.2 of the literature reviews (e.g. Bromage, 2004; Hoskins & van Hoof, 2005) and highlighted the limitations of this approach when it is employed as a stand alone method: surveys may examine associations between certain variables and tend not to deal with issues of holistic nature, such as those of priority in qualitative methodologies.

Additionally, I considered the methodology of comparing cases as well as more holistic approaches. Comparative studies focus on comparisons of blended and exclusive online learning (Schweizer, Paechter & Weidenmann, 2003), blended and exclusively face-to-face learning (Parkinson et al., 2003) or blended and distance education modes (Harker & Koutsantoni, 2005). Comparison studies mainly examine isolated components rather than integrated wholes. Holistic approaches, on the other hand, set out to produce richer accounts of the context with the focus on how different components of learning are integrated. A meta-study into blended learning in higher education ascertained that more holistic research approaches were needed, and reported that, due to philosophical or methodological preferences, very few studies took a holistic methodology to researching blended learning in higher education (Sharpe et al., 2006). Some examples, however, can be found of combinations of methods employed to research blended learning in higher education. They combined quantitative and qualitative approaches to reveal patterns in the data that relate to face-to-face and online learning (Akyol & Garrison, 2011). Consequently, I

considered the relatively limited knowledge on the constituents of online learning and, most importantly for the scope of this study, how these relate to the face-to-face experience. This limited knowledge base was evident in the early stage of the development of new methodologies to investigate blended learning in higher education settings. I therefore decided to adopt a semi-exploratory approach (Goodyear et al., 2005), striking a balance between existing, pre-conceived constructs (deep, strategic, surface approach to learning in face-to-face teaching) and emerging concepts (how approaches to learning are demonstrated in online and blended learning contexts).

3.3   Data collection and analysis

The selection of cases was dictated by the focus of this cross-case study analysis, i.e. how student approaches to learning relate to the use of technology in the context of blended learning environments. Denscombe (2007) suggests four different types of cases: a typical instance where a case seems typical of other cases in different contexts; an extreme instance where the way a case contrasts with a typical case is explored; a test-site for theory where the case would be explored to see whether it corroborates an existing theory; and a least-likely instance which verifies a theory's validity in an atypical setting (Gerring, 2007). One of the tasks of cross-case study is the selection of cases to study and a justification for selecting these particular cases. As a result, I set three criteria: the case's relevance to the context, the extent to which the case provides diversity across contexts, and the extent to which the case enhances the understanding of the context's complexity.

Additionally, the design of the study aimed to achieve diversity of contexts. Firstly, achieving diversity in terms of examining the phenomena across different subject areas situated within contrasting departmental cultures and, secondly, with varying levels of VLE usage. Regarding the first criterion, anecdotal evidence suggested that VLEs might be beneficial for disciplines such as the Humanities, where there is a greater need for discussion, rather than in fields such as Engineering or Computing (White & Liccardi, 2006). This proposition is examined by comparing the case studies—it was expected that comparison across the cases would increase the relatability of the findings. The selection of cases was not intended to represent the full range of programmes

available on the VLE and the case, an undergraduate module, was the fundamental unit of analysis as defined by the boundaries outlined below:

- physical borders: I researched the face-to-face and online teaching experience of Middlesex University students across three schools, corresponding to four different departments.
- population: Students, lecturers, teaching assistants were the concern of this study. Besides these core populations, contacts were made with other members of staff involved in provision of learning.
- range of activities: The case primarily focused on the use of the university VLE, the weekly lectures and supplementary seminars facilitated between the lectures. I considered the role of peripheral activities such as staff development provided by the university's Centre for Learning and Quality Enhancement aiming to develop lecturers' skills.
- time span: Students experiences were observed across a five-month semester for the first two case studies and across a nine-month term for the third and fourth case study.

Certain modifications occurred in the process of conducting the studies. For example, the items produced by students through the asynchronous communication tool were not investigated, although this area could have yielded rich insights. In the next section, I outline the design and the tools of analysis within each case and across all case studies.

3.3.1 Within-case and cross-case study analysis: design and tools

As explained, there are no prescribed ways of collecting data within a case study analysis (Sturman, 1997; Bassey, 1999; Cohen, Manion & Morrison, 2011) and thus it was essential to decide which tools were feasible, effective and suitable to underpin the overall cross-case methodological design. Figure 3.1 depicts the methodological design for the within-case study analysis and demonstrates the data-gathering techniques. Programme specifications describe the intended learning outcomes (ILOs) of a programme of study and express how these outcomes will be achieved. 'Ways of thinking and practicing' in the subject area is a term that covers not just approaches to studying, but also the thinking processes and subject-specific skills that teachers are seeking to develop in their students (McCune & Hounsell, 2005; Land, 2006). As

represented in the figure, the methodological design incorporates three core sources of data collection, the ASSIST questionnaire, the web logs and the interviews, whose intent and roles as methodological tools are subsequently analysed.

ASSIST questionnaire

The ASSIST inventory (Entwistle et al., 2000) was chosen as a reliable way of identifying student approaches to their learning tasks. Similar inventories derived from Marton and Säljö's (1976a) ideas on approaches to learning, were later supplemented by evidence of a strategic approach to studying (Entwistle & Ramsden, 1983; Biggs, 1993). Accounts of how this version of the inventory was developed and administered can be found in Tait and Entwistle (1996), Tait, Entwistle and McCune (1998) and Entwistle et al. (2000). The short version of the ASSIST inventory was first considered as a base for the revision of a suitable tool, which measures the approaches to learning of the student samples involved in the case studies. The responses provided by any sample are classified under three approaches to learning: deep, strategic and surface. Each scale consists of four or five subscales. The relationship of each subscale to its associated main scale has been tested over a period of three decades, across multiple national and cultural contexts, and varied levels of higher education [for an overview see Richardson, 1994 and the reference bibliography of the Enhancing Teaching and Learning project at the University of Edinburgh—ETL project (2007)].

The original ASSIST inventory consists of three parts: the first part is intended to measure student conceptions of learning, the second part aims to capture student approaches to learning, and the third one describes preferences to different types of programmes and teaching. I omitted the first and third part of the original ASSIST questionnaire since they were out of the scope of the study. The second part comprises of 52 statements. Students are asked to indicate their agreement or disagreement to these statements on 1-5 scale (1 is the lowest and 5 is the highest). Clusters of four similar statements form a subscale. The deep approach comprises of four such subscales: Seeking Meaning, Relating to Ideas, Use of Evidence and Interest in Ideas. The strategic approach consists of the subscales of Organised Study, Time Management, Alertness to Assessment demands, Achieving, and Monitoring Effectiveness.
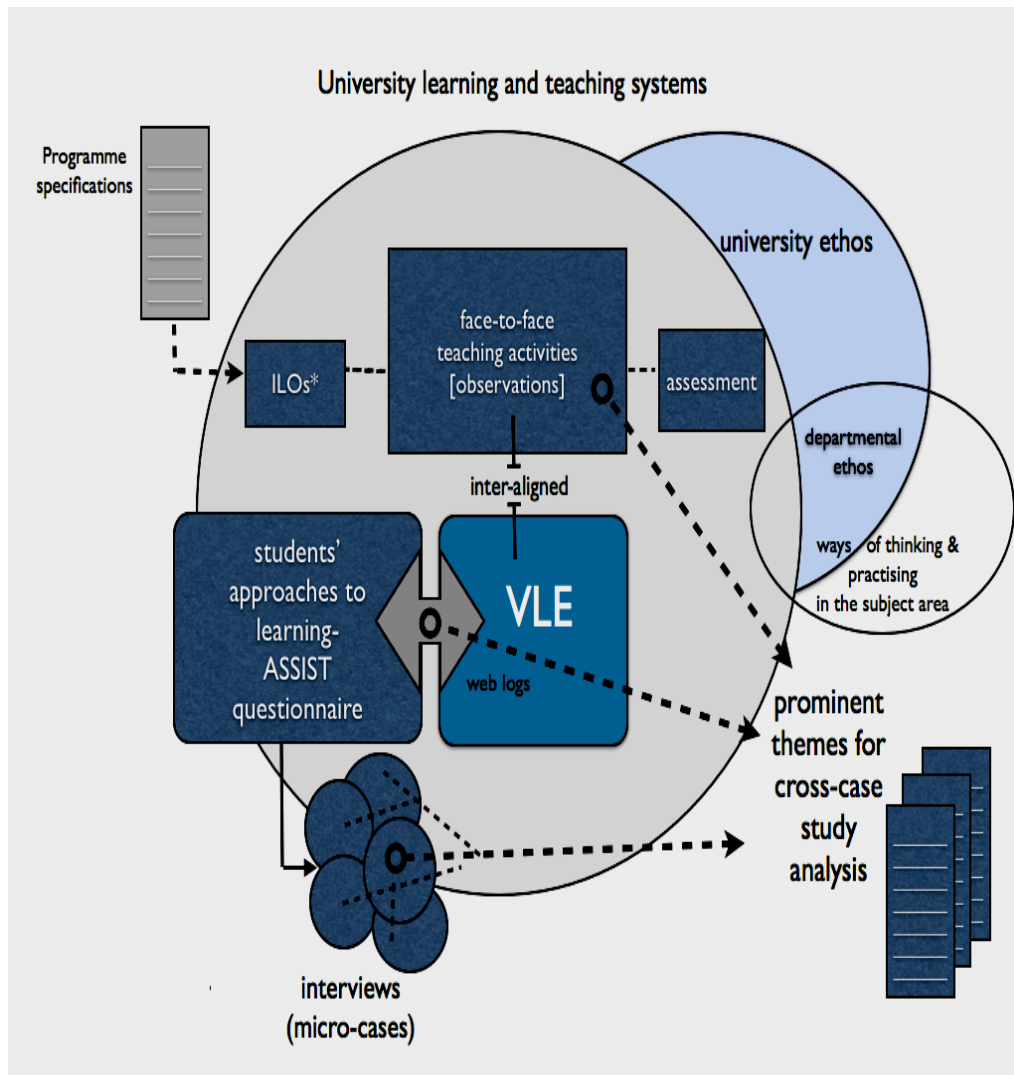
Figure 3.1: Methodological design for within-case study analysis

ILOs= Intended Learning Outcomes/ **O denotes source of data gathering.*

Finally, the surface scale contains four subscales: Lack of Purpose, Unrelated Memorising, Syllabus-boundness and Fear of Failure. Tait and Entwistle (1996) and Entwistle and McCune (1998) note that the first three subscales in each scale can be combined with a great deal of reliability whilst the subsequent subscales (i.e. Interest in Ideas of the deep approach, Achieving and the Monitoring Effectiveness of the strategic scale and Fear of Failure of the surface approach) may vary in their (inter-) relationships across different settings. After examining the 52 statements, I decided to omit the four statements of the Achieving subscale so that all three scales consisted of four subscales and 16 statements each. The scoring procedure was carried out with SPSS. Each statement was set as a variable (e.g. S01= Strategic item 01) and a subscale total generated a new variable; this variable summed up the four items of each

subscale [e.g. Organised Study (OS)= S01+S13+S25+37, see the scoring key at Appendix III]. The total score of each approach was produced in the same way, e.g. Strategic Approach (SA) = OS + TM + AA + ME. After collecting the questionnaire data of the revised ASSIST questionnaire, I also conducted factor analysis to measure the construct validity of the revised questionnaire, i.e. to confirm that the questionnaire measured what it was designed to measure. The results are presented in the case study data collection section of each of the subsequent chapters. Appendix III contains the original ASSIST questionnaire, the revised version of the questionnaire and the scoring key used for the data analysis of the revised ASSIST questionnaire.

With regards to the appropriateness of this inventory for blended learning contexts, Richardson and Price (2003) asserted that 'approaches to studying' inventories can be proved to be as reliable with students on electronically delivered courses as they may have proved in previous research with students in campus-based or distance education programmes. Moreover, as discussed in the relevant section of literature reviews, Coffield's et al. (2004) review of inventories underlined the methodological robustness and validity of the student approaches to learning instruments such as ASSIST in contemporary university settings. The revised version used for this study and the consent form for the participating students can be found in Appendix II.

Web logs

Educational research has been borrowing techniques from related fields, such as educational data mining, and employing them for utilising educational data into useful information and to inform actions that improve teaching and learning. VLE software typically offers a tracking facility which records use of the system including aspects of it such as frequency of use, access to particular components of the module area on the university's VLE, participation in asynchronous forms of collaboration, and online assessments. Tracking VLE data has been employed with the aim of obtaining factual input into student's habits, attendance and overall performance (e.g. Mimirinis et al., 2004; Demian & Morrice, 2012). Whilst this choice shielded the research study from self-reporting bias, it is also important not to over-rely on tracking facilities: students who fail to participate in a face-to-face or online class may well achieve the

intended learning outcomes of their programme of study despite (and, in rare cases, because of) their lack of online or face-to-face interactions. Pappas, Lederman and Broadbent (2001) caution that tutors need to rethink the way they monitor student performance due to the lack of visual and aural feedback in an online environment. The limitation of tracking tools is also highlighted by Hewling (2004) who examined the effectiveness of these tools with regard to students who lurk as well as those with limited access to the internet, who prefer to log in once, download materials and engage with them offline.

Interviews

I interviewed selected students in order to gain a better insight into the results of the inventories and the web log files. There are plenty of examples in literature where interviews are used to enhance the quality of data gathered by other means; an example is the longitudinal study of McCune and Entwistle (2000), who worked with psychology students and reported that students' interviews 'brought to the fore the complexity of students' learning and the importance of their idiosyncratic experiences, beliefs, attitudes, abilities and motivation for understanding their development' (McCune & Entwistle, 2000: 15). They recognised the value of approaches to learning as general categories on a more abstract level, yet they implied that these abstractions have their limitations. Rather than planning to triangulate the findings of the questionnaire or the data from the VLE, I acknowledged that different methods and forms of analysis might yield richer and wider understandings of how students learn with technology. I invited selected participants based on their high scores on any of the three scales of the ASSIST questionnaire. The semi-structured one-to-one interview included twenty-four questions and was designed to allow for additional questions if themes of interest emerged during the interview. The most significant items of the interview aimed at eliciting students responses and views on their motivation, any difficulties they encountered during the semester, how they organised their study, their preparation for the exams, and how they rated the quality of teaching and learning for their module. With regard to the online component of their learning, I queried whether they thought the VLE helped them to seek meaning in what they were learning, how they perceived the quality of online teaching and asked them about the quality of the materials and how they

interacted with them. At the end, I checked how they perceived their own ICT competency and I encouraged them to make comments on the overall experience in the form of an open, informal conversation. All the items of the semi-structured interview plan can be found in Appendix III.

The selection of data-gathering techniques, as well as the sequence of their application, reflects my consideration of recent developments in the area of methodology of social sciences and education. More specifically, it relates to the combination of different methods within a single study in the context of real examples, an approach termed 'the new political arithmetic' (Gorard & Taylor, 2004). Initially evidence is gathered that is large in scale and mainly numeric and then the research focus moves to work in smaller scale and predominantly in-depth (Teddlie & Tashakkori, 2010). The general aim is to explore macro and micro patterns and processes, and how these all may interconnect (Gorard & Taylor, 2004). Additionally, I utilised observations of the opening and closing teaching sections as a rich way of exploring human relations and processes. I observed two sessions of each case study with several additional observations of lectures and seminars across the cases. The lecturer introduced me to the students who were aware that I was observing the session. I took notes drawing on aspects of the teaching environment and I noted what appeared to prompt their anxieties or their delight, how they collaborated as a team, what kind of roles individuals seemed to be taking up, the frequency of references to assessment, the tutor's enthusiasm and resourcefulness. Programme documentation including the module narratives and documentation of lecturers' training on how to use the VLE were also examined items in the process of investigating the overall context of each case.

With regards to the management of data, Stake (1995) cautions against accumulating a daunting amount of data preferring to analyse and shed as the data collection proceeds, a technique which I adopted in the management of the data collected from the four cases of the current study.

Types of statistical analyses

Statistical analyses formed the core component of the within-case study analysis in order to explore the strength of the relationship between student approaches to learning as measured by the ASSIST questionnaire and students'

usage of the VLE. The Pearson correlation coefficient measured the strength of the relationship between two pre-identified constructs, student approaches to learning, and usage of the VLE. Correlation is a technique for investigating the relationship between two quantitative, continuous variables. The value of the coefficient r can range from -1 to +1; a value near 0 indicates little correlation whereas a value near +1 or -1 indicates a high level of correlation either way. A positive correlation between two of the pre-identified constructs means that an increase in the value of one indicates a likely increase in the value of the second whilst a negative correlation indicates a likely decrease of the second construct (Cohen, Manion & Morrison, 2011). Furthermore, factor analysis was deemed a suitable method to verify the robustness of internal relationships amongst the items of the ASSIST inventory. Factor analysis extracts a number of factors from data which are ordered depending on the share of the variance of the data that these factors explain (Hair et al., 1998). A small subset of factors is kept for further examination and the weaker factors are eliminated from further analysis. The first round of factor analysis is followed by a rotation of the strong factors. Rotating factors simplifies the factor structure and therefore makes its interpretation more reliable, i.e. replicable with different samples (Hair et al., 1998).

Validity of the research design

Construct validity, internal validity and external validity are all significant aspects of maintaining the integrity of case study research (Yin, 2009). With regards to a single case study, Yin (2009) proposes that a number of different sources of evidence can enhance construct validity. Within the current cross-case design, multiple sources of evidence were employed, mainly questionnaires, observations, interviews and analysis of web logs. As case study seeks to identify theoretical relationships from which generalisations can be made, external validity can be difficult to be achieved (Yin, 2009). With the cross-case design, the generalisations can be compared between cases, thus adding an external element of validity. In this inquiry it was important to devise a case study protocol that would ensure consistency and, as a result, increase the reliability of the study. Internal validity relates to the reliability of a research study which draws upon limited sources. Although, the current study proposes multiple

subjects, with different identities and within a cross-case study design, it is still important to acknowledge the critique and address its concerns. Obviously, one way of providing support and validity to the case study is to draw on a number of different data sources, typically referred to as 'triangulation' (Feagin, Orum and Sjoberg, 1991). Triangulation forms a foundation for the validity of case study research. Stake (1995) states that the protocols used for a case study ensure precision and that identifying alternative explanations through other sources or pathways is triangulation. With cross-case study analysis, it is possible to use multiple cases to provide an additional layer of validity and triangulation from more than one study (Stake, 1995). Following these considerations, the methodological design is depicted below in figure 3.2 and could be classified as a 'multiple case' (Gray, 2004) or 'collective case studies' (Stake, 2006) model.

Two additional criteria were set. Firstly, it was important to examine a sample at that point of the learning process when student approaches would be most distinguishable. In that respect, I chose the last teaching session of the module as the most suitable point of time. Secondly, a substantial amount of
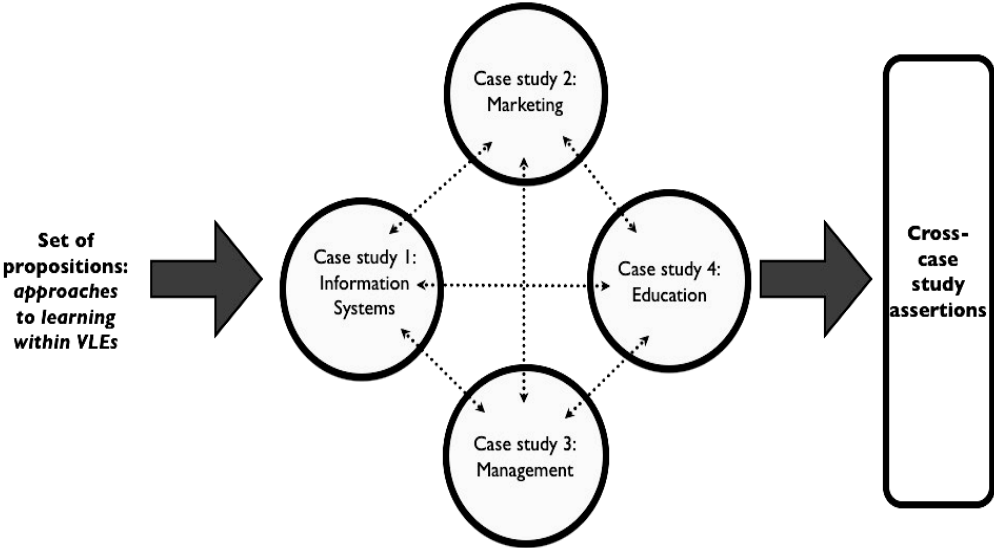
Figure 3.2: Methodological design for replication of results through cross-case study analysis

activities on the VLE were essential, so the reliability and applicability of the research were enhanced. This echoes the concerns that quite often the VLEs are converted into 'document learning environments', which implies that they are used only for posting files and, therefore, the potential of these tools was not fulfilled. Each case study was conducted separately and consequently cross-case conclusions were drawn at the final stage of analysis (Flick, 1998).

The model was designed with the aim of addressing issues raised in earlier discussion on learning technologies' research methods; it was noted that potential pitfalls exist in terms of population validity (Gill & Johnson, 1997), which concerns to what extent it is possible to generalise on the sample related to population. Cairncross et al. (2003) pointed out that in some experiments, the analysis of assessemnt performance suggested that learners who participated in the trials tended to do better in the assessment of that module. An early report by the British Educational Communications and Technology Agency (BECTA) highlighted the difficulties in terms of collecting and triangulating data from research in learning technologies and reaching credible conclusions:

> Most of the evidence of benefits [of VLEs]… tends to be anecdotal, inconclusive and open to debate. For example, where a benefit is reported, to what extent is it product specific, and how much does it provide a finding that reflects the benefits of VLEs as a whole?
>
> (BECTA, 2003:11)

I predefined some elements of the research protocol, whilst others were developed over time. The protocol included an overview of the cross-case study (aims, relevant issues, the context), a defined set of procedures for gathering the data (most importantly, access to people and software), a set of research questions which would form the background for data collection, and enhance consistency while addressing the research questions, and finally an outline of the case study report.

Consequently, I focused on identifying the most efficient ways to collect the data within each case. The two main options for administering the inventory were a locally distributed paper version or an online form of it uploaded to the university VLE. After considering the methodological implications of each choice, the first option was deemed to be more appropriate. I considered the main disadvantage of web-based data collection, namely that students who were keen on accessing the VLE would be the ones more inclined to complete the

questionnaire. If so, a proportion of the sample population would be misrepresented or not represented at all in the final data sets of each case. A paper-based version, distributed locally at a point in time where a high turnout would be feasible, was estimated to have two distinct advantages. Firstly, it would ensure the highest possible number of participating students. Secondly, my physical presence would underline that the questionnaire was administered for research purposes only thus encouraging students to complete it.

3.4   Developing an ethical framework

Cousin (2009) gives two reasons for having a strong ethical framework: it protects the researcher as well as the subjects of research, and it underpins the reflective facilitation of research and the credibility of the study report. Shank (2002: 97) puts it simply by stating that 'a good researcher is an ethical researcher' and moves on to specify four notions: 'do not harm', 'be open', 'be honest', and 'be careful'. Obviously, these notions possess a relative value so in this particular study, a number of, often complex, ethical considerations shaped the selection and application of research methods. Generating trustworthy accounts is related to embedded reflexivity within the research process (Doucet & Mautner, 2002); which in other words means paying attention to where I was coming from and how this influenced my conducting and reporting of research. Bourdieu insists on the importance of researchers who reflect on the effects of their own position and set of internalised structures, and how these are likely to distort their 'objectivity' (Bourdieu & Passeron, 1979); crucially, researchers must not attribute to the observee the characteristics of the observer [as discussed in the literature reviews section—see critique of approaches to learning theories, Haggis (2004)]. In an illustration of the process, Bourdieu criticised academics for evaluating their students' work against a rigid linguistic register, favouring students whose writing style appeared 'polished' while marking down those demonstrating a less formal register (Bourdieu & Passeron, 1979). Lack of a reflexive analysis may lead to reproduction—unconscious or otherwise—of class prejudice, promoting the students with high linguistic and cultural capital and marginalising those students who lack it. These ethical concerns did not constitute the prime focus of this research study, yet such precautions were highly relevant not only to the 'international' and 'home' students participating in

this study, but also to the university as a space of widened access where narratives of learning journeys and personal identities were continuously articulated and reconfigured.

Positionality

At all stages of conceiving, designing, conducting and disseminating this research, I strove to acknowledge that my values, experiences and knowledge, intrinsically shaped the process. My most fundamental position has been that the investment in VLEs was largely driven by a need to meet the 'needs' of the majority of students by providing reliable, scalable and affordable 'solutions' commanded by homogeneity and managerialist approaches to teaching and learning in higher education. This position calls for a sceptical approach to all VLE-related pedagogies. It prompted a critical view on whether they promote high quality learning experiences. It is my view that the needs of commercial vendors may not always be in accordance with the needs of the educational community, and this assertion is a political one since it accepts that the university is an arena of conflicting interests rather than a space that is consistently and harmoniously conducive to learning. I realise that multiple agendas may be inherited in the adoption of other non-profit, 'open' models and that pedagogical concerns might arise in relation to these agendas. I became increasingly aware of the conflicts due to the emergence of alternative streams of ideas and platforms about technology enhanced learning, such as those served by Personal Learning Environments (PLEs), e-portfolios, mobile learning, social media and Massive Open Online Courses (MOOCs). My perspective is directly influenced by my experience as a former secondary education teacher, professional trainer and university tutor. At the final stages of writing up my thesis, my views on this set of issues were further influenced by my experience as an academic developer advising members of staff on appropriate use of technologies, including the university's VLE. Resentment of staff and what often appeared to be a rather unrewarding experience for themselves and their students consolidated my suspicion that alternative technological approaches might be offering more suitable pedagogical options.

From the outset of the study, I expected my research output to be provisional and contested. In gathering views of students and lecturers, I

explicitly acknowledged that I was bound to influence the data yielded in the way I framed the questions of my questionnaires and interviews and, in fact, the whole research design. This applied to the method by which I interpreted the responses, and the research tools that I used such as the tracking facility of the VLE, or in the choice of statistical analyses conducted in the frame of each case study, as well. I chose to write most of the report in the first person rather than the passive form, which is normally associated with scientific methods and 'objective' observation. There is a thread connecting this choice with my approach to teaching, the acceptance of relativist epistemologies, socially constructivist approaches to learning, and my views on how knowledge is formed and negotiated. Ultimately, I saw the research process as one that is intrinsically influenced by my involvement with the university as a member of staff and as a doctoral student. I clearly did not expect this research to yield objective truths, yet I intentionally implemented strategies such as sending case study reports to module leaders and providing results of the ASSIST questionnaire to participating students with a view to maximise the trustworthiness of the evidence gathered and analysed. I further enhanced the trustworthiness of the data by giving talks and workshops across the university and beyond; these enabled me to share my propositions with other doctoral students, academic and learning support members of staff, as well. Appendix I provides a detailed account of these engagements.

I have also thoroughly considered the ethical issues involved before, during, and after using the tracking facility available within the University's VLE. I set off by establishing a set of guidelines for gathering data compatible with established protocols of conducting research on the internet and suitable for addressing privacy and confidentiality issues. In the analysis of the web log files that stored information about usage of the system, it was essential that participants provided an informed consent. Besides students' consent, approval was sought from the university's e-learning team managing the VLE, as well as the School Research Committee at the registration and transfer stage of my doctoral studies. At the end of the module, when I gave out the questionnaires, I asked participants to read the consent form; the form clarified that any information they provided might be compared to data from the VLE, only if they chose to provide identifying information about themselves. Again, I emphasised that their participation was voluntary and that they would not be identified in any

particular way in the process of reporting and disseminating the results of the case studies. The consent of the lecturers was also sought during all the stages of the process. A final case study report was issued to the module leader of each case study. It was essential that the lecturers did not object to any aspect of the reporting. Students who provided their email address received their scores of the ASSIST inventory; this was followed by a brief summary, which defined what approaches to learning were and how the scores should be interpreted. Two students asked for additional information and this was provided at the end of their interviews. I attempted to ensure that participants in this research study were aware of the purposes and their role in it, and this informed my choices about the construction of the consent form. The form, which is available in Appendix II, incorporated the following items:

- brief details of the research project (aims, methods, anticipated outcomes and benefits).
- contact details.
- expected participant contribution and rewards for participation.
- the right to withdraw consent/personal data at any stage.
- confidentiality and anonymity of the data.

During the process of conducting the case studies, my understanding of ethics shifted from securing consent, privacy and confidentiality to ensuring that the research undertaken is of benefit for the participating parties. The analysis of the web logs also alerted me to the possibility of the online users being objectified by their virtual construction; a faceless 'learner' who is constituted purely by their online tracks such as their first and last login, the number of pages accessed, their discussion submissions etc. Most importantly, it raises awareness of the fact that VLE data can often be deceptive and poses questions like: 'What does a pattern of activity actually mean?' or 'Does the data necessarily signify something?' These questions will be revisited in the final chapter in light of the results of the cross-case study analysis.

3.5 Summary

Despite an increasing amount of research in the area of how technologies support learning in higher education, it is acknowledged that less emphasis has been placed on the internal structure of the online experience of how students

actually go about their online learning and how that relates to their face-to-face experiences. This lack of emphasis becomes clearer when one reviews the literature that examines blended learning as a field of study on its own merit. In this chapter, I outlined how my methodological choices served the purpose of a semi-exploratory approach (Goodyear et al., 2005), aiming to respond to the research questions of this study. The study is semi-exploratory in terms of striking a balance between pre-conceived constructs (i.e. deep, strategic, surface approaches to learning in face-to-face teaching) and emerging ones (i.e. how student approaches to learning are demonstrated within the online component of a blended learning setting).

The relatively recent development of the field of study in online and blended teaching compared to more established research areas (approaches to learning, role of feedback, impact of assessment etc), justifies the prevalence of small size, exploratory case studies such as those reported in the literature reviews chapter. Inevitably, it stresses the necessity of experimenting with complimentary methodologies. Case studies can be useful in shedding light on various aspects of the context; however, their contextual nature means that generalisation is likely to be less easy to achieve (Stake, 2006). By administering questionnaires and analysing web logs, I attempted to get a fuller picture of the association between the two most significant variables of this study, i.e. approaches to learning and use of technology in the context of blended learning, as defined in the introductory chapter and elaborated further in the literature reviews. There was a clear priority to reduce the complexity of the cases in order to make research tractable, without giving up on understanding the whole teaching system. Consequently, there are two focal points in terms of methodology for research into blended learning: it is important to consider the friction between understanding parts and understanding wholes, and, equally, to articulate how the contribution of the current study will enrich the evidence that already exists in the student approaches to learning theory.

The next four chapters constitute the core of the doctorate. Each chapter corresponds to a case study, with a summarised account at the end of each case. The eighth chapter provides an account of all four cases in the form of a cross-case study analysis. It is intended to discuss the prominent themes of each case study as well as the degree of relatability of these emerging themes.

Finally, the ninth chapter of the thesis asserts the contribution of this study and maps out implications for practice and areas of future research.

CHAPTER 4

Institutional context and the first case study of Information Systems

This chapter initially sketches out the institutional context where this study took place. It taps on key functions of the institution and most importantly outlines—and to some extent evaluates—policies and practices relating to what the institution called 'e-learning'. The second and larger section of this chapter, involves the case study of an Information Systems, final year module. The section presents the case study, reports the results of the analysis and draws relevant case-specific conclusions.

4.1   Setting the scene: teaching and learning in the university

Middlesex University was established as a Polytechnic in 1973 and operates as a university since 1992. In policy documents it describes itself as an institution in a process of transformation from a regional university to a 'global provider':

> We shall move from being primarily a large domestic regional University, mainly focused on expanding and widening participation at undergraduate level, to being to a greater extent a global university, with a culturally and internationally diverse staff and student body, based in London. While we shall maintain our commitment to widening participation and to serving the higher education needs of our local communities, we shall build on our emerging strengths by expanding substantially places for postgraduate, international and work-based students in London and, increasingly, around the world.
>
> (Middlesex University, 2006: 1)

More recent statements reflect a focus on inspiring students to achieve their goals and developing new knowledge and professional skills as well as coping with the challenges of a competitive workplace (Middlesex University Corporate Plan, 2009a). The university is situated on two London campuses and two overseas campuses in Dubai and Mauritius and has some 22,000 students excluding students in collaborative links institutions; approximately two out of three students are enrolled on a full-time basis (QAA, 2009). During the course of this research study the institution was under a restructure of several of its functions:

- significant proportion of international students, entering at two points in the year.
- professional and vocationally oriented programmes.

- multi-site reducing the number of London campuses from seven to two, with a further reduction to a single London campus.
- widely embedded use of VLE across provision of teaching and learning, but not necessarily innovative.
- high proportion of students with jobs or other responsibilities.
- a need to be economically efficient in the backdrop of a volatile sector landscape.

The university is also through a phase of restructuring and readjusting in order to respond to emerging needs. The process is marked by changes in:
- school academic structure.
- student support structure.
- an introduction of a Learning Framework which was central to the University's educational profile; the new framework introduced year-long modules and emphasised formative assessment and feedback; it was hoped that the latter would enhance student learning and improve progression and achievement rates.
- an upgraded university-wide VLE (Jackson & Anagnostopoulou, 2007).

In the area of academic development, the university merged quality assurance [Quality Assurance Service (QAS)] with the central academic development unit which used to oversee e-learning [Centre for Learning Development (CLD)] resulting in a single unit, the Centre for Learning and Quality Enhancement (CLQE) which was later restructured and renamed as Centre for Learning and Teaching Enhancement (CLTE). I was employed as an e-Learning Academic Advisor with CLQE and as an Educational Developer with CLTE. At the last stage of writing up my thesis, I was involved in designing and delivering staff development focusing on appropriate use of technology for teaching, learning and assessment.

Examining the university's policies on teaching and learning involved a review of a number of documents (e.g. Learning Quality Enhancement handbook, the Enhancing Learning Teaching Assessment strategy) and attendance of staff development events (e.g. VLE training introducing the technology as well as more specialised ones, such as how to facilitate assessments with the VLE). Review of teaching and learning documentation and attendance of staff development events informed my view on how technologies support teaching and learning across the university.

Curriculum design and pedagogic development is provided by CLTE, which is responsible for support to enable staff to meet curriculum design criteria and enhance pedagogic practice across the university. Learning Teaching Strategy Leaders in the Schools along with the Teaching Fellows are the core academics that offer staff support and development regarding learning and teaching at local level. There was evidence of subject-specific and pedagogic research contributing to programme-based teaching. This area was further strengthened by the two Centres of Excellence in Teaching and Learning (CETLs) in Mental Health and Social Work and in Work Based Learning, established for a period of three years (2007-2010) under a HEFCE initiative. The late stages of the data collection of the current study were funded by a grant provided by the CETL in Mental Health and Social Work.

4.1.1 Learning and teaching with technologies

In the university's mission statement, it was acknowledged that 'ICT will be increasingly incorporated in teaching, learning and assessment' (Middlesex University Corporate Planning Statement, 2006: 3). It was affirmed that new technology, globalisation and competition were generating major transformation in the 'markets' for higher education and, amongst other manifestations of this process, new approaches to teaching and learning emerge involving 'web technology' (Middlesex University Corporate Planning Statement, 2006: 3). The current Corporate plan places less emphasis on the role of technology; on the contrary, it focuses on certain steps taken towards enhancing provision of technology, amongst which was the centralisation of the unit for technology-enhanced learning (Middlesex University Corporate Plan, 2009a). The university's policy on the use of educational technologies, defined e-learning as:

> the use of learning technologies to facilitate flexible approaches to learning, teaching and assessment in ways that enhance the student learning experience. It includes online communication within and between communities of learners and teachers, computer-assisted assessment as well as the use of online learning materials developed internally or from external sources.
>
> (Middlesex University, 2008: 1)

The university used two platforms in the course of this research: Oasis (based on the former WebCT specifications) and Oasis Plus (a similar platform

provided by Blackboard after the merge with WebCT); features of both of those platforms are generally very similar to the features described at section 2.5 of the literature reviews chapter of the thesis. 'e-Learning' development—a term consistently used in relevant university policy and practice documents—appears to be evident at a number of levels within the university; since 2003, all modules were required to have online presence on the VLE. A report in 2007 stated that 66% of the official credit-bearing modules were using some form of e-learning, excluding e-learning offerings not included in the modular structures (Jackson & Anagnostopoulou, 2007). However, the use of computer-assisted assessment through the VLE is considerably lower, approximately 37% according to a sample study (Jackson & Anagnostopoulou, 2007) a figure which has significantly increased in the course of the last few years. A considerable degree of local autonomy exists between different schools of the university regarding their teaching and learning strategy and this is reflected on the implementation of 'e-learning' across the schools. Most recently, the university has been reaping the advantages of social software and web 2.0 applications (for example, observations on staff development opportunities regarding social media, development of a virtual world space, pilot projects funded by Centre for Excellence Work Based Learning, development of the new student portal 'Unihub').

The university sought to support all programmes of study 'with the intention to improve the quality of the learning experience for diverse students and to provide greater flexibility of study' (Middlesex University, 2009b: 147). Emphasis in the Learning and Quality Enhancement handbook is given to flexibility, making the right choices as to what material to make available online, issues of diversity and tips for online tutoring, based on the e-moderating model (Salmon, 2004; Middlesex University, 2009b). There is no explicit reference to promoting deep approaches to learning with technology. Various learning technologies are in use across the university to support teaching. The university's VLE is the core technology, with each school or department ascribing a different degree of importance to the tools in the VLE. A Quality Assurance Agency (QAA) audit reported some frustration at variability in staff usage (QAA, 2009). All newly appointed teaching staff are contractually obliged to complete the Postgraduate Certificate in Higher Education (PGCertHE). I completed the PGCertHE in the course of conducting this study since I considered it an integral part of my Ph.D.

training. The programme generally proposes innovative uses of technology, although it presented less clear strategies of how to support curriculum and assessment development with technology.

In terms of strategy development, the engagement with technology mainly stems from the vision of the university as an institution operating globally rather than a means for the improvement of learning and teaching. Support for students is provided at an early stage through the student web help desk, which deals with students' inquiries. Feedback is regularly received through annual surveys which provide a monitoring mechanism, although the feedback refers to the technology rather how the VLE is used as part of their studies or whether it contributes to a positive learning experience. Three items of the 18-item module evaluation forms for undergraduate and postgraduate programmes refer to students' experiences of e-learning. The CLTE centrally and LTSLs at schools organise incentives to promote the use of technology, such as mini conferences, showcases and the Annual Learning and Teaching conference which focused on a technology-related agenda on a number of recent occurrences. Professional development opportunities supporting the use of technology are frequently reviewed, yet the focus appears to be mostly on the technologies themselves rather than on how to instrumentally integrate technology to support learning; staff development offerings exclusively tailored for blended learning are not available. So, the concept is present in university policy and practice documents, yet customised academic support processes do not underpin this.

4.2   First case study: a final year module in Information Systems

I set the scene for the first case by giving details of this taught final year module including module specifications and the lecturers' approach to integrating the VLE as part of the teaching activities. I outline the borders, the population, the range of activities and the time span of this case study, as follows:

- physical borders: I researched the face-to-face and online teaching experience of an Information Systems module at the School of Computing Science.
- population: Students, the lecturer and two teaching assistants were the concern of this study. I also approached other lecturers in the process of selecting a case study.

- r<u>ange of activities</u>: The case examined the use of the VLE as well as face-to-face lectures and supplementary seminars. At the interview stage, I inquired how students learning experience compared with other modules of their programme of study.

- t<u>ime span</u>: Students and teaching staff were observed across a five-month spring semester of the academic year.

Section 4.2.1 describes the module context with a particular emphasis on the overall module narrative.

4.2.1 Key characteristics of the module (module narrative, teaching and assessment)

The first case study was a module called 'Methods and Tools for the Engineering of Information Systems' and was offered as a final year module to a number of Computing Science programmes. The module aimed at assessing the role of technology in supporting the 'systems development life cycle'. The study and use of tools was supplemented by an examination of the role of Information Systems Development Methodologies. The theoretical approach underpinning the module content focused on enabling students to understand the issues involved in Information Systems development and their inter-relationships so that they can justify sustainable solutions. The practical aspect of the module aimed to ensure that students achieve a thorough understanding of the techniques applicable in the engineering of information systems; these spanned from analysis of requirements through to generating programme code.

The learning outcomes of the module referred to knowledge, cognitive, subject specific and transferable skills, in accordance with the university's level descriptors. Desirable knowledge skills covered the ability to identify current trends in the field, demonstrate knowledge of different methodologies and their development techniques and ability to use a comparative framework. Cognitive skills involved evaluation and contrast of commercial methodological approaches, demonstrating the ability to engage in independent, technology-based learning, self-assessment of contributions to group work and evaluation of peers through the active participation in presentations and their assessment. Subject specific skills included the use of modelling techniques to model and define business requirements as well as mastery of analysis and design

techniques for Information Systems. Assessment was made up of a summative and a formative element. The summative component comprised of an unseen examination (60%, four questions out of six) and coursework (40%, a group report and an individual log book). The formative element consisted of an individual bi-weekly logbook with tasks, participation in the module's VLE and evidence of individual contribution in online group activities, which contributed 5% to students' final grade.

4.2.2 Key characteristics of the online context

The module was ranked as the fourth busiest in the university's annual usage ranking which reported on data held in module sections of the VLE including discussion board activity, assignments, quizzes, chat, email and student access of various other sections of the environment. This level corresponded to a considerable amount of data for each student in the form of engagement with formative assessments and discussion contributions. The module leader offered students the opportunity for synchronous discussion and revision sessions; these online sessions were provided out-of-hours and during the holiday season. The discussion board facilitated activity-based learning in blended teaching mode, a conceptualisation that the module leader appeared to be rather familiar with. The quiz facility accommodated for formative assessment on a weekly basis and provided several opportunities for self-assessment, evaluation and student feedback. This affected the structure of the 90-minute weekly seminars. The seminars were split in three parts of thirty minutes each, focusing on activity-based individual learning, 'question and answer' type of discussion and group, project-based, informal meetings.

The students had the opportunity to work on application and critique of topics covered in the weekly lecture individually for the first thirty minutes. They were using a combination of online searching tools, learning materials and presentation slides while tackling question set by the lecturer. Additionally, they engaged in debates and peer support through an asynchronous threaded discussion within the VLE and a synchronous online chat. The VLE threaded discussion was used extensively to provide the foundation for activity-based learning. During each of the twelve weeks, a selection of two or three activities was posted prompting students to solve simple module-specific problems. During

the last week of the semester, the module leader provided the model answers and encouraged students to compile their selected posts and download them as a text file for their revision, a facility readily available by the VLE. Frequently enough, students were using the compiled list of posts in their revision in an attempt to identify differences in perception of key topics between their own views and the suggested answers. Students also attempted to find differences between their views and those of students taking the module in the same or previous semester. The lecturer regularly reminded the students how to use this function and explained in simple terms potential benefits arising from the use of such tools within the VLE.

A discussion topic provided an opportunity for students to clarify issues relating to the module content covered every week. Each week the lecturer set a topic for discussion and students would post their responses online. The outcome of the debate was covered in the weekly lecture and used as a link to the next lecture's theme. Students were keen to create learning groups apart from their project-based teams. It was not unusual to see some students assuming a mentoring role by assisting peers in understanding module concepts and retrieving information. The discussion board generally served as a pool of ideas and a source of answers for students' most frequently asked questions. The lecturer was active in various school- and university-wide teaching and learning initiatives and was a member of the e-learning strategy group, a committee influencing the planning and implementation of institutional e-learning policies. He was awarded a university Teaching Fellowship, mainly due to the development of e-learning initiatives aiming to improve his students' learning experiences. As previously mentioned, the practical side of this Information Systems module was concerned with the application of theory, methodology and techniques to real life settings, an area where the module leader placed equal emphasis during the face-to-face and the online sessions. A two-hour weekly lecture was well attended and additional 90-minutes seminars facilitated by the module leader and a teaching assistant consistently emphasised online aspects of the teaching strategy. I observed the first and last teaching session; during the opening session, the module leader outlined the course content and provided an overview of the aims of the module. Frequent references were made to the role of the online environment, although there was not a detailed account of the proposed facilities. During the semester I also observed one seminar led by the

module leader and supported by a teaching assistant, which was structured around VLE activities. The students were assigned tasks and most of them worked in pairs. In the final session, the module leader provided a summary of the key ideas presented during the semester and advised students regarding their preparation for the final exam. Several times during the lectures, he provided cues for the module assessment and emphatically stressed that 'he wanted them to succeed in the exam'.

4.3   Data collection and analysis

This section is divided into five subsections. The first section gives an account of the observations of the lecturer's approaches to teaching during the opening and closing teaching session of the semester. The second subsection gives the measurements of student approaches to their learning and studying as these were captured by the ASSIST questionnaire. The next subsection contains the data from the VLE web logs whilst the next subsection presents the results of the correlations between the questionnaire and the web logs data. The last subsection reports on the analysis of the student interviews.

4.3.1 Teaching observations: a student-centred approach to teaching inducing alertness to assessment

As part of the literature reviews conducted for this study, I explored literature pertinent to university teachers' approaches to teaching; as explained, relevant studies show that variation exists in terms of how teachers approach their own teaching and this variation has substantial implications for the quality of teaching (e.g. Prosser & Trigwell, 1997; Lindblom-Ylänne et al., 2006). Crucially, previous studies demonstrated how teachers' approaches to teaching are associated with their conceptions of teaching (Prosser & Trigwell, 1999; Trigwell & Prosser, 2004). In general, and perhaps simplistic terms, it is advised that the teaching design should prioritise the organisation, structuring and presentation of the content in such ways so that students are able to understand it without barriers. A teacher-centred approach to teaching prioritises the transmission of knowledge and places major emphasis on the content that is to be taught. Inversely, teachers whose approach to teaching is seen as student-centred, tend to

facilitate student learning, scaffold knowledge-construction processes or support students' conceptual change (Prosser, Trigwell & Taylor, 1994; Prosser & Trigwell, 1999; Kember & Kwan, 2002; Trigwell & Prosser, 2004). I utilised this distinction in order to analyse the observations from the teaching sessions. I viewed these not as fixed poles but as potentially shifting positions on a continuum of approaches to teaching and I viewed them in the context of varying choices that a teacher can make.

Table 4.1: Indicators of an Information Transfer/Teacher-focused approach to teaching in Information Systems

Indicators of approach to teaching	Level of evidence	Remarks
Teaching subject with respect to objectives matched with formal assessment.	H	Highly evident and supported by regular and clear cues for the end of semester summative assessment.
Presenting a wealth of information that enables students to know what they are expected to learn.	M	Tutor provided a lot of facts; these were not necessarily directly relevant to module content.
Presenting the content that might be found in a subject textbook.	M	Covered minimum content but was keen to expand; the latter was not necessarily linked to students' requests.
Structuring the subject to help students to succeed in their assessments.	H	Clear indications as to what is expected of them and how they could pass the exams.
Delivering teaching sessions so that students are provided with appropriate content.	L	Focus of the lecturer more on thinking processes and dialogue rather than just providing right content.
Providing the students only with the information needed to pass the exams.	M	The lecturer provided necessary information and signposted this appropriately, yet was not limited by the requirements of formal assessment.

H= highly evident, M= moderately evident. L= low level of evidence. Criteria for assessment of approach to teaching corresponding to selected scales of the Approaches to Teaching Inventory (ATI) devised by Prosser & Trigwell (1999) and revised by Trigwell& Prosser (2004).

Therefore, in the process of observing the teaching sessions I used a number of indicators for each of the two approaches to teaching and I acknowledged that the same teacher within the same context could manifest components of a student-centred and a teacher-centred approach to teaching. I

observed the sessions bearing in mind the categories proposed by Prosser & Trigwell (1999) and Trigwell & Prosser (2004) and I utilised the indicators they proposed for each category. The tables of this section (4.1 and 4.2) provide a summary of the lecturers' approach to teaching for this particular module.

In brief, the lecturer clearly explained to his students the nature of the assessment and what was required of them; it was a persistent theme of his teaching and he regularly reminded his students that he was expecting them to

Table 4.2: Indicators of a Conceptual Change/Student-focused approach to teaching in Information Systems

Indicators of approach to teaching	Level of evidence	Remarks
Interacting with students so that conversation with them about the topics is promoted.	M	Lecturer initiated discussions about the topics but these were limited in terms of scope or time available for students to conclude. More opportunities available through online discussion threads.
Assessing to reveal students' changed conceptual understanding of the subject.	M to L	Assessment mostly seen as response to external requirements.
Allocating teaching time that allows students to discuss their difficulties.	H	Opportunities provided during seminars and online sessions. Lecturer masterfully bridged experiences between different activities.
Encouraging restructure of existing knowledge with regards to the changing way of thinking.	H	Highly evident by providing tools for scaffolding conceptual change and use of metaphors as teaching tool.
Using undefined examples to initiate debate.	H	Extensive use of metaphors/abstractions, which challenged students' conceptions of the core ideas and enabled them to comprehend Information systems' methodologies.
Providing opportunities for students to demonstrate their changing understanding of their subject of study.	M	Students were presented with some opportunities, mainly online. However, these were not part of a consistent teaching strategy.

H= highly evident, M= moderately evident. L= low level of evidence. Criteria for assessment of approach to teaching corresponding to selected scales of the Approaches to Teaching Inventory (ATI) devised by Prosser & Trigwell (1999) and revised by Trigwell & Prosser (2004).

succeed. Frequent signposting of resources and reminders of the importance of the module assessment, served this purpose. The next table compares

characteristics of the lecturer's approach to teaching against indicators of a student-focused approach to teaching.

Whilst the lecturer provided opportunities for student engagement and components of the teaching strategy were articulated on the promise of a student-centred approach, there was no consistency in pursuing those during the observed interactions. Online instruction was clearly designed with a view to enable peer-to-peer formative processes, a choice that reflected his confidence in using the technology and a certain degree of pedagogical reflection on his teaching practice. Nevertheless, it was not clearly evident whether there was a rationale that encompassed all teaching aspects of the face-to-face and online interactions. The results from the ASSIST questionnaire shed more light in terms of the students' responses to their lecturer's approach to teaching.

4.3.2 Student approaches to learning in Information Systems: ASSIST questionnaire

Thirty-seven (37) students completed the questionnaire, more than half of the registered students (63) and the majority of the attendees of the final lecture (42). I coded one missing response of one student, and four missing answers of a second student as '3' ('unsure/doesn't apply to me'). The scores on the three main scales were obtained by adding the scores of their subscales; the scores of the subscales were obtained by adding the scores of the questions contained in each subscale. Table 4.3 presents the results of the ASSIST. The mean score on the strategic approach scale was the highest amongst the mean scores of the three scales (63.46), followed by the mean of the deep approach scale, which was slightly lower (62.65). Students' surface approach to learning in this module presented the lowest mean of all three main scales of the ASSIST (52.19). These scores were consistent with patterns reported in the literature and generally can be considered as typical for a final year cohort of students (Entwistle, 1997). I observed the subscales that presented the highest score on each scale as a parameter that may have some interpretive strength in one of the next stages of the analysis; these were found to be the Seeking Meaning scale for the deep approach, the Alertness to Assessment scale for the strategic approach and the Fear of Failure scale for the surface approach. Internal consistency scales measured the homogeneity of the set of items on the

inventory and indicated to what degree they all measured the same variable. Coefficient alpha (α) (Cronbach, 1951) was satisfactory for all three scales—.82 for the deep, .80 for the strategic and .81 for the surface scale.

Table 4.3: Descriptive statistics for the 12 subscales of the revised ASSIST inventory (Information Systems)

Subscales	Mean	Standard deviation	Coefficient alpha (α)
Seeking Meaning	16.11	2.59	0.55
Relating to Ideas	15.51	2.09	0.65
Use of Evidence	15.46	2.58	0.53
Interest in Ideas	15.57	2.54	0.52
Deep Approach total	**62.65**	**7.96**	**0.82**
Organised Study	15.27	3.12	0.67
Time Management	14.59	2.96	0.77
Alertness to Assessment	17.14	2.67	0.71
Monitoring Effectiveness	16.46	2.70	0.71
Strategic Approach total	**63.46**	**9.03**	**0.80**
Lack of Purpose	11.35	4.16	0.73
Unrelated Memorizing	12.78	3.50	0.68
Syllabus Boundness	13.95	3.23	0.61
Fear of Failure	14.11	3.20	0.61
Surface Approach total	**52.19**	**11.34**	**0.81**

The possible score on all 12 subscales is from 4 to 20. The possible score on total of each scale is from 16 to 80, N=37.

The next step was to ascertain whether three distinct approaches were reproduced by the findings or, in other words, to establish whether the revised ASSIST inventory replicated the approaches it was expected to measure. I computed a confirmatory factor analysis on the scores of the twelve (12) subscales of the ASSIST by using principal axis factoring and oblique rotation. Factor analysis is a well-established way of testing the validity of instruments similar to ASSIST (Richardson, 1994) and it was used on this occasion. The purpose of using factor analysis was to condense the information contained in the questionnaire and produce a set of fewer, composite factors (Hair et al., 1998). Moreover, the principal axis factoring with oblique rotation was opted as the most suitable approach due to the increased interpretability of the results that it can potentially offer (Richardson, 2003). I described the function of factor analysis and rotating factors in the methodology chapter (see section 3.3.1), where I explained in greater detail how the methods are used to increase the interpretability of the results. Table 4.4 on the following page presents the factor

loadings on the twelve (12) subscales. Salient loadings on the interrelated subscales were extracted and the analysis produced three distinct approaches. The first factor accounted for 33.9% of the variance and presented strong loadings on all the relevant subscales of the deep approach scale as well as

Table 4.4: Factor loadings for the 12 subscales of the revised ASSIST inventory (Information Systems)

	Factors		
	I	II	III
Deep approach			
Seeking Meaning	**.701**		
Relating to Ideas	**.795**		
Use of Evidence	**.697**		
Interest in Ideas	**.880**		
Strategic approach			
Organised Study			**.952**
Time Management			**.789**
Alertness to Assessment	.487		**.338**
Monitoring Effectiveness	.525	-.351	**.541**
Surface approach			
Lack of Purpose		**.870**	
Unrelated Memorising		**.885**	
Syllabus Boundness		**.687**	
Fear of Failure		**.680**	

All loadings smaller than .30 in absolute magnitude (i.e. -.30 to .30) were suppressed. Loadings replicating subscales of approaches are in bold. Method: principal axis factoring and oblique rotation (delta set at zero), N=37.

some weaker loadings on the Alertness to Assessment and Monitoring Effectiveness subscales of the strategic approach scale. The second factor (15.6% of the variance) produced strong loadings on all of the subscales related to surface approach and a negative one on a subscale of the strategic approach scale (Monitoring Effectiveness). Finally, the third factor, which accounted for 12.7% of the variance, showed high loadings on three of the strategic approach subscales and a relatively weaker loading on the fourth (Alertness to Assessment). No other loadings were observed above .30 in absolute magnitude.

4.3.3 Web logs' analysis

I retrieved the web logs from the system and subsequently analysed them on a development site allocated by the university's team supporting the operation

of the VLE; the development site was used solely for the purpose of this study and was co-located with the university's VLE. The discussion activities produced eighteen separate threads: the twelve study groups, and one thread for coursework, general enquiries, lectures, unit activities, unit discussions and seminars/labs respectively. The tracking facility of the system produced one log for each student; the log held information about the frequency and duration of access, navigation of the system, participation in online assessments (quizzes) etc. Thirty-one (31) cases were further processed after the first round of analysis of the ASSIST questionnaire, following students' consent to compare questionnaire data with their logs recording their use of the VLE. Six (6) questionnaires without identifying data were excluded at this stage of analysis. Table 4.5 presents the results of the logs' analysis for the selected cases.

Table 4.5: Overview of Oasis Usage (hits) (Information Systems)

	Use of Oasis sections		Minimum	Maximum	Mean*
	Hits	**% of total use***			
Content	28,202	32	145	6,711	910
Homepage	27,536	31	88	8,102	888
Discussion threads	24,524	28			791
Assignment	2,120	2	17	309	68
Quiz	1,898	2	4	309	61
Grades	1,569	2	0	451	51
Other pages	1,617	2	0	292	52
Total Hits	87,466	100	-	-	2,822

*N=31. * Mean and % of total use rounded to whole numbers.*

The three mostly used areas of the module online space were the content folders, the initial homepage and the discussion threads. Content folders contained all the module slides, material presented in the lectures and other resources whereas the Homepage hits indicate use of the initial module page without further exploring sections of the module area. These three areas covered 91% of the overall access of the 31 students who consented to have their data analysed. Students accessed the discussion threads frequently and posted often online; they, therefore, rewarded the lecturer's strategy of setting them up and highlight them as a key teaching tool. A further breakdown of the data reveals how students made use of these threads (table 4.6).

High usage was reported with regards to discussion activities with a significant number of students contributing original posts. Heavy usage of the discussion boards was a result of the intended teaching strategy to employ them as a means of formative assessment, a supporting resource for the

Table 4.6: Overview of discussion board use (Information Systems)

	Use of Oasis sections	Minimum	Maximum	Mean*
Articles read	23,148	46	4,855	747
Original post	108	0	27	3
Follow-up posts	1,368	0	207	44

*N=31 *Mean rounded to whole numbers.*

teaching activities and a space of informal student-to-student(s) and, to a lesser extent, teacher-to-student(s) interactions.

4.3.4 Approaches to learning and use of the VLE in Information Systems: correlation analysis

The next step of the case study protocol was to compute correlations between the overall scores of the three scales of the questionnaire, including their associated subscales, and the use of the Oasis sections. For the purpose of estimating Pearson's correlation, I inserted the scores of each main scale and the scores of each of their associated subscales as independent variables. With regards to the measurement of use of the VLE the following variables were inserted: Total hits, Home page access, Content, Quizzes, Calendar, Internal Mail, Articles on discussion threads, Original post, Follow-up post. Table 4.7 below reflects the degree of linear relationship between the scores of the ASSIST scales and subscales, and the Oasis usage values. The chance that the observed correlations were significantly, positively or negatively, different from zero correlation was under question, therefore a two-tailed significance was sought. The significance level that was computed for each correlation indicated the level of the reliability of the correlation. Any r values less than .30 or -.30 were thus omitted in the table. Some correlations yielded values over .30 but because of the sample size the correlation was not significant at the 0.05 level. These are, nevertheless, presented in table 4.7 since there might be similar

correlations in any of the subsequent case studies. The results were computed with SPSS and a full account can be found in Appendix IV.

Table 4.7: Significant correlations between approaches to learning and use of the VLE in Information Systems

		Total hits	Homepage	Content	Quizzes	Articles in Discussion Boards
Strategic	Pearson correlation	.364*	.380*		.430*	
	Sig. (2-tailed)	.044	.035		.025	
• OS	Pearson correlation	.310	.339			.329
	Sig. (2-tailed)	.090	.062			.070
• TM	Pearson correlation		.340		.536**	
	Sig. (2-tailed)		.061		.002	
• ME	Pearson correlation	.316				
	Sig. (2-tailed)	.083				
Surface	Pearson correlation					
	Sig. (2-tailed)					
• UM	Pearson correlation			.408*		
	Sig. (2-tailed)			.023		
• SB	Pearson correlation					
	Sig. (2-tailed)					
• FF	Pearson correlation				.300	
	Sig. (2-tailed)				.101	

OS: Organised Study, TM: Time Management, ME: Monitoring Effectiveness, UM: Unrelated Memorising, SB: Syllabus Boundness, FF: Fear of Failure * Correlation is significant at the 0.05 level (two-tailed). ** Correlation is significant at the 0.01 level (two-tailed). Pearson's r values under .300 have been omitted, N=31.

The analysis produced three significant, moderately strong correlations at 0.05 level between the use of Oasis and the scores on the strategic approach scale. The first positive correlation of .430 was observed with hits on Quizzes, while a second correlation of .380 was found between the strategic approach and Homepage hits. A third correlation emerged (.364) between Total number of hits, which indicated the overall volume of usage, and the scores of students on the strategic approach. There were no significant correlations observed between Oasis usage and the main deep approach scale or with any of the subscales associated to deep approach. The strongest correlation was observed between Time Management and use of the quizzes, which tested students' understanding of each week's module content. As I explained earlier, the use of formative assessments also correlated with the overall score on the strategic approach, although no such correlation emerged in relation to the Monitoring Effectiveness subscale of the strategic approach.

4.3.5 Interviews

Following the analysis of the questionnaires, I selected individual cases depending on the scores of the ASSIST questionnaire. I sent email invitations to twenty (20) participants whose responses to the relevant items of the questionnaire produced high scores on the deep, strategic and, in fewer cases, the surface scale; two of them accepted the invitation and attended an interview with me. The semi-structured interviews lasted twenty-seven (27) and twenty (20) minutes respectively; I audio-recorded and subsequently transcribed them verbatim. The responses to the questions were subjected to content analysis, a systematic, replicable technique that compresses text into fewer categories of content (Krippendorff, 2003).

The first student who attended the interview scored an average of 4.25 on the deep, 4.43 on the strategic and 3.15 on the surface scale (scale scores from 1=lowest to 5=highest). From the analysis of the first interview, eighteen (18) categories emerged: motivation to gain further qualifications, understanding of the core module concepts, difficulty with methodological terms, task-oriented approach to learning, collaboration but not through the VLE, understanding of the ideas presented in the module, overall satisfaction with teaching, dissatisfaction with teacher's examples, extensive study of module content, choice of not using online questionnaires due to perceived lack of feedback, complaint about unavailability of some learning resources online, confusion with different versions of module materials, demand for more resources, demand for more online cases of practice, use of the VLE for exams' preparation, appreciation of seminar work, access problems, self-monitored learning. In the course of the interview, the student provided evidence of an understanding of the structure and the aims of the module. Although he described certain concepts of the module as being 'difficult', he did not mention any particular reasons why he found those concepts difficult to understand. He also appeared to be well-organised, and claimed that he acquired certain skills during his studies.

> they have some different small tasks and the module leader has set up certain topics on your own space, group one, group two for example,... and he divided this into small tasks and we organised this together at the beginning of the semester and each of us and we can have some meeting and post our meeting memos on Oasis.

He mentioned that some of his peers had problems using the VLE, even though he didn't face any particular difficulties. He was not happy, however, with other aspects of the VLE, such as the Java applets of the chat room, which prevented him from using the facility. He perceived teaching as 'good', although he was not satisfied with the nature of the examples during the classroom teaching, his objection being that those were not 'real life examples'; this was a point that emerged twice during the interview. The student did not feel that there was any actual teaching facilitated on the system and his understanding was that the environment was intended for personal study only. He was aware of certain examples of teaching with Oasis in other areas of the university. Moreover, he pointed to problems of accessing learning resources. When asked about the quantity of the material, he replied that 'for this module, the more the better, you can fully understand methodology' […] there is an online test but we can't find it'. He regularly used Oasis for all of his programme modules and appeared to be satisfied with the way revision was done for his Information Systems module. He arranged face-to-face meetings every week with other members of the project group and thought that this was 'more effective'. He noted that Oasis was 'good but you find some difficulties…, the functionality is very good, the usability is not so good, you may use another one'. He reported that some of his colleagues chose not to use Oasis. Regarding the ranking system of online presence that was initiated by the module leader and carried a weighting of 5% of the overall assessment, he thought that some of his colleagues could have 'cheated' and this negatively affected his perception of the quality of the learning environment. Much to his dissatisfaction, certain personal issues of his colleagues were discussed online. He also felt that the module leader was 'very busy'.

The second student who accepted the invitation to attend an interview scored 4.13 on the deep, 3.5 on the strategic and 3.68 on the surface scale (scale scores from 1=lowest to 5=highest). From the analysis of the second interview, twenty three (23) categories were identified: motivation to gain further knowledge in the subject area, difficulty with certain module concepts, confusion over content details, collaboration with colleagues, task/schedule-oriented approach, a task-oriented approach encouraged by 'the university', collaboration but not through the VLE, refusal to evaluate teaching, difficulty to understand the module's organising principle, perception of good quality of online teaching,

perception of 'fuzzy' programme structure, appreciation of the module leader's frequent online presence, preference to traditional resources, resort to library rather than VLE, confusion over use of the VLE in different modules, online resources as a means of revision, demand for more resources, online resources contributing to expansion of knowledge, use of the VLE for the exams, clear studying strategy before the exams, no access problems, perception of the VLE as crucial in the module delivery, self-perception as IT competent.

The student was motivated to choose the module by his future career plans. He reported that the methodology component of the module required memorisation and that he 'disliked' certain parts of the module. This was linked to what he reported as lack of previous knowledge in the area of Information Systems' methodologies, which induced certain elements of a surface approach to learning. In a typical example demonstrating lack of purpose, he wondered 'I would see all the [Information Systems'] methodology and I would feel, well, what am I doing here'. He mentioned collaboration with other students as a means of coping with difficulties in the course of the semester. Elements of strategic approach were evident in some of his remarks; for example, he mentioned that 'I have to know the schedules [in advance], first week, second week…what is it talking about and then do more detailed things'. Other elements of a strategic approach were traced in the way he prepared for the summative assessment:

> I started revision three weeks in exams, and for the first week I would like to go through the slides, I would like to go through all the slides to get the rough idea of [what] the course is talking [about], because after one year it is very hard to keep a focus on a particular course. And after the first week when I get a rough idea of the course, the second week I would like to search every topic to look at it saying these are the main points of this course, and the third week I would go to the library for some books and go through every important point one by one.

Oasis was not perceived as particularly beneficial, although the student acknowledged that it occasionally provided 'helpful information'. Other online tools such as the MSN messenger—a synchronous chat facility with features of personalisation—was used for collaboration with his peers; Oasis was deemed to be less useful because of lack of immediate contact and its 'content orientation'. When asked to describe the quality of classroom teaching, he replied that it was 'fine'; nevertheless, he was quick to point towards what he felt was a discrepancy in the module:

> I would say that the structure was a little bit fuzzy to understand, but that's not the module leader's fault because I think this is how the college should be organised from the very beginning, because this course is teaching this and that and you cannot put them together to organise them better, but that's the best way he can do. But it was the course, the problem itself.

The student positively perceived the quality of online teaching mainly due to the frequency of the module leader's online presence and the perceived variety of his teaching methods. There were a couple of references of using the library instead of VLE-based resources since the range of uses of the latter was understood to be 'limited'. Different module leaders organised their online teaching in different ways and thus the student appeared confused over how/whether the VLE could induce deep approaches to learning; how the system was initiated and integrated in the context of this programme of study, clearly appeared to affect his overall view of its value:

> […] the system has given me a very bad view from the very beginning because in different modules and different module leaders, they prefer to organise their own Oasis systems in their minds, because every different module has different aspects of Oasis.

His objections also referred to the design of the modules on the VLE and how teachers organised their resources and teaching material. He also commented that the material was not sufficient but thought that this was due to VLE limitations rather than the design decisions taken by the lecturer. Adopting strategies for effective study was a recurrent theme and Oasis was mentioned as a means of facilitating these strategies. The general online experience for this module was described as follows:

> Oasis is playing much more important role in this module than other modules because there are some questions need to be answered by the module leader, the answer is not in a book. So we had to get the answer from the module leader, and the most efficient way would be through the network, and the module leader is updating his Oasis system every week, so that makes sure that we can get the information for the very first time.

The above statement highlighted the student's expectations and succinctly encapsulated how he perceived key elements of the teaching strategy, how they played out online, how he perceived the relationship between the two domains (face-to-face and online) and how his individual response to all the above.

4.4   Summary of the case study

I selected the case with the aim of examining a rich online learning habitat where students would manifest how they go about their studying in the context of a blended learning setting. In terms of an evaluation of conducting the case study, I was satisfied with the amount of data collected as well as the collaboration with the lecturer/module leader and the students. His enthusiasm and commitment to using technologies was conducive to my facilitating of the study. Given the overall number of students registered for the module, the response rates for the questionnaire were satisfactory and so was the quality of the data collected, as evidenced by the results of the construct validity of the questionnaire. The high volume of online usage and interactions, led me to treat this case as extreme, not in absolute terms but in relation to the levels of VLE usage in the department, the school and the university. The lecturer's confidence in integrating learning technologies appeared to be rather atypical in comparison to his colleagues, although this was not a parameter that I planned to investigate or measure in any way.

The lecturer encouraged deep approaches to learning and his enthusiasm in managing learning technologies played a key role to that effect. Despite these drivers, I did not observe a direct link between students manifesting a deep approach to learning and use of the VLE. The module leader believed that utilising the VLE enhanced the students' learning experience and helped them to achieve desirable learning outcomes; in this module, these were specified as a thorough understanding of the role of Information Systems methodologies and an understanding of how certain techniques can be applied in the engineering of business information systems. Analysis of the correlation between students approaches to learning and their use of the VLE, point to the direction of an instrumental use of the technology with possible side effects, as these were partially evidenced in the follow-up interviews. Moderately strong correlations were observed between the overall scores on the strategic approach and use of online formative assessments as well as the scores on the Time Management scale and online assessment. This pair of correlations offers evidence of the aforementioned instrumental use of the technology supplementing their face-to-face learning. The following subscales presented the highest score on each scale: Seeking Meaning for the deep approach, Alertness to Assessment for the

strategic approach and Fear of Failure amongst the subscales of the surface approach. Interestingly, scores on the surface approach correlated with use of the VLE and some of its components; deep and surface approaches to learning normally co-exist in a learning environment and this was clearly evident in this study. The way surface approaches to learning and studying were manifested in this module was exemplified by the way students responded to module requirements. They heavily used the online facilities that their lecturer set up within the VLE, mostly the discussion boards. The purpose of their frequent online presence was to gain the maximum out of the 5% of their final mark that was allocated for online participation. Based on the results of the correlation analysis, two differing approaches can be identified here. A first approach consisted of students who responded to the module requirements by focusing on the assessment tasks and opting for strategies, which are generally considered as enablers of a deep learning such as regular attendance and participation in group-work. The fact that the scores on the Alertness to Assessment subscale were the highest among the four subscales of the strategic approach underpins this assertion.

A second approach consisted of students who either passively responded to module requirements, including the requirements associated with the online component of instruction and assessment. The correlation between scores on the surface scale and its subscales (Unrelated Memorising, Syllabus Boundness, Fear of Failure), and use of the VLE, support this assertion. Students with a predisposition to a deep approach to learning might have experienced this as a poor, unrewarding learning experience. It is possible that lack of intervention on their lecturer's side was seen as poor teaching, affecting their perception of the quality of online teaching. This is a phenomenon identified in earlier literature on online facilitation (Salmon, 2004). Given the extensive amount of online activity, it is hard to expect that the online facilitator can promptly monitor every post on the module discussion threads or how many students were participating in online formative assessments; self-evidently, this indicates possible threats arising from a poorly designed online space and excessive use of the VLE, as a core component of a blended teaching design.

I propose that the importance the lecturer placed on assessment and his regular online and face-to-face tips on how to achieve a high grade in the exams, played a significant role in his students' manifested studying strategies and the

way they used the VLE. Based on the observations of the teaching sessions and the online instruction strategies employed in this module, I classified his approach as a student-focused approach to teaching with a strong emphasis on assessment and what was required of his students to succeed. This contrasts with other variations of student-centred approaches to teaching, such as one that aspires to enable students to reach transformative notions of their learning. The lecturer referred to conceptual and abstract examples in order to explain key methodologies of Business Information Systems. His choice stressed that he was self-aware of this approach to teaching and that, to a limited extent, he consciously employed such an approach. Moreover, it indicated that notions of conceptual change were part of his teaching agenda and philosophy, even though his perceptions of the teaching environment might have hindered his efforts to promote such an agenda further.

The module leader extensively used threaded discussions as a means of facilitating group work on formative assignments. Difficulties with getting students to meaningfully participate in online dialogues have been reported in the literature (e.g. Kanuka, Rourke & Laflamme, 2007; Ke & Xie, 2009) and similar difficulties were evident in this case. While the majority of the students posted their contributions online, they were not necessarily willing to participate in peer reviews or engage in more critical dialogues. On his end, the lecturer appeared to be trying to introduce something new and, perhaps, out of his students' comfort zone. Blending classroom teaching with some online group work is a legitimate way of encouraging students to peer review and learn from each other. However, some students dominated discussions and diverted the flow of interactions away for the intended learning focus of the thread; evidence of dissatisfaction with this side effect, emerged in the second interview: an otherwise highly-motivated student was unhappy with the particular way the VLE supplemented face-to-face teaching. A more frequent monitoring of the environment and more structured pedagogical interventions from the lecturer might have prevented the manifestation of this side effect. The role of the tutor is highly influential in online learning and large individual variation exists in the way students react to online communication (Holley & Oliver, 2010). Some students may be appreciative of a shift from face-to-face dialogue initiated by their teacher to online dialogue of more collaborative nature. Other students, however, may expect traditional, teacher-centred teaching simply to be replicated online.

Individual variation in the use, and impact of the discussions was also exemplified by the fact that some students were comfortable with the VLE supporting online posts while others felt overwhelmed by their peers' ' postings or the very nature and frequency of online interactions. In the context of this case study, this critical/resistant stance was exemplified by a discerning detachment from the lecturer's strategies and by expressing complaints about the necessity/quality of online teaching; the latter might be equally seen either as an integral part of a deep approach to learning in a blended learning setting or as discordant with such an approach. Findings from the subsequent case studies may shed more light on this manifestation of a deep approach. The next chapter involves the second case study; following the same protocol, student approaches to learning were examined in the context of a third year module in Marketing.

CHAPTER 5

A second case study of a module in International Marketing

This chapter follows the same structure as the previous case study which reported on the findings of an Information Systems module; I set the scene for the case study by giving details of a final year International Marketing module, including the module specifications, the lecturer's approach to integrating the VLE as part of the teaching activities and full accounts of the case study data. In summary, I define the borders, the population, the range of activities and the time span of this case study as follows:

- physical borders: I examined the face-to-face and online interactions of a final year module in International Marketing, which was offered as part of a three-year Business Studies programme.

- population: Students, the lecturer and two teaching assistants were the concern of this case study. Additionally, I made contact with other members of staff involved in the provision of teaching and learning at the school including lecturers in the process of selecting a case study.

- range of activities: The case examined the use of the VLE as well as face-to-face lectures and supplementary seminars. At the interview stage, I inquired how students approached their academic tasks and how this compared with other modules taken in the course of their programme of study.

- time span: I observed aspects of student and lecturer activities across a five-month spring semester of the academic year.

In the next section, I lay out key aspects of this module with particular attention paid to the module narrative.

5.1 Key characteristics of the module (module narrative, teaching and assessment)

The second case study was a module called 'International Marketing' and was offered as a final year module to undergraduate Business school students. Students were introduced to ideas in the field of International Marketing and the module aimed at exposing students to the environment of international and global marketing and familiarise them with a set of marketing issues in

multinational environments. Moreover, it aimed at examining alternative ways by which firms can expand and adjust their marketing internationally. The stated intended learning outcomes centred on introducing students to what were the driving forces in contemporary international and global environments, and how these impacted on decisions of marketing and management. They were expected to be able to ascertain the characteristics of vital issues in global environments, and select and analyse international macroeconomic and country-specific information as well as identify potential markets for business operations. In terms of generic skills, students were expected to be able to confidently analyse case studies, exercise problem- solving skills, participate in group-work and write professional reports.

A two-hours lecture was delivered once a week and provided an overview of the main theoretical themes in the area of International Marketing. These were further illustrated by selected case studies in Marketing, mainly drawing on examples of the expansion of multinational corporations or how they dealt with multicultural issues in business. The two teaching assistants led supplementary sixty-minute seminars, which attracted the attendance of ten to twenty students each; the seminars were designed to give the students the opportunity to think through specific issues, question and clarify issues raised in the weekly lecture. During the two observed seminars, however, the tutor extended the lecture activities rather than provided opportunities for interaction or a critical space for reflection on what was taught at the lecture of the previous week. Effective learning in seminars depended on preparation by the students; they were advised to read relevant chapters of the core texts, analyse the case studies and answer assigned questions for each one of them. Students' group work was presented to the other groups and there was a request that examples were provided from different backgrounds and cultures reflecting the cultural and ethnic diversity of the students. The assessment scheme comprised of a submitted piece of course work (30% of the overall score) and an end of term examination (70%).

As in the Information Systems case study, I observed the first and last teaching session as well as two supplementary seminars. In the introductory session, the lecturer outlined the course content and provided an overview of the aims of the module. She presented some of the key module concepts using power point slides and providing explanations along the way. The module

analysed different orientations of international marketing (ethnocentric, polycentric and geocentric) and outlined the main differences between them. The lecturer expected students to be able to understand the reasons for adopting each orientation in a range of global contexts—there was an implicit rather than explicit expectation that students would bring the richness of their respective experiences from different parts of the world into the teaching process. They have been actively asked to demonstrate an understanding of the marketing implications of these choices by giving specific examples drawing on their own experiences; the make-up of the students offered an excellent opportunity in terms of their ethnic and cultural references and representations. This particular teaching strategy, however, remained only partially fulfilled, failing to generate the necessary enthusiasm for students to fully share their stories during the lecture. In the course of the semester, the lecturer placed emphasis on factors that affect pricing policies and strategies such as company, market and environmental factors. The phenomenon of price escalation was described along with specific strategies for its reduction. The closing session was a revision of the semester, based on slides presented by the lecturer. Limited opportunities for discussion were provided, and the interactions were mostly initiated by the lecturer and were directed to her students.

5.2   Key characteristics of the online context

The lecturer made use of the university's VLE, Oasis by uploading materials on the respective module section of the environment. There was no significant focus on online aspects of the module delivery nor was there an observed strategy for blending online components of instruction with face-to-face teaching or assessment. The lecturer planned to organise group work on Oasis for formative assessment purposes but later realised that this was not feasible due to the large number of students who were finally enrolled on the module. She was very enthusiastic about the idea of online group collaboration and perceived her participation in this research as a good way of evaluating the value of such an online intervention. Furthermore, she believed that participating in the study would positively impact on her students' learning. The lecturer uploaded slides on Oasis; nevertheless, students requested more materials in preparation for their exam, a need that I witnessed during the observation of the final

teaching session. There were no online formative assessments or any checklists providing guidance for module progression, signposting resources or providing additional information. Students used other means of computer-mediated communications for their group work, peer review and preparation for the exams; the lecturer did not particularly endorse or discourage the use of them as part of the teaching activities. Finally, the observed module seminars did not pay any particular attention to the online component of the module and were limited to the interactions and tasks of the lecture of the preceding week.

5.3   Data collection and analysis

This section is divided into the following parts: an account of the lecturer's approaches to teaching, the students' approaches to their learning and studying, a presentation of the data from the VLE web logs and an analysis of four students' interviews. The next subsection reports on aspects of the lecturer approach to teaching this International Marketing module.

5.3.1 Teaching observations: a teacher-centred approach reflecting contextual pressures

As discussed in the previous chapter, how teachers approach their teaching is intimately related to how they conceive teaching; furthermore, a broad distinction was unveiled between a teacher- or content-centred and a student-centred approach to teaching (Prosser & Trigwell, 1999; Trigwell & Prosser 2004). Consistently with the previous case study, I utilised this distinction in order to conduct the teaching observations of this case study. I observed the sessions bearing in mind the categories proposed by Prosser and Trigwell in two of their papers on the development of the Approaches to Teaching Inventory (ATI) (Prosser & Trigwell, 1999; Tigwell & Prosser, 2004). The two tables in this section summarise the lecturers' approach to teaching this module in International Marketing, as observed in the first and last teaching session as well as two of the seminars; the first table below summarises the components of a teacher-focused approach to teaching.

Table 5.1: Indicators of an Information Transfer/Teacher-focused approach to teaching in Marketing

Indicators of approach to teaching	Level of evidence	Remarks
Teaching subject with respect to objectives matched with formal assessment.	M	Moderately evident and supported by regular and clear cues for the end of semester summative assessment.
Presenting a wealth of information that enables students to know what they are expected to learn.	M	Tutor provided a fair amount of facts, mainly relevant to Marketing case studies.
Presenting the content that might be found in a subject textbook.	H	Covered 'syllabus' and occasionally expanded on the subject area.
Structuring the subject to help students to succeed in their assessments.	M	Fairly clear indications as to what is expected of them and how they could pass the exams. This was not evident in the VLE.
Delivering teaching sessions so that students are provided with appropriate content.	H	The lecturer placed more emphasis on providing the right content rather than on conceptual change and help students devise appropriate thinking tools for International Marketing.
Providing the students only with the information needed to pass the exams.	M	The lecturer provided necessary information and signposted this appropriately but not within the VLE.

H= highly evident, M= moderately evident. L= low level of evidence. Criteria for assessment of approach to teaching corresponding to selected scales of the Approaches to Teaching Inventory (ATI) devised by Prosser & Trigwell (1999) and revised by Trigwell & Prosser (2004).

Overall, the lecturer's approach to teaching was focused on transmitting the 'essential' content, comprising of principles of International Marketing and contemporary issues in a global business environment. While the teaching strategy allowed for regular dialogue in the classroom, this was often overshadowed by distractions during the lecture and a desire on lecturer's end to make sure that the lecture content was explained to students within the available teaching time. Practically, this meant that opportunities for open conversations on various topics were brief and inconclusive. The seminars tallied with this approach, particularly since the seminar tutor lacked the teaching experience of the lecturer and his classroom management skills less advanced hence the

emphasis on content was stronger. The second table (5.2) presents a summary of the level of evidence of a student-focused approach to teaching.

Table 5.2: Indicators of a Conceptual Change/Student-focused approach to teaching in Marketing

Indicators of approach to teaching	Level of evidence	Remarks
Interacting with students so that conversation with them about the topics is promoted.	L	Lecturer initiated discussions about the topics but these were limited in terms of scope or time available for students to conclude. Seminars did not make up for the lack of opportunities in the lecture hall. No opportunities available through online discussion threads.
Assessing to reveal students' changed conceptual understanding of the subject.	L	Hardly evidenced—assessment appeared to be mostly seen as a response to external requirements.
Allocating teaching time that allows students to discuss their difficulties.	L to M	Some opportunities provided during seminars.
Encouraging restructure of existing knowledge with regards to the changing way of thinking.	L	More of an emphasis on interpreting and analysing the Marketing case studies rather than scaffolding conceptual change.
Using undefined examples to initiate debate.	M	Examples mostly used to elicit students comments and perspectives; this however did not necessarily lead to debate and wider discussions. To some extend, the lecturer challenged students' conceptions of the core ideas and enabled discussion and questioning.
Providing opportunities for students to demonstrate their changing understanding of their subject of study.	L	Hardly evidenced.

H= highly evident, M= moderately evident. L= low level of evidence. Criteria for assessment of approach to teaching corresponding to selected scales of the Approaches to Teaching Inventory (ATI) devised by Prosser & Trigwell (1999) and revised by Trigwell & Prosser (2004).

The lecturer utilised a number of examples and this was an integral part of her teaching approach, particularly with regards to the demonstration of real scenarios of entering new markets. Whilst the opportunities were regular there was no clear link with student-driven debate and questioning that could lead to students transforming their conceptions of what they were taught. The seminars which could have allowed for that, were generally closely tied to the lectures both

in terms of content and teaching methods; to a great extent they were seen as opportunities to cover the basic reading for the past or coming lecture or, at best, to encourage further reading related to the core of the module content. Consistency with the case study protocol, I collected data of the ASSIST questionnaire, the web logs and the student interviews.

5.3.2 Student approaches to learning (ASSIST questionnaire)

Sixty-nine (69) students completed the questionnaire, more than two thirds of those registered (94) and the majority of those who attended the final lecture (85). Three missing responses of two separate students were coded as '3' ('unsure/doesn't apply to me'). Scores on each scale and subscale are obtained by adding the scores of the relevant items.

Table 5.3: Descriptive statistics for the 12 subscales of the revised ASSIST inventory (Marketing)

Subscales	Mean	Standard deviation	Coefficient alpha (α)
Seeking Meaning	14.59	2.52	0.44
Relating to Ideas	14.17	2.57	0.48
Use of Evidence	14.74	2.42	0.53
Interest in Ideas	14.09	2.88	0.62
Deep Approach total	**57.59**	**8.06**	**0.80**
Organised Study	13.87	3.17	0.65
Time Management	14.57	3.27	0.72
Alertness to Assessment	15.25	2.99	0.71
Monitoring Effectiveness	15.96	2.69	0.72
Strategic Approach total	**59.64**	**9.46**	**0.86**
Lack of Purpose	11.29	3.59	0.69
Unrelated Memorizing	12.48	2.96	0.50
Syllabus Boundness	13.93	3.00	0.58
Fear of Failure	13.91	3.28	0.63
Surface Approach total	**51.61**	**9.92**	**0.80**

The possible score on all 12 subscales is from 4 to 20, possible score on total of scales is from 16 to 80, N=69.

The mean scores on the strategic approach scale were the highest amongst the mean scores of the three (59.64), followed by the mean of the deep (57.59) and the surface approach (51.61). The subscales presenting the highest score on each scale were: Use of Evidence for the deep approach, Monitoring Effectiveness for the strategic approach and Syllabus Boundness amongst the subscales of the surface approach. Coefficient alpha (α) (Cronbach, 1951) was

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measured at .80 for the deep and the surface scale, and .86 for the strategic scale, which are considered satisfactory (Cohen, Manion & Morrison, 2011). The next step was to examine whether three distinct approaches were reproduced by the findings, in other words, whether the inventory replicated the approaches it was expected to measure, the same analysis that was conducted in the methodological frame of the first case study. A confirmatory factor analysis on the scores of the twelve (12) subscales was computed using principal axis factoring and oblique rotation, and produced the factor loadings on the twelve (12) subscales in table 5.4.

Table 5.4: Factor loadings for the 12 subscales of the revised ASSIST inventory (**Marketing**)

	Factors		
	I	**II**	**III**
Deep approach			
Seeking Meaning	**.733**		
Relating to Ideas	**.538**		
Use of Evidence	**.625**	.324	
Interest in Ideas	**.694**		
Strategic approach			
Organised Study	**.830**	-.373	
Time Management	**.755**		
Alertness to Assessment	**.573**		
Monitoring Effectiveness	**.658**		-.334
Surface approach			
Lack of Purpose		.366	.659
Unrelated Memorising		**.707**	.434
Syllabus Boundness		**.618**	
Fear of Failure		**.799**	

All loadings smaller than .30 in absolute magnitude were suppressed. Loadings replicating subscales of approaches are in bold. Method: principal axis factoring and oblique rotation (delta set at zero), N=69.

Salient loadings were found on the interrelated subscales and the analysis produced two distinct approaches and a weaker third one. The first factor accounted for 32.3% of the variance and presented strong loadings on all of the relevant subscales of the deep approach scale as well as all of the subscales of the strategic approach scale, with the latter having slightly stronger loadings than the former. The second factor accounted for 18.1% of the variance. It produced strong loadings on all the subscales related to surface approach and a negative one on a subscale of the strategic approach (Organised Study); it also produced a marginal positive loading on one of the subscales of the deep scale (Use of

Evidence). Finally, the third factor accounted for 5.8% of the variance and showed high loadings on the two of the surface approach subscales and a relatively weaker, negative loading on a strategic approach subscale (Monitoring Effectiveness). No other loadings were observed above .30 in absolute magnitude. The results indicated the existence of mixed deep/strategic approach to learning along with a surface approach, which showed relatively strong loadings on all the relevant subscales. It is a finding that differs from the first case study where three distinct approaches to learning emerged in the factor analysis; this variation will be commented at the summative account of the case study, although it is noted here that it is a variation previously identified and analysed in relevant literature (for an overview see ETL project, 2007).

5.3.3 Web logs analysis

Immediately after the analysis of the ASSIST data and in consistency with the case study protocol, the web logs were retrieved from the system and subsequently analysed on a same development site that I analysed the web logs of the first case study. In accordance with the announcements made in the class at the time of collection of the questionnaires, only consenting students' logs were extracted from the system. So, fifty-four (54) cases were further processed after the first round of analysis of the ASSIST questionnaire, following students' consent to compare questionnaire data with their use of Oasis. Questionnaires without identifying data or others with student identification but not fully completed were excluded from cross-referencing with the web logs. Table 5.4 presents the results of the logs' analysis of consenting students.

Table 5.5: Overview of VLE Usage (hits) (**Marketing**)

	Use of Oasis sections	Use per section (%)*	Min	Max	Mean*
Homepage	1,110	64	0	120	26
Content	573	33	0	71	14
Calendar	41	2	0	7	1
Other	11	1	-	-	-
Total Hits	1,735	100	-	-	-

*N=54 * % and mean rounded to whole numbers*

There was no use of the following components of the module's online environment: Assignment, Quiz and Grades. At the same time, there was also

very limited use of the discussion boards set up by the module leader. As it is evident in the table above, no significant information was identified in the number of different pages visited by the students.

5.3.4 Approaches to learning and use of the VLE in Marketing: correlation analysis

I subsequently analysed the web logs in relation to student approaches to learning as these were captured by the results of the ASSIST questionnaire; the aim was to establish whether any correlations existed between approaches to learning and use of the system or any particular sections of it. I computed Pearson's correlation analysis and I inserted all the variables of approaches to learning and VLE usage: the scores of deep approach and its four associated subscales, the scores of the strategic approach and its four associated subscales, the surface approach scores with its own four subscales, and the variables that measured use of the VLE, such as total access hits and specific use of the sections of the VLE section. There were forty-two (42) cases computed for the total hits of the VLE, the Homepage. The results were computed with SPSS and a full account can be found in Appendix V. The chance that the observed correlations were significantly different from zero correlation was under question, positively or negatively, therefore a two-tailed significance was sought. No significant correlations emerged at .05 level (two-tailed) nor at .01 level (two-tailed).

5.3.5 Interviews

After the analysis of the questionnaires, I selected individual cases depending on the scores of the questionnaire. Invitations were sent to twenty (20) participants whose responses to the relevant items of the questionnaire produced high scores on the deep, strategic and in fewer cases, the surface scale. Four (4) emails did not reach their recipients; from the remaining sixteen (16), four accepted the invitation and attended an interview with me. The first semi-structured interview lasted twenty five (25) minutes, the second lasted sixteen (16), the third twenty (20) and the fourth interview lasted approximately seventeen (17) minutes; all interviews were transcribed verbatim. The responses

to the questions were subjected to content analysis (Krippendorff, 2003).

The first student who attended the interview scored an average of 4.05 on the deep, 4.43 on the strategic and 3.07 on the surface scale (scale scores from 1=lowest to 5=highest). The analysis of the first interview, which lasted approximately twenty-seven (27) minutes, produced thirty (30) categories: satisfaction with the programme, justified motivation to attend the module, attention to module requirements, acquisition of new knowledge, ability to understand core concepts, preference to visual learning, difficulty to memorise, critical view of the lecturer's teaching style, substantial background reading for the module, VLE enabling structured work, appreciation of online formative assessment, limited online collaboration, preference to face-to-face collaboration, importance of discussion as a learning tool, VLE as a means of seeking meaning, VLE useful for study support, VLE providing guidance, lack of online quizzes, quizzes as means of revision and testing knowledge, collaborative preparation for the exams, consistent study methods, VLE only for revising lecture slides, use of extra online resources for other modules, reading learning content without taking notes, perception of successful use of the VLE, perception of ease of use, request for more VLE-based resources for the module, VLE as a means of revision, preference to computer-based versus text-based learning.

The student stated that his main motivation for choosing the module was to gain a wider understanding of global issues of marketing. He appeared to be interested in ways of changing marketing practices. Elements of strategic approach were evident in his attention to assessment requirements:

> I actually didn't know the specific topics, I just knew […] how much percentage was coursework and how much percentage was exam. That had quite a bit of an influence in what I did, but the whole idea that I heard from people that it was enjoyable, it gives you a bit of insight to everything, it allows you to … it doesn't delve too much into marketing but it delves into the basics of applying it globally.

He acknowledged that he acquired additional knowledge in the course of the semester and that he grasped concepts easier through diagrams. Preference to visual representations of concepts was accompanied by an utilisation of them as analytical tools for thinking. He reported that it was difficult to remember 'off heart'. His efforts were supported by what he called 'background reading', a term with which he described his effort to draw on diverse sources about the same

topic. The student eloquently reported on how he used the VLE for monitoring his own progress and the perceived strengths of it for his studies:

> The beauty about Oasis is it gives you a clear picture of what needs to be done, when it needs to be done, and about what's been learnt, so you work quite structured, you kind of know the assessment, you can look at what you did where if you want to, you can get your module handbook on there, and I've done that. […] I've just different things, if I've needed the module handbook, I know I can go onto Oasis and use it that way. And then also just use it to look at slides, which is really helpful.

He regularly logged on 'Oasis plus' for all modules and appeared to be satisfied with the way he revised for International Marketing. He arranged face-to-face meetings every week with other members of the group and thought that this was 'more effective'; online collaboration was thus deemed less helpful than meetings with his peers. His appreciation of conversational practices for learning was certainly not supported online since the module leader did not initiate threaded discussions there. Yet content-based instruction was useful, since it allowed him to 'go back on what she said […] and seek meaning'. His critique of teaching involved not only the quality of the online teaching materials ('it depends on how much time and effort they 've really put into it') but also the lack of online assessments; for example, he said: 'I would have liked to see some quizzes' '[quizzes are] the best way to revise'. His responses focused more on his studying skills of which the most prominent was collaboration for learning. The VLE was seen in a positive light and he perceived it as easy to use:

> It's been quite successful. I've found it easy to get around. It's not been that complicated to not be told what to go and find, you can find it yourself if you use your head, you can find what you need to find. […] I mean OK, yeah, I understand computers and I know how to use a computer and I know the computer language, but it's kind of nice not having to think about what it's trying to say. I just know where to go, because I'm concentrating on studying and not trying to get my way around. I've liked that feature, enjoyed that.

Meta-cognitive skills were also evident in the way he chose to summarise his computer-based experiences:

> You know, when you're using a computer you've got to use programmes, it's psychological, you go there and you think you're going to use a computer, computers are fun. It's fun to use, fun to play with, and it's like a game in a sense, but it's not a game, you're learning. […] I find if I'm sitting in front of a book, I'm being forced to revise, it's old school, not nice, depressing. Whereas if I'm using a computer it's me in control, I know what I'm doing, and I can have a bit of fun with it […]'

The second student who attended the interview scored 4.05 on the deep, 4.10 on the strategic and 3.75 on the surface scale (scale scores from 1=lowest to 5=highest). From the analysis of the second interview, which lasted approximately sixteen minutes, twenty-two (22) categories emerged: motivation to prepare for postgraduate study, problems associated with transition to UK learning environment, understanding of module structure, understanding of teaching style without explicit appreciation of it, perception of assessment as 'easy', importance of feedback, VLE not helpful, lack of online tutor feedback, adequate content for exams, group work, use of synchronous computer-mediated communications (not through VLE), appreciation of online communication for enhancing group work, dissatisfied with reduced teaching time, perception of low academic quality, VLE not useful due to lack of content, VLE helpful due to tutor comments, VLE content relevant in other modules, content relevant to exams, access to all online content, perception of VLE as 'not user-friendly', appreciation of feedback. This overseas student declared a professional background with 'no studies in a university', which he felt contributed to problems of acclimatising himself to what he called 'the UK learning environment'. Despite having a clear understanding of how the module operated and what its structure was, he did not appear to appreciate his lecturers' approach to teaching; this equally applied to teaching in the lecture hall and the seminar room. In fact, oversized audiences contributed to a perception of low standard of academic quality.

> When we started the class, I can't remember the whole number of students, more than a hundred, all students cannot be catered for in that room […]. So I think one-and-a-half hours, that's reduced, that's a problem with covering all the slides and all the lecture slides, and she was very fast to cover all the things, I think we have missed a lot of points.

This was only strengthened by the lack of material available online; he did feel that using the VLE in other modules was helpful and, although he found that the content for the International Marketing module was limited, he accessed all of it. He reported use of other synchronous, computer-mediated communication tools as part of group work with other students. He realised no benefit in using the VLE for organising his studies. When referring to experiences of other modules, he noted that there was enough material and this was mainly utilised in the process of preparing for the exams.

-And did it help you to expand your knowledge of the topic?
-Yes
-In what sense?
- […] to develop my answer in a better way, to get more points to develop my answer, it helps.

A comparison of different modules was provided along with their level of use of the VLE: these ranged from 'nothing' to 'lecture slides and tutor comments about the past course'. When online module presence was evident, it was regarded as a contributing factor to seeking meaning in what he was learning and as a way of adequately responding to module requirements. He also perceived the content available on the VLE to be relevant to teaching sessions as well as to the exams. Conclusively, he reiterated his dissatisfaction with reduced teaching time and, on a positive note, emphasised his appreciation of tutor's comments in the weekly seminars.

The third student who attended the interview scored 3.93 on the deep, 3.6 on the 'strategic' and 3.8 on the surface scale (scale scores from 1=lowest to 5=highest). Content analysis of the twenty-minute interview produced eighteen (18) categories: interest in module's knowledge area, perception of good face-to-face teaching, lectures widening learning, seminars restrictive of learning, perception of heavy programme workload affecting preparation for the module, VLE not helpful due to limited content, VLE useful due to interaction with tutor, learning at one's own pace, learning through group work, study groups helping to reduce workload, appreciation of feedback, seminars well-structured, seminars not integrating with other modules, learning mainly face-to-face, self-directed learning, identification of assessment tips, not adequate online material, VLE seen as a resource only. The student's motivation to attend the module was 'just a general interest' and he was quick to point that the module's central ideas were interrelated with other modules, a remark demonstrating self-monitoring of the progress of his studies. He believed that there was difference in the quality of teaching in the lecture hall (by the lecturer/ module leader) and the seminar room (by the tutor/teaching assistant). As he put it:

I thought in the lectures you could take in what you learnt from other modules, not specifically marketing, but in the seminars it had to be marketing, you couldn't use your knowledge too much […] So it sort of restricts your learning, not integrating what you've learned overall.

Workload for other modules affected the time and resources he dedicated to International Marketing and shaped his perception of how well he was dealing with this particular module. When I asked him to describe what he thought was useful with regards to the VLE, he replied that it was beneficial because it enabled 'tutors to interact with all students at once'. He expressed appreciation of the fact that lecturers recorded their lectures and made them available on the VLE, since 'they can learn their own time' (this was the case in other modules but not in International Marketing). Commenting on the quantity and quality of materials on the VLE, the student noted that:

> No, it's just basic, isn't it? There's only so much they can fit into a lecture, the lecturer can fit into their time allocation, and then it's pretty much up to us to do the reading and to learn for ourselves, that's what university is about really.

He student summarised his experience, as follows:

> - […] have you found that it expanded your knowledge on the topics?
> -To an extent yeah, because you need to read up, you need to follow up on the concepts. It only gives you like a one-word scheme or just a sentence.

The fourth student who attended the interview scored 3.75 on the deep, 3.8 on the strategic and 3.85 on the surface scale (scale scores from 1=lowest to 5=highest). The interview lasted seventeen minutes and produced seventeen (17) categories: weak motivation, lack of understanding of certain concepts, lack of understanding of content, rote memorisation, perception of excessive content, VLE not helpful, perception of online content as insufficient, critical of the teaching style, perception of teacher as lacking organisation, use of synchronous computer-mediated communications (not through VLE), face-to-face teaching satisfactory, direct contact with teacher in problem situations, lack of organisation in the VLE, poor quality of seminars, feeling helpless due to lack of guiding material online, problems accessing lecture notes, giving up on using the VLE. This overseas student appeared to have weak motivation to succeed in International Marketing and her lack of motivation was coupled with a lack of understanding of its core concepts. The issues of perceived lack of support, lack of understanding and perceptions of low academic quality emerged consistently throughout the interview. She explicitly stated that she had difficulty to understand some of the key concepts of this module and admitted that she

normally 'forgets everything' once the exams are finished. Elements of surface learning appeared in her reported study methods:

> For three chapters, and I had to go…especially one which my assignment was based in a case which was about culture and I actually had problems with that chapter, I had to go through a lot of books and websites.

One of her key difficulties was to synthesise information from the different sources presented in the module. She was unhappy with the lecturer not uploading resources when promised and this came up twice in the course of the interview. Her perception, however, of face-to-face teaching was nevertheless good. She also reported use of chat facilities for her module group work; as with the majority of the interviewed students, her preferred facility was the MSN Messenger. Difficulties in engaging with the learning process ('I couldn't really grasp the concepts at first') were associated with more affective manifestations, such as helplessness ('so it left me hanging'). As the online material was deemed insufficient, the student gave up on accessing the VLE after the fourth week of the term.

5.4   Case study summary

The case study was conducted with the aim of examining student approaches to learning in an International Marketing module in the context of an intended blended approach to teaching. I researched aspects of the face-to-face and online teaching and learning experience of the students, the lecturer and the two teaching assistants. The case examined the use of the VLE as well as face-to-face lectures and supporting seminars. At the interview stage, I was interested in aspects of four selected students' insights into their studies of which two adopted what could be broadly defined as a deep/strategic approach to their tasks of this module, one mixed elements of a deep/strategic and a surface approach and the fourth student appeared to adopt a surface approach. I also inquired how students learning experience compared with other modules in the course of their studies for their degree in Marketing. In terms of evaluating the research methodology and how the case study protocol was facilitated, I stress that the lack of high volume of content and interactions on the VLE presented an awkward dilemma: to include the case in the cross-case study analysis or not. I

decided to proceed with a full round of data gathering acknowledging it was a real-life, learning situation and categorising the case study as 'extreme' or 'atypical', as explained in the methodology chapter. Additionally, the rich accounts emerging from the student interviews counterbalanced the lack of online interactions and placed the module in perspective to the overall programme design and the wider university and student life.

As far as teaching was concerned, I regarded the lecturer's approach to teaching as mostly teacher-centred with an emphasis on the transmission of information. The lecturer made clear to her students what the assessment requirements were and she acknowledged the diversity of her students' background as a potential teaching resource, although, in actuality, this was only partially fulfilled. Despite her initial planning to integrate the VLE in her teaching activities, there was very little use of the online environment mainly with the aim of making module content available. Analysis of the interviews indicates that under-using the environment was negatively perceived by students who adopted a deep/strategic approach to their learning tasks for this module and those who adopted a surface approach alike. The lack of correlations between student approaches to learning and use of the VLE might be attributed to the low volume of use of the environment. It might, however, be that approaches to learning may not correlate at all with particular uses of the VLE or particular aspects of it. This is in contrast with the findings of the first case study and it is an item to be carried forward and compare with relevant findings from the remaining two studies. Certainly, the lack of observed correlations is attributed to the low amount of content engagement and, most importantly, the lack of online interactions and processes (synchronous/asynchronous communications, online formative assessments etc). The selection of this module, therefore, did not meet my expectations in terms of the breadth and depth of online engagements. As explained, the module leader initially planned to facilitate online formative group work. She, however, later realised that this was not feasible due to the large number of students enrolled on her module. In the literature review chapter, I highlighted that one of the key arguments for introducing technology-mediated environments, such as VLEs, is their potential to cope with large number of students. In this case study it is obvious that such a strategy pre-supposed technical competency and confidence as well as an appropriate underpinning pedagogy, none of which were strongly manifested in this module.

The way a surface approach to learning and studying was manifested in this module, included inadequate responsiveness to module requirements at this level of study, frustration and a limited appreciation of the lecturer's teaching strategies and her enthusiasm in the lecture hall. The importance the lecturer placed on assessment and some of the hints she provided, played a rather small role in her students' manifested strategies of using the VLE. I classified this as a teacher-focused approach to teaching (Prosser & Trigwell, 2004), which reflected contextual pressures and demonstrated a moderate emphasis on assessment and what was required of students to succeed.

The next case study was conducted with another cohort of final year Business studies students and two members of staff. I followed the same methodology in selecting the case as well as conducting the study and providing an account of the results. I expected to involve a higher number of participating students and to conduct a meaningful comparison within the same departmental culture.

CHAPTER 6

A third case study of a module in Management

The completion of the second case study coincided with the upgrade of the university's VLE system from WebCT to a new platform, which merged functions of WebCT and Blackboard. It also coincided with a transition from a structure of two semesters per year to one of single, year-long modules. The new structure of academic provision was an established way of running modules in certain areas of the university's former school of Arts. The VLE was renamed as 'Oasis plus' with the aim of communicating to staff and students that functions of the university VLE were more advanced compared to the previous version of the VLE. This chapter is structured as the previous two chapters: I describe the module specifications, how the VLE was used as part of the teaching and learning activities, and I provide an account of the data-gathering stage. In brief, the case study is defined by:

- physical borders: The face-to-face and online teaching context of a final year module in Management offered by the university's Business school.
- population: Students enrolled for the module, two lecturers and two teaching assistants were the core population of the case. A few other lecturers of the same School were approached during the case selection.
- range of activities: The study examined the use of the university VLE in addition to face-to-face lectures and seminars. At the interview stage, aspects of informal learning and off-campus activities of two selected students were also of some interest.
- time span: I focused on the core population of the case during the course of an eight-month term spanning across a full academic year.

The next section provides an overview of the module key constituents, i.e. the intended learning outcomes, the teaching strategies employed by the lecturer, and the structure and philosophy of the assessment.

6.1   Key characteristics of the module (module narrative, teaching and assessment)

I selected the module following the criteria set in the methodology section, thus after eliminating first year modules and those with limited use of 'Oasis

plus'. The module was called 'Contemporary issues in Business' and was offered to final year undergraduate students of the university's Business School. A two-hour weekly lecture was delivered with live lecturers or video recordings of the lecture available through the upgraded version of the VLE, 'Oasis plus'. The module leader led a teaching team, which delivered supplementary ninety-minute seminars; the team comprised of the module leader (at the end of his career), a second lecturer (at the beginning of her career) and two teaching assistants. In the seminars, members of the teaching team made regular references to the materials and activities within the VLE, mainly the multimedia content, which included pre-recorded lecturers and files of the 'rich pictures'. 'Rich pictures' consisted an important element of the module leaders' pedagogy. They generally aimed to capture the essence of troublesome instances in real world by referring to 'hard' factual and 'soft' subjective information, elements of the structure, processes and people involved in these instances; they also pay particular attention to any arising tensions and conflicts. They are frequently used in management and they form a distinct characteristic of ways of thinking and practising in the field of Business Management.

I set off by observing and taking notes of the first lecture and the last round of seminars before the exams. In the introductory session, the module leader outlined the course content and provided an overview of the aims of the module. The module was mainly concerned with how a firm prepares for the future, its overall strategy and how their strategy is formulated and deployed. It endeavoured to make full use of models of strategic management, as well as concepts from a range of business disciplines. It aimed to select the most important future challenges of a company and analyse how corporations could anticipate and respond to these changes. One of the module themes was the examination of the growing not-for-profit sector by looking at government departments that make use of aspects of strategic analysis. The main emphasis, however, was focused on large commercial enterprises. According to the handbook, the module offered an understanding of the strategic management process, which is a set of methods that can be applied and further developed at business environments. A key intended learning module was to enable students to find effective solutions to contemporary issues in business. A primary element of the module was the formulation and implementation of effective business and

corporate level strategies, by using analytical, behavioural and creative dimensions of businesses.

The module was taught through a combination of theory and examples of practice. Lectures were designed to provide an introduction to the main tools of strategic analysis and consequently focus on the key issues affecting contemporary business. The seminars, on the other hand, intended to provide a more intimate setting for smaller groups to discuss study requirements and to allow for discussion of module themes in the context of concrete cases, a key teaching tool in the field. The module leader employed the following teaching approaches: lectures that integrate application through examples and mini-cases, audio and video clips to illustrate current events, class discussion of current business events, analysis and discussion of complex cases, in-class exercises and lecturers by guest speakers.

He appeared very keen on learning technologies, yet the online component was not explicitly mentioned when he outlined his overall teaching strategy. The emphasis on case analyses and discussions was intended to allow students to actively participate in the learning process. An in-depth examination of case studies aimed at replicating the experience of seasoned practicing managers. The module was assessed by exams and course work including seminar work. The coursework components (60% of the assessment) were staggered through the module and participants received formative feedback from tutors prior to the exams. The final two-hour exam (40% of the final mark) was based on a case study, which was made available in advance on 'Oasis Plus' a few weeks before the exams. Students were encouraged to refer to the sample examination paper, available through the VLE. Formative coursework consisted of students' responses to examples of case study questions.

6.2   Key characteristics of the online context

The module leader was an experienced lecturer with a keen interest in integrating learning technologies with his teaching activities. He believed that video recording his lectures and making them available online was a great way of increasing student engagement and improving the quality of teaching. Notions of accessibility, efficiency and convenience were seemingly associated with his approach. Another key area of intervention was assigning online group work and

designing formative assessments as students progressed towards submitting their coursework. These were integral part of formative feedback for the students and populated the 'Assignments' folder of the online section of the module. Module content was also made available, although, as it emerged from the interviews, this was uploaded irregularly and not necessarily immediately after the lectures. Small group seminars of approximately ten (10) to fifteen (15) students provided an opportunity to resolve any problems arising from the integration of the VLE into the teaching activities. It is important to note that these seminars were taking place in a seminar room without computers, resulting in conversations about VLE activities without actively using the system or taking part in any online tasks. The ICT skills of the lecturer appeared to be fairly advanced and they were coupled with some exposure to pedagogical ideas of online instruction; in principle, he believed in the potential of the VLE for enhancing his students' learning experience and he thought that it was an efficient way to accommodate for the needs of the diverse set of his students.

6.3 Data collection and analysis

The section reports on how the case study data was gathered and how, in consistence with the previous two cases, I analysed the results from the questionnaire, the web logs and students' interviews. Prior to that, I give an outline of the module leaders' approach to teaching, as this was observed during the opening lecture and the closing round of seminars at the end of the academic year.

6.3.1 Teaching observations: a teacher-centred approach to teaching Management lacking student-focused pedagogical strategies

The distinction between two approaches to teaching was utilised in the process of observing the teaching sessions of the case (a teacher-centred vs. a student-centred approach to teaching—Biggs, 1999; Prosser & Trigwell, 1999; Kember & Kwan, 2002). I observed the first lecture and the last round of seminars before the exams. Some variation occurred between the different members of the teaching team who led the last round of seminars but this was not significantly diverging from the module leader's approach. Table 6.1

compares indicators of approach to teaching in this module against an information transfer/teacher-focused approach.

Table 6.1: Indicators of an Information Transfer/Teacher-focused approach to teaching in Management

Indicators of approach to teaching	Level of evidence	Remarks
Teaching subject with respect to objectives matched with formal assessment.	M	Moderately evident but mainly as a response to students' requests for assessment cues rather than lecturer's intention.
Presenting a wealth of information that enables students to know what they are expected to learn.	M	The lecturer provided a lot of facts to students. These were not always directly relevant to module content. This approach was rather unstructured.
Presenting the content that might be found in a subject textbook.	M	Covered minimum content but was also keen to expand on the subject area; the latter was not necessarily linked to students' requests.
Structuring the subject to help students to succeed in their assessments.	H	Clear indications as to what is expected of them and how they could pass the exams.
Delivering teaching sessions so that students are provided with appropriate content.	M	The lecturer was keen to promote dialogue rather than just providing the 'right' content.
Providing the students only with the information needed to pass the exams.	L to M	More holistic approach to the subject area, enriched with examples and discussion.

H= highly evident, M= moderately evident. L= low level of evidence. Criteria for assessment of approach to teaching corresponding to selected scales of the Approaches to Teaching Inventory (ATI) devised by Prosser & Trigwell (1999) and revised by Trigwell & Prosser (2004).

Secondly, table 6.2 compares characteristics of the lecturer's approach to teaching in this Management module, particularly how these related to a conceptual change/student-focused approach to teaching, as utilised in the previous two case studies. In general terms, I classified the lecturers' approach to teaching as one that leaned towards a teacher/content-centred pedagogy. The opportunities for student-centred strategies were evident but were not used in a structured and intentional manner nor did they have a cohesively developmental rationale. The result was an undesirable focus on content and a lack of clear student-focused strategy to fulfil subject-specific pedagogical tools such as the

Table 6.2: Indicators of a Conceptual Change/Student-focused approach to teaching in Management

Indicators of approach to teaching	Level of evidence	Remarks
Interacting with students so that conversation with them about the topics is promoted.	M	The lecturer initiated discussions about the topics but these were limited in terms of scope or time available for students to conclude. Some opportunities available through online group work.
Assessing to reveal students' changed conceptual understanding of the subject.	M to L	Hardly evidenced; assessment mostly seen as response to external requirements.
Allocating teaching time that allows students to discuss their difficulties.	H	Opportunities provided during seminars and online sessions. The lecturer provided learning space for this cause.
Encouraging restructure of existing knowledge with regards to the changing way of thinking.	L to M	Moderately evident but lack of supporting teaching strategies.
Using undefined examples to initiate debate.	M	Examples appropriate and up to date but not always aligned with focus of teaching strategies.
Providing opportunities for students to demonstrate their changing understanding of their subject of study.	M to L	The lecturer offered few opportunities and even fewer online.

H= highly evident, M= moderately evident. L= low level of evidence. Criteria for assessment of approach to teaching corresponding to selected scales of the Approaches to Teaching Inventory (ATI) devised by Prosser & Trigwell (1999) and revised by Trigwell & Prosser (2004).

'rich pictures', which were available in the online context and their importance for understanding key module concepts was flagged up during the lecturers. The seminars were conducted in informal and friendly atmosphere, which encouraged open dialogue and, to some degree, collaboration; these, however, did not challenge the overall teacher-centred approach to teaching. The student interviews shed more light into students' perceptions of the approaches to teaching in this module.

6.3.2 Student approaches to learning in Management (ASSIST questionnaire)

One hundred and eleven (111) students completed the ASSIST questionnaire, more than two thirds of the students registered for the module (162). As in the previous two case studies, this was a captive audience attending their final seminars; data was gathered from six such seminars corresponding to six student groups ranging from ten (10) to twenty-six (26) students each. Furthermore, ninety-two (92) provided identification so that their scores of the questionnaire are examined in conjunction with their VLE usage. With regards to the responses to ASSIST, I recorded six missing responses of six students and two missing answers of a second student, which were coded as '3', i.e. 'unsure/doesn't apply to me' and processed further. Table 6.3 presents the descriptive statistics for the revised ASSIST inventory.

Table 6.3: Descriptive statistics for the 12 subscales of the revised ASSIST inventory (Management)

Subscales	Mean	Standard deviation	Coefficient alpha (α)
Seeking Meaning	15.21	2.95	0.65
Relating to Ideas	15.22	3.06	0.65
Use of Evidence	15.86	2.69	0.65
Interest in Ideas	14.55	3.16	0.60
Deep Approach total	**60.83**	**9.74**	**0.86**
Organised Study	14.16	2.77	0.40
Time Management	14.69	3.46	0.73
Alertness to Assessment	16.23	2.52	0.52
Monitoring Effectiveness	16.97	2.61	0.71
Strategic Approach total	**62.06**	**9.13**	**0.84**
Lack of Purpose	11.79	4.34	0.77
Unrelated Memorizing	12.58	3.18	0.52
Syllabus Boundness	14.32	2.94	0.51
Fear of Failure	15.57	3.38	0.67
Surface Approach total	**54.26**	**10.22**	**0.81**

The possible score on all 12 subscales is from 4 to 20, possible score on total of scales is from 16 to 80, N=111.

The mean score on the scale measuring the strategic approach was the highest amongst the mean scores of the three (62.06), followed by the mean of the deep approach scale (60.83); scores of the surface approach scale presented the lowest mean (54.26). Reflecting the requirements of the subject pedagogy, the subscale of Use of Evidence presented the highest score on the

deep approach, whilst Monitoring Effectiveness was the highest one for the strategic approach and Fear of Failure for the surface approach. Internal consistency scales measured by Coefficient alpha (α) (Cronbach, 1951) was found at .86 for the deep, .84 for the strategic, and .81 for the surface scale. As in the previous two cases, I proceeded with an examination of whether three distinct approaches were reproduced by the findings. A confirmatory factor analysis on the scores of the twelve (12) subscales was computed using principal axis factoring and oblique rotation. Table 6.4 displays the important factor loadings on the twelve (12) subscales.

Table 6.4: Factor loadings for the 12 subscales of the revised ASSIST inventory (Management)

	Factors	
	I	II
Deep Approach		
Seeking Meaning	**.762**	
Relating to Ideas	**.775**	
Use of Evidence	**.815**	
Interest in Ideas	**.610**	
Strategic Approach		
Organised Study	**.711**	
Time Management	**.594**	
Alertness to Assessment	**.684**	
Monitoring Effectiveness	**.678**	
Surface Approach		
Lack of Purpose		**.696**
Unrelated Memorising		**.665**
Syllabus Boundness		**.628**
Fear of Failure		**.423**

All loadings smaller than .30 in absolute magnitude were suppressed. Loadings replicating subscales of approaches are in bold. Method: principal axis factoring and oblique rotation (delta set at zero), N=111.

Salient loadings on two of the interrelated subscales of the inventory were found, thus the principal axis factoring produced two distinct approaches to learning. The first factor accounted for 39.6% of the variance and presented strong loadings on all the relevant subscales of the deep approach scale as well as all the subscales of the strategic approach scale, with Organised Study being the subscale with the strongest loading of the strategic approach. The subscale with the stronger loading on the deep approach was the Use of Evidence subscale (.815). The second factor (16.6% of the variance) produced strong loadings on all the subscales related to surface approach, with the strongest

loading on the Lack of Purpose subscale (.696). No other loadings were observed above .30 in absolute magnitude. The results of the factor analysis point to the existence of a single approach consisting of all the elements of the deep and the strategic approach as these were captured by the ASSIST questionnaire.

6.3.3 Web logs analysis

As I stated in the introduction of this chapter, at the beginning of the academic year the university upgraded the VLE system to a newer version, which was a merge between the platform previously known as WebCT (called 'Oasis') and the one known as Blackboard. The upgraded system offered more advanced tracking facilities some of which I decided were not directly useful for this research. Despite students' consent, I decided not to use all of the advanced features of the new tracking facilities; this choice has been explained further in the Methodology chapter (see section 3.4 on developing an ethical framework) and is revisited at the final chapter. Students' logs remained separate since the tracking functions of the new version produced one log for each individual student. Eighty-four (84) cases were further processed after the first round of analysis of the ASSIST questionnaire, based on students' consent to examine questionnaire data in conjunction with their logs recording online usage. Students' questionnaires without identifying data or others with identification but incomplete data were excluded from this round of analysis. Graph 6.1 presents the proportion of usage for key elements of the online module environment. More than two thirds of the total sessions of all students who logged on the system did so to access the Content Folder and individual files including the videos recording the lectures. The Assignment and the Web Links areas attracted respectively 7% and 6% of the total of students' sessions. Some other areas were accessed to a smaller extent; these included the sections that contained results of module assessments (My Grades and Assessments sections, 4% and 3% respectively) and the 'Who is online' (3%) a facility designed to encourage synchronous communications amongst students.

From the data of students' usage of the system, it becomes evident that students prioritised access to the module learning materials (offered mainly in the form of video recordings), the assignments and some other items such as the

introduction to 'rich pictures' which was identified as a key component of the lecturer's teaching strategy and a distinct element of thinking and practising in

Graph 6.1: Overview of the VLE usage in Management (hits)
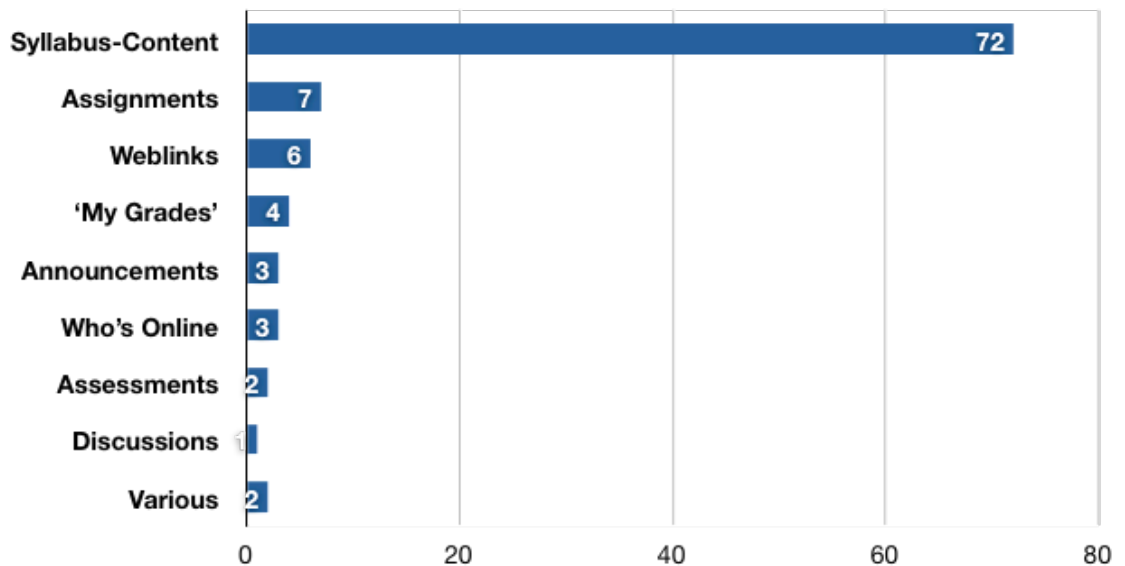
Total hits 40,848

the subject area. It is noted that lecture slides of the first lessons (mostly before Christmas) were accessed far more extensively than the ones of the later lectures; this is a reflection of how the lecturer organised the module presence on 'Oasis plus'.

6.3.4 Approaches to learning and use of the VLE in Management: correlation analysis

After the analysis of the ASSIST questionnaire and the extraction of the logs of consenting students, I computed a Pearson's correlation analysis between the approaches to learning variables and VLE usage. The chance that the observed correlations were significantly different from zero correlation was under question one-way or the other (i.e. negative or positive correlations), I therefore computed a two-tailed significance to calculate the reliability of the correlation. I intended to omit all r values less than .30 or -.30; this was consistent with the analysis of the data of the two first case studies. Some correlations, however, yielded values less .30 but because of the bigger sample size the correlations were significant at 0.05 level. Correlations were computed between the overall scores on the three scales of the questionnaire and the use

of Oasis' functions. I inserted the following variables for Pearson's correlation analysis: deep approach and its subscales as independent variables, the scores of the strategic approach and its associated subscales and finally, possible correlations were sought for the surface approach and its set of four subscales. In terms of students' usage of the VLE, I inserted the following variables: Number of online sessions, Read messages on discussions, Posted messages on Discussions, Viewed entries on Calendar, Chat, Assessment-sessions began, Assessment-sessions finished, Assignments-read, Assignments-submitted, Weblinks viewed, Content folders viewed, Files viewed. Table 6.5 below presents the degree of linear relationship between the scores on the revised ASSIST questionnaire and the values deriving from student's use of the 'Oasis plus' environment—a full account can be found in Appendix VI.

Table 6.5: Significant correlations: approaches to learning and use of the VLE in Management

		Use of Oasis plus			
		Sessions	Web links views	Content folders Views	Files views
Deep approach • Use of Evidence	Pearson correlation		.231(*)	.231(*)	.230(*)
	Sig. (2-tailed)		0.036	0.035	0.035
Strategic approach	Pearson correlation		.253(*)	.257(*)	.274(*)
	Sig. (2-tailed)		0.021	0.018	0.012
• Time Management	Pearson correlation	.228(*)	.233(*)	.285(**)	.319(**)
	Sig. (2-tailed)	0.037	0.034	0.009	0.003
• Alertness to Assessment	Pearson correlation		.238(*)		
	Sig. (2-tailed)		0.030		
• Monitoring Effectiveness	Pearson correlation			.224(*)	.215(*)
	Sig. (2-tailed)			0.041	0.050

* Correlation is significant at the 0.05 level (two-tailed). **Correlation is significant at the 0.01 level (two-tailed). Pearson's r values under .200 have been omitted, N=84.

There were two significant correlations at the 0.01 level; the first one was observed between the Time Management subscale of the strategic approach scale and access of Content folders (.285) as well as access of individual files (.319). Significant correlations at the 0.05 level were observed between the scores on the strategic approach and Web links views (.253), Content folder views (.257) and views of individual files (.274). The scores of the Alertness to

Assessment subscale (strategic approach scale) correlated with the number of Web link views (.238), while Time Management correlated with students' number of sessions (.228) and web links views (.233). Additionally, Monitoring Effectiveness was found to correlate with the number of Content folder views (.224) as well as the number of Files views (.215). There were no significant correlations between the scores of the surface approach scale (or any of their associated subscales) and use of the sections of the VLE. Only one of the subscales of the deep approach, the Use of Evidence subscale, correlated with the scores on the Web links views (.231), Content folders views (.231) and Files' folder views (.230).

6.3.5 Interviews

Individual cases were selected depending on the scores of the questionnaire. Invitations were sent to twenty (20) participants whose responses to the relevant items of the questionnaire produced high scores on the deep, strategic, and in fewer cases, the surface scale. Two students accepted the invitation and attended an interview with me at the university premises. The semi-structured interviews lasted seventeen (17) and twenty-five (25) minutes respectively; these were transcribed verbatim by a third party and I analysed them with a view to seek fewer content categories (Krippendorff, 2003). The first student who attended the interview scored an average of 3.95 on the deep, 4.03 on the strategic and 3.87 on the surface scale (scale scores from 1=lowest to 5=highest). The content analysis produced twenty (20) categories: low motivation to attend the course, disappointment, perception of disorganised teaching, lack of teaching support materials, some interest in topics interlinked with the content of other modules, preference to case studies, gaining knowledge through examples, perception of unclear instruction, perceived high assessment demands, group work helpful, use of VLE for content access, access of multimedia, perception of poor classroom teaching, satisfied with VLE, VLE allowed self-managed learning, VLE helpful in seeking meaning, positive perception of online materials, module enabled deeper learning of content, portfolio as means of learning, desire for effective VLE design.

This 'home' (UK-based) student attended the module as a compulsory module of her programme of studies. She was very quick to point that she felt

'disappointed by the whole module' particularly due to what she perceived as lack of organisation on her module leader's end. She particularly pointed to delays in uploading materials on 'Oasis plus' and what she thought was 'rushed workload' after the winter holiday break. She appreciated topics, which interlinked with other areas of taught modules and the way the business case studies enriched the module content and her understanding of the core ideas. Occasionally, however, she felt helpless as a result of what she felt was lack of clear instructions by the module leader. Peers taking the same module were a valuable resource. In a typical demonstration of surface approach to her academic tasks she admitted that, at different stages, she felt overwhelmed:

> There were so many assessments, so many types of coursework. We had a presentation to do as well, and if I was given that task to do for myself I would have struggled, I wouldn't know how to start. But because there was a group of us, a group of five or six of us, that really helped us 'cause we all learned differently so we put ideas together. Just makes it easier for us to learn from each other.

She accessed the materials on 'Oasis plus' including lecture slides and video clips. This helped her a lot in terms of gaining orientation and organising her study.

> I learnt more over Oasis. For example we had a group, we got an assessment where we have to compile a portfolio of our learning. Now obviously I've learnt nothing in the seminars, so I had to turn to Oasis and I've printed out all the lecture slides I had, learnt everything my own way, put everything in my own words and write it all in a portfolio. So that's the only way I've learnt things so far, for this module.

She felt dissatisfied with the quality of classroom teaching in this module since she did not appreciate certain teaching strategies such as the group discussions. On the other hand, appreciation of the use of the VLE as part of the teaching came with an assessment of her own idiosyncratic ways of learning.

> Yes, it did help me. I guess it's the way I learn as well. I learn more through books and what I read than … sometimes I can drift off, 'specially when it's not structured really well and the teacher's not passionate about what he's teaching and it's quite boring, then yeah, you are going to drift off. But I learnt more that way so I think it helped more, the Oasis, than anywhere else.

She reported that 'Oasis plus' helped her to expand her knowledge of the topic and also admitted that 'taking this module has made my learning a bit more in depth, I learnt a bit more'. Although it was not explicitly mentioned, the student

was expecting some sort of orchestration of learning between the face-to-face and the online facet of instruction. She pointed that there was a lot of basic information available and nothing too much in depth, because 'in the seminars that's when the in depth conversation and discussion was supposed to be taking place, so we actually didn't have that'. That made it difficult for her to prepare for the exams because as she said: 'all I've got is meanings and what I've just learnt from the lecture slides; that's all, and that's not even my own words.'

The second overseas student who attended the interview scored an average of 4.15 on the deep, 4.05 on the strategic and 3.70 on the surface scale (scale scores from 1=lowest to 5=highest). The following thirteen (13) categories emerged: awareness of the impact of changes at university level, perception of VLE as important element of teaching, choice of dynamic elements of the module content, high motivation, monitoring effectiveness, group work, appreciation of online teaching style, positive perception of online learning design, positive perception of classroom teaching, positive perception of online teaching, online material relevant to assessment, online instruction relevant to assessment, perception of amount of online material as balanced, VLE useful for assessment.

The student reported that she attended the module since it was compulsory and noted this in light of the university's transit to a 'new learning framework', which altered structurally the provision of teaching and learning. She was particularly interested in issues that contemporary companies face, and how companies deal with these problems, e.g. succession, leadership, how to locate and exploit a new market etc. The above choices indicated a dynamic engagement with the module content. She also replied that since she did not come from a business background, it was hard to understand how to apply some concepts in current business and she pointed that there was a huge gap between studying theory and applying theory into practice. When asked about the way she tackled her academic tasks for this module, she responded that:

> Each and every week, we had chapters to study and a case study to prepare, I did it on a weekly basis and when I could not understand certain things, I asked advice from my group members… moreover, it was particularly important in this module to log on to Oasis on a frequent basis because our lecturer used to upload the BBC business reports and the lecture videos.

The student asserted that the VLE helped her to organise her study. After

they were divided into groups for the group report, they had a company allocated to them for research and the module leader provided a document on the steps to take in order to conduct their research—this was available on 'Oasis plus'. Furthermore, she reported that they had to draw a 'rich picture' and the instructions for this task were also available on 'Oasis plus' as well as the grade and feedback at the end. Most importantly, she thought positively of the fact that the module leader uploaded the lecture slides on a weekly basis. She recognised that the way 'Oasis plus' was used gave students the opportunity to understand the direction of the module. She also reported that she collaborated with colleagues via email and online chat, although the later was not the chat facility of the VLE but of some other widely available, personalised communication software. The main form of collaboration was to 'update [group] members on new ideas and concepts to consider for the report'. Elements of a strategic approach to learning interweaved with personality traits, as evidenced in her response that she was a 'highly motivated person' and that she was 'really good in motivating other people'. She attributed this to her desire to 'know new things which motivated my participation'. She described the quality of classroom teaching as 'very good' and perceived the lectures as a mix of theory and practice, whereas in the seminars the discussions focused on analysing the case studies and finding ways in which the analysed company could have overcome their issues. Each and every group was allocated an issue to analyse and then 15 minutes before the end of the seminar, each group was sharing their findings to the rest of the class. She regarded the quality of teaching with 'Oasis plus' as 'very good' and believed that 'it was clearly understandable'. Interestingly, the student prioritised communication with other students as the most effective feature in the use of 'Oasis plus', not so much the shape of communications or their frequency but how the module leader organised online formative assessment (quizzes) and the instructions he gave to students, which prevented them from getting lost. The student considered, however, that at times, the 'rich picture' was not very useful; she underlined that a report would have been more productive. When asked if 'Oasis plus' helped her to seek meaning in what she was learning, she noted that to a great extent, that was true; the lecture slides were always backed up by relevant reports and towards the end of the module, the lecture videos proved to be very useful when studying the book and listening to lecturers' comments and explanations. She noted that the material available

online was 'too little' for some lectures whilst 'too much' for others, yet she did not feel dissatisfied with regards to the distribution of online content. She certainly thought that it was relevant to what was required in the exams. In addition, she pointed that: '[…] a student could have taken something from each and every lecture, yes. The business we had to analyse for the exam was 'Marks and Spencer' and I think every lecture had something that suited this case'. Her preparation for the exams included studying the module handbook, going through the lecture slides and relevant reports as well as searching up resources on the Internet. Finally, she explicitly acknowledged the importance of 'Oasis plus' in her preparation for the exams.

6.4   Case study summary

In terms of evaluating how the case study was conducted and the quality of the results arising from it, I recognise that having a large sample of participating students produced some robust statistical analyses and provided the opportunity to observe interactions of a more diverse set of people. Less diversity, however, was evident with respect to uses of the VLE by the teaching team and how students of this final year Management module carried their online tasks as part of their wider studying strategies. The module leader asserted that utilising the VLE enriched the learning experience of his students and helped achieving desirable learning outcomes—mainly a thorough understanding of current issues in Business management. Key tools in the teaching strategy where formative assessments, use of business case studies and 'rich pictures' for resolving management issues. In broad terms, I classified the lecturer's approach to teaching as a knowledge transmission/teacher-focused approach (Prosser & Trigwell, 2004). The enthusiasm and experience of the module leader was not translated into strategies in the face-to-face or online arena. For example, none of the rich pictures interventions were appropriately adjusted within the VLE and the same applied to the case studies, hence the materials remained static, non interactive and somehow pedagogically inefficient.

The lack of alignment described above was reflected to some extent in the results of the data analysis. The analysis of the correlation between student approaches to learning and their use of the VLE, points to the direction of a strategic use of the technology without necessarily achieving (or being instrumental to achieve) the module's intended learning outcomes. The

correlations that emerged between the overall scores on the strategic approach and access of content available on the VLE as well as the scores on the time management scale and frequency of content access, offer substantial evidence towards this conclusion. This is supplemented by the correlation between the Use of Evidence subscale of the deep approach scale and views of the Links module section. The Links section was the part of the online section where additional resources were made available. This section was also linked with students' strategies of expanding their knowledge on the subject matter, identifying additional resources for their coursework or responding to weekly module requirements (presentations, case studies and the analysis of the 'rich pictures').

The following subscales presented the highest score on each scale: Use of Evidence for the deep approach, Monitoring Effectiveness for the strategic approach and Fear of Failure for the surface approach. A surface approach to learning was manifested by fear of failure and anxiety over future prospects after graduation. Based on the results of the correlation analysis, two differing approaches may be identified here. A first approach consisted of students who responded to the module requirements by demonstrating attention to the formal assessment requirements and opting in for strategies for deep learning, such as regular attendance and participation in assigned group work. The fact that the scores on the Monitoring Effectiveness were the highest among the four subscales is associated with frequent use of online formative assessments but also with anxieties, fear of failure and the will to succeed at the end of their three-year programme. It is also possible that lack of intervention by their lecturer was seen as poor teaching, affecting their perception of the quality of online teaching.

The Management module was followed by the next case study, which was conducted with a cohort of Education students and two teaching members of staff. The case was designed so that it can be implemented along the same lines as the previous three cases; this entailed a similar way of selecting the case and an identical protocol of collecting and analysing the student data.

CHAPTER 7

A fourth case study in Education

The chapter presents the fourth and last case study of the dissertation. I initially frame this case by giving details of the module, including the module specifications, accounts of the data gathered through the questionnaire, VLE usage and a student interview. In summary, I define the borders, population, range of activities and time span of this case, as follows:

- physical borders: I conducted a case study of a Middlesex University final year module in Initial Teacher Training at the university's School of Arts and Education.

- population: A cohort of final year students in Education and two lecturers teaching for this programme of study were the concern of this study.

- range of activities: The case study examined the use of the university VLE as well as the weekly teaching seminars. At the follow-up interview, I delved into some wider aspects of student learning.

- time span: Elements of student and, to a lesser extend lecturers' experiences, were observed across a full academic year.

The next section provides an account of the key characteristics of the module including face-to-face and online teaching. Consistently with the previous cases, I reviewed the module narrative with an emphasis of the important elements of the teaching design, i.e. the intended learning outcomes, the teaching activities and the assessment regime.

7.1 Key characteristics of the module (module narrative, teaching and assessment)

The fourth case was a module called 'Issues in ICT in Education' and was offered as a final year module to a number of undergraduate students aspiring to become primary education teachers. I observed the first and last teaching sessions and took notes focusing on the lecturer's approach to teaching. In the introductory session, the module leader outlined the course content and provided an overview of the aims of the module. The module was the third in a series of modules for ICT, which was drawing on the skills, knowledge and understanding gained across two previous modules and placements at primary schools. The

emphasis of the first module was on the development of skills in the use of a range of hardware and software and their application to classroom situations. The second module concentrated on the application and integration of ICT as a support for subject knowledge and understanding within National Curriculum subjects. Finally, the third module—the current case—aimed at further developing students' knowledge and skills as professionals and reflecting on their own experiences in schools. The main focus was for students to consider the wider ICT issues pertinent to primary education through discussion and analysis of current research in the field. In addition to the research aspect of ICT, the module aimed to provide an update of any software or hardware recently introduced in school environments; this was an aspect of the content and teaching methodology that the module leader was very keen to highlight. Students were expected to collect evidence for a professional ICT Audit and, by the end of the module, to compile the audit and place it in their professional development portfolio. Furthermore, the module encouraged students' reflection of their own ICT practice and use of their own experiences to extend their skills and understanding of the role of monitoring, assessment and recording in ICT. Students were also expected to discuss and analyse current research in ICT and education by employing research techniques including, but not limited to, the use of electronic library resources. The module was taught through a series of eleven (11) weekly sessions of one and a half hour each. During the module, students were given the opportunity to reflect on their own practice and how teaching of ICT had developed over the three years of their programme of study. The first part of the module assessment involved the presentation of a journal article where students were expected to prepare a brief presentation on an aspect of research in ICT and primary education. The second part of the module assessment was an essay reviewing the literature in an area of ICT chosen by the students. The students were expected to support their review of literature by drawing on books, newspapers, resources available on the web and disciplinary journal articles. This was deemed to be a significant module requirement; it was also clear that it affected how the lecturer approached the design of the module section on the VLE, which contained the learning materials and the links for students' research.

7.2   Key characteristics of the online context

The lecturer placed a great deal of attention on making materials available through the VLE. She designed the online space and populated its sections with links to external resources. These included a journal database, a customised guide for referencing, a direct link to the 'Athens' database of learning materials, a separate link to the British Journal of Educational Technology etc. She updated the VLE section with fairly regular announcements although these only served as reminders to the class announcements—students were therefore not expected to rely on the VLE to get updates regarding their placements or their assessments. No formative or summative assessments were facilitated online. Similarly, demonstrations of integrating technology in primary schools and examples of appropriate technologies for the same purpose were also not present in the VLE section of the module. Unlike other teacher training programmes in the department, the current programme did not endorse any ICT enhanced support for the placements or an equivalent mechanism for recording achievement, progress and reflection on the school placement. Nevertheless, there was an effective demonstration of a range of technologies during the face-to-face sessions, which included, amongst others, an interactive whiteboard and various social media platforms.

7.3   Data collection and analysis

This section reports on the lecturer's approaches to teaching this undergraduate module, the student approaches to their learning and studying, the data from the VLE web logs and, finally, an interview with one of the students registered on this module.

7.3.1 Teaching observations: a student-centred approach in close alignment with professional practice in Education

In accordance with the protocol of the previous three case studies, I utilised the conceptual distinction between a teacher- or content-centred and a student-centred approach to teaching, proposed by stream of studies on university teachers' approaches to their own teaching (e.g. Prosser, Trigwell & Taylor,

1994; Biggs, 1999; Prosser & Trigwell, 1999; Kember & Kwan, 2002). The consecutive tables (7.1 and 7.2) succinctly summarise the lecturers' approach to teaching for this particular module; the first table (7.1) compares approaches to teaching in relation to a teacher-focused approach to teaching.

Table 7.1: Indicators of an Information Transfer/Teacher-focused approach to teaching in Education

Indicators of approach to teaching	Level of evidence	Remarks
Teaching subject with respect to objectives matched with formal assessment.	H	Highly evident and supported by formative feedback—however, this was not offered online. Teaching corresponded to professional standards requirements for primary education teachers.
Presenting a wealth of information that enables students to know what they are expected to learn.	L	The lecturer clearly emphasised skills and experience over content or knowledge.
Presenting the content that might be found in a subject textbook.	L	Raised awareness on policy issues and developments in their area of professional practice but prioritised signposting connections rather than 'transmitting' expertise.
Structuring the subject to help students to succeed in their assessments.	M	The lecturer identified benchmarks of achievement without making explicit references to assessment of their work.
Delivering teaching sessions so that students are provided with appropriate content.	L	Focus of the lecturer more on thinking processes and dialogue rather than just providing the right content.
Providing the students only with the information needed to pass the exams.	L	The lecturer provided necessary information and signposted this appropriately yet she was not limited by the requirements of the formal assessment. On the contrary, she prioritised instilling a professional ethos and signposting to pathways for continuing development.

H= highly evident, M= moderately evident. L= low level of evidence. Criteria for assessment of approach to teaching corresponding to the selected scales of the Approaches to Teaching Inventory (ATI) devised by Prosser & Trigwell (1999) and revised by Trigwell & Prosser (2004).

Inversely, table 7.2 draws on the teaching observations to compare characteristics of the lecturer's approach to teaching in relation to a student-

focused approach.

Table 7.2: Indicators of a Conceptual Change/Student-focused approach to teaching in Education

Indicators of approach to teaching	Level of evidence	Remarks
Interacting with students so that conversation with them about the topics is promoted.	H	The lecturer intentionally and frequently initiated discussions about the core topics; these discussions were wide in terms of scope and allowed sufficient time for students to conclude. Similar opportunities, however, were very limited in the online component of the module. The nature of interactions was open and collegial.
Assessing to reveal students' changed conceptual understanding of the subject.	M	Assessment mostly geared towards external requirements, i.e. professional recognition. It remained unclear whether students' conceptual transformation was intentionally and actively sought by the teaching strategy.
Allocating teaching time that allows students to discuss their difficulties.	M to H	Opportunities offered during seminars but not through online sessions. The lecturer moderated discussions with confidence and created a relaxed teaching environment.
Encouraging restructure of existing knowledge with regards to the changing way of thinking.	H	Moderately evident; the lecturer was keen to provide tools for scaffolding conceptual change and highlight alternative conceptual paradigms in terms of how to teach ICT in primary education.
Using undefined examples to initiate debate.	L to M	Very low level of evidence of using such examples, no evidence of a systematic approach.
Providing opportunities for students to demonstrate their changing understanding of their subject of study.	M	Some opportunities available but none of these were present in the online aspect of teaching.

H= highly evident, M= moderately evident. L= low level of evidence. Criteria for assessment of approach to teaching corresponding to selected scales of the Approaches to Teaching Inventory (ATI) devised by Prosser & Trigwell (1999) and revised by Trigwell & Prosser (2004).

Overall, the lecturer's approach to teaching was characterised by an emphasis on her students' development of professional practice and the provision of the appropriate tools for underpinning such a development. The small size of the weekly seminars was crucial in terms of facilitating a collegial and relaxed learning atmosphere where exchange of ideas was actively

encouraged. She often exposed students to alternative scenarios on the use of technologies in the primary school setting and therefore encouraged reflection and debate on what is the impact of such choices in the pedagogy of teaching with technologies. Some of these examples were demonstrated with the use of the interactive whiteboard whilst others were presented orally and in more abstract terms. The link with module assessment was clear, adequately transparent and was regularly highlighted during the teaching sessions. The lecturer appeared to have a clear understanding of how and why to use technologies in primary education, which was the core topic of the module. Her clear understanding on the role of technology was amply demonstrated in how she used technologies in the context of her own teaching: confidently, justified and in alignment with her teaching design and philosophy. The link with students' school placements appeared to be a key component of the module, nevertheless this was supported only through face-to-face interactions. The next section provides an account of the results from the ASSIST questionnaire, the web logs' analysis and the interview.

7.3.2 Student approaches to learning in Education (ASSIST questionnaire)

I administered the ASSIST questionnaire during the last two seminars; this was completed by forty-three (43) students, which was the majority of the students who were registered for the module (54) and all of the students who attended the final two seminars (43). One missing response of one student and three missing answers of a second student were coded as '3' ('unsure/doesn't apply to me') and were further processed. Table 7.3 on the next page presents the descriptive statistics for the revised ASSIST inventory.

The mean score on the scale measuring the strategic approach was the highest amongst the three scales (64.09), followed by the mean of the deep approach (61.63)—scores of the surface approach scale presented the lowest mean (50.21). The subscales presenting the highest score on each scale were: Use of Evidence for the deep approach, Monitoring Effectiveness for the strategic approach and Fear of Failure amongst the subscales of the surface approach. Internal consistency scales measured the homogeneity of the set of

items on the inventory and indicated to what degree they all measure the same variable. Coefficient alpha (α) (Cronbach, 1951) was measured at .80 for the

Table 7.3: Descriptive statistics for the 12 subscales of the revised ASSIST inventory (Education)

Subscales	Mean	Standard deviation	Coefficient alpha (α)
Seeking Meaning	16.05	2.08	0.50
Relating to Ideas	14.98	2.28	0.31
Use of Evidence	16.51	1.88	0.23
Interest in Ideas	14.09	3.54	0.77
Deep approach total	**61.63**	**7.79**	**0.80**
Organised Study	14.91	3.38	0.66
Time Management	14.61	4.16	0.83
Alertness to Assessment	16.93	2.16	0.57
Monitoring Effectiveness	17.65	1.91	0.53
Strategic approach total	**64.09**	**9.36**	**0.86**
Lack of Purpose	9.86	3.86	0.76
Unrelated Memorizing	10.95	3.42	0.64
Syllabus Boundness	14.12	2.97	0.60
Fear of Failure	15.28	4.11	0.78
Surface approach total	**50.21**	**10.88**	**0.85**

The possible score on all 12 subscales is from 4 to 20, possible score on total of scales is from 16 to 80, N=43.

deep, .86 for the strategic, and .85 for the surface scale; the scores of the coefficient alpha were therefore similar to the previous three cases and generally considered higher than acceptable (Cohen, Manion & Morrison, 2011).

In consistency with the statistical analyses of the previous three case studies, I examined whether three distinct approaches were reproduced by the findings, in other words whether the inventory replicated the approaches it was expected to measure. A confirmatory factor analysis on the scores of the twelve (12) subscales of the revised ASSIST questionnaire was computed using principal axis factoring and oblique rotation. Table 7.4 shows the factor loadings on the twelve (12) subscales. Salient loadings on the interrelated subscales were found and the analysis produced two distinct approaches. The first factor accounted for 35% of the variance and presented strong loadings on all the relevant subscales of the deep approach scale as well as some fairly strong loadings on three of the subscales of the strategic approach scale. The second factor, which accounted for 20.7% of the variance, produced strong loadings on all the subscales related to surface approach and a loading marginally above .30

in absolute magnitude on the Alertness to Assessment subscale (strategic approach).

Table 7.4: Factor loadings for the 12 subscales of the revised ASSIST inventory (Education)

	Factors		
	I	**II**	**III**
Deep approach			
Seeking Meaning	**.791**		
Relating to Ideas	**.564**		
Use of Evidence	**.791**		
Interest in Ideas	**.415**		-.339
Strategic approach			
Organised Study	**.329**		-.648
Time Management			-.825
Alertness to Assessment	**.621**	.341	
Monitoring Effectiveness	**.589**		-.319
Surface approach			
Lack of Purpose		**.721**	
Unrelated Memorising		**.773**	-.502
Syllabus Boundness		**.673**	
Fear of Failure		**.504**	

All loadings smaller than .30 in absolute magnitude were suppressed. Loadings replicating subscales of approaches are in bold. Method: principal axis factoring and oblique rotation (delta set at zero), N=43.

Finally, the third factor, which accounted for 11.2% of the variance, showed strong negative loadings on two of the strategic approach subscales (Organised Study and Time Management) and three relatively weaker loadings on other subscales, one at each of the main approaches. Whilst the two strong loadings on the strategic approach scale could have constituted an 'anti-strategic' approach, they did not interpretively relate to the other loadings, hence this third weaker factor was not considered in the next steps of analysis. No other loadings were observed above .30 in absolute magnitude.

7.3.3 Web logs analysis

As mentioned earlier, at the beginning of the academic year the university upgraded the VLE system to a newer version, which was a merge between the platform previously known as WebCT (branded as 'Oasis' at Middlesex University) and the one previously known as 'Blackboard'. Students' logs remained separate since the tracking functions of the new version produced one

log for each student. Forty-two (42) cases were further processed after the first round of analysis of the ASSIST questionnaire, based on students' consent to examine their responses in conjunction with their usage logs. Students' questionnaires without identifying data or others with identification but incomplete data were excluded from the analysis of the data on 'Oasis plus'. Graph 7.1 below presents the results of the logs' analysis for the selected students of the module.

Graph 7.1: Overview of VLE usage in Education (hits)
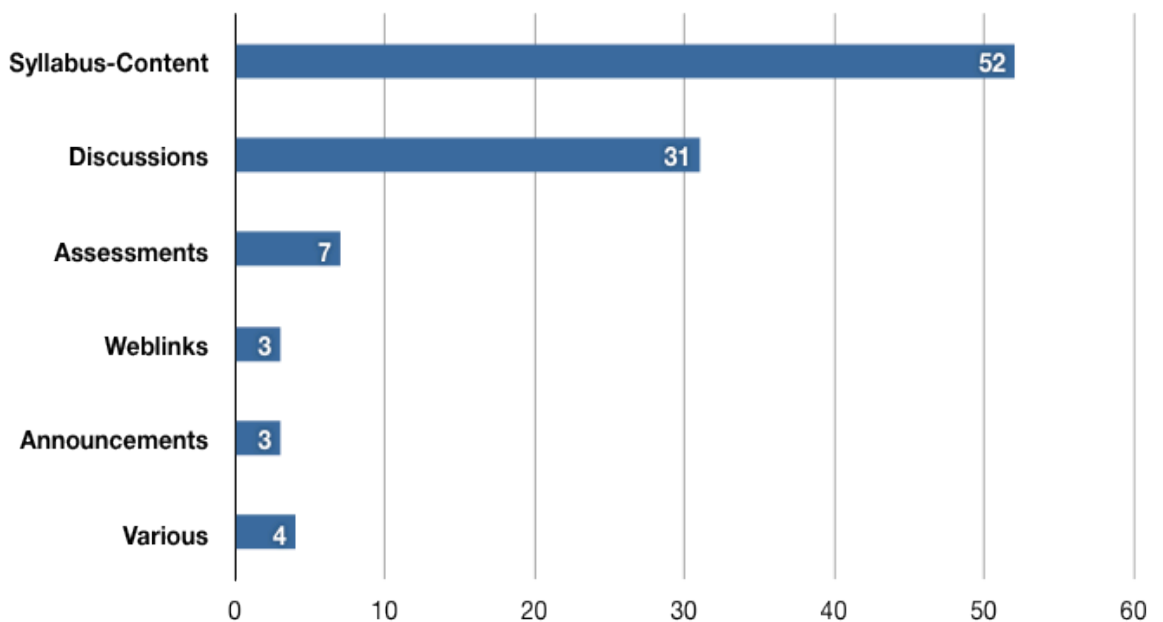
Total number of sessions: 2,867.

Whilst more than half of the total hits were observed on syllabus-related, content pages, a relatively high proportion of usage derived from the discussion threads (31%). A more detailed account of students' access revealed that certain items attracted higher number of attention. These included: the titles and questions for the literature review file (522 hits), the link of the British Journal of Educational Technology (494), the module guide (121) and the guide for referencing (101).

7.3.4 Approaches to learning and use of the VLE in Education: correlation analysis

Following the data logs extraction, I examined whether any correlations existed between students' usage of the system and their approaches to learning.

The chance that the observed correlations between approaches to learning and use of the VLE were significantly different from zero correlation was under question, one way or the other, therefore a two-tailed significance was sought. The r values less than .30 or -.30 were omitted in table 7.5. Correlations were mainly computed between the overall scores on the three scales of the questionnaire with their associated subscales and the use of parts of the VLE. With regards to VLE usage, the values of the following categories were considered for the correlation analysis: number of online sessions, read messages on discussions, posted messages on discussions, viewed entries on calendar, chat, Assessment-sessions began, Assessment-sessions finished, Assignments-read, Assignments-submitted, web links viewed, content folders viewed and files viewed. Table 7.5 below presents the degree of linear relationship between the scores on the revised ASSIST questionnaire and the VLE usage values—a full account can be found in Appendix VII.

Table 7.5: Significant correlations: approaches to learning and use of the VLE in Education

Deep approach		Use of 'Oasis plus'	
		Web links viewed	Files viewed
• **Seeking Meaning**	Sig. (2-tailed)		.445(*)
	Pearson corr.		.023
• **Relating to Ideas**	Sig. (2-tailed)	.416(*)	
	Pearson corr.	.034	

* Correlation is significant at the 0.05 level (two-tailed). Pearson's r values under .300 have been omitted, N=26.

There were two significant correlations at 0.05 level; the first one was observed between views of files available and the scores on the Seeking Meaning subscale of the deep approach to learning (.445). The second was the Relating to Ideas subscale of the deep approach which moderately correlated (.416) with views of the 'Oasis plus' section where the lecturer made available all the external web links necessary for students research.

7.3.5 Interview

After the analysis of the questionnaires, individual students were selected depending on the scores of the questionnaire. I sent invitations to ten (10)

participants whose responses to the relevant items of the questionnaire produced high scores on the deep, strategic and in fewer cases, the surface scale. One student accepted the invitation; the semi-structured interview was transcribed verbatim and responses were subjected to content analysis (Krippendorff, 2003). She scored an average of 4.05 on the deep, 4.33 on the strategic and 3.97 on the surface scale (scale scores from 1=lowest to 5=highest). From the analysis of the interview, which lasted approximately seventeen (17) minutes, sixteen (16) categories were identified: moderate motivation to attend the module, perceived links with professional practice, appreciation of wider reading, combined use of online resources (VLE and library), frequent use of VLE, VLE helpful, online collaboration via the VLE, classroom teaching perceived as 'good', limited and strategic use of VLE, practising of online search skills, VLE useful for uploading 'relevant' material to assessment, VLE good for group work, supportive lecturer, feedback perceived as sufficient.

The student explored new ideas in this module and demonstrated confidence in her approach to tackling the tasks of this module. Some of the online applications were particularly useful for her study and research, and she was keen to refer to the online database as an important resource. Remarkably, the term 'research' was mentioned several times.

> What I thought would be a good idea is if the teacher can upload the slideshow, which we studied every week online, then we can access it and just recap on what we've learnt in the lessons, which I found helpful.

She chose the module since it was one of the core curriculum subjects, which is necessary for teaching in primary schools. She appeared to appreciate the importance of the module:

> it's important, as a teacher, to know the basics of how to use technology in the classroom to implement it, not as a discrete subject but also across curricula, just to support yourself and children in the classroom in learning.

She considered herself a constant user of ICT and cited a number of examples of using technologies, such as whiteboards in the classroom and interactive programmes to engage children. Most importantly, she claimed that she did wider reading, which in her view was important:

..'cause we had to go out and look for an article based upon ICT in schools, so I had to go out and find a journal relevant, an article relevant for the topic which we were doing; just the wider reading, that's how I dealt with it.

The student believed that it was better to use a wide range of resources and strategies rather than solely relying on online means of study. As she put it: 'instead of just using online journals, I'd also go to the library and look at what's in the media at the moment which was relevant to the topic.' She also noted that a more strategic use of the online space on the lecture's side would have helped her access the VLE and recap on what they learned in the lessons. It remained unclear whether she was fully satisfied with the lecturer's strategy or she would have liked a more systematic and rigorous approach to utilising the VLE for this module. Working online with other colleagues did not present any difficulties nor did the platform itself. Crucially, the student appreciated the quality of face-to-face teaching as 'quite good'; she said that everytime her colleagues raised questions and identified areas for which they were not sure, the lecturer adequately addressed these; this felt reassuring and supportive.

> I did use that quite a lot, that was quite helpful because I accessed the database and I could access the journals, so that was really good. That was quite helpful I think. When I was searching, for example, for a specific something it was quite … you had to kind narrow it down and make it really basic as to what you were searching, because, say, I was putting something which was directly linked with what I was studying or my area of research, it didn't really pop up.

Despite this approach, and the fact that she described herself as a wide reading and searching person, the VLE was not particularly helpful in terms of enabling her to expand her knowledge on the module's core themes, ideas and associated practices. Yet again aspects of the learning design were positively perceived:

> What I found helpful is within a lecture we actually were grouped into similar areas we were studying. We spoke with our peers, like the other students in the classroom, which was quite helpful, so I think that's a good way to just share ideas and discuss what we were going to research.

The interview ended with some final remarks on the use of the VLE and her studies. She repeated her recommendations about using 'Oasis plus', i.e. more structured and more consistent with a view to underpin student learning, achievement and understanding; nevertheless, she reiterated her satisfaction

with the quality of face-to-face classroom teaching and shared with me her excitement of starting her teacher training placement in a primary school after summer.

7.4   Summary of the case study

One of the factors that influenced my decision to select this particular case was the role of the lecturer in the department as a learning technologies champion, an informal rather than designated role within the department. The selection of important instances within this case study was obviously limited by logistical and technical limitations. The intention was to see the teaching system in its entirety rather than isolate aspects of it and provide a reductionist account. The collection and analysis of data was dictated by the same holistic rationale. Good response rates underpinned the validity of the various observations; nevertheless, an important element of the module was taking place at primary schools where students observed and taught ICT. This integral part of the module teaching and learning was effectively out of reach since it was not incorporated in any way into the VLE.

The lecturer used the VLE for what it was: a learning management system; she approached it in a somehow disinterested and cynical way because of her experience of using a number of other technological learning tools. Yet her approach was strategic and efficient which helped to encourage her students' deep approaches to learning. The results of correlation analysis at section 7.3.4 demonstrated that the VLE served this scope. Although it is that deep approaches to learning were encouraged and the module leader's commitment and experience played a key role in that, there was an instrumental link between manifested deep approaches to learning and use of the VLE. The module leader did not make any claims that the VLE in particular enriched the learning experience or that it helped students to achieve desirable learning outcomes—an understanding of important issues pertinent to the use of ICT in primary education. The analysis of the correlation between student approaches to learning and their use of the VLE, point to the direction of a deep/strategic use of the technology with no apparent side-effects and a conducive to deep approaches learning environment including, but not overshadowed by, the use of the available institutional technology.

It is important to repeat at this point that the following subscales presented the highest score on each scale: Use of Evidence for the deep approach, Monitoring Effectiveness for the strategic approach and Fear of Failure for the surface approach. The last two results could be seen as two sides of the same coin: a deep/strategic approach to learning with increased expectations of achievement and a fear of failing to a perceived pathway of success (i.e. start of a career as a primary education teacher). Low scores on the Lack of Purpose subscale was also a very characteristic feature of the results presented in table 7.3. The factor analysis of the responses to the ASSIST questionnaire revealed two factors corresponding to a deep/strategic approach to learning in the context of this module as well as a coherent surface approach to learning. The third, weaker consisted of negative loadings on a number of scales and did not offer any clear, legible pattern of student approaches to learning in this instance. The stronger loadings on the factors were observed on the following subscales: Seeking Meaning and Use of Evidence of the deep approach and Alertness to Assessment and Monitoring Effectiveness of the strategic approach. None of these subscales, however, correlated with the use of the VLE. On the contrary, it was the two other subscales of the deep approach that presented moderate correlations with content engagement, i.e. the Relating to Ideas and Seeking Meaning subscales. There is a two-fold explanation for this observation. Firstly, the lecturer adopted a very pragmatic approach in terms of the design of the online context; it was clearly dictated by the need to provide carefully selected resources to cope with assessment and school placement as well as to enhance their research skills (regarding the emphasis on the latter, see the module narrative as well as how students were expected to deal with assessment). Secondly, there was lack of time to elaborate on additional resources and how to support their assignments for assessment—an indirect link to assessment. The VLE, therefore, served as a handy tool to search and explore, and a fairly seamless extension of the classroom environment.

A predominant deep/strategic approach was identified in this module, based on the results of the questionnaire and the confirmatory factor analysis. This approach consisted of responsiveness to the module requirements by demonstrating alertness to assessment and adopting strategies that support deep learning such as regular attendance of lecturers and school placements. Ellis et al. (2006) argued that conceptions of blended learning focusing on critical

investigation of the learning environment are more likely to be related with assisting students to develop original ideas and understanding. In this case, the latter was framed in the context of aligning university learning with professional practice. Conversely, conceptions that give priority to the technological medium rather than the student learning processes are more likely to be related to using the medium simply to deliver content or to substitute a share of the teaching workload. A fine, fairly functional balance was achieved in the learning environment of this case, at least as far as the selected data-gathering mechanisms could explore. Some criticism emerged from the interview regarding the way the VLE was used as part of the wider teaching strategy; this, however, remained subdued and, undoubtedly, the lack of further interviews prevented me from getting a more satisfactory insight. Quite similarly, lack of data on students' assessment prevented the identification of more areas of friction or, indeed, the identification of constituents of the surface approach to learning in that particular setting.

In brief, I propose that the importance the module narrative and the lecturer placed on attendance, school placements and professional practice, played a significant role in her students' manifested strategies of using the VLE. I classified her approach as a student-focused approach to teaching (Prosser & Trigwell, 2004), which was closely aligned with professional practice. It cannot be assumed that the mere availability of an online space supporting the face-to-face teaching experience improved how students experienced their learning. Nor can it be assumed that carefully designed online mechanisms to induce deep approaches to learning, will necessary lead to deep approaches. This case study brings to light a rather eclectic design approach composed of various strategies and responding to a range of students' predispositions. Most importantly, it emphasises that the way students in higher education perceive the use of the online activities and materials consist one of the key elements of appreciating the value of blended teaching designs.

The next chapter will frame this issue and proceed with the cross-case study analysis. It is hoped that the process of viewing the data across the cases, will yield valuable insights into student approaches to learning when technology forms part of the learning equation.

CHAPTER 8

Cross-case study analysis

The eighth chapter compiles a comparative account of the case studies and articulates the assertions of the cross-case study analysis. The chapter is divided in three sections. Initially, I provide a summarised account of conducting the cross-case study analysis. In the second section, I define the assertions made in each individual case along with the cross-case assertions. I argue that approaches to learning in blended environments are varied and context-dependent, and I make some secondary claims, which are associated with each one of the approaches to learning. Section three provides a synthesis of the findings of the two preceding sections, which, in turn, leads to the next chapter, where I assert the contribution of this study.

8.1   Summarised account of the case studies

In summary, I researched the face-to-face and online teaching experience of four undergraduate modules of final year students at Middlesex University; this involved two hundred sixty-eight (268) students, five (5) lecturers and six (6) teaching assistants. In addition to these core populations, I approached other module leaders with the intention to invite them to participate in this research and I liaised with the university's e-learning team as well as administrative staff in the university's schools and central services. A number of other people were indirectly involved by attending my presentations (Appendix I), offering advice and making comments and recommendations. The cases examined the use of the university's VLE, face-to-face lectures and module seminars. The setting was defined as a blended learning environment, a term which was discussed and clarified in detail in the literature reviews and the methodology chapters. At the interview stage, aspects of learning across the programme of study as well as informal learning and off-campus activities were also considered. The four modules corresponded to four undergraduate programmes of study and were offered by three different schools of the university. The total length of full-time study for these programmes was three years, although the student samples included both full-time and part-time students. The first two modules took place over a single semester (approximately five calendar months), whereas the last

two took spanned across a full academic year. The table below gives an overview of the sample size of each case.

Table 8.1: Overview of sample size (N) of all four case studies

Case Studies	Registered*	Attendance (last teaching session)	ASSIST Responses	Confirmed their VLE ID
Information Systems	63	42	37	31
Marketing	97	72	69	54
Management	161	111	111	84
Education	52	43	43	26
Total	**373**	**268**	**260**	**195**

as per initial module registration lists which included inactive students.

Students were given the option to remain anonymous or identify themselves and allow for cross-referencing of their questionnaire responses to the usage of the VLE; the latter was linked to a reward. The sample sizes (N) ranged from 42 to 111 and the response rates from more than half of students to just below three quarters of them (see table 8.1). As explained, the ASSIST questionnaire is a self-report measure and therefore responses may reflect compliance with a norm of social desirability rather than truthful reporting of actual studying habits (Haggis, 2004). However, a larger sample (a total of 268 students in this research) minimises the impact of this kind of isolated response by students. Moreover, I underlined that it was not compulsory to participate in completing the questionnaire, nor was it linked to the assessment of their respective module.

The guiding questions at the final stage of my analysis centred on eliciting the themes emerging across the four cases and formulate them into appropriate assertions. In the wider frame of literature in the area of technology enhanced learning and teaching in higher education, I endeavoured to relate my research to other studies in the field and outline any contribution to the theoretical field. More specifically, this cross-case study analysis aimed at enriching the stream of research in the area of student approaches to learning (Marton & Saljö, 1976a, b; Entwistle, 2000; Biggs, 2003; Ramsden, 2003), particularly those studies which were conceptually related to measurement instruments such as the ASSIST questionnaire (ETL project, 2007). This research provides a wider

understanding of the first studies—conducted with the aim of exploring student approaches to learning in the emerging learning environments—which are characterised by the use of technology-mediated teaching (see a summary of these studies at table 2.1). Recent, mostly phenomenographic, studies in the area of teaching and learning in higher education moved towards examining the nature of interactions between the face-to-face and online context (see table 2.2—most important for the scope of this inquiry, Ellis & Calvo, 2004, 2006; Ellis et al., 2007; Lameras et al., 2008; Ellis et al., 2009, González, 2009; Bliuc et al., 2011;) or else highlighted the necessity of case study analysis as an appropriate methodology for capturing the emerging characteristics of the technology-rich learning context in higher education (Ellis et al., 2007). The next section analyses the findings across the case studies and forms the core of the chapter.

8.2   Cross-case study analysis

The data collection for all four case studies was concluded over the period of three years. During this time the university introduced a new learning and teaching strategy and upgraded its previous version of the VLE, which was at the centre of the institutional 'e-learning strategy'. Based on the comparative analysis of the results prominent themes are mapped out here and relevant conclusions are drawn. This section is split into two parts corresponding to different ways of viewing the data. The first part is a comparative analysis of the ASSIST data with the aim of eliciting some key features whilst the second part forms the core of the cross-case study analysis; it consists of an assessment of the ordinariness of the cases and it articulates the assertions arising from the cross-case study analysis.

8.2.1 Comparison of student approaches to learning across the cases

Comparison of the scores on the ASSIST questionnaire reveals peculiarities across the cases as well as common themes. A comparative table with of the scores on the ASSIST across all four cases can be found in Appendix VIII. Six charts are presented with a view to identify areas of higher variability and relate them to factors in each individual case, which contributed to this variability. Graph 8.1 below depicts the scores on the main scales of the ASSIST

questionnaire (i.e. deep, strategic, surface) across the four case studies whereas the remaining five scores present comparisons on selected subscales where notable variations occurred.

Graph 8.1: Comparison of scores on ASSIST main scales across the four studies
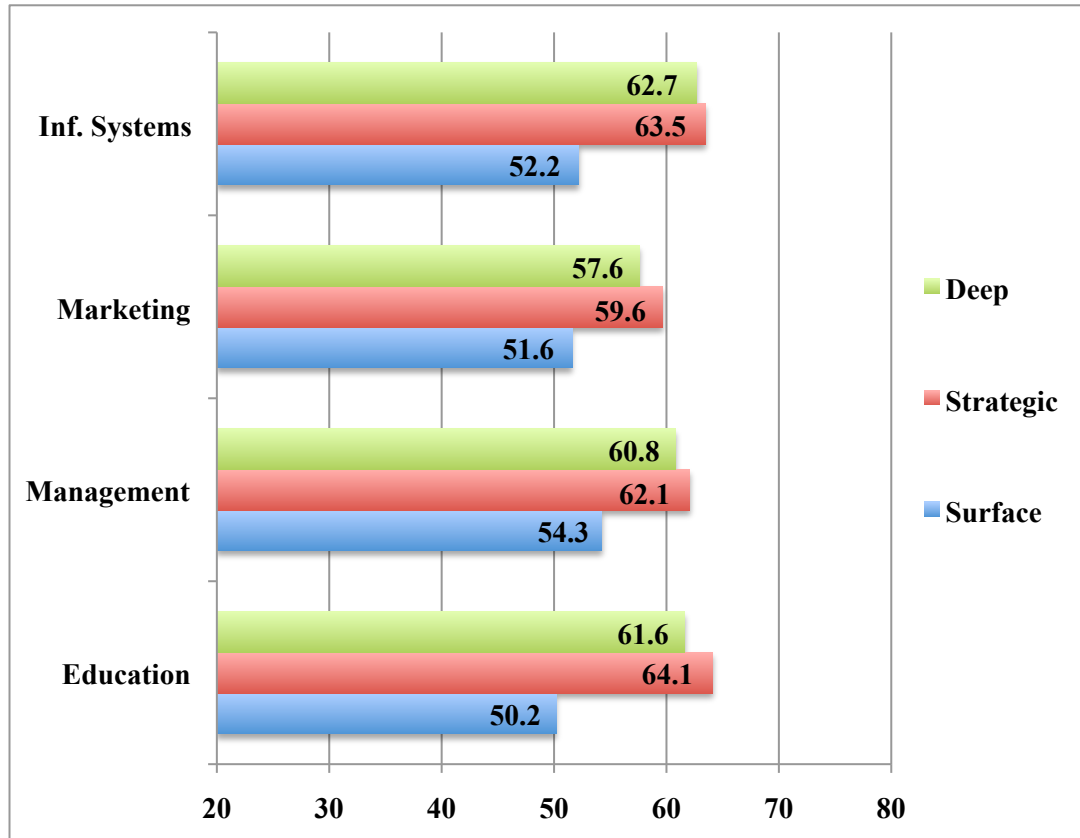
Total possible score on each scale 20-80, figures are rounded to one decimal point; Information Systems N=37, Marketing N=69, Management N=111, Education N=43.

The scores on the scales should be analysed with caution; it is important, however, to bear in mind that the ASSIST questionnaire was validated in large samples, across different institutional and cultural contexts, hence it is a sensitive receptor of contextual factors affecting the teaching and learning environment. Moreover, the sample sizes of these four case studies need to be taken into account in the analysis of these figures. The lowest scores on the deep and strategic scales were observed in the second case (Marketing). A variety of reasons contributed to these comparatively low scores with the most important being students' perceptions of the quality of teaching and their perceptions of the quality of the supporting seminars. It appears that students negatively received the lack of adequate online instruction, particularly since their interview accounts showed that they had experienced successful examples of

online tuition in other modules in the course of their studies. It is unclear to what extent lack of successful online tutoring contributed to this effect. The highest scores on the surface scale appeared in the Management module. Certain concerns reported in the interviews might have affected the scores, such as lack of module organisation, perceptions of heavy or unevenly distributed workload and disengagement with the learning process coupled with anxiety over the end of their studies and their future prospects after graduation.

The first case presented the highest score on the deep approach scale. It may be that the size of the module audience affected students' perceptions of quality of learning, whether face-to-face or online. It could be assumed that this was linked more directly with the enthusiasm shown by the lecturer rather than the effectiveness of his online interventions. Increased level of online engagement might also be associated with the fact that the practice of learning online was seen as intimately linked to ways of thinking and practising (McCune & Hounsell, 2005) in their broader subject area of Computing Science. I pointed out in the description of the module narrative that this was one of the explicit aims of this Information Systems module. It is unclear whether contextual factors related to the provision of online learning affected the scores on the three main scales, although some assertions can be made in the first two case studies (Information Systems and Marketing). Nevertheless, the departmental size and culture probably influenced the student experience in the case of the two Business Studies modules (case studies of Marketing and Management), which were offered by the university's largest school whose provision is tailored towards larger student audiences with a high degree of diversity. Evidence in the frame of these four case studies doesn't support any arguments that technology allowed dealing with more students and, at the same time, enhanced their perceived quality of learning. No such evidence emerged through the interviews or in fact the student approaches to learning as indicators of the quality of the teaching environment.

Subsequently, I compared scores on some of the subscales where notable variations occurred. I clarified at the literature review chapter that the deep, surface and strategic clusters of subscales are all constituted by intentions, learning processes, and motives (Biggs, 1993). The first marked variation was observed on the Use of Evidence subscale, which measures the students' efforts to unveil the underlying reason of what they are taught. The

graph below presents variation across all four case studies of the scores on the Use of Evidence subscale.

Graph 8.2: Comparison of scores on ASSIST subscale of 'Use of Evidence' (deep approach scale) across the four studies
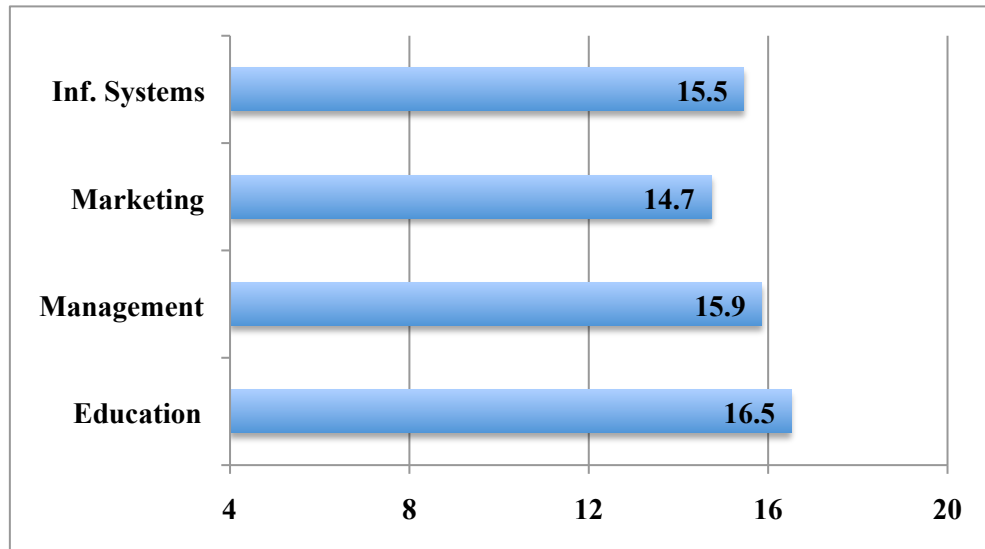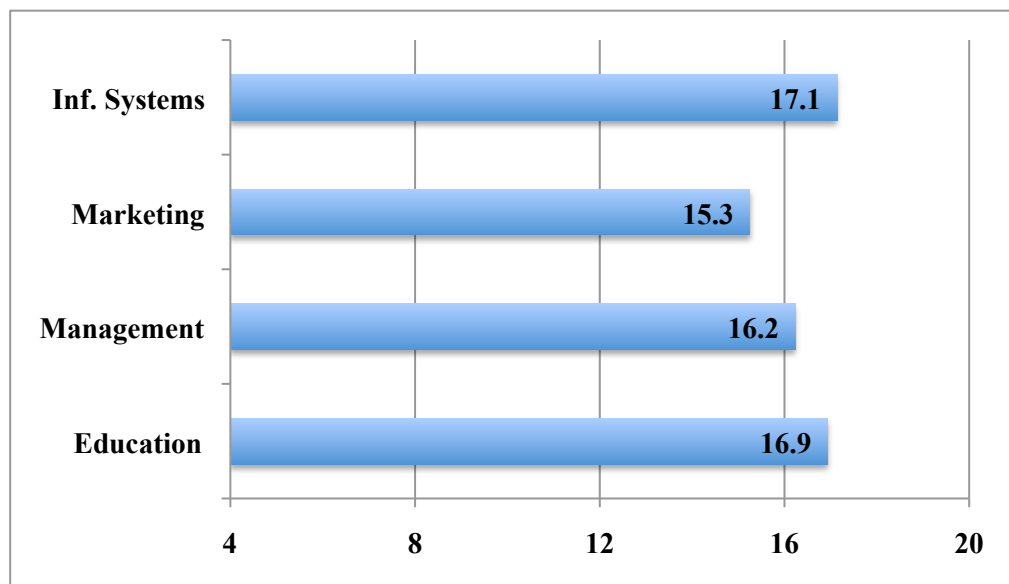

Total possible score on each scale 20-80, figures are rounded to one decimal point; Information Systems N=37, Marketing N=69, Management N=111, Education N=43.

The highest score of the Use of Evidence subscale reflects the nature of inquiry in the Education module where a considerable amount of effort was placed on identifying appropriate resources for teaching, the development of a focus on research skills and prioritising information-seeking skills so that students can compile their professional audit. Another reason might be the alignment of the online environment to this effect, which was manifested by the focus on and, the extensive use of, the 'web links' section. The central role of 'rich pictures' in the pedagogy of Management Studies might have contributed to the higher score in the third case compared to the first and the second case.

Alertness to Assessment is a key subscale of the strategic approach scale that signifies the responsiveness of students' to assessment tips and a predisposition to an exam-oriented approach; it may partially derive from a teaching style, which places major emphasis on students' success in the exams. This was clearly evident in the first case hence the highest score was observed there amongst all four cases. The lecturer's strategy of persistently repeating his expectation that they succeed, formed part of what he believed was a student-centred approach to teaching. The second highest scores were recorded in the fourth case. These can be attributed to the importance of the exams linked to a

progression to a school placement, on the other hand, the cohort size provided increased opportunities for the lecturer to explain better the assessment requirements and for students to comprehend what was expected of them. The last equally applies to the Information Systems and Education case studies, both with cohorts of students approximately half the size of the modules in Marketing and Management.

Graph 8.3: Comparison of scores on ASSIST subscale of Alertness to Assessment (strategic approach scale) across the four studies

Total possible score on each scale 20-80, figures are rounded to one decimal point; Information Systems N=37, Marketing N=69, Management N=111, Education N=43.

Another subscale of the strategic approach scale, Monitoring Effectiveness, summarises the intention and strategies of the students to ensure that the work they put into their study is on parity with the assessment requirements. Students in the Education module scored the highest scores on this subscale; monitoring their progress was an essential component of their studying strategies and was reinforced by the nature of the formative processes the lecturer employed in the classroom. It, therefore, emerged as a key factor enabling a deep/strategic approach. Monitoring their progress was also closely linked with the prospect on an immediate work placement after graduation and the anticipated commencement of their professional career.

Conversely, students of the module in Education scored the lowest scores on the Lack of Purpose subscale, as depicted in Graph 8.5.

Graph 8.4: Comparison of scores on ASSIST subscale of Monitoring Effectiveness (strategic approach scale) across the four studies
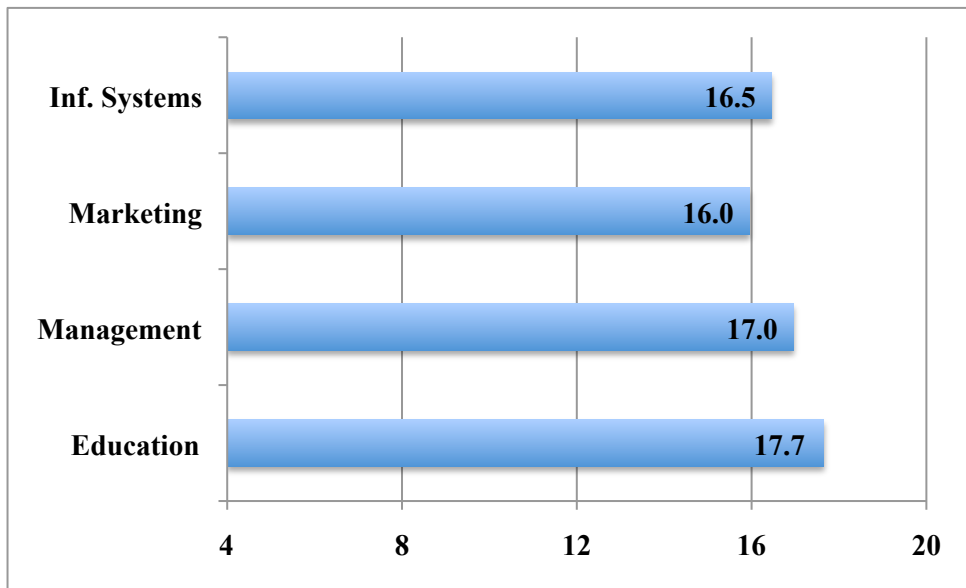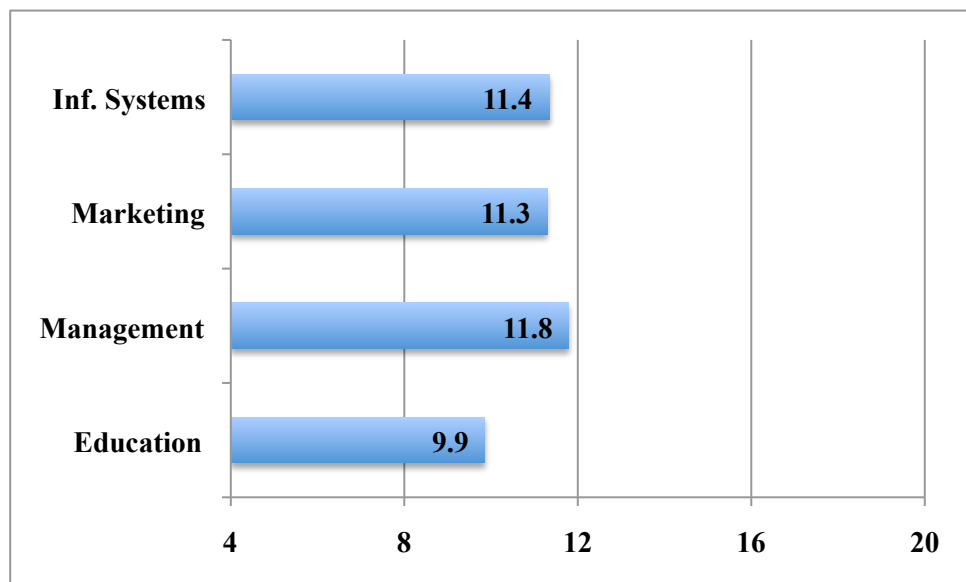

Total possible score on each scale 20-80, figures are rounded to one decimal point; Information Systems N=37, Marketing N=69, Management N=111, Education N=43.

Graph 8.5: Comparison of scores on ASSIST subscale of Lack of Purpose (surface approach scale) across the four studies

Total possible score on each scale 20-80, figures are rounded to one decimal point; Information Systems N=37, Marketing N=69, Management N=111, Education N=43.

Scores on the Lack of Purpose subscale provide an indication of how motivated students are for the programme of study that they attend. Some variation emerged with regards to the scores on this subscale of the surface approach. The lowest score was observed in the fourth case and might be

attributed to the trainee teachers' commitment to finish their degree and the expectation to proceed with their first teaching job in a primary school. Scores on the other three cases were markedly higher, pointing towards a sense of uncertainty over their future prospects after graduation. Besides students' interview accounts, this was also linked with findings on other measurements of the ASSIST questionnaire. Unrelated Memorising, for example, indicates the degree of difficulty for a student to truly understand what they are learning and their resort to memorisation of the taught content when such difficulty becomes insurmountable. The graph below depicts a comparative overview of the scores of this subscale across all four cases.

Graph 8.6: Comparison of scores on ASSIST subscale of Unrelated memorising (surface approach scale) across the four studies
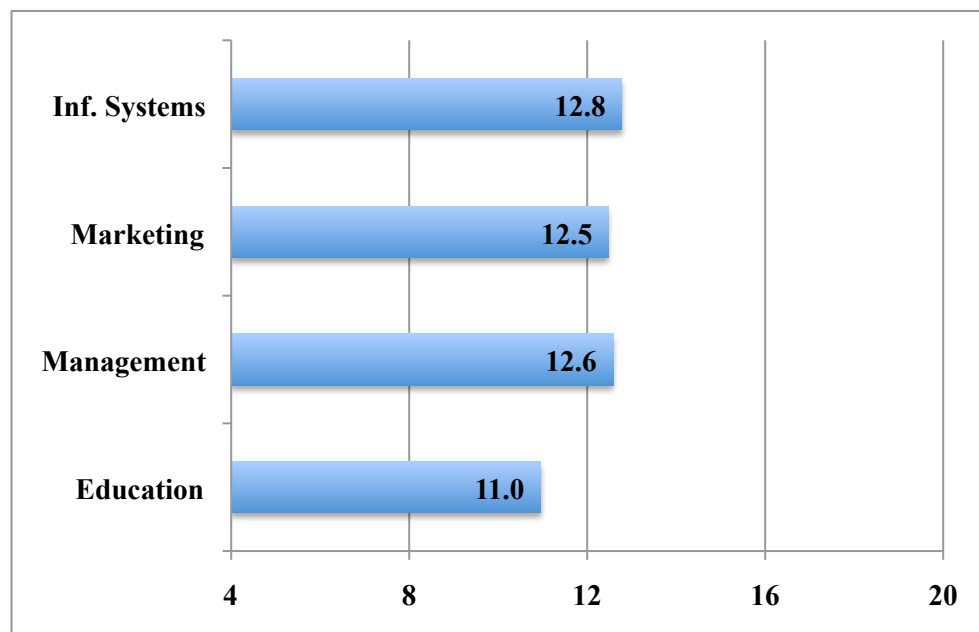

Total possible score on each scale 20-80, figures are rounded to one decimal point; Information Systems N=37, Marketing N=69, Management N=111, Education N=43.

The anxiety induced by the pressure to cover the module content (Management) or the pressure to succeed in their exams (Information Systems), are partially represented in the scores of the graph above. On the contrary, practice-based teaching, the importance of inquiry and the emphasis on the development of research skills in the module narrative as well as the design of the module assessment, appeared as factors that positively influenced the scores of the fourth case which presented the lowest mean amongst all cases.

In summary, highest scores of the deep scale in Information Systems module, the strategic scale in Education and the surface scale in Management are the key indicators for all four cases. Additionally, I noticed the variations in the subscales of Use of Evidence, Alertness to Assessment, Unrelated Memorising, Monitoring Effectiveness and Lack of Purpose, of which the last two inversely relate to each other. Whilst the four module contexts retained their uniqueness and therefore it is difficult to ascertain direct cause-effect relationships when interpreting the variations across the scales, the interviews with the students and the teaching observations were an invaluable source of data which gave me an insight into the intricacies and nuances of the learning experience in each module. I, therefore, elicited the following factors as significant in terms of shedding light to the variation observed in the five subscales: the strength of the link with professional practice, the prospect of future employment (or the lack of), the size of each cohort, the perceived role and significance of assessment, and, finally, the lecturer's approach to teaching. Many other factors influenced students' perceptions of the learning context; it is the aforementioned areas, however, that seemed to carry a special weight in all four of the case studies. Despite the research focus on the online component of the teaching design, the role of the VLE or the quality of online instruction did not feature as a consistent, important theme in terms of explaining the variation across the cases. I underline that approaches to learning as measured by the ASSIST questionnaire capture both individual predispositions as well as the contextual variability that arise from students' perceptions of characteristics of the teaching and assessment regime. Naturally, they tend to change markedly overtime, sometimes even in the course of a semester or a period of a few months, especially if this period of time coincides or leads to an important learning instance (inductions, summative assessment etc.). I attempted to give a picture of student approaches to learning as they were represented by their responses on each scale of the ASSIST questionnaire and their associated subscales. Whilst some caution needs to be exercised when comparing the mean scores of the scales and subscales of the questionnaire, viewing the data in such way enabled me to elicit some powerful factors behind student learning in the four contexts, i.e. links with professional practice, prospect of future employment, cohort size, perceptions of assessment, approach to teaching.

Identifying these factors enabled me to frame the cross-case assertions with a better understanding of the dynamics of each context.

8.2.2 Ordinariness of the cases and cross-case study analysis

In the first place, I estimated the ordinariness of each case within the wider university context. Furthermore, I estimated the utility of each theme under examination. In table 8.2, I added 'H' for a high manifestation of a theme and 'M' denotes some manifestation. High manifestation means that the theme is prominent in a particular case study. A highly unusual situation is one that is expected to challenge the generality of a theme or themes, but no such setting was observed in any of the four studies. Utility descriptors enabled me to mark how useful a case study is for developing a theme. High utility (H) meant that the case appeared to be one of the most useful with M and L used to denote middle and low utility respectively.

Table 8.2: Estimates of ordinariness of the case studies and cross-case themes

		Information Systems	Marketing	Management	Education
Original Cross-Case themes as per initial research position	Deep approach and use of technology	L	L	L	H
	Strategic approach and use of technology	H	L	M	L
	Surface approach and use of technology	M	M	L	L
Added cross-case theme	The impact of teacher's approach to face-to-face teaching on student approaches to learning online	H	M	H	H

I highlight the two somehow unusual situations of Information Systems and the Marketing module. Both approached the extreme end of the university's setting in terms of online usage. None of them, however, can be classified as an extreme case; the Information Systems module was characterised by lively, weekly teaching sessions, which illustrated the significance of the face-to-face teaching, despite the lecturer's constant encouragement to use the VLE. On the other end, the low level of use of the VLE in Marketing was still considered higher than modules without any online presence or others with a mere upload of

a limited number of files. The remaining markers denote the level of presence of one theme in a given case whilst the added cross-case theme of the impact of teacher's approach to teaching was examined across the board.

Subsequently, I collated the key findings from all the case studies according to the initially proposed research themes—approaches to learning and use of the VLE in blended learning. Table 8.3 presents the results of this process. I started with each case study, identified the prominence of several themes and looked for utility in the cases to develop them. Then I looked at the findings of the within-case study analysis and described their relevance to each theme. I considered the themes one by one to see what the case findings provided, but I continued to bear in mind the situatedness and uniqueness of each case through the findings. This has been a prominent and crucial theme of my methodological approach, which reflected my epistemological stance, as well as my endeavour to capture the individual features of each context. Table 8.4 summarises the drafting of the main assertions. It is divided into two sections: the upper section summarises the main approach-specific assertions, whilst the lower section of the table contains the more general assertions deriving from the analysis of all four cases. Each cross-case assertion is consequently analysed.

No solid correlations between a deep approach and use of the VLE; a student-centred approach to teaching, however, can induce extended use of selected facilities of the VLE by students who adopt a deep approach.

Despite earlier assumptions in the literature (see summary of first round of studies in the literature reviews chapter, table 2.1) and plenty of anecdotal evidence that a deep approach to learning is linked with elaborate, sophisticated use of technology, no steady, consistent correlations were found between a deep approach and use of the VLE in the context of the blended learning environments of these studies. A student-centred approach to teaching can, nevertheless, induce use of selected facilities of the VLE by students who adopt a deep approach.

As demonstrated in the fourth case study (Education), components of a deep approach to learning were manifested in the students' tendency to discern and use the aspects of the technological medium that would best support their

Table 8.3: Overview of findings and special findings of all four case studies

	Information Systems	*Marketing*	*Management*	*Education*
Deep approach and use of the VLE			⇒ Use of Evidence correlates with section of external resources and Syllabus-Content	⇒ Seeking Meaning moderately correlates with access to content ⇒ Relating to Ideas moderately correlates with view of external links
Strategic approach and use of the VLE	⇒ Moderately correlates with frequency of VLE access ⇒ Moderately correlates with online assessment ⇒ Organised Study moderately correlates with frequency of access ⇒ Organised Study correlates with using Discussions ⇒ Time Management strongly correlates with use of online assessment ⇒ Monitoring Effectiveness correlates with frequency of VLE use	⇒ Lack of correlations between approaches to learning and use of VLE or any sections of it	⇒ Strategic scale correlates with external resources and Syllabus Content ⇒ Time Management strongly correlates with number of online sessions, external resources and syllabus content ⇒ Alertness to assessment correlates with external resources ⇒ Monitoring Effectiveness correlates with syllabus content	
Surface approach and use of the VLE	⇒ Unrelated Memorising correlates with access of content			
Special findings				
	⇒ a student-centred approach to teaching inducing alertness to assessment	⇒ a teacher-centred approach reflecting contextual pressures ⇒ Lack of consistency in the provision of technology enhanced learning at programme level	⇒ a teacher-centred approach to teaching pedagogies with some opportunities for student-centred strategies ⇒ Lack of consistency in the provision of technology enhanced learning at programme level	⇒ a student-centred approach in close alignment with professional practice

Table 8.4: Cross-case study assertions

	Assertions	Evidence in cases
Approach-specific Assertions	No consistent, 'cause-effect' correlations between a deep approach and use of the VLE—a student-centred approach to teaching, however, can induce extended use of selected facilities by students who adopt a deep approach. Students who adopt a deep/strategic approach were more likely to selectively use the aspects of the online learning environment that support their way of studying.	Case study of Information Systems and Education in relation to/contrast with the remaining case studies.
	A strategic approach is consistent with higher use of the VLE, provided that the approach to teaching alerts students to assessment and the VLE is an integral part of the teaching approach.	Case study of Information Systems in relation to/contrast with the remaining case studies.
	A surface approach to learning and studying is associated with lack of interest for VLE as part of their studies. However, perceptions of an increased workload may lead to increased or excessive use of the VLE.	Case study of Marketing in relation to/contrast with the remaining case studies. Case study of Information Systems in relation to/contrast with the remaining case studies.
General Assertions	Face-to-face approach to teaching influences student approach to learning in the online component of a blended learning context.	All four case studies examined independently, and in relation to each other.
	Variability of case study assertions corroborates the relational nature of approaches to learning and the use of technology in blended learning environments.	All four case studies, independently as well as in relation to each other.

way of studying. This was also evident in the interviews of the Management case study and the results of the correlation analysis of the Education case

study. It is a characteristic that can be more confidently associated with a mixed deep/strategic approach since many of the correlations on the strategic approach in the Information Systems and Management modules point to the same directions. It is also underpinned by the fact that the construct validity of the ASSIST questionnaire produced a combined deep/strategic item in three of the four case studies (Marketing, Management, Education), a result that blurred the boundaries between the two approaches. It is unclear to what extend such a selective use of aspects of the online environment can be attributed to contextual influences or the active choices and predispositions of the students themselves. Some degree of association can be confidently identified between a student-centred approach to teaching and the demonstration of a deep approach to learning that encompasses selective, sophisticated use of features of the online learning environment. As explained, such a clear link was evident in the Education module. Nevertheless, some caution has to be exercised in terms of this assertion since the findings of the first case study give a slightly different perspective. The teacher's emphasis on assessment in the Information Systems module led students to a more instrumental usage of the VLE; this was evidently reflected in the strength of the correlations between subscales of the strategic approach and VLE usage. Therefore, it can be assumed that his emphasis on assessment and student achievement superseded the impact of his overall student-centred approach to teaching, and veered his students towards a more utilitarian usage of the VLE.

A strategic approach can be consistent with higher use of the VLE.

Following on for the previous assertion, it can be argued that a strategic approach can be consistent with higher use of the VLE, provided that the approach to teaching places significant emphasis on assessment and student achievement. This assertion is based on the number of correlations that emerged in the first case study, the strength of these correlations and what appeared to be a strong influence in the setting, the teacher's focus on assessment and achievement. As illustrated in table 8.3, a number of correlations were revealed between elements of a strategic approach and use of the VLE in the Management module. While several assumptions can be made about these correlations, there was not a single, clear factor that could be

distinguished as a key drive behind these observed correlations. It is worth noting that the lecturer's conception of the role of technology—an enthusiastic yet not critical assumption that technology per se enhances the learning experience—might have significantly influenced his students' perceptions of the quality of the learning environment. Another relevant item was students' lack of time for completing their academic tasks, which made them act along the lines of a strategy that can be seen as 'making more with less'. Since there was not a direct, unambiguous relationship between any of these and the way students used the VLE in Management, I did not draft an assertion solely based on the findings of the Management case study.

A surface approach can be associated with lack of interest for the VLE

No consistent patterns across the four cases were confirmed with regards to a surface approach to learning and use of the VLE. Contrary to common, simplistic assumptions held by teaching staff, early case study reports and anecdotal evidence, there was not evidence to support that a surface approach is associated with resistance to the technological medium, persistent patterns of abstention, or limited use of it. Nevertheless, a surface approach to learning and studying presented associations with lack of interest for the VLE as part of their studies. Students' perceptions of increased workload appeared to relate to increased level of use of the VLE and the scale of Unrelated Memorising was found to correlate with increased content access in the Information Systems module. This can be seen as a response to lecturers' expectation that students regularly utilise the online space including the discussion forum. Moreover, it was reflected in students' perception of excessive workload, which was exacerbated by the demand to manage their online learning tasks on top of other requirements, such as attendance of lectures and seminars, completion of formative assessments and preparation for the exams.

The teachers' approach to face-to-face teaching can influence how students demonstrate their approach to learning in the online context.

Exploring the relationship between a teacher's approach to teaching and how it impacts on student approaches to learning was not the prime focus of the

current inquiry. It is rather that the above assertion emerged as an unintended outcome of this study where approaches to teaching were treated as a contextual factor observed in the process of implementing the research plan. How the four lecturers went about their teaching was categorised either as a student-centred or a teacher-centred approach, a categorisation that reduced much of the complexity of their teaching strategies into two broad, opposing constructs. While it is acknowledged that this distinction oversimplified the intricacies of the teaching activities, it was a useful analytical tool that enabled me to gain an insight into the influence of a crucial important factor—the teacher's approach to teaching. The most striking example of a face-to-face approach to teaching affecting the student approaches in the online context was evident in the first case study. A student-centred approach to teaching encouraged an instrumental use of the technology particularly aiming to achieve the 5% assessment weighting that was allocated to online participation. The lecturer's orientation towards assessment and achievement was substantiated by frequent references to success, suggestions of efficient study methods and an abundance of assessment-related cues. Such cues were persistently present in plenary sessions, and opening and closing teaching activities. While his online presence was less prominent, his face-to-face teaching strategies had a direct impact on the strategic use that students made of the online environment, as evidenced by the number of emerging correlations between the strategic approach and use of the VLE. Although the picture was less clear in the following two case studies, the teacher's approach to teaching re-appears as a powerful factor in the fourth case study. The confidence of the lecturer to bridge the online and the face-to-face aspects of her teaching led to correlations between a deep approach and how students used elements of the module VLE in a way that enhanced construction of disciplinary knowledge, and professional practice.

Variability of results corroborates the relational nature of approaches to learning in blended learning environments.

The variability of the results across the four cases underlines the relational nature of approaches to learning in university settings where face-to-face teaching is supplemented by online strategies and resources. This was evident in the differences of the scores on the scales of the questionnaire across the four

cases and, more importantly for the scope of this study, the different correlations that were revealed between approaches to learning and use of technology. It is reiterated here that evaluating the quality of blended learning is not necessarily an unchallenging pursuit as technologies underpin only one part of the learning process that students participate in. The nature of the teaching and learning environment of each individual case was conducive to nurturing different approaches to learning, which were underpinned by the relational usage of the technological medium. The research showed that, to a substantial extent, this also nurtured varied approaches to using technology as part of students' responses to the demands of the academic tasks.

8.3 Summary

The chapter offered a summarised account of the case studies and stated the main assertions of the cross-case study analysis. It provided a comparative overview of the samples involved and ascertained the response rates of each sample. A comparative review of the scores of the ASSIST questionnaire was combined with other observations pertaining to each setting, and resulted in extracting five prominent factors that explained the variation in distinct aspects of student learning across the four cases; these factors were the strength of the link with professional practice, the prospect of future employment (or the lack of such prospect), the size of each cohort, how students perceived assessment, and the teacher's approach to teaching. Eliciting these factors shed light on the dynamics of each context, particularly with regards to how student approaches to learning were demonstrated in each case study.

The assertions deriving from comparison of the findings of the cases drew a picture of nuanced, context-dependent approaches to learning in the blended teaching settings under examination. The analysis of the findings across cases led to an enhanced understanding of how student approach their academic tasks in blended learning settings and in particular how they use technology in these settings. Findings indicate, however, that a deep approach can be consistent with students discerning and using aspects of the online component of the blended environment if such a strategy enhances their study. Additionally, a strategic approach was found to associate with extensive use of the online learning environment; such an extensive use presupposed the existence of a

teacher's approach to teaching that focuses on assessment, and technology is perceived by students as instrumental to get the best possible marks. The study concludes in the next chapter by reviewing the results in light of the theory of student approaches to learning. Crucially, the next chapter illustrates the contribution of this research and endeavours to refine the themes of the most relevant contributions to the field. Implications of the results of the study are discussed in terms of educational theory in higher education, disciplinary aspects of use of technology, teaching and programme design; such areas delineate directions for future research and perspective on student learning in tertiary education.

CHAPTER 9

Discussion and conclusions

Overall, the study strove to reach an understanding of the relationship between student approaches to learning and the use of technology in the context of blended environments. I adopted a holistic approach through which I endeavoured not to separate the technology-supported aspects of learning from the whole teaching and programme design. I saw the technological medium, the VLE, as an important constituent of a blended design; I acknowledged that this refers to the learning context rather than the students themselves, since concepts like blended learning or technology enhanced learning signify very little to them. In the process, I encountered certain limitations and areas of troublesome methodological and conceptual bearing. I recognised that a significant part of innovation in higher education has been driven by technological advancement (Laurillard, 2012). Waves of innovation trigger debates about the promise of the new media and how these can give 'solutions' to educational 'problems'. This process of identifying the educational options of new media, however, encourages an approach where 'the new replaces the old, [the] community of professional practice is undermined, and technological carts come before educational horses' (Goodyear & Ellis, 2008: 142). Such an approach means that in every round of technology-mediated change, questions of replacement tend to prevail over questions of integration—how new media should integrate with what is already available (Goodyear & Ellis, 2008). Therefore, questions and conceptions of integration and harmonisation were the main motivation behind the current inquiry.

9.1   Synthesis of findings and contribution of this study

The overall picture from the cross-case study assertions provides an account of evidence of the relational nature of student approaches to learning with technology in the context of blended learning environments. The current research makes a contribution in two areas. Firstly, by enhancing the understanding of the relational nature of student approaches to learning, it adds to the stream of research that identified ways of how students approach learning

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when using technology in contemporary higher education settings (Goodyear et al., 2005; Ellis et al., 2006; Ellis et al., 2008; Bliuc et al., 2011). Secondly, it extends the width of the stream of research that recently focused on the teacher's experiences of their own teaching in higher education, where face-to-face teaching is supplemented by technology-mediated content and interactions (Ellis, Steed & Applebee, 2006; Ellis et al., 2009; Gonzàlez, 2010; Lameras et al., 2012).

Regarding the cross-case assertions, these are framed in light of one of the perspectives of the student approaches to learning literature, which sees learning primarily as a matter of context. A learning approach is influenced by an array of personal and contextual factors, including students' prior educational experiences (Ramsden, 2003). One aspect of these experiences identified as being influential in students' subsequent approaches to learning a subject is their prior approach to learning that subject (Prosser & Trigwell, 1999; Shanahan & Meyer, 2001). In explaining the role that such predispositions play in learning, Ramsden (2003: 51) commented:

> Although it is abundantly clear that the same student uses different approaches on different occasions, it is also true that general tendencies to adopt particular approaches, related to the different demands of courses and previous educational experiences, do exist. Variability in approaches thus coexists with consistency.

The evidence arising from the cross-referencing of the case studies supports the proposition that approaches to learning in a blended learning context are more context-dependent strategies than natural predispositions. Whilst I was keen to place methodological and conceptual emphasis on the contextual factors affecting blended learning, approaches to learning in such settings can eventually be seen as a result of an interaction between the student and the context; this interaction, I argue, is taking place in a number of yet-to-be-identified ways between the face-to-face and online context. The correlations emerging from the within-case study analysis, as well as the cross-case study assertions, encourage further inquiry in terms of identifying the shape, way, direction and form of these interactions and inform studies which investigate the blurring of boundaries between face-to-face and online contexts. Furthermore, the variability of the results corroborates that approaches to learning online as part of a blended design are dependent on the level as well as the quality of the online instruction and its interdependency on face-to-face teaching.

Consequently, the results of this analysis, add to the body of evidence against the pigeon-holing of individuals into narrow categories which was quite rightly condemned (Coffield et al., 2004); as far as online and blended learning are concerned, such evidence attests against perpetuating unfounded divisions of learners according to various learning styles.

On the second side of contribution of this study, the current study points towards links between teacher's approaches to face-to-face teaching and student approaches to learning in the online context. An apparent link between these dimensions implies that the way individual teachers use a VLE for blended learning can be attributed to pedagogical assumptions underpinning their face-to-face teaching rather than what the VLE offers them and their students. This currently remains an uncharted territory in terms of the existing literature and the required methodologies for traversing this nascent area of inquiry. The current study did not specifically focus on exploring teachers' approaches to teaching and their impact on the student experience of learning online. It was more that a holistic approach to student approaches took into account the role of the teacher in the four case studies. While the strength and the quality of the evidence deriving from these cases points towards an association between teachers' approach to teaching and student approaches to leaning online, it is far from conclusive and lacks the robustness that a large-scale, methodologically holistic, longitudinal, cross-disciplinary study could have offered. The contribution of this study, therefore, is defined by opening up in conceptual and methodological terms a channel of a so far hidden track of interactions in the university teaching environment, with implications for teaching and programme design, academic development and evaluation of the quality of student learning.

As indicated in the literature reviews, some ground has recently been covered in the area of teachers' conceptions of, and approaches to, blended learning and the current study supplements some of the arguments presented in these studies. Ellis and Goodyear (2010) maintained that students reported that online components in their programmes added significant complexity to learning tasks, and found that some instructors considered the online component of their programme as simply another way to deliver information, sometimes a mere add-on to the weekly lecture. Other instructors valued 'developing student thinking and knowledge building' (Ellis & Goodyear, 2010: 98) or valued 'e-Learning as a medium to support knowledge-building tasks' (González, 2010:

68). These teachers typically grow more confident in their ability to design valuable e-learning tasks over several years of experimentation, and such confidence and competency was observed in the cases of the lecturers of the Information Systems and the Education module. Certain conceptions of learning technologies are more about efficiency and the technologies themselves, while others are comparatively more orientated towards enabling learning (Ellis et al., 2009). Although I have not analysed in depth the discussion threads of the first case study, these indicated that certain approaches to teaching with technologies make more of the affordances of the technologies, such as enabling communication about task objectives and provide new ways of experiencing learning by encouraging students to take more responsibility for their learning. In the first case study there was a clear intention to move in this direction, even though alerting students on assessment requirements ultimately dominated the lecturer's pedagogical agenda. Similar approaches generally tend to be situated in dialogue with the face-to-face experience, are often aligned to the programme outcomes, and are aimed at developing an applied understanding (Ellis et al., 2009). This approach was more amply manifested in the fourth case study through the design of additional resources aiming at the enhancement of students' research skills. In contrast, other approaches to teaching design are orientated towards information delivery, and tend to be associated with approaches to design that do not display an awareness of how to integrate them to support student learning (Ellis et al., 2009), as evidenced in the third case study.

9.2 The effect of disciplinary differences on the use of learning technologies

In principle, the thesis acknowledged that disciplinary differences affect how learning technologies may be used in the teaching and learning process, and disciplinary differences were briefly discussed in this thesis. Earlier studies unveiled the epistemological beliefs and the knowledge structures of disciplinary areas (Kolb, 1981; Becher, 1994; Neumann et al., 2002) and these studies can partially assist in terms of appraising the usefulness and effectiveness of learning technologies across various disciplinary areas. In this study, the core learning technology was an institutional online learning environment (the VLE) and a

number of digital resources, which were made available in various ways across the four case studies. The way the lecturers chose to use the online environment pointed towards some level of divergence, which appeared to affect the use of the technology within the disciplines and the effectiveness of the VLE itself.

The four disciplines examined in this cross-case study analysis were viewed under the prism of Becher's (1994) taxonomy of knowledge and four disciplinary groups: pure sciences ('hard pure'), humanities ('soft pure'), technologies ('hard applied') and social sciences ('soft applied'). The nature of knowledge in the first module was purposive and pragmatic, detailing the know-how of information systems methodologies; it was concerned with the mastery of knowledge resulting in certain techniques of developing information systems. On the other end, the fourth module in Education was typical of applied social sciences ('soft applied') and the nature of the knowledge was functional, directly aiming at the enhancement of professional practice and resulting in protocols of professional conduct. The Marketing and Management modules can be located somewhere between these two ends of the Information Systems and the Education module. Both of these subjects (Marketing and Management), however, were more concerned with functional knowledge, so they are categorised closely with the 'soft applied' end of Becher's spectrum.

There were links between the online pedagogy, the design of the online spaces, the use of digital resources and how the four subject topics were taught and how disciplinary knowledge was created and shared. There were also varying levels of success in terms of how well these factors (online pedagogy, online design and digital resources) supported the disciplinary knowledge and their associated professional practices. I deemed this the most significant criterion with regards to assessing how well the technology was employed in the modules. Students in Education were directed toward journals, e-journals and links containing information presented by relevant professional bodies; the lecturer allocated a special section for this purpose and therefore the design of the online space successfully underpinned the objective of creating utilitarian professional knowledge. Mixed success was observed in the Information systems and Management modules. The modeling of thinking processes required for the understanding of Information System methodologies was not fully supported online, although the lecturer was more efficient in the lecture hall. Components of successful teaching in the lecture hall were the enthusiasm of

the lecturer, the modeling of thinking through metaphors and abstractions, and the frequent dialogue with the students, which aimed to challenge their existing conceptions of the disciplinary knowledge. None of these were discerningly visible in the online environment; the VLE imposed certain pedagogical constraints and the lecturer did not manage to overcome these to bridge the gap between online and face-to-face settings. The nature of knowledge in Management was more functional and presented a challenge in terms of how the design of the VLE would support the sharing of applied practice in business settings. Whilst the lecturer made available a range of 'real world' resources, such as case studies, these were presented as static learning objects within the environment rather than engaging, interactive resources. Equally, the presence of 'rich pictures', a key pedagogical tool in Management, was prominent in the online setting, yet these were not explicitly aligned to the learning outcomes and the teaching activities in the face-to-face and online context.

The study set out without any preconceived notions about the appropriateness of technology enhanced learning for specific disciplines. Evidence arising from these four cases does not support any claims that technology can be particularly beneficial for some disciplines, while it may be proved less helpful for others. It is, I argue, the design of the online learning environment and the active choices that the teacher makes within the environment, that determine how creatively and effectively the creation and sharing of disciplinary knowledge is supported. Limited, yet not insignificant, discipline and task differentiation seems to be transferred in the arena of online interactions (Kemp & Jones, 2007). This is not surprising, considering that each discipline has its own epistemological and cultural form, and has certain established ways of engagement with academic knowledge (Beecher & Trowler, 2001). It is the role of technology enhanced learning to recognise the salient mechanisms of creating and sharing knowledge in each discipline and accommodate for their seamless operation.

9.3 Approaches to learning in blended learning environments: limitations, gaps, uncertainties

In a workshop on formative e-assessment that I attended, Professor Diana Laurillard asserted that 'learning has always been difficult […] learning

with technologies has been even more difficult' (Laurillard, 2009). This was a statement of influence in my thinking and certainly one that challenges the optimism (or banality) of educational discourses, which construe learners as ever achieving, successful subjects (Land & Bayne, 2005). I contemplate that this possibly applies to research on learning with technologies and, as far as this study is concerned, I believe that certain gaps, puzzles and uncertainties will continue to exist in this area. Some of them are quite obvious: the current research points towards the impact of teacher's approach to face-to-face teaching on student approaches to learning in the online context, which might highlight areas of improvement in the design of blended teaching. This, however, remains an assertion of limited value in the context of exclusively online learning where no face-to-face teaching is involved. These areas are more closely linked with the way this study was designed and unfolded, and are explored in the following section.

In reading and interpreting the case study assertions, its limitations become apparent. Firstly, while the ASSIST questionnaire is an accurate indicator of approaches to learning of a cohort of student, it does not give a full picture of the complex functions of an individual student. The analysis of the results from the questionnaire confirmed the appropriateness of inventories designed to measure student approaches to learning, and it was confidently manifested in the results of the factor analysis examining the construct validity of the questionnaire. Moreover, it captured subtle peculiarities of learning environments in the respective case studies. The interviews were useful in terms of strengthening the assertions made in the previous section and shedding light in every unique learning context. Secondly, while I accepted that evaluating the nature of the module assessments might have been useful in explaining how students approached their academic tasks, this aspect was not incorporated into this inquiry. Students, nevertheless, constantly adjust their strategies of learning so that the can respond to the requirements of the assessment regime (Harris & Bell, 1986) and this was amply demonstrated in the follow-up interviews, particularly in the two cases of Business studies modules. Formative online assessments were part of the design in two of the case studies and recent literature explored the impact of formative e-assessment in terms of formative online tests (Angus & Watson, 2009), online Multiple Choice Questions and Electronic Voting System (EVS), the impact on deep learning (Draper, 2009), e-

assessment through e-portfolios (Barbera, 2009) or the potential of free-text questions with tailored feedback (Jordan & Mitchell, 2009). Most importantly, other studies emphasised that ICT can enable desirable learning outcomes to be achieved, but these 'must be underpinned by an assessment strategy that cues students to adopt a suitable approach to learning' (Kirkwood & Price, 2008: 5).

Thirdly, larger samples and gathering of data from more than two universities using the same VLE would have been useful in terms of interpreting a possibly wider variation in student approaches to learning, and unveiling more of the contextual factors that contribute to such a variation. The study only explains some of the variance that is found in a university environment and consequently provides strong indications rather than absolute conclusions. It is my conviction that any definite 'conclusions' about learning must be met with scepticism, as such definiteness is fundamentally not compatible with the nature of learning: a fuzzy, non-linear, quite often random phenomenon.

Finally, the sample sizes of the first and fourth case studies were relatively small and below the threshold of what some may consider acceptable for a robust statistical analysis, particularly for one that sought to extract factors through factor analysis of data sets. Nevertheless, this limitation was addressed in the methodology chapter where I explained that the output of the statistical analyses is integral to the case study methodology, and should be interpreted as such, rather than as an independent statistical analysis seeking to establish cause-effect relationships of any kind. Despite these limitations, the study provides useful insights on university student approaches to learning in blended learning environments, particularly in the area of interaction between the face-to-face and online context. Obviously, some of these limitations offer directions for the development of further research focal points, and the development of appropriate methodologies to elicit new themes of the emerging learning environments.

9.4   Recommendations

The cross-case study analysis illustrated the variability of approaches to learning in blended learning contexts and highlighted the relational nature of students' use of technology in blended learning contexts; further, it indicated some of the important factors that shape students' strategies and intentions that constitute their approaches to learning. Laurillard (2006) notes that the nature of

the medium itself has a critical impact on the way they engage with the knowledge being mediated, and this was one of the drivers to initiate this study—she explains:

> The oral medium has the strength of having greater emotional impact on us, which enables action through motivation; the written medium has the strength of enabling a more analytic approach to action...The interactive computer provides a means for representing information and ideas not simply as words and pictures, but as... an information system, which embodies a working model with which the user can interact—not just analysing and reworking, but testing and challenging...Yet the focus has been on the presentation of the information to the user not on the tools for the user to manipulate information....Those of us working to improve student learning, and seeking to exploit e-learning to do so, have to ride each new wave of techno-hype and drive it towards the quality agenda.
>
> (Laurilllard, 2006: 71, 77, 78)

The extract underlines the potential of different media and addresses the most crucial issue of how desirable approaches can be encouraged through appropriate programme design and engaging technology-mediated environments. Bowden (1990) suggested that suitable modifications to students' learning environment can result in the adoption of the desirable approach to learning, and he identified several common characteristics in programmes of study that tend to encourage the surface approach (e.g. many short units, immediate assessment, grades being the only feedback etc). Inversely, a suitably challenging programme design can encourage a deeper approach to learning in face-to-face as well as blended learning environments.

In the previous section, I asserted that students who demonstrate a deep/strategic approach to their academic tasks are able to discern and use the facilities of the technological medium that will suitably support their studying in blended mode. It might therefore be worth revising new ways of teaching study skills or digital literacy skills, if one accepts that the latter can be 'taught'. Traditional approaches to study skills training have focused on specific skills (e.g. essay-writing), but students often seem not to transfer such training into everyday studying. New approaches might have to help students to see the purposes of their assigned work, consider strategies and monitor their success—in other words, to become more meta-cognitively aware of the processes of studying, including learning with technologies. It is important that such an approach builds on forms of teaching and assessment that evoke interest and,

through that, a deep approach to learning and deeper levels of conceptual understanding and change.

Ginns & Ellis (2009) highlight that one of the difficulties for evaluating technology enhanced learning in a part-whole relationship with the student learning experience, is to extract the key aspects of the technology-mediated part sufficiently well that their meaning transcends contextual variation among universities who seek to use tools to evaluate e-learning. This very difficulty was pertinent to the examination of the current case studies and influenced my methodological decisions to a significant degree. Integrating technology as a part of a broader experience of university student learning is still in a phase of rapid growth internationally (see Introduction chapter) so until technology enhanced learning is more meaningfully integrated with programmes of study across disciplines, the construct of a robust theoretical framework of blended learning is likely to continue to be pursued (Ginns & Ellis, 2009). The next section focuses on recommendations for the design of teaching and programmes of study.

9.4.1   Implications for teaching and programme design

The cross-case study analysis illustrated that students' use of technology in response to academic tasks may be diverse as well as their perceptions of the VLE when the latter is incorporated in a teaching design. It has been argued that VLEs are not 'value-free' (McNaught & Lam, 2005) and that there are specific values inherent not only in their design philosophy but also in their implementation and use. The argument highlights the significance of informed choices in the process of design and use of VLEs, particularly with regard to the enhancement of deep approaches to learning and the achievement of high quality learning outcomes. If the benefits of deep learning in a conventional teaching context may apply to an online learning environment, it can be contended that design and appropriate practice can also motivate students and promote deep learning through appropriate use of VLEs. In this respect, there are certain parameters to be acknowledged.

The advantages of technologies that enable collaboration, inquiry and flexibility have been extensively discussed (Hakkarainen et al., 2002; Jonassen, 2001). The role that meaningful activities could play in engaging students needs to be emphasised. It is important that content and design of the activities allow

students to connect with prior knowledge. It was underlined at several points in this thesis that excessive workload can lead to undesired approaches to learning and poor learning outcomes (Ramsden & Entwistle, 1981). Educational practitioners need to be aware of the danger of providing students with too many resources, multimedia or other materials within any online environment. A 'rich' online environment does not necessarily lead to an improved student learning experience. An excessive list of materials hinders students' effort to make an understanding of the learning process and thus reproduce a surface approach. The principle of 'supply and demand' may also be applied; resources can be provided according to students' requirements and need to correspond to their progress (Mimirinis & Bhattacharya, 2007).

Student collaboration and communication through the use of Computer Mediated Communication (CMC) tools can play a crucial role in the development of a deep approach to learning. Online learning communities and networks of learners should be an aspect of facilitation. Focused discussion groups, as in the first case study, and groups of people working towards common goals are practices, which potentially encourage a deep approach to learning. Regarding assessment, it is important that appropriate strategies reward reflection, inquiry, analysis, synthesis and critical thought rather than memorisation of information. It has been suggested, for example, that Multiple Choice Questions have certain limitations and that they potentially encourage surface approaches to learning (Biggs, 2003; Ramsden, 2003).

It is important that programme designers consider how they blend technology-enhanced learning into their core considerations: a mere reference to technological tools being part of the programme delivery does not suffice. Online learning has undeniably presented some serious challenges for the accomplishment of desirable learning outcomes in higher education while, at the same time, it offered an opportunity for enrichment in the construction of meaning in student learning. The latter appears to be a hotly pursued objective, yet contrasting methodologies have been proposed and differing perceptions of the concepts and the aims are often observed; the same applies to approaches to evaluation of the above. An approach which is credited with a great influence in this debate is the one proposed by Biggs who drew on constructivist principles and proposed that intended learning outcomes, teaching activities and methods of assessment are aligned to achieve consistency through student learning

(Biggs, 1996; 2003; Biggs & Tang, 2011). In light of the findings of these case studies, I propose a revisit of the concept of 'constructive alignment' with a particular reference to blended learning. Findings from the first case study with Information System students indicated that a generally perceived successful module delivery could be accompanied by weaknesses and confusion on students' end. Despite the module and the environment being perceived as conducive to desirable learning outcomes (i.e. a deep understanding of methodologies in the engineering of information systems) and the learning outcomes, delivery and assessment were fairly tightly aligned, students' perceptions of what was required of them were often unclear. When asked about the source of their confusion, they often reported reasons related with their perception of what the university's expectations were and pointed to contradictions between the micro (module tasks, online tutorials, etc.) and the meso level (completion of their degree, perceptions of academic quality, etc.). These remarks highlight the need for a revisit of the notion of 'constructive alignment' and its applicability in blended learning. Recommendations from this study broadly fall in line with previous perspectives, which advocate a more encompassing view of contemporary teaching and learning environments in higher education. For example, the notion of 'congruence' has been proposed which focuses on other aspects such as congruence with students' backgrounds, learning support, course organisation and management as well as the role of feedback (Reimann & Xu, 2005), and argued that less rigid relationships may exist than those described by 'constructive alignment' (McCune & Hounsell, 2005).

Considerable efforts have been made to incorporate design principles of constructive alignment in the integration of learning technologies, and case studies demonstrate varying levels of success (Connole, 2007). In principle, the online environment needs to provide clearly identified goals and objectives for the unit, a unit outline pacing the activities for the term, a description of the assessment activities, and a list of references and web-based resources. The way computer-mediated communication is facilitated plays a crucial role; students should be encouraged to respond to the assigned exercises by posting their comments, respond to others' postings and engage in arguments and discussions. Some other functions can also be considered: forming teams for particular tasks, online reviews of grades, structuring of discussions and use of

video-conferencing, peer evaluations of team members with individual results for reflection and assessment may be useful in that respect. Practitioners are not always successful in engaging students to learning, moderating their online sessions or integrating these aspects of their courses with other existing learning activities or wider initiatives. Consequently, their efforts when using learning technologies often have a limited impact on student learning. Ongoing integration of innovation, revision and critical evaluation of teaching practice are deemed to be essential—this applies to the design principles inspired by 'constructive alignment' or ideas that aspire to address the insufficiencies of constructive alignment.

The key player in this process is a reflective practitioner who constantly improves programme and teaching design. Qualities of such a teacher were evident in all four case studies; the first module leader offered his enthusiasm with learning technologies and a keen interest on how students can make the utmost out of technology. The second module leader, not withstanding the adversities of the wider context, initially designed and intended to facilitate group-based online activities. In the case of the third lecturer, experimentation with multimedia and an interest in making module content readily available in a variety of formats were components of a pedagogy aligned to the needs of the taught subject topic. Finally, the module leader of the last case was an experienced online facilitator and her experience allowed her to critically approach the design of the VLE and offer opportunities for a strategic use of the medium as part of her students' will to learn. Strategies such as constructive alignment cannot be achieved within an institutional system that does not allow frequent modification of programme descriptions or regular evaluation of its teaching and learning strategies as well as institutional policies affecting them.

9.4.2 Rethinking the role of technology in student learning: between expediency and quality

Selwyn (2007) points out that researchers often interpret students' reluctance to engage with technology in their studies and dismisses interpretations which locate this as a problem whose roots lie in students' or teachers' lack of skills or lack of understanding; rather he sees students as making active choices, informed by the more and less obvious signals they pick

from their teachers, the curriculum or assessment regime. If students believe that the success on their course will not be positively affected by their use of technology, they might never go out of their way to use it. This was variably demonstrated across all four cases and I observed examples of more sophisticated and refined strategies in the first and fourth case. It clearly undermines the assumptions inherent in typologies such as 'digital natives and immigrants' (Prensky, 2001) or 'visitors and residents' (White & LeCornu, 2011), which do not appear to carry over to how students expect to use technologies in their studies. While students may be confident about their use of various media, they do not want these to be detrimental to their traditional learning interactions, which often they value more that it is observable by their teachers or those researching their study habits. Simplistic typologies, quite similarly to the typologies of 'learning styles', assume factors behind the adoption or rejection of students' use of technology; nevertheless, their choices and practices are shaped in complex, highly contextual and often unpredictable ways. In this regard, strategic approaches to learning serve as a good example: students pay attention to what they believe the lecturer expects from them, not necessarily what the lecturer believes will benefit them. Assessment may increase such a disparity; through their active interpretation of the assessment, students can discover a mismatch between what their lecturers preach and what they practice (Goodyear & Ellis, 2010). If the lecturer preaches the importance of group work but the students perceive that assessment rewards signs rather than substance of group interactions, they will prefer tokenistic participation rather than deep engagement (Goodyear & Ellis, 2010). Tokenistic participation was observed at the online discussion threads of the first case study, where participation was linked with the incentive of the 5% reward towards the overall mark. These students' use of technology was not a linear, unobstructed reflection of their needs or their quantity and quality of their digital skills. It is rather that their approach was a composite of what they felt was important for themselves and what was important for the teaching system in which they were expected to operate.

Students who are predisposed to a deep or strategic approach can find themselves having a lead in this process. The imperative to achieve the best possible marks while honouring work and life style commitments, can lead such students to respond to their academic task demands in a way which can be seen

as 'copy and paste' learning. Institutions might be effectively slimming down their curricula, yet the workload imposed on the new groups of learners is actually increased. In the context of the recent developments in the UK higher education (Browne report, White Paper) it appears likely that, even where curriculum and pedagogy are conducive to a 'deep' approach, such learners are likely to be driven by expedience towards a strategic approach as a means of coping with their studies; in that respect, the evidence from the two Business studies modules was highly suggestive of such an instrumental use of technology. Given the fact that many of the major pressures on the students are outside of the control of programme designers, teachers and universities, the majority of them might be inclined to be 'strategic' in their approach, and such an approach may include, but will not necessarily be limited to, the use of technology. Needless to say this might provide a point for consideration for institutions revisiting the design of learning experiences of their diverse set of students. It is also important to underline that, whilst institutions can often showcase good practice, the quality of cross-programme blended learning remains inconsistent. Relatively small departments may achieve some level of consistency (evident yet not at desirable level in the cases of Information Systems and Education), bigger academic units, however, are more likely to expose their students to discrepancies at this level (departmental and school setting of the cases in Marketing and Management).

9.5   Conclusive remarks

While the current research has enriched understandings of student approaches to learning and studying in relation to the use of technology, and indicated possible influences of the learning environment, it is much less successful at offering elaborate, meaningful accounts of individual students' experiences. Approaches to learning and studying provide abstractions, which simplify the complexity of academic life. These have proved useful, yet observed behaviour leading to case studies suggest the preciousness of the idiosyncratic details of students' learning, and the effects of differing learning environments (McCune & Entwistle, 2000).

Furthermore, by exploratively examining the practice of learning with digital technologies, this study has set out to identify and discuss how approaches to learning are demonstrated in specific ways within blended

learning environments and discuss the contribution that technology enhanced learning can make to the enhancement of student learning in contemporary higher education. Whilst the pedagogies described may be limited by the characteristics of the particular case studies, I believe that the characteristics of the cases are diverse enough to be of value to wider teaching practice and design principles. Choosing a cross-case study analysis methodology adequately served this purpose and enriched the methodological repertoire of research in blended learning.

Higher education institutions continue to invest in learning technologies, so expectations increase for conventional teaching methodologies to adapt and successfully, or most recently, efficiently, change. In practice, however, the core of university teaching is designed for delivery using traditional methods, within settings where students are both physically and virtually present—this is a crucial contradiction, which often results in unrewarding learning experiences. Such programmes of study need to invent new protocols of design and practice, which support the needs of diverse students and the fast pace of technological advancement. Learning technologies in higher education will remain fast-moving and important (Conole & Oliver, 2007), and scholar activity in teaching and learning in higher education is still at a relatively early stage of development. It appears that not much can change with regards to the complicated, sometimes fuzzy, and occasionally liminal nature of learning technologies, nor can we force studies of how they function in higher education out of their current infancy period. Their growth marks a vibrant field of design, practice and, to a lesser extent, of research that is not always fully understood. It is therefore particularly important to begin to understand the new learning cultures in relation to the university as a composite of physical and virtual spaces, which form the scene where new threats and opportunities appear for the quality of the student experiences.

References

Abouserie, R. (1995). Self-esteem and achievement motivation as determinants of students' approaches to studying. *Studies in Higher Education,* 20(1): 19–26.

Abrams, F. (2005). Cognitive conundrum. *Times Educational Supplement*. May 20.

Aharony, N. (2006). The use of deep and surface learning strategies among students learning English as a foreign language in an Internet environment. *British Journal of Educational Psychology*, 75(4): 851–866.

Akyol, Z. and Garrison, D. R. (2011). Understanding cognitive presence in an online and blended community of inquiry: Assessing outcomes and processes for deep approaches to learning. *British Journal of Educational Technology*, 42(2): 233–250.

Altbach, P.G., Reisberg, L. and Rumbley, L.E. (2009). *Trends in Global Higher Education: Tracking an Academic Revolution*. Report for the UNESCO 2009 World Conference on Higher Education. Paris: United Nations Educational Scientific and Cultural Organization (UNESCO).

Angus, S. and Watson, J. (2009). Does regular online testing enhance student learning in the numerical sciences? Robust evidence from a large data set. *British Journal of Educational Technology*, 40(2): 255–272.

Apfelthaler, G. (2006). People Types, Tiger Stripes, Learning Style Hypes. In: G. Apfelthaler, K. Hansen, S.H. Ong & N. Tapachai (Eds.) *Intercultural Communication Competencies in Higher Education and Management*. London-New York-Singapore: Marshall Cavendish Academic, pp. 1–10.

Armstrong, S. (2006). Cognitive styles and learning styles: Origins and implications for teaching, learning. In: G. Apfelthaler, K. Hansen, S.H. Ong & N.Tapachai (Eds.) *Intercultural Communication Competencies in Higher Education and Management*. London-New York-Singapore: Marshall Cavendish Academic, pp. 11–22.

Armstrong, J. and Franklin, T. (2008). *A review of current and developing international practice in the use of social networking (Web 2.0) in higher education*. Retrieved 18 December 2008 from http://www.frankli nconsulting.co.uk/LinkedDocuments/the%20use%20of%20social%20netw orking%20in%20HE.doc.

Aspden, L. and Helm, P. (2004). Making the connection in a blended learning environment. *Educational Media International*, 41(3): 245–252.

Atherton, J. S. (2002). *Learning and teaching: Deep and surface learning.* Retrieved 22 January 2007 from http://www.csr.uvic.ca/%7Emstorey/research/papers/edtech.pdf.

Attwell, G. (2009). Stop commodification—it is time to nationalise the universities. 22 March. Retrieved 2 May 2010 from http://www.pontydysgu.org/2009/03 ?cat=31.

Ausburn, L. J. (2004). Course design elements most valued by adult learners in blended online education environments: An American perspective. *Educational Media International*, 41(4): 327–337.

Barbera, E. (2009). Mutual feedback in e-portfolio assessment: an approach to netfolio system. *British Journal of Educational Technology*, 40(2): 342–357.

Barnett, R. (2000). *Realizing the university*. Buckingham: Open University Press.

Bassey, M. (1999). *Case study research in educational settings*. Milton Keynes: Open University Press.

Beaty, L, Gibbs, G. and Morgan, A. (2005). Learning Orientations and Study Contracts. In: Marton, F., D. Hounsell, D. and N. Entwistle (Eds.) *The Experience of Learning: Implications for teaching and studying in higher education*. Edinburgh: University of Edinburgh, Centre for Teaching, Learning and Assessment, pp.72–86.

Becher, T. (1994). The significance of disciplinary differences. *Studies in Higher Education*, 19(2): 151–161.

Becher, T. and Trowler, P. (2001). *Academic Tribes and Territories: Intellectual enquiry and the cultures of disciplines*. Buckingham: Open University Press/SRHE.

Beetham, H., McGill, L. and Littlejohn, A. (2009). *Thriving in the 21st century: Learning Literacies for the Digital Age (LLiDA project)*. Report, June. Bristol/London: JISC. Retrieved 10 June 2010 from http://www.caledonian academy.net/spaces LLiDA/uploads/Main/LLiDAreportJune09.pdf.

Beetham, H. and Sharpe, R. (2013). *Rethinking Pedagogy for a Digital Age: Designing for 21st Century Learning*, London: Routledge.

Berger, T. and Thomas, M. (2011). Integrating digital technologies in education: A model for negotiating change and resistance to change. In: M.Thomas

(Ed.) *Digital Education: Opportunities for Social Collaboration*. New York: Palgrave McMillan, pp.101–119.

Biggs, J. B. (1979). Individual differences in study processes and the quality of learning outcomes. *Higher Education*, 8(4): 381–394.

Biggs, J. (1987a). *Student approaches to learning and studying*. Hawthron, Victoria: Australian Council for Educational Research.

Biggs, J. (1987b). *The study process questionnaire (SPQ): Manual.* Hawthorn, Victoria: Australian Council for Educational Research.

Biggs, J. (1993). What do inventories of students' learning processes really measure? A theoretical review and clarification. *British Journal of Educational Psychology,* 63(1): 3–19.

Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher Education,* 32(3): 347–364.

Biggs, J. (1999). What the student does: teaching for enhanced learning. *Higher Education Research and Development*, 18(1): 57–75.

Biggs, J. (2003). *Teaching for quality learning at university. What the student does*. Buckingham: Society for Research into Higher Education & Open University Press.

Biggs, J., Kember, D. and Leung, D.Y.P. (2001). The revised two factor Study Process Questionnaire: R-SPQ-2F. *British Journal of Educational Psychology*, 71(1): 133–149.

Biggs, J. and Tang, C. (2011). *Teaching for quality learning at university*. Maidenhead: Open University Press/McGraw-Hill Education.

Bliuc, A., Goodyear, P. and Ellis, R. (2007). Research focus and methodology choices in studies into students' experiences of blended learning in higher education. *Internet and Higher Education,* 10(4): 231–244.

Bliuc, A., Ellis, R.A., Goodyear, P. and Piggott, L. (2010). Learning through face-to-face and on-line discussions: associations between students' conceptions, approaches and academic performance in political science. *British Journal of Educational Technology,* 41(3): 512–524.

Bliuc, A. M., Ellis, R. A., Goodyear, P. and Piggott, L. (2011). A blended learning approach to teaching foreign policy: Student experiences of learning through face-to-face and online discussion and their relationship to academic performance. *Computers & Education,* 56(3): 856–864.

Bonk, C.J. and Graham, C.R. (Eds.) (2012). *Handbook of blended learning:*

Global perspectives, local designs. San Francisco, CA: Pfeiffer Publishing.

Boud, D. (1990). Assessment and the promotion of academic values. *Studies in Higher Education*, 15(1): 101–111.

Boud, D. (1995). *Enhancing Learning through Self-Assessment*. London: Kogan Page.

Bourdieu, P. and Passeron, J.-C. (1979). *The inheritors: French students and their relation to culture.* Chicago: University of Chicago Press.

Bowden, J. A. (1990). Deep and surface approaches to learning. In: M. Akbar Hessami & J. Sillitoe (Eds.) *Deep vs. Surface Teaching and Learning in Engineering and Applied Sciences*, Footscray: Victoria University of Technology.

Britain, S. and Liber, O. (2004). *A framework for the pedagogical evaluation of eLearning Environments.* Educational Cybernetics: Reports. Paper 2. Bangor: University of Wales, Retrieved 22 October 2010 from http://digi talcommons.bolton.ac.uk/iec_reports/2.

British Educational Communications and Technology Agency (BECTA). (2003). *A review of the research literature on the use of managed learning environments and virtual learning environments in education, and a consideration of the implications for schools in the United Kingdom.* Coventry: BECTA. Retrieved 3 December 2011 from http://dera.ioe.ac.uk/ 1645.

Bromage, A. (2004). Students' approaches to learning and their use of and feelings about a VLE. In: D.S. Preston & T.H. Ngyuen (Eds.) *Virtuality in Education*, Oxford: Inter-Disciplinary Press. pp. 33–42.

Brown, J.S., Collins, A. and Duguid, P. (1989). Situated Cognition and the Culture of Learning. *Educational Researcher*, 18(1): 32–42.

Browne, T., Hewitt, R., Jenkins, M. and Walker, R. (2008). *2008 Survey of Technology Enhanced Learning for higher education in the UK.* Report. Oxford: UCISA.

Browne, T., Hewitt, R., Jenkins, M., Voce, J., Walker, R. and Yip, H. (2010) *2010 Survey of Technology Enhanced Learning for higher education in the UK.* Report. Oxford: UCISA.

Buckley, C.A., Pitt, E., Norton, B. and Owens, T. (2010). Students' approaches to study, conceptions of learning and judgements about the value of

networked technologies. *Active Learning in Higher Education*, 11(1): 55–65.

Burnett, C. (2011). Medium for empowerment or a 'centre for everything': students' experience of control in digital environments within a university context. *Education and Information Technologies*, 16(3): 245–258.

Burnett, N. (2005). *Leadership and SEN: Meeting the Challenge in Special and Mainstream Settings*. London: David Fulton.

Cairncross, S., Mannion, M. and McEwan, T. (2003). Learning Technology Research in Practice: Reflections from the Field. In: J. Cook & D. McConnel (Eds.) *Communities of Practice. Research Proceedings of the 10th Association for Learning Technology Conference (ALT-C 2003)*. Oxford: Association for Learning Technology, pp. 70–81.

Cann, A.J., Calvert, J.E., Masse, K.L. and Moffat, K.G. (2006). Assessed Online Discussion Groups in Biology Education. *Bioscience Education E-journal*, 8, Retrieved 10 January 2009 from http://www.bioscience.heacademy.ac.uk/journal/vol8/beej-8-4.htm.

Castells, M. (1996). *The Rise of the Network Society, The Information Age: Economy, Society and Culture Vol. I*. Cambridge, MA: Blackwell.

Chalmers, D. and Volet, S.E. (1997). South-east Asian students learning in Australia. *Higher Education Research & Development,* 16(1): 87–98.

Chan, K.W. and Elliott, R.G. (2004). Relational analysis of personal epistemology and conceptions about teaching and learning. *Teaching and Teacher Education*, 20(8): 817–831.

Cheminais, R. (2002). *Inclusion & School Improvement*. London: David Fulton.

Chiner, A. (2008). Changes of VLEs. *JISC VLE Mailing List*, Retrieved 12 May 2008 from http://www.jiscmail.ac.uk/lists/vle.html.

Centre for Information Behaviour and the Evaluation of Research (CIBER) (2008). *Information behaviour of the researcher of the future.* Briefing paper 11 Jan. London: University College London. Retrieved 01 July 2009 from http://ucl.ac.uk/ciber.

Coffield, F. (2004). Revealing figures behind the styles. *Times Higher Educational Supplement*. 2 Jan. p. 20.

Coffield, F., Moseley, D., Hall, E. and Ecclestone, K. (2004). *Learning styles and pedagogy in post-16 learning: A systematic and critical review.* London: Learning and Skills Research Centre.

Cohen, L., Manion, L. and Morrison, K. (2011). *Research methods in education.* London: Routledge.

Collis, B. (1999). Designing for differences: Cultural issues in the design of www based course-support sites. *British Journal of Educational Technology*, 30(3): 201–215.

Collis, B., and Moonen, J. (2001). *Flexible Learning in a Digital World*. London: Kogan Page.

Committee of Inquiry into the Changing Learner Experience (CICLE) (2009). *Higher Education in a Web 2.0 World*. London/Bristol: JISC. Retrieved 18 May 2010 from http://www.jisc.ac.uk/media/documents/publications/hewe b20rptv1.pdf.

Conole, G. (2007). Describing learning activities. In: H. Beetham & R. Sharpe (Eds.) *Rethinking pedagogy for a digital age: Designing and delivering e-Learning*. Hoboken: Routledge. pp. 81–91.

Conole, G. and Oliver, M. (Eds.) (2007). *Contemporary perspectives in e-learning research: themes, methods and impact on practice.* The Open and Flexible Learning Series. London: Routledge.

Conole, G., White, S. and Oliver, M. (2007). The impact of e-learning on organizational roles and structures, In: G. Conole & M. Oliver (Eds.) *Contemporary perspectives in e-learning research: themes, methods and impact on practice.* The Open and Flexible Learning Series. London: Routledge. pp. 69–81.

Cook, T. D. and Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis issues*. Boston, MA: Houghton Mifflin Company.

Cousin, G. *(2009). Researching Learning in Higher Education.* London: Routledge.

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches.* London: Sage.

Cronbach, L. J. (1951)*.* Coefficient alpha and the internal structure of tests. *Psychometrika,* 16(3): 297–334*.*

Daniel, J. (1996). *The mega-universities and knowledge media*. London: Routledge.

Delanty, G. (1998). Rethinking the university: The autonomy, contestation and reflexivity of knowledge. *Social Epistemology*, 12(1): 103–113.

Deleuze, G. and Guattari, F. (1987). *A thousand plateaus: capitalism and schizophrenia*. Minneapolis: University of Minnesota Press.

Demian, P. and Morrice, J. (2012). The use of virtual learning environments and their impact on academic performance. *Engineering Education,* 7(1): 11–19.

Demos (2005). *About Learning: The Report of the Working Group*. London: Demos.

Department for Business, Innovation and Skills (2011). *Higher Education: Students at the heart of the System.* London: Department for Business, Innovation and Skills. Retrieved 20 November 2012 from http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32409/11-944-higher-education-students-at-heart-of-system.pdf.

Dickinson, J. (2009). Technology enhanced learning in 21st century mass higher education. Aspects of design, practice and strategy for a necessary step change. In: H. Davis, L. Creanor, M. McPherson & F. Rennie (Eds.) *In dreams begins responsibility—choice, evidence and change. The 16th Association for Learning Technology Conference (ALT-C 2009)*. 8–10 September, Manchester. Oxford: Association for Learning Technologies. pp. 51-60.

Domjan, M. (2009). *The principles of learning and behavior*. Belmont, CA: Wadsworth Publishing Company.

Draper, S.W. (2009). Catalytic assessment: understanding how MCQs and EVS can foster deep learning. *British Journal of Educational Technology,* 40(2): 285–293.

Driscoll, M. (2002). Blended learning: Let's get beyond the hype. *E-Learning,* 3(3): 54.

Duff, A., Boyle, E. and Dunleavy, J. F. (2004). The relationship between personality, approach to learning and academic performance. *Personality and Individual Differences*, 36(8): 1907–1920.

Duffy, T. M. and Jonassen, D. H. (Eds.) (2013). *Constructivism and the technology of instruction: A conversation*. New York: Routledge.

Dyke, M., Conole, G., Ravenscroft, A., & de Freitas, S. (2007). Learning theory and its application to e-learning. In: G. Conole & M. Oliver (Eds.),

Contemporary perspectives in e-learning research London: Routledge. pp. 82–97.

Eisenstadt, M. (2007). Does Elearning have to be so awful? (Time to mashup or shut up). In: J. M. Spector, D. G. Sampson, T. Okamoto, Kinship, S.A. Cerri, M. Ueno, & A. Kashihara (Eds.) *Proceedings of the Seventh International Conference on Advanced Learning Technologies*. 18–20 July, Nigata, Japan. Los Alamitos, CA: IEEE Computer Society. pp. 6–10.

Elliott, J. and Lukes, D. (2008). Epistemology as ethics in research and policy: The Use of case studies. *Journal of Philosophy of Education,* 42(S1): 87–119.

Ellis, R. A. and Calvo, R. A. (2004). Learning through Discussions in Blended Environments. *Educational Media International,* 40(1): 263–274.

Ellis, R.A. and Calvo, R. A. (2006). Discontinuities in university student experiences of learning through discussions. *British Journal of Educational Technology,* 37(1): 55–68.

Ellis, R. A., Calvo, R. A., Levy, D. and Tan, K. (2004). Learning through Discussions. *Higher Education Research and Development*, 23(1): 73–93.

Ellis, R.A., Ginns, P. and Piggott, L. (2009). eLearning in higher education: some key aspects and their relationship to approaches to study. *Higher Education Research and Development,* 28(3): 303–318.

Ellis, R.A. and Goodyear, P. (2010). *Student experiences of e-learning in higher education: the ecology of sustainable innovation.* London: Routledge Falmer.

Ellis, R., Goodyear, P., Brillant, M. and Prosser, M. (2008). Student experiences of problem-based learning in pharmacy: conceptions of learning, approaches to learning and the integration of face-to-face and on-line activities. *Advances in Health Sciences Education,* 13(5): 675–692.

Ellis, R.A., Goodyear, P., Calvo, R. and Prosser, M. (2008). Engineering students' experiences of learning through discussions in face-to-face and on-line contexts. *Learning and Instruction,* 18(3): 267–282.

Ellis, R., Goodyear, P., O'Hara, A. and Prosser, M. (2007). The university student experience of face-to-face and online discussions: coherence, reflection and meaning. *ALT-J, Research in Learning Technology,* 15(1): 83–97.

Ellis, R., Goodyear, P., Prosser, M. and O'Hara, A. (2006). How and what university students learn through online and face-to-face discussion: conceptions, intentions and approaches. *Journal of Computer Assisted Learning*, 22(4): 244–256.

Ellis, R., Hughes, J., Weyers, M. and Riding, P. (2009). University teacher approaches to design and teaching and concepts of learning technologies. *Teaching and Teacher Education*, 25(1): 109–117.

Ellis, R., Steed, A. and Applebee, A. (2006). Teacher conceptions of blended learning, blended teaching and associations with approaches to design. *Australian Journal of Educational Technology*, 22(3): 312–335.

Enjelvin, G. (2002). E-novation on a strategic business analysis module: Reflection on action and reflection for action. Retrieved 22 May 2007 from http://www.business.ltsn.ac.uk/events//BEST%202003/Full%20papers/Refereed%20papers/Enjelvin.pdf.

Entwistle, N. (1988). *Styles of learning and teaching: An integrated outline of educational psychology.* London: David Fulton Publishers.

Entwistle, N. J. (1991). Approaches to learning and perceptions of the learning environment. Introduction to the special issue. *Higher Education,* 22(3): 201–204.

Entwistle, N.J. (1992). *The Impact of Teaching on Learning Outcomes in Higher Education.* Sheffield, UK: Universities' and Colleges Staff Development Unit.

Entwistle, N. (1997). Contrasting perspectives on learning. In: F. Marton, D. Hounsell & N. Entwistle (Eds.) *The Experience of Learning: Implications for teaching and studying in Higher Education*, Edinburgh: Scottish Academic Press Limited. pp. 3–22.

Entwistle, N. (2000). *Promoting deep learning through teaching and assessment: conceptual frameworks and educational contexts*, Paper presented to the Teaching and Learning Research Programme (TLRP) Conference. Leicester, November, Retrieved 23 March 2009 from http://www.ed.ac.uk/etl/docs/entwistle2000.pdf.

Entwistle, N. (2009). *Teaching for understanding at university: Deep approaches and distinctive ways of thinking*. Basingstoke: Palgrave Macmillan.

Entwistle, N.J. and Entwistle, A.C. (1991). *Developing, revising and examining*

conceptual understanding: The student experience and its implications. Edinburgh: Centre for Research on Learning & Instruction, University of Edinburgh.

Entwistle, N., Hounsell, D., Anderson, C., Beaty, L., Bromage, A., Cousin, G., Day, K., Hounsell, J., Land, R., Litjens, J., McCune, V., Meyer, E., Nisbet, J. and Reinmann, N. (2007). *Learning and teaching at university: the influence of subjects and settings*. TLRP Research Briefing 31. London: TLRP. Retrieved 10 February 2009 from http://www.tlrp.org/dspace/ retrieve/2951/Hounsell%2520RB%252031%2520FINAL%5B1%5D.pdf.

Entwistle, N. and McCune, V. (2004). The conceptual bases of study strategy inventories in higher education. *Educational Psychology Review*, 16(4): 325–346.

Entwistle, N. and McCune, V. (2013). The disposition to understand for oneself at university: Integrating learning processes with motivation and metacognition. *British Journal of Educational Psychology,* 83(2): 267–279.

Entwistle, N. and Peterson, E.R. (2004). Conceptions of learning and knowledge in higher education: Relationships with study behaviour and influences of learning environments. *International Journal of Educational Research,* 41(6): 407–428.

Entwistle, N. J. and Ramsden, P. (1983). *Understanding student learning,* London: Croom Helm.

Entwistle, N.J. and Tait, H. (1990). Approaches to learning, evaluations of teaching and preferences for contrasting academic environments. *Higher Education*, 19(2): 169–194.

Entwistle, N. J. and Tait, H. (1994). *The Revised Approaches to Studying Inventory*. Edinburgh: Centre for Research on Learning and Instruction, University of Edinburgh.

Entwistle, N., Tait, H. and McCune, V. (2000). Patterns of response to approaches to studying inventory across contrasting groups and contexts. *European Journal of the Psychology of Education,* 15(1): 33–48.

ETL project (2007). *Enhancing Teaching-Learning Environments in Undergraduate Courses*, Retrieved 10 July 2009 from http://www.etl.tla. ed.ac.uk.

European Commission (2013). *Human resources in science and technology—Statistics Explained.* Report 5 April. Retrieved 12 April 2013 from http://epp.eurostat.ec.europa.eu.

Evans, C., Cools, E. and Charlesworth, Z. M. (2010). Learning in higher education—how cognitive and learning styles matter. *Teaching in Higher Education*, 15(4): 469–480.

Evans, C. and Sadler-Smith, E. (2006). Learning styles in education and training: Problems, politicisation and potential. *Education and Training,* 48(2/3): 77–83.

Garrison, D. R. (2011). *E-learning in the 21st century: A framework for research and practice*, New York: Taylor & Francis.

Garrison, R. and Anderson, T. (2003). *E-Learning in the 21st Century: A Framework for Research and Practice*, New York: RoutledgeFalmer.

Gerring, J. (2007). *Case study research: Principles and practices*, Cambridge: Cambridge University Press.

Gibbs, G. (2010a). *Dimensions of Quality*. York: Higher Education Academy.

Gibbs, G. (2010b). *Using assessment to support student learning.* Leeds: Leeds Metropolitan University. Retrieved 14 May 2012 from https://workspace.imperial.ac.uk/edudev/Public/Additional_Feedback_Reading_Mobile.pdf.

Gibbs, G. R. (1999). Learning how to learn using a Virtual Learning Environment for philosophy, *Journal of Computer Assisted Learning,* 15(3): 221–231.

Gibbs, G. and Coffey, M. (2004). The impact of training of university teachers on their teaching skills, their approach to teaching and the approach to learning of their students. *Active Learning in Higher Education*, 5(1): 87–100.

Gideon, L. (2012). *Handbook of Survey Methodology for the Social Sciences*. Dordrecht: Springer.

Gijbels, D., Segers, M. and Struyf, E. (2008). Constructivist learning environments and the (im)possibility to change students' perceptions of assessment demands and approaches to learning. *Instructional Science*, 36(5–6): 431–443.

Gill, J. and Johnson, P. (1997). *Research methods for managers*. London: Paul Chapman.

Ginns, P. and Ellis, R. A. (2007). Exploring relations Between On-line and Face-to-face Teaching and Learning. *The Internet and Higher Education,* 10(1): 53–64.

Ginns, P. and Ellis, R. (2009). Evaluating the quality of e-Learning at the degree level in a campus-based university. *British Journal of Educational Technology*, 40(4): 652–663.

Glaser, B. G. and Strauss, A.L. (1967). *The discovery of grounded theory*. New York: Aldine.

Godwin, S. J., Thorpe, M. S. and Richardson, J. T. E. (2008). The impact of computer mediated interaction on distance learning. *British Journal of Educational Technology*, 30(1): 52–70.

González, C. (2009). Conceptions of, and approaches to, teaching online: a study of lecturers teaching postgraduate distance courses. *Higher Education*, 57(3): 299–314.

González, C. (2010). What do university teachers think eLearning is good for in their teaching? *Studies in Higher Education*, 35(1): 61–78.

González, C. (2012). The relationship between approaches to teaching, approaches to e-teaching and perceptions of the teaching situation in relation to e-learning among higher education teachers. *Instructional Science*, 40(6): 975–998.

Goodfellow, R. (2004). *Key practices in elearning across the university curriculum*. Institute of Educational Technology, Open University. Retrieved 22 September 2007 from http://iet.open.ac.uk/pp/r.goodfellow/Rome2004/Seminar.htm.

Goodyear, P. (2002). Psychological foundations for networked learning. In: C. Steeples & C. Jones (Eds.) *Networked learning: Perspectives and issues.* London: Springer-Verlag, pp. 49–75.

Goodyear, P., Asensio, M., Jones, C., Hodgson, V. and Steeples, C. (2003). Relationships between conceptions of learning, approaches to study and students' judgements about the value of their experiences of networked learning. *ALT-J*, *Research in Learning Technology,* 11(1): 17–27.

Goodyear, P. and Ellis, R.A. (2008). University students' approaches to learning: re-thinking the place of technology. *Distance Education,* 29(2): 141–152.

Goodyear, P. and Ellis, R. (2010). Expanding conceptions of study, context and educational design. In: R. Sharpe, H. Beetham & S. de Freitas (Eds.)

Rethinking learning for the digital age: how learners shape their own experiences. New York: Routledge. pp. 100–113.

Goodyear, P. and Jones, C. (2003). Implicit theories of learning and change: Their role in the development of e-learning environments in higher education. In: S. Naidu (Ed.) *Learning and teaching with technology: Principles and practice*. London and New York: RoutledgeFarmer, pp. 29–41.

Goodyear P., Jones, C., Asensio M., Hodgson V. and Steeples C. (2005). Networked learning in higher education: Students' expectations and experiences. *Higher Education,* 50(3): 473–508.

Gorard, S. and Taylor, C. (2004). *Combining methods in educational and social research*. London: Open University Press.

Graham, C. R. (2012). Blended Learning Systems: Definition, Current Trends and Future Directions. In: C.J. Bonk & C.R. Graham (Eds.) *Handbook of blended learning: Global perspectives, local designs*. San Francisco, CA: Pfeiffer Publishing. pp. 3–21.

Gray, E. D. (2004). *Doing Research in the Real World*. London: Sage.

Grbich, C. (2004). *New Approaches in Social Research*. London: Sage.

Fagin, J., Orem, A. and Solberg, G. (Eds.) (1991). *A case for case study*. Chapel Hill, NC: University of North Carolina Press.

Flick, U. (1998). *An Introduction to Qualitative Research*. London: Sage.

Haggis, T. (2004). Constructions of learning in higher education: metaphor, epistemology and complexity, In: J. Satterthwaite & E. Atkinson (Eds.) *The Disciplining of Education: New Languages of Power and Resistance*, Stoke on Trent: Trentham. pp. 181–197.

Hair, J., Anderson, R., Tatham, R. and Black, W. (1998). *Multivariate data analysis*. Prentice-Hall: Upper Saddle River, NJ.

Hannafin, M.J. and Land, S.M. (1997). The foundations and assumptions of student-centered learning environments. *Instructional Science*, 25(3): 167–202.

Harker, M. and Koutsantoni, D. (2005) Can it be as effective? Distance versus blended learning in a web-based EAP programme. *ReCALL*, 17 (2): 197–216.

Harris, D. and Bell, C. (1986). *Evaluating and Assessing for Learning*. London: Kogan Page.

Hastings, S. and Jenkins, S. (2005). Learning styles. *Times Educational Supplement.* 4 November.

Hayes, K., King, E. and Richardson, J.T.E. (1997). Mature Students in Higher Education: III. Approaches to Studying in Access Students. *Studies in Higher Education,* 22(1): 19–31.

Hawkins, B. L. and Rudy, J. A. (2008). *Educause core data service: Fiscal year 2007 summary report.* Boulder, CO: Educause. Retrieved 30 June 2009 from http://net.educause.edu/ir/library/pdf/PUB8005.pdf.

Hayes, K. and Richardson, J.T.E. (1995). Gender, subject and context as determinants of approaches to studying in higher education. *Studies in Higher Education,* 20(2): 215–22.

Hewling, A. (2004). Tools for Online Tutors: A Review of the Effectiveness of the Student Tracking Facility in One Blackboard Classroom, In: S. Banks, P. Goodyear, V. Hodgson, C. Jones, V. Lally, D. McConnell & C. Steeples (Eds.) *Proceedings of the Fourth International Conference on Networked Learning 2004.* 5–7 April. Lancaster: Lancaster University and University of Sheffield. pp. 475–477.

Higher Education Funding Council for England (HEFCE) (2005). *HEFCE strategy for e-learning,* Bristol/London: HEFCE. Retrieved 19 June 2008 from http:// www.hefce.ac.uk/pubs/hefce/2005/05_12.

Higher Education Funding Council for England (HEFCE)(2008). *Review of the 2005 HEFCE Strategy for e-Learning.* October. Bristol/London: HEFCE. Retrieved 23 December 2010 from https://www.hefce.ac.uk/data/year/ 2008/reviewofthe2005hefcestrategyfore-learning.

Higher Education Statistics Agency (HESA) (2012). *Students in Higher Education Institutions 2010/11.* Report. 23 February. Cheltenham: HESA.

Ho, A., Watkins, D. & Kelly, M. (2001). The Conceptual Change Approach to Improving Teaching and Learning: An Evaluation of a Hong Kong Staff Development Programme', *Higher Education,* 42(1): 143–69.

Holley, D. and Oliver, M. (2010). Student engagement and blended learning: Portraits of risk. *Computers & Education,* 54(3): 693–700.

Hoskins, S. and van Hooff, J. (2005). Motivation and ability: Which students use online learning and what influence does it have on their achievement. *British Journal of Educational Technology,* 36(2): 177–192.

Hounsell, D. and Hounsell, J. (2007). Teaching-Learning Environments in Contemporary Mass Higher Education. In: N. Entwistle & P. Tomlinson (Eds.) *Student Learning and University Teaching*. Leicester: British Psychological Society. Monograph Series II, 4, pp. 91–111.

Hounsell, D., McCune, V., Litjens, J. and Hounsell, J. (2005). *Biosciences Subject Overview Report*. Edinburgh: ETL Project. Retrieved 3 June 2009 from http://www.ed.ac.uk/etl/publications.

House of Commons Public Accounts Committee (2009). *Widening participation in higher education*. Report. 26 February. London: The Stationery Office Limited. Retrieved on 10 January 2011 from http://www.publications.parlia ment.uk/pa/cm200809/cmselect/cmpubacc/226/9780215526557.pdf.

Hughes, G. and Lewis, L. (2003). Who are successful online learners? Exploring the different learner identities produced in virtual learning environments. In: J. Cook & D. McConnell (Eds.) *Communities of practice. Research proceedings of the 10th Association for Learning Technology conference.* Oxford: Association for Learning Technologies. Retrieved 02 October 2009 from http://www.uel.ac.uk/uelco nnect/internal_resources/docs/alt-c2003_paper.pdf.

Jackson, B., and Anagnostopoulou, K. (2007). *Benchmarking of e-learning: Middlesex University*, Draft report, response to HEFCE consultation. London: Middlesex University.

Jarvis, P. (2001). *Universities and corporate universities*. London: Kogan Page.

Jelfs, A. and Colbourn, C. (2002). Do students' approaches to learning affect their perceptions of using computing and information technology? *Journal of Educational Media,* 27(1–2): 41–53.

Jelfs, A., Nathan, R. and Barrett, C. (2004). Scaffolding students: suggestions on how to equip students with the necessary study skills for studying in a blended learning environment. *Journal of Educational Media*, 29(2): 85–96.

Jenkins, M., Brown, T. and Arbitrage, S. (2001). *Management and implementation of virtual learning environments: A UCISA funded survey.* Oxford: Universities and Colleges Information Systems Association (UCISA), Retrieved 22 May 2008 from http://www.ucisa.ac.uk/groups/tlig/ vle/index_html.

Jenkins, M., Browne, T. and Walker, R. (2005). *VLE surveys—a longitudinal perspective between March 2001, March 2003 and March 2005 for Higher Education in the United Kingdom*. Oxford: Universities and Colleges Information Systems Association (UCISA), Retrieved 22 May 2008 from http://www.ucisa.ac.uk/groups/tlig/vle/index_html.

Joint Information Systems Committee (JISC) (2008). *What we do*. Retrieved 15 February 2009 from http://www.jisc.ac.uk/whatwedo.aspx.

Jonassen, D. H. (1991). Evaluating constructivistic learning. *Educational Technology*, 31(9): 28–33.

Jonassen, D. (1999). Designing Constructivist Learning Environments. In: C.M. Reigeluth (Ed.) *Instructional Design Theories and Models: A New Paradigm of Instructional Theory*. Mahwah, NJ: Erlbaum. Vol. II, pp. 115–140.

Jonassen, D.H. (2006). Modeling with technology: *Mindtools for conceptual change.* Columbus, OH: Merill/Prentice Hall.

Jones, C. (1996). Assessment and accounting education. *Accounting Education*, 5(1): 99–101.

Jones, C. and Asensio, M. (2002). Designs for networked learning in higher education: a phenomenographic investigation of practitioners' accounts of design. In: C. Steeples & C. Jones (Eds.) *Networked learning: Perspectives and issues*. London: Springer Verlag. pp. 253–278.

Jordan, S. and Mitchell, T. (2009). E-assessment for learning? The potential of short free-text questions with tailored feedback. *British Journal of Educational Technology,* 40(2): 371–385.

Jung, C. (1971). *Psychological types*. London: Routledge & Kegan Paul.

Independent Review of Higher Education Funding and Student Finance (IRHEFSF)(2010). *Securing a sustainable future for higher education in England*. Report. London: UK Government, 12 October. Retrieved 10 December 2010 from http://www.bis.gov.uk/assets/biscore/corporate/docs /s/10-1208-securing-sustainable-higher-education-browne-report.

Kagan, J. and Kogan, N. (1970). Individual Variation in Cognitive Processes. In: P.H. Mussen (Ed.) *Carmichael's Manual of Child Psychology*, New York: John Wiley, Vol.1, pp. 1273–1365.

Kanuka, H., Rourke, L. and Laflamme, E. (2007). The influence of instructional methods on the quality of online discussion. *British Journal of Educational Technology,* 38(2): 260–271.

Ke, F. and Xie, K. (2009). Toward deep learning for adult students in online courses. *The Internet and Higher Education*, 12(3): 136–145.

Keefe, J. W. (1979). Learning style: An overview. In: *NASSP's Student learning styles: diagnosing and prescribing programs*. Reston, VA: National Association of Secondary School Principals. pp. 1–17.

Kemp, B. and Jones, C. (2007). Academic Use of Digital Resources: Disciplinary Differences and the Issue of Progression revisited. *Educational Technology & Society*, 10(1): 52–60.

Kember, D. (1995). *Open learning courses for adults: A model of student progress*. Englewood Cliffs, NJ: Educational Technology Publications.

Kember, D. (1996). The intention to both memorise and understand: Another approach to learning? *Higher Education*, 31(3): 341–354.

Kember, D. (1997). A reconceptualisation of the research into university academics' conceptions of teaching. *Learning and Instruction*, 7(3): 255–275.

Kember, D. and Kwan, K. (2002). Lecturers' approaches to teaching and their relationship to conceptions of good teaching, In: N. Hativa & P. Goodyear (Eds.) *Teacher thinking, beliefs and knowledge in higher education*. Dordrecht: Kluwer, pp. 219–240.

Kerres, M. and De Witt, C. (2003). A Didactical Framework for the Design of Blended Learning Arrangements. *Journal of Educational Media*, 28(2/3): 101–113.

Kim, M. C. and Hannafin, M. J. (2011). Scaffolding problem solving in technology-enhanced learning environments (TELEs): Bridging research and theory with practice. *Computers & Education*, 56(2): 403–417.

Kirkwood, A. and Price, L. (2008). Assessment and student learning: a fundamental relationship and the role of information and communication technologies. Open Learning, *Journal of Open and Distance Learning*, 23(1): 5–16.

Kirkwood, A. and Price, L. (2011). The influence upon design of differing conceptions of teaching and learning with technology. In: A.D. Olofsson & J.O. Lindberg (Eds.) *Informed Design of Educational Technologies in*

Higher Education: Enhanced Learning and Teaching. Hershey, PA: IGI Global, pp. 1–20.

Kolb, D. (1981). Learning styles and disciplinary differences: Diverse pathways. In: A. W. Chickering (Ed.) *The Modern American College: Responding to the New Realities of Diverse Students and a Changing Society*. San Francisco, CA: Jossey-Bass. pp. 232–255.

Konrad, J. (2003). *Review of educational research on Virtual Learning Environments [VLE]—implications for the improvement of teaching and learning and access to formal learning in Europe*. Paper presented to the European Conference on Educational Research. 17–20 September. University of Hamburg.

Krippendorff, K. (2003). *Content Analysis: an introduction to its methodology*. Beverely Hill, CA: Sage Publications.

Kwiek, M. (2006). *The University and the State. A Study into Global Transformations*. Frankfurt and New York: Peter Lang Scientific Publishers.

Lameras, P., Levy, P., Paraskakis, I. and Webber, S. (2012). Blended university teaching using virtual learning environments: conceptions and approaches. *Instructional Science,* 40(1): 141–157.

Land, R. and Bayne, S. (2005). Screen or monitor? Issues of surveillance and disciplinary power in online learning environments. In: R. Land & S. Bayne (Eds.) *Education in Cyberspace*, New York: RoutledgeFalmer, pp.165–179.

Land, R., Meyer, J. and Smith, J. (Eds.) (2008). *Threshold Concepts within the Disciplines*, Rotterdam: Sense Publishers.

Land, S. M. and Hannafin, M. J. (2000). Student-centred learning environments. In: D. H. Jonassen & S.M. Land (Eds.) *Theoretical foundations of learning environments*. Mahwah, NJ: Erlbaum. pp. 1–23.

Laurillard, D. (1997). Styles and approaches in problem-solving. In: F. Marton, D. Hounsel & N. Entwistle (Eds.) *The experience of learning*. Edinburgh: Scottish Academic Press, pp. 126–144.

Laurillard, D. (2002). *Rethinking university teaching: A framework for the effective use of educational technology,* London: Routledge.

Laurillard, D. (2005). *Harnessing Technology: Transforming Learning and Children's Services.* London: Department for Education and Skills.

Laurillard, D. (2006). E-learning in higher education. In: P. Ashwin (Ed.) *Changing higher education: The development of learning and teaching*. London: Routledge. pp. 71–84.

Laurillard, D. (2009). Plenary presentation at the Feasst project dissemination event, 28 April, London Knowledge Lab.

Laurillard, D. (2012). *Teaching as a Design Science: Building Pedagogical Patterns for Learning and Technology*. Routledge, New York.

Lave, J. and Wenger, E. (1990). *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.

Lewin, K. (1936). *A dynamic theory of personality.* New York: McGraw-Hill.

Lewis, M. (2010). Knowledge commodified and the new economies of higher education. *Journal of Curriculum Theorizing*, 26(3): 1–4.

Lindblom-Ylänne, S., Trigwell, K., Nevgi, A. and Ashwin, P. (2006). How approaches to teaching are affected by discipline and teaching context. *Studies in Higher Education*, 31(3): 285–298.

Lobry de Bruyn, L. (2004). Monitoring online communication: Can the development of convergence and social presence indicate an interactive learning environment? *Distance education,* 25(1): 67–81.

Lonka, K. and Lindblom-Ylänne, S. (1996). Epistemologies, conceptions of learning, and study practices in medicine and psychology. *Higher Education*, 31(1): 5–24.

Lueddeke, G. (2003). Professionalising teaching practice in higher education: a study of disciplinary variation and 'teaching-scholarship'. *Studies in Higher Education,* 28(2): 213–228.

Lyotard, J.-F. (1984). *The post-modern condition: A report on knowledge.* Manchester: Manchester University Press.

MacFarlane, B. (1992). The 'Thatcherite' generation of university degree results. *Journal of Further and Higher Education,* 16(2): 60–70.

Marton, F. (1981). Phenomenography—describing conceptions of the world around us. *Instructional Science*, 10(2): 177–200.

Marton, F. and Booth, S. (1997). *Learning and awareness*. Mahwah, NJ: Lawrence Erlbaum Associates.

Marton, F., Hounsell, D. and Entwistle, N. (Eds.) (1984). *The Experience of Learning*. Edinburgh: Scottish Academic Press.

Marton, F. and Säljö, R. (1976a). On qualitative differences in learning: I—Outcome and process. *British Journal of Educational Psychology,* 46(1): 4–11.

Marton, F. and Säljö, R. (1976b). On qualitative differences in learning: II—Outcome as a function of the learners' conception of the task. *British Journal of Educational Psychology*, 46(2): 115–127.

Marton, F. and Säljö, R. (1997). Approaches to learning, In: F. Marton, D. Hounsell & N. Entwistle (Eds.) *The experience of learning*. Edinburgh: Scottish Academic Press, pp. 39–58.

Marton, F., Watkins, D. and Tang, C. (1997). Discontinuities and continuities in the experience of learning: An interview study of high-school students in Hong Kong. *Learning and Instruction,* 7(1): 21–48.

Masielo, I. (2005). *Learning in focus: Rethinking the role of technology in medical education.* Stockholm: Karolinska Institutet. Doctoral thesis.

McCune, V. and Hounsell, D. (2005). The development of students' ways of thinking and practicing in three final-year biology courses. *Higher Education,* 49(3): 255–289.

McNaught, C. and Lam, P. (2005). Building an evaluation culture and evidence base for e-learning in three Hong Kong universities. *British Journal of Educational Technology,* 36(4): 629–642.

Middlesex University (2006). *Corporate planning statement 2006/07–2010/11*, London: Middlesex University.

Middlesex University (2008). *Academic Policy Statement APS15*. London: Middlesex University. Retrieved 12 December 2012 from http://www. mdx.ac.uk/Assets/use_of_technology.pdf.

Middlesex University (2009a). *Corporate Plan.* London: Middlesex University.

Middlesex University (2009b). *Learning and Quality Enhancement Handbook*. London: Middlesex University.

Mimirinis, M. and Bhattacharya, M. (2007). Design of Virtual Learning Environments for Deep Learning. *Journal of Interactive Learning Research,* 18(1): 55–64.

Mimirinis, M., Frumkin, L. and Murphy, A. (2004). Utilising web log files for the evaluation of learning experiences of local and distance students in computer science: the Global Campus project. In: D. Remenyi (Ed.) *Proceedings of the 3rd European Conference on E-Learning.*

Universite Paris Dauphine, 25–26 November. Reading: Academic Conferences International, pp. 231–238.

Minshull, G. (2001). *Virtual Learning Environment (VLE) functional specifications.* JISC Briefing papers, 3. September. Retrieved 22 May 2009 from http://www.jisc.ac.uk/mle/reps/briefings/bp3.html.

Minshull, G. (2004). VLEs: Beyond the fringe and into the mainstream. Coventry: BECTA. Retrieved 20 March 2010 from http://www.directlearn.co. uk/downloads/VLEs%20%20into%20the%20mainstream.pdf.

Moreno, V. and Di Vesta, V.J. (1991). Cross-cultural comparisons of study habits. *Journal of Educational Psychology*, 83(2): 228–234.

Morón-García, S. (2006). What lecturers say helps and hinders their use of a virtual learning environment to support face-to-face teaching. In: J. O'Donoghue (Ed.) *Technology supported learning and teaching: A staff perspective*. Hershey, PA: IGI Global, pp. 15–33.

Myers, I. (1980). *Gifts differing*. Palo Alto, CA: Consulting Psychologists Press.

National Committee of Inquiry into Higher Education (NCIHE) (1997). *Higher Education in the Learning Society.* London: Department of Education and Employment (DfEE).

Neumann, R., Parry, S. and Becher, T. (2002). Teaching and learning in their disciplinary context: a conceptual analysis. *Studies in Higher Education*, 27(4): 405–417.

Newble, D. I. and Entwistle, N. (1986). Learning styles and approaches: Implications for medical education. *Medical Education*, 20(3): 162–175.

Observer (2009). *A rise in fees would make university education fairer*. Editorial, 27 December, p.28, Retrieved 12 June 2010 from http://guardian.co.uk/ commentisfree/2009/dec/27/fees-university-education-mandelson.

Ochoa, X., Méndez, G. and Duval, E. (2009). Who we are: analysis of 10 years of the ED-MEDIA conference. In: G. Siemens & C. Fulford (Eds.) *Proceedings of EdMedia09: World Conference on Educational Multimedia, Hypermedia and Telecommunications.* Honolulu, HI, 22–26 June. Chesapeake, VA: Association for the Advancement of Computing in Education. pp. 189–200.

O' Lawrence, D. (2007). An overview of the influences of distance learning on adult learners. *Journal of Education and Human Development*, 1(1). Retrieved 22 May 2010 from http://www.scientificjournals.org/journals

2007/articles/1041.htm.

Oliver, M. and Trigwell, K. (2005). Can 'blended learning' be redeemed? *E-Learning*. 2 (1): 17–26.

Oliver, R. and Herrington, J. (2003). Exploring technology-mediated learning from a pedagogical perspective. *Interactive Learning Environments,* 11(2): 111–126.

Online Learning Task Force (2011). *Collaborate to compete: Seizing the opportunity of online learning for UK higher education*. Report to HEFCE. January. Bristol/London: HEFCE. Retrieved 2 Feb 2011 from http://www. hefce.ac.uk/pubs/year/2011/201101/name,63891,en.html.

Organisation for the Economic Co-operation and Development (OECD) (2013). *Education Indicators in Focus*. Report. July. Retrieved 10 August 2013 from http://www.oecd.org/education/skills-beyond-school/EDIF%202013-N%C-2%B014%20(eng)-Final.pdf

Pappas, G., Lederman, E. and Broadbent, B. (2001). Monitoring Student Performance in Online Courses: New Game-New Rules. *Journal of Distance Education*, 16(2): 66–72.

Parkinson, D., Greene, W., Kim, Y. and Marioni, J. (2003). Emerging themes of student satisfaction in a traditional course and a blended distance course. *TechTrends*, 47(4): 22–28.

Parpala, A., Lindblom-Ylänne, S., Komulainen, E., Litmanen, T. and Hirsto, L. (2010). Students' approaches to learning and their experiences of the teaching-learning environment in different disciplines. *British Journal of Educational Psychology,* 80(2): 269–282.

Parry, S. (1998). Disciplinary discourse in doctoral theses. *Higher Education*, 36(3): 273-299.

Peters, M.A. (2007). *Knowledge Economy, Development and the Future of Higher Education*. Rotterdam: Sense Publishers.

Piaget, J. (1952). *The origins of intelligence in children*. New York: International Universities.

Pegg, A., Waldock, J., Hendy-Isaac, S. and Lawton, R. (2012). *Pedagogy For Employability*. York: Higher Education Academy.

Phillips, R., McNaught, C. and Kennedy, G. (2012). *Evaluating e-learning: Guiding research and practice*. New York: Routledge.

Postareff, L. and Lindblom-Ylänne S. (2008). Variation in teachers' descriptions of teaching: Broadening the understanding of teaching in higher education. *Learning and Instruction*, 18(2): 109–120.

Prensky, M. (2001). Digital Natives, Digital Immigrants: Part 1. *On the Horizon*, 9(5): 1–6.

Price, L. and Kirkwood, A. (2014). Using technology for teaching and learning in higher education: a critical review of the role of evidence in informing practice. *Higher Education Research and Development*, 33(3): 549–564.

Price, L., Richardson, J.T.E., Robinson, B., Ding, X., Sun, X. and Han, C. (2011). Approaches to studying and perceptions of the academic environment among university students in China. *Asia Pacific Journal of Education*, 31(2): 159–175.

Prosser, M. (2000). Evaluating the new technologies: A student learning focused perspective. *Proceedings of Evaluating the New Teaching Technologies Workshop*, 28 April. Sydney: Uniserve Science, The University of Sydney. Retrieved 1 March 2012 from http://science.uniserv e.edu.au/pubs/procs/wsho p5/prosser.html.

Prosser, M. and Trigwell, K. (1997). Relations between perceptions of the teaching environment and approaches to teaching. *British Journal of Educational Psychology*, 67(1): 25–35.

Prosser, M. and Trigwell, K. (1999). *Understanding learning and teaching*. Buckingham: SRHE and Open University Press.

Prosser, M., Trigwell, K. and Taylor, P. (1994). A phenomenographic study of academics' conceptions of science learning and teaching. *Learning and Instruction*, 4(3): 217–231.

Quality Assurance Agency (2009). *Middlesex University, Institutional Audit*. April. Gloucester: QAA. Retrieved 10 September 2011 from http://www. mdx.ac.uk/Assets/QAA%20Institutional%20Audit%20April%2009.pdf.

Ramsden, P. (1979). Student learning and perceptions of the academic environment. *Higher Education,* 8(4): 411–427.

Ramsden, P. (1983). Institutional variations in British students' approaches to learning and experiences of teaching. *Higher Education,* 12(6): 691–705.

Ramsden, P. (1991). A performance indicator of teaching quality in higher education: The Course Experience Questionnaire, *Studies in Higher*

Education, 16(2): 129–150.

Ramsden, P. (1997). The context of learning in academic departments. In: F. Marton, D. Hounsell & N. Entwistle (Eds.) *The experience of learning: Implications for teaching and studying in higher education.* Edinburgh: Scottish Academic Press. pp. 198–216.

Ramsden, P. (2003). *Learning to teach in higher education*. London: RouteldgeFalmer.

Ramsden, P. and Entwistle, N.J. (1981). Effects of academic departments on students' approaches to studying. *British Journal of Educational Psychology,* 51(3): 368–383.

Rayson, S. (2006). *UK e-learning market briefing*. Brighton: Kineo.

Reeder, K., Macfayden, L.P., Chase, M. and Rosche, J. (2004). Negotiating culture in cyberspace: Participation, patterns and problematics. *Language Learning and Technology*, 8(2): 88–105.

Reeves, T. C. (1994). Evaluating what really matters in computer-based education. In: M. Wild & D. Kirkpatrick (Eds.) *Computer education: New Perspectives.* Perth, Australia: MASTEC. pp. 219–246.

Reeves, T. C. and Reeves, P. M. (1997). Effective dimensions of interactive learning on the world wide web. In: B. H. Khan (Ed.) *Web-based instruction*. Englewood Cliffs, NJ: Educational Technology Publications. pp. 59–66.

Reid, G. (2005) *Learning Styles and Inclusion*. London: PCP.

Reimann, N. and Xu, R. (2005). *Introducing multiple choice alongside short answer questions into the end-of-year examination: The impact on student learning in first year economics.* Paper presented at the European Association for Research on Learning and Instruction (EARLI) 11th Biennial Conference, Nicosia, 23–27 August.

Richardson, J. (2001). An evaluation of virtual learning environments and their learners: do individual differences effect perception of virtual learning environments, *Interactive Educational Multimedia*, 3: 38–52.

Richardson, J. T. E. (1994). Using questionnaires to evaluate student learning: Some health warnings. In: G. Gibbs (Ed.) *Improving student learning—theory and practice*. Oxford: Oxford Centre for Staff Development. pp. 499–524.

Richardson, J.T.E. (1995). Mature students in higher education: An investigation

of approaches to studying and academic performance. *Studies in Higher Education,* 20(1): 5–17.

Richardson, J. T. E. (2003). Approaches to studying and perceptions of academic quality in a short web-based course. *British Journal of Educational Technology,* 34(4): 433–442.

Richardson, J.T.E. (2007). Primary Title: Motives, attitudes and approaches to studying in distance education. *Higher Education,* 54(3): 385–416.

Richardson, J. T. E. (2010). Conceptions of learning and approaches to studying among White and ethnic minority students in distance education. *British Journal of Educational Psychology,* 80(4): 535–556.

Richardson, J. T. E. and Price, L. (2003). Approaches to studying and perceptions of academic quality in electronically delivered courses. *British Journal of Educational Technology,* 34(1): 45–56.

Roberts, G. (2003). Teaching using the web: Conceptions and approaches from a phenomenographic perspective. *Instructional Science,* 31(1/2): 127–150.

Ryan, S., Scott, B., Freeman, H. and Patel, D. (2000). *The virtual university: The internet and resource-based learning*. London: Kogan Page.

Salmon, G. (2004). *E-moderating: the key to teaching and learning online*, London: Routledge.

Salmon, G. (2005). Flying not flapping: a strategic framework for e-learning and pedagogical innovation in higher education institutions. *ALT-J, Research in Learning Technology*, 13(3): 201–218.

Saussure, F. d. (1983). *Course in general linguistics*. London: Duckworth.

Schmeck, R. R., Ribich, R. and Ramanaiah, N. (1977). Development of a self-report inventory for assessing individual differences in learning processes. *Applied Psychological Measurement*, 1(3): 413–431.

Schorr, R. and Firestone, W. (2001). *Changing mathematics teaching in response to a state testing program.* Paper presented at annual meeting of the American Educational Research Association, Seattle, WA, 10–14 April.

Schweizer, K., Paechter, M. and Weidenmann, B. (2003). Blended learning as a strategy to improve collaborative task performance. *Journal of Educational Media*, 28(2–3): 211–224.

Scott, P. (2004). Moving targets: Government must not lose sight of fair access in any revised participation policy. *The Guardian*. London.

Scouller, K. (1998). The influence of assessment method on students' learning approaches: Multiple choice question examination versus assignment essay. *Higher Education,* 35(4): 453–472.

Scouller, K. and Prosser, M. (1994). Students' experiences in studying for multiple choice question examinations. *Studies in Higher Education,* 19(3): 267–279.

Selwyn, N. (2007). The use of computer technology in university teaching and learning: a critical perspective. *Journal of Computer Assisted Learning*, 23(2): 83–94.

Selwyn, N. (2011). *Social Media in Higher Education.* Essay in the Europa World of Learning. Retrieved 10 July 2012 from http://www.education arena.com/pdf/sample/sample-essay-selwyn.pdf.

Shanahan, M. and Meyer, J. H. F. (2001). Developing a student learning inventory for economics based on students' experience of learning: a preliminary study. *Journal of Economic Education,* 32(3): 259–267.

Sharpe, R., Benfield, G., Roberts, G. and Francis, R. (2006). *The undergraduate experience of blended e-learning: a review of UK literature and practice.* Report. York: Higher Education Academy, Retrieved 20 August 2009 from http://www.heacademy.ac.uk/ourwork/ research/litreviews/2005_06.

Sharpe, R. and Oliver, M. (2007). Designing courses for e-learning. In: G. Conole, G. & M. Oliver, M. (Eds.) *Contemporary Perspectives in E-learning Research. Themes, methods and impact on practice.* London: Routledge. pp. 41–51.

Shumar, W. (1997). *College for Sale: A Critique of the Commodification of Higher Education*. London: The Falmer Press.

Simons, H. (1980). *Towards a science of the singular: Essays about case study in educational research and evaluation.* Norwich, UK: University of East Anglia, Centre for Applied Research in Education.

Skinner, B. F. (1976). *About behaviorism*. New York: Vintage.

Slaughter S. and Leslie, L. L. (1997). *Academic capitalism: Politics, policies, and the entrepreneurial university*. Baltimore, MD: The Johns Hopkins University Press.

Sloan Consortium (2010). *Class Differences: Online Education in the United States, 2010*. Report. Newburyport, MA: Sloan Consortium, Retrieved 10 June 2010 from http://sloanconsortium.org/publications/survey/pdf/clasdifferences.pdf.

Smithers, R. (2005). University attendance has 'no chance' of hitting 50% target. *The Guardian*. Retrieved 10 January 2010 from http://www.guardian.co.uk/uk/2005/jul/14/politics.highereducation.

So, H.-J. and Bonk, C. J. (2010). Examining the Roles of Blended Learning Approaches in Computer-Supported Collaborative Learning (CSCL) Environments: A Delphi Study. *Journal of Educational Technology and Society*, 13(3): 189–200.

So, H-J. and Brush, T.A. (2012). Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors. *Computers & Education*, 51(1): 318–336.

Stake, R. E. (1995). *The art of case study research*. London: Sage.

Stake, R. E. (2006). *Multiple case study analysis.* New York: Guildford Press.

Steel, C. (2009). Reconciling university teacher beliefs to create learning designs for LMS environments. *Australasian Journal of Educational Technology,* 25(3): 399–420.

Stiles, M. (2000). Effective Learning and the Virtual Learning Environment. In: *Proceedings of the European University Information System (EUNIS) 2000 conference,* 13–14 April, Poznan, Poland, Poznan: Instytut Informatyki Politechniki Poznanskiej, pp. 171–180.

Stiles, M. (2004). Strategic and pedagogic requirements for virtual learning in the context of widening participation. In: D.S. Preston (Ed.) *At the Interface—Virtual Learning and Higher Education*, New York: Rodopi. pp. 87–106.

Stringer, P. (2005). Interview with Frank Coffield: A question of style. *The Psychologist,* 18(6): 29–30.

Struyven, K., Dochy, F., Janssens, S., Schelfhout, W. and Gielen, S. (2006). On the dynamics of students' approaches to learning: the effects of the learning/teaching environment. *Learning and Instruction,* 16(4): 279–294.

Sturman, A. (1999). Case study methods. In: J. P. Keeves & G. Lakomski

(Eds.). *Issues in educational research.* Oxford: Elsevier Science, pp. 103–112.

Tait, H. and Entwistle, N. J. (1996). Identifying students at risk through ineffective study strategies. *Higher Education,* 31(1): 97–116.

Tait, H., Entwistle, N. J., and McCune, V. (1998). ASSIST: A conceptualisation of the approaches to studying inventory. In: C. Rust (Ed.) *Improving student learning: Improving students as learners.* Oxford: Oxford Brookes University, The Oxford Centre for Staff and Learning Development. pp. 262–271.

Tang, C. (1994). Assessment and student learning: Effects of modes of assessment on students' preparation strategies. In: G. Gibbs (Ed.) *Improving student learning: Theory and practice.* Oxford: Oxford Brookes University, The Oxford Centre for Staff Development. pp. 151–170.

Teedlie, C. and Tashakkori, A. (2010). Major issues and controversies in the use of mixed methods. In: A. Tashakkori & C. Teddlie. *Handbook of mixed methods in social and behavioural research.* London: Sage. pp.1–41.

Thorpe, M. (2002). Rethinking learner support: The challenge of collaborative online learning. *Open Learning*, 17(2): 105–119.

Trigwell, K. (2002). Approaches to teaching design subjects: a quantitative analysis. *Art, Design and Communication in Higher Education*, 1: 69–80

Trigwell, K., Ashwin, P. and Millan, E. S. (2013). Evoked prior learning experience and approach to learning as predictors of academic achievement. *British Journal of Educational Psychology.* 83(3): 363–78.

Trigwell, K. and Prosser, M. (1996). Changing approaches to teaching: a relational perspective. *Studies in Higher Education*, 21(3): 275–284.

Trigwell, K., Prosser, M. and Taylor, P. (1994). Qualitative Differences in Approaches to Teaching First Year University Science. *Higher Education*, 27(1): 75–84.

Trigwell, K., Prosser, M. and Waterhouse, F. (1999). Relations between teachers' approaches to teaching and students' approach to learning. *Higher Education*, 37(1): 73–83.

Trigwell, K. and Prosser, M. (2004). Development and use of the Approaches to Teaching Inventory. *Educational Psychology Review,* 16(4): 409–424.

Trow, M. (2006). Reflections on the Transition from Elite to Mass to Universal Access: Forms and Phases of Higher Education in Modern Societies since WWII, In: J. Forest & P. Altbach (Eds.) *International Handbook on Higher Education*, New York: Springer. pp. 243–280.

Utley, A. (2003). Influential teaching technique rubbished. *Times Higher Educational Supplement*. 28 November. p.18

Välimaa, J. and Hoffman, D. (2008). Knowledge society discourse and higher education. *Higher Education.* 56(3): 265–285.

Verbik, L. and Lasanowski, V. (2007). *International student mobility: Patterns and trends*, Report. September. London: The Observatory on Borderless Higher Education. Retrieved 10 February 2009 from http://www.obhe.ac.uk/documents/download?id=14.

Vermunt, J. D. (2005). Relations between student learning patterns and personal and contextual factors and academic performance. *Higher Education*, 49(3): 205–234.

Vigentini, L. (2009). Using learning technology in university courses: do styles matter? *Multicultural Education & Technology Journal*, 3(1): 17–32.

Vosniadou, S. (Ed.) (2008). *International Handbook of Research on Conceptual Change*. New York: Routledge.

Vygotsky, L.S. (1962). *Thought and Language*: Cambridge, MA: MIT Press.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Walker, M. and Nixon, J. (2004). *Reclaiming Universities from a Runaway World*. Maidenhead and Philadelphia: Open University Press/McGraw-Hill Education.

Watkins, D.A. and Biggs, J.B. (Eds.) (1996). *The Chinese Learner: Cultural, psychological and contextual influences*. Hong Kong: Comparative Education Research Centre and Victoria, Australia: The Australian Council for the Educational Research.

Watson, D. (2009). *Life Long Learning and the Future of Higher Education*. IFLL Sector Paper 8. Leicester: National Institute of Adult Continuing Education.

Watson, D. and Wei, I. (2007). *Realising the global university: Part two.* Report. London: The Observatory on Borderless Higher Education. Retrieved 12 November 2009 from http://wiche.edu/attachment_library/

Global%20University%20pdfs/Global%20University_Part_2.pdf.

Webb, G. (1997). Deconstructing deep and surface: Towards a critique of phenomenography. *Higher Education,* 33(2): 195–212.

White, D.S. and LeCornu, A. (2011) Visitors and Residents: A new typology for online engagement. *First Monday*, 16: 9.

White, S. and Liccardi, I. (2006). Disciplinary differences—frameworks for better learning design. In: Kinshuk, R. Koper, P. Kommers, P. Kirschner, D. Sampson & W. Didderen (Eds.) *Proceedings of the 6th International Conference of Advanced Learning Technologies (ICALT)* Kerkrade, The Netherlands. 4–7 July. Washington, D.C.: IEEE Computer Society Press. pp. 446–450.

Wilson, B. G. (1999). *The dangers of theory-based design*. Paper for discussion on IT Forum. Denver: University of Colorado.

Winter, R. (2003). Contextualizing the Patchwork Text: Addressing Problems of Coursework Assessment in HE. *Innovations in Education and Teaching International,* 40(2): 112–122.

Yang, Y.F. and Tsai, C.C. (2010). Conceptions of, and approaches to, learning through online peer assessment. *Learning & Instruction*, 20(1): 72–83.

Yin, R. (2009). *Case study research, design and methods*. Newbury Park, CA: Sage.

Ylijoki, O.-H. (2000). Disciplinary cultures and the moral order of studying—a case study of four Finnish university departments. *Higher Education,* 39(3): 339–362.

YouthSight (2013) *YouthSight Fact File 2013/2014*. Report. London: YouthSight.

2009

Patterns of VLE use and Approaches to Learning. TEN Competence Winter School, Innsbruck, Austria. 05 February 2009.

How do students learn online: approaches to learning and perceptions of academic quality. Pedagogical Forum, Centre for Excellence in Mental Health and Social Work, Middlesex University, 15 July 2009.

How do students learn online: approaches to learning and perceptions of academic quality. School of Engineering and Information Systems (EIS), Middlesex University. Research Seminar 30 September 2009. Abstract available at: http://www.eis.mdx.ac.uk/research/groups/Alert/seminars_01_09_10/abx_mike.htm

2010

Students' approaches to learning in blended learning environmetns. Joint CETL MHSW and WBL conference, Middlesex University. 25 March 2010

STELLAR Constortium—Technology Enhanced Learning Winter School, Innsbruck, Austria. Pecha Kucha presentation 17 Feb 2010.

2012

How do our students learn online? Presentation NMPLIS Summer School In Educational Technologies. 21–25 May 2012, Yerevan, Armenia.

<u>**Appendix II**</u>

A. ASSIST questionnaire

B. Revised ASSIST questionnaire and consent form

C. Revised ASSIST scoring key

A. ASSIST questionnaire

Scoring Key for the Approaches and Study Skills Inventory for Students *(ASSIST)*

a. What is learning? – Conceptions of learning

This first section can be omitted. It is still at an early stage of development, but it is based on the conceptions of learning described by Marton & Saljo (1996) and extended by Hattie (1996). The categories can be seen as a hierarchy, although not all the steps or categories are generally agreed. The first four, to a decreasing extent, tend to relate to an instrumental approach and can therefore be combined to indicate a conception of learning as reproducing knowledge, while the remaining four cover a view of learning involving personal understanding and development.

g. Getting on with the things you've got to do.
c. Building up knowledge by acquiring facts and information.
a. Making sure you remember things well.
e   Being able to use the information you've acquired.
f. Understanding new material for yourself.
h. Seeing things in a different and more meaningful way.
d. Using all your experiences in life.
b. Developing as a person.
i. Being able to relate to people better.

b. Approaches to studying

Approaches to studying derive from Marton & Saljo's (1976, 1997) ideas on approaches to learning, combined with Entwistle & Ramsden's (1983, see also Ramsden & Entwistle, 1979) descriptions on a strategic approach to studying. The first three sub-scales in each approach are most consistently related to each other, and can be combined with confidence. Subsequent sub-scales are more likely to vary in their relationships across different samples. Relationships thus need to be checked in the particular sample used for the study. Descriptions of the development and use of this particular version of the inventory will be found in Tait & Entwistle (1996), Tait, Entwistle & McCune (1998) and Entwistle, Tait & McCune (1999, in press).

Preferences for different types of course and teaching   Scored as the sum of the four items.
Supporting understanding *(related to a deep approach)*
b. c. f. g.
- lecturers who encourage us to think for ourselves and show us how they themselves think.
-exams which allow me to show that I've thought about the course material for myself.
- courses where we're encouraged to read around the subject a lot for ourselves.
- books which challenge you and provide explanations which go beyond the lectures.
Transmitting information *(related to a surface approach)*
a. d. e. h.
- lecturers who tell us exactly what to put down in our notes.
- exams or tests which need only the material provided in our lecture notes.
- courses in which it's made very clear just which books we have to read.
- books which give you definite facts and information which can easily be learned.

Approaches and Study Skills Inventory for Students
(Short version)
This questionnaire has been designed to allow you to describe, in a systematic way, how you go about learning and studying. The technique involves asking you a substantial number of questions which overlap to some extent to provide good overall coverage of different ways of studying. Most of the items are based on comments made by other students. Please respond truthfully, so that your answers will **accurately** describe your **actual** ways of studying, and work your way through the questionnaire quite **quickly.**

Background information Name or Identifier ....
University or College .... Course ....

A. What is learning?

Age .... years   Sex   M / F Faculty or School .... Year of study........

*When you think about the term 'LEARNING ', what does it mean to you? Consider each of these statements carefully, and rate them in terms of how close they are to **your own** way of thinking about it.*

		Very close	Quite close	Not so close	Rather different	Very different
a.	Making sure you remember things well.	5	4	3	2	1
b.	Developing as a person.	5	4	3	2	1
c.	Building up knowledge by acquiring facts and information.	5	4	3	2	1
d	Being able to use the information you've acquired.	5	4	3	2	1
e.	Understanding new material for yourself.	5	4	3	2	1
f.	Seeing things in a different and more meaningful way.	5	4	3	2	1

B. Approaches to studying
The next part of this questionnaire asks you to indicate your relative agreement or disagreement with com- ments about studying again made by other students. Please work through the comments, giving your **immediate** response. In deciding your answers, think in terms of **this particular lecture course.** It is also very important that you answer **all** the questions: check you have.
*5 means agree (√) **4** = agree somewhat (√?) **2** = disagree somewhat (x?)   **1** = disagree (x).
Try not to use **3** = unsure (??), unless you really have to, or if it cannot apply to you or your course.* √ √?
?? x? x
1.   I manage to find conditions for studying which allow me to get on with my work easily.
2.   When working on an assignment, I'm keeping in mind how best to impress the marker.
3.   Often I find myself wondering whether the work I am doing here is really worthwhile.
4.   I usually set out to understand for myself the meaning of what we have to learn.
5.   I organise my study time carefully to make the best use of it.
6.   I find I have to concentrate on just memorising a good deal of what I have to learn.
7.   I go over the work I've done carefully to check the reasoning and that it makes sense.
8.   Often I feel I'm drowning in the sheer amount of material we're having to cope with.
9.   I look at the evidence carefully and try to reach my own conclusion about what I'm studying.
10.   It's important for me to feel that I'm doing as well as I really can on the courses here.
11.   I try to relate ideas I come across to those in other topics or other courses whenever possible.
12.   I tend to read very little beyond what is actually required to pass.
13.   Regularly I find myself thinking about ideas from lectures when I'm doing other things.
14.   I think I'm quite systematic and organised when it comes to revising for exams.
15.   I look carefully at tutors' comments on course work to see how to get higher marks next time. 5
16.   There's not much of the work here that I find interesting or relevant.
17.   When I read an article or book, I try to find out for myself exactly what the author means.
18.   I'm pretty good at getting down to work whenever I need to.
19.   Much of what I'm studying makes little sense: it's like unrelated bits and pieces.
20.   I think about what I want to get out of this course to keep my studying well focused.
21.   When I'm working on a new topic, I try to see in my own mind how all the ideas fit together.

22   I often worry about whether I'll ever be able to cope with the work properly.
23.   Often I find myself questioning things I hear in lectures or read in books.
24.   I feel that I'm getting on well, and this helps me put more effort into the work.
25.   I concentrate on learning just those bits of information I have to know to pass.
26.   I find that studying academic topics can be quite exciting at times.
27.   I'm good at following up some of the reading suggested by lecturers or tutors.
28.   I keep in mind who is going to mark an assignment and what they're likely to be looking for.
29.   When I look back, I sometimes wonder why I ever decided to come here.
30.   When I am reading, I stop from time to time to reflect on what I am trying to learn from it.
31.   I work steadily through the term or semester, rather than leave it all until the last minute.
32.   I'm not really sure what's important in lectures so I try to get down all I can.
33.   Ideas in course books or articles often set me off on long chains of thought of my own.
34.   Before starting work on an assignment or exam question, I think first how best to tackle it.
35.   I often seem to panic if I get behind with my work.
36.   When I read, I examine the details carefully to see how they fit in with what's being said.
37.   I put a lot of effort into studying because I'm determined to do well.
38.   I gear my studying closely to just what seems to be required for assignments and exams.
39.   Some of the ideas I come across on the course I find really gripping.
40.   I usually plan out my week's work in advance, either on paper or in my head.
41.   I keep an eye open for what lecturers seem to think is important and concentrate on that.
42.   I'm not really interested in this course, but I have to take it for other reasons.
43.   Before tackling a problem or assignment, I first try to work out what lies behind it.
44.   I generally make good use of my time during the day.
45.   I often have trouble in making sense of the things I have to remember.
46.   I like to play around with ideas of my own even if they don't get me very far.
47.   When I finish a piece of work, I check it through to see if it really meets the requirements.
48.   Often I lie awake worrying about work I think I won't be able to do.
49.   It's important for me to be able to follow the argument, or to see the reason behind things.
50.   I don't find it at all difficult to motivate myself.
51.   I like to be told precisely what to do in essays or other assignments.
52.   I sometimes get 'hooked' on academic topics and feel I would like to keep on studying them.

C. Preferences for different types of course and teaching

5 means definitely like (√) **4** *= like to some extent (√?)*   **2** *= dislike to some extent (x?)* **1** *= definitely dislike (x). Try not to use* **3** *= unsure (??), unless you really have to, or if it cannot apply to you or your course*.
a.   lecturers who tell us exactly what to put down in our notes.
b.   lecturers who encourage us to think for ourselves and show us how they themselves think
c.   exams which allow me to show that I've thought about the course material for myself.
d.   exams or tests which need only the material provided in our lecture notes.
e.   courses in which it's made very clear just which books we have to read.
f.   courses where we're encouraged to read around the subject a lot for ourselves.
g.   books which challenge you and provide explanations which go beyond the lectures.
h.   books which give you definite facts and information which can easily be learned.

Finally, how well do you think you have been doing in your assessed work overall, so far?
Please rate yourself **objectively**, *based on the grades you have been obtaining*

5	*4*	*3*	*2*	*1*
Very well	*Quite Well*	*About average*	*Not so well*	*Rather badly*

Thank you very much for spending time completing this questionnaire: it is much appreciated.

B. Revised ASSIST questionnaire and consent form

Approaches to learning and use of OASIS

Consent form for research participants

The purpose of this questionnaire is to attempt to measure students' perceptions of the use of OASIS in relation to the overall approaches to learning they adopt. This survey will help the researcher, Mike Mimirinis from the School of Lifelong Learning and Education, Middlesex University, to understand how students with different approaches to learning respond to online learning environments. It can also help you become aware of how you go about learning and studying and identify your strengths and weaknesses.

All you need to do is complete this questionnaire, which should take approximately 10 minutes. The questionnaire plays **no** part in course assessment nor will the results affect your grade. Your participation is voluntary and you may withdraw your participation at any time, without any consequences. Responses are anonymous. However, if you wish to receive your learning profile with some interesting information about your study skills, an email to which the profile is to be sent, should be identified at the end of the questionnaire. Depending on your responses, some participants may be suitable for brief follow-up interviews. In this case, if you wish to continue, you will be rewarded with £10 cash.

Completing and returning the questionnaire constitutes your consent to participate. If you have any queries with regard to the survey, please ask them now or contact Mike Mimirinis at m.mimirinis@mdx.ac.uk.

Please respond **truthfully,** so that your answers will **accurately** describe your **actual** ways of studying, and work your way through the questionnaire quite **quickly.**

Part I

A. Approaches to studying

This part of the questionnaire asks you to indicate your relative agreement or disagreement with comments about studying made by other students. In deciding your answers, think in terms of this particular course and your actual ways of studying**. Please respond truthfully and work your way through the questionnaire quite quickly.** It is also very important that you answer **all** the questions: check you have.

5 means agree (√) 4 = agree somewhat (√?)   2 = disagree somewhat (x?)   1 = disagree (x).

Try not to use 3 = unsure (??), unless you really have to, or if it cannot apply to you.
√   √? ?? x? x

1. I manage to find conditions for studying which allow me to get on with my work easily.   5 4 3 2 1

2. When working on an assignment, I'm keeping in mind how best to impress the marker.   5 4 3 2 1

3. Often I find myself wondering whether the work I am doing here is really worthwhile.   5 4 3 2 1

4. I usually set out to understand for myself the meaning of what we have to learn.   5 4 3 2 1

5. I organise my study time carefully to make the best use of it.   5 4 3 2 1

6. I find I have to concentrate on just memorising a good deal of what I have to learn.   5 4 3 2 1

7. I go over the work I've done carefully to check the reasoning and that it makes sense.   5 4 3 2 1

8. Often I feel I'm drowning in the sheer amount of material we' re having to cope with.   5 4 3 2 1

9. I look at the evidence and try to reach my own conclusion about what I'm studying.   5 4 3 2 1

10. I try to relate ideas I come across to those in other topics or other courses.   5 4 3 2 1

11. I tend to read very little beyond what is actually required to pass.   5 4 3 2 1

12. Regularly I find myself thinking about ideas from lectures when I'm doing other things.   5 4 3 2 1

13. I think I'm quite systematic and organised when it comes to revising for exams.   5 4 3 2 1

14. I look carefully at tutors' comments on my work to see how to get higher marks next time.   5 4 3 2 1

15. There's not much of the work here that I find interesting or relevant.   5 4 3 2 1

16. When I read an article or book, I try to find out for myself exactly what the author means.   5 4 3 2 1

17. I'm pretty good at getting down to work whenever I need to.   5 4 3 2 1

18. Much of what I'm studying makes little sense: it's like unrelated bits and pieces.   5 4 3 2 1

19. I think about what I want to get out of this course to keep my studying well focused.   5 4 3 2 1

20. When I'm working on a new topic, I try to see in my own mind how all the ideas fit together.   5 4 3 2 1

21 I often worry about whether I'll ever be able to cope with the work properly.   5 4 3 2 1

22. Often I find myself questioning things I hear in lectures or read in books.   5 4 3 2 1

23. I concentrate on learning just those bits of information I have to know to pass.   5 4 3 2 1

24. I find that studying academic topics can be quite exciting at times.   5 4 3 2 1

25. I'm good at following up some of the reading suggested by lecturers or tutors.   5 4 3 2 1

26. I keep in mind who is going to mark an assignment and what they're likely to be looking for.   5 4 3 2 1

27. When I look back, I sometimes wonder why I ever decided to come here.   5 4 3 2 1

28. When I am reading, I stop from time to time to reflect on what I am trying to learn from it.   5 4 3 2 1

29. I work steadily through the term or semester, rather than leave it all until the last minute.   5 4 3 2 1

30. I'm not really sure what's important in lectures so I try to get down all I can.   5 4 3 2 1

31. Ideas in course books or articles often set me off on long chains of thought of my own.   5 4 3 2 1

32. Before starting work on an assignment or exam question, I think first how best to tackle it.   5 4 3 2 1

33. I often seem to panic if I get behind with my work.   5 4 3 2 1

34. When I read, I examine the details carefully to see how they fit in with what's being said.   5 4 3 2 1

35. I gear my studying closely to just what seems to be required for assignments and exams.   5 4 3 2 1

36. Some of the ideas I come across on the course I find really gripping.   5 4 3 2 1

37. I usually plan out my week's work in advance, either on paper or in my head.   5 4 3 2 1

38. I keep an eye open for what lecturers seem to think is important and concentrate on that.   5 4 3 2 1

39. I'm not really interested in this course, but I have to take it for other reasons.   5 4 3 2 1

40. Before tackling a problem or assignment, I first try to work out what lies behind it.   5 4 3 2 1

41. I generally make good use of my time during the day.   5 4 3 2 1

42. I often have trouble in making sense of the things I have to remember.   5 4 3 2 1

43. I like to play around with ideas of my own even if they don't get me very far.   5 4 3 2 1

44. When I finish a piece of work, I check it through to see if it really meets the requirements.   5 4 3 2 1

45 Often I lie awake worrying about work I think I won't be able to do.   5 4 3 2 1

46 It's important for me to be able to follow the argument, or to see the reason behind things.   5 4 3 2 1

47. I like to be told precisely what to do in essays or other assignments.   5 4 3 2 1

48. I sometimes get 'hooked' on academic topics and feel I would like to keep on studying them.   5 4 3 2 1

If you wish to receive your learning profile, please write your email address here:

_____@_____

This will be used for no other reason than for sending you the results of the test. Please allow 3 weeks after completing the questionnaire.

Thank you very much for spending time completing this questionnaire: it is much appreciated.

C. Revised ASSIST scoring key

Scoring procedure
Students respond to items on a 1 - 5 scale (5 high). Sub-scale scores are formed by adding together the responses on the items in that sub-scale. Scores on the three main approaches are created by adding together the sub-scale scores which contribute to each approach. Each item is set as a variable (e.g. D04 = Deep item 4), and then a sub-scale total is produced by creating a new variable by summing the items. For example, Seeking Meaning (SM) = D04 + D17 +D30 + D43. Then the approaches can be created in the same way Deep Approach (DA) = SM + RI + UE + II.

Deep Approach
Seeking meaning

4. I usually set out to understand for myself the meaning of what we have to learn.
16. When I'm reading an article or book, I try to find out for myself exactly what the author means.
28. When I am reading I stop from time to time to reflect on what I am trying to learn from it.
40. Before tackling a problem or assignment, I first try to work out what lies behind it.

Relating ideas
10. I try to relate ideas I come across to those in other topics or other courses whenever possible.
20. When I'm working on a new topic, I try to see in my own mind how all the ideas fit together.
31. Ideas in course books or articles often set me off on long chains of thought of my own.
43. I like to play around with ideas of my own even if they don't get me very far.

Use of evidence
9   I look at the evidence carefully and try to reach my own conclusion about what I'm studying.
22. Often I find myself questioning things I hear in lectures or read in books.
34. When I read, I examine the details carefully to see how they fit in with what's being said.
46. It's important for me to be able to follow the argument, or to see the reason behind things.

Interest in ideas (*Related sub-scale*)
12. Regularly I find myself thinking about ideas from lectures when I'm doing other things.
24. I find that studying academic topics can be quite exciting at times.
36. Some of the ideas I come across on the course I find really gripping.
48. I sometimes get 'hooked' on academic topics and feel I would like to keep on studying them.

Strategic approach

Organised studying
1. I manage to find conditions for studying which allow me to get on with my work easily.
13. I think I'm quite systematic and organised when it comes to revising for exams.
25. I'm good at following up some of the reading suggested by lecturers or tutors.
37. I usually plan out my week's work in advance, either on paper or in my head.

Time management
5. I organise my study time carefully to make the best use of it.
17. I'm pretty good at getting down to work whenever I need to.
29. I work steadily through the term or semester, rather than leave it all until the last minute.
41. I generally make good use of my time during the day.

Alertness to assessment demands
2. When working on an assignment, I'm keeping in mind how best to impress the marker.
14. I look carefully at tutors' comments on course work to see how to get higher marks next time.
26. I keep in mind who is going to mark an assignment and what they're likely to be looking for.

38.   I keep an eye open for what lecturers seem to think is important and concentrate on that.

Monitoring effectiveness (*Related sub-scale*)
7.   I go over the work I've done carefully to check the reasoning and that it makes sense.
19.   I think about what I want to get out of this course to keep my studying well focused.
32.   Before starting work on an assignment or exam question, I think first how best to tackle it.
44.   When I have finished a piece of work, I check it through to see if it really meets the requirements.

Surface Approach

Lack of purpose
3.   Often I find myself wondering whether the work I am doing here is really worthwhile.
15.   There's not much of the work here that I find interesting or relevant.
27.   When I look back, I sometimes wonder why I ever decided to come here.
39.   I'm not really interested in this course, but I have to take it for other reasons.

Unrelated memorising
6.   I find I have to concentrate on just memorising a good deal of what I have to learn.
18.   Much of what I'm studying makes little sense: it's like unrelated bits and pieces.
30.   I'm not really sure what's important in lectures, so I try to get down all I can.
42.   I often have trouble in making sense of the things I have to remember.

Syllabus-boundness
11.   I tend to read very little beyond what is actually required to pass.
23.   I concentrate on learning just those bits of information I have to know to pass.
35.   I gear my studying closely to just what seems to be required for assignments and exams.
47.   I like to be told precisely what to do in essays or other assignments.

Fear of failure (*Related sub-scale*)
8.   Often I feel I'm drowning in the sheer amount of material we're having to cope with.
21.   I often worry about whether I'll ever be able to cope with the work properly.
33.   I often seem to panic if I get behind with my work.
45.   Often I lie awake worrying about work I think I won't be able to do.

Appendix III

Interview plan

Why did you choose this module?

Were you particularly interested in any topics/areas of this module?

Did you have any difficulties in understanding concepts or ideas presented in this module?

If so, which ones? What were the difficulties?

How did you manage your learning tasks for this module?

Has OASIS helped you to organise your work for this module?

Have you interacted or collaborated with your colleagues online as part of your work for this module?

      If so, in what ways?

      What motivated you to participate?

      If not, why?

How did you find the quality of classroom teaching in this module?

How did you find the quality of teaching with OASIS?

Has the use of OASIS helped you to seek meaning in what you were learning?

How did you find the quality of the material available on OASIS?

      Was it helpful?

      Was it too much/too limited?

      Was it relevant to what was required in the exams?

      Did it help you expand your knowledge on the topic?

How did you prepare for the exams?

Have you used OASIS for your preparation for the exams?

      If so, how?

      If not, why?

Have you encountered any technical/access problems while using OASIS in the last semester?

How do you rate the experience of using OASIS for this module?

How good do you believe your IT skills are?

Are there any comments you would wish to make?

[Open comments and closure]

Appendix IV
Correlation analysis of approaches to learning and use of the VLE in Information Systems

		TOTAL HITS	HOME PAGE	CONTENT	ASSIGN	QUIZZ	GRADES	CALENDAR	MAIL	ARTICLES	ORIGINAL POST	FOLLOW UP POST
SM	Pearson Correlation	.231	.202	.187	-.056	.280	.218	.223	.253	.114	.098	.089
	Sig. (2-tailed)	.211	.277	.313	.764	.127	.238	.228	.170	.541	.601	.635
RI	Pearson Correlation	.177	.196	.187	-.002	.293	.127	.218	.247	.008	.133	.015
	Sig. (2-tailed)	.341	.290	.315	.992	.110	.496	.239	.181	.967	.477	.938
UE	Pearson Correlation	.182	.170	.099	-.117	.160	.083	.122	.134	.151	.241	.014
	Sig. (2-tailed)	.326	.359	.596	.532	.391	.655	.513	.472	.416	.191	.939
II	Pearson Correlation	-.068	-.066	.001	-.168	.020	-.052	.025	.050	-.062	.036	-.011
	Sig. (2-tailed)	.717	.726	.997	.367	.916	.780	.892	.788	.739	.848	.951
DEEP	Pearson Correlation	.155	.149	.151	-.097	.235	.117	.181	.215	.055	.160	.037
	Sig. (2-tailed)	.404	.424	.419	.605	.203	.531	.330	.246	.767	.390	.841
OS	Pearson Correlation	.310	.339	.034	.121	.255	.134	.228	.201	.329	.158	.168
	Sig. (2-tailed)	.090	.062	.857	.516	.167	.472	.218	.278	.070	.395	.366
TM	Pearson Correlation	.272	.304	.296	.340	.536	.284	.249	.277	.037	.130	.165
	Sig. (2-tailed)	.139	.096	.107	.061	.002	.122	.176	.131	.844	.485	.376
AA	Pearson Correlation	.232	.254	.003	.011	.223	-.015	.180	.193	.153	.200	.108
	Sig. (2-tailed)	.210	.168	.988	.954	.227	.934	.332	.298	.413	.281	.562
ME	Pearson Correlation	.316	.270	-.006	-.025	.213	.120	.188	.210	.258	.286	.102
	Sig. (2-tailed)	.083	.141	.975	.893	.250	.521	.312	.258	.162	.119	.585
STRATEGIC	Pearson Correlation	.364	.380	.112	.156	.403	.173	.275	.285	.250	.243	.179
	Sig. (2-tailed)	.044	.035	.548	.402	.025	.351	.134	.120	.175	.188	.336
LP	Pearson Correlation	-.093	-.018	.081	.095	.143	.227	.269	.279	-.134	-.223	-.155
	Sig. (2-tailed)	.619	.923	.665	.612	.441	.219	.143	.128	.472	.227	.406
UM	Pearson Correlation	-.040	.027	.408	.255	.299	.215	.231	.286	-.215	.057	-.149
	Sig. (2-tailed)	.830	.887	.023	.166	.102	.246	.211	.119	.245	.760	.424
SB	Pearson Correlation	-.022	-.011	.122	.153	.248	.272	.321	.327	-.005	-.127	-.111
	Sig. (2-tailed)	.908	.954	.512	.410	.179	.139	.078	.072	.978	.496	.551
FF	Pearson Correlation	.107	.160	.209	.117	.300	.143	.170	.176	-.124	.001	.023
	Sig. (2-tailed)	.566	.390	.258	.531	.101	.443	.362	.343	.506	.994	.903
SURFACE	Pearson Correlation	-.024	.040	.239	.184	.289	.261	.302	.325	-.147	-.101	-.126
	Sig. (2-tailed)	.897	.832	.195	.322	.115	.156	.099	.074	.431	.589	.498

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Appendix V
Correlations between approaches to learning and use of the VLE in Marketing

		Total hits	homepage	organiser	calendar
sm	Pearson Correlation	0.037	0.043	-0.108	0.068
	Sig. (2-tailed)	0.816	0.787	0.500	0.725
ri	Pearson Correlation	-0.056	-0.017	-0.094	-0.041
	Sig. (2-tailed)	0.726	0.916	0.558	0.834
ue	Pearson Correlation	-0.070	-0.049	-0.147	-0.070
	Sig. (2-tailed)	0.664	0.759	0.358	0.719
ii	Pearson Correlation	0.228	0.253	0.171	0.059
	Sig. (2-tailed)	0.152	0.105	0.286	0.759
deep	Pearson Correlation	0.050	0.079	-0.049	0.006
	Sig. (2-tailed)	0.757	0.619	0.761	0.975
os	Pearson Correlation	0.220	0.201	0.096	0.061
	Sig. (2-tailed)	0.167	0.202	0.551	0.754
tm	Pearson Correlation	0.227	0.211	0.096	0.070
	Sig. (2-tailed)	0.153	0.179	0.552	0.719
aa	Pearson Correlation	-0.055	-0.071	-0.146	-0.271
	Sig. (2-tailed)	0.731	0.655	0.363	0.155
	N	41	42	41	29
me	Pearson Correlation	0.146	0.125	-0.017	0.146
	Sig. (2-tailed)	0.362	0.429	0.914	0.451
strateg	Pearson Correlation	0.175	0.150	0.013	-0.021
	Sig. (2-tailed)	0.273	0.343	0.936	0.912
lp	Pearson Correlation	0.008	0.061	-0.035	0.076
	Sig. (2-tailed)	0.963	0.701	0.830	0.696
um	Pearson Correlation	0.002	0.056	-0.073	0.009
	Sig. (2-tailed)	0.989	0.722	0.648	0.962
sb	Pearson Correlation	-0.221	-0.141	-0.303	-0.116
	Sig. (2-tailed)	0.166	0.374	0.054	0.548
ff	Pearson Correlation	-0.025	0.043	-0.126	0.032
	Sig. (2-tailed)	0.875	0.789	0.433	0.868
surface	Pearson Correlation	-0.070	0.011	-0.163	0.005
	Sig. (2-tailed)	0.662	0.947	0.307	0.980

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix VI
Correlation analysis of approaches to learning and use of the VLE in Management

		sm	ri	ue	ii	deep	os	tm	aa	me	Strategic
Number of online sessions	Pearson Correlation	0.108	0.091	0.204	0.057	0.135	0.096	.228(*)	0.090	0.176	0.192
	Sig. (2-tailed)	0.329	0.408	0.063	0.609	0.220	0.387	0.037	0.413	0.109	0.080
Read messages on discussions	Pearson Correlation	0.055	0.134	0.299	0.053	0.150	-0.197	-0.202	0.017	-0.136	-0.170
	Sig. (2-tailed)	0.762	0.457	0.091	0.770	0.403	0.271	0.259	0.926	0.450	0.344
Viewed entries on Calendar	Pearson Correlation	0.160	-0.079	0.107	0.064	0.069	0.152	0.110	0.249	-0.086	0.117
	Sig. (2-tailed)	0.435	0.702	0.603	0.757	0.738	0.457	0.593	0.219	0.675	0.568
Chat	Pearson Correlation	0.192	-0.073	0.267	-0.116	0.065	0.016	0.006	0.157	0.114	0.077
	Sig. (2-tailed)	0.318	0.707	0.162	0.548	0.737	0.934	0.977	0.415	0.555	0.692
Asssessment session began	Pearson Correlation	0.070	0.061	0.084	0.124	0.104	0.068	0.067	0.034	0.029	0.065
	Sig. (2-tailed)	0.527	0.582	0.451	0.264	0.350	0.541	0.550	0.761	0.797	0.562
Assessment sessions finished	Pearson Correlation	-0.020	-0.052	-0.055	0.066	-0.016	-0.011	0.012	-0.006	0.020	0.005
	Sig. (2-tailed)	0.858	0.642	0.619	0.553	0.889	0.923	0.916	0.960	0.857	0.963
Assignments read	Pearson Correlation	0.044	0.064	0.200	0.048	0.104	0.058	0.108	0.119	0.184	0.144
	Sig. (2-tailed)	0.688	0.564	0.068	0.662	0.347	0.598	0.329	0.282	0.094	0.192
Assignments submitted	Pearson Correlation	0.022	-0.143	0.089	0.066	0.009	0.153	0.164	0.189	0.133	0.201
	Sig. (2-tailed)	0.843	0.194	0.420	0.548	0.938	0.164	0.137	0.085	0.228	0.067
Web links viewed	Pearson Correlation	0.096	0.174	.231(*)	0.172	0.202	0.150	.233(*)	.238(*)	0.181	.253(*)
	Sig. (2-tailed)	0.390	0.116	0.036	0.120	0.067	0.177	0.034	0.030	0.102	0.021
Content folders viewed	Pearson Correlation	0.147	0.115	.231(*)	0.081	0.170	0.111	.285(**)	0.179	.224(*)	.257(*)
	Sig. (2-tailed)	0.183	0.299	0.035	0.465	0.123	0.315	0.009	0.104	0.041	0.018
Files viewed	Pearson Correlation	0.193	0.111	.230(*)	0.011	0.159	0.147	.319(**)	0.161	.215(*)	.274(*)
	Sig. (2-tailed)	0.079	0.314	0.035	0.918	0.148	0.183	0.003	0.143	0.050	0.012

(continued from previous page)

		lp	um	sb	ff	Surface
Number of online sessions	Pearson Correlation	-0.089	-0.046	0.032	0.000	-0.044
	Sig. (2-tailed)	0.421	0.680	0.771	0.998	0.694
Read messages on discussions	Pearson Correlation	0.237	0.314	0.285	0.074	0.321
	Sig. (2-tailed)	0.184	0.075	0.108	0.684	0.068
Viewed entries on Calendar	Pearson Correlation	0.182	-0.003	0.312	-0.195	0.100
	Sig. (2-tailed)	0.373	0.987	0.121	0.340	0.625
Chat	Pearson Correlation	0.022	0.110	0.026	-0.087	0.023
	Sig. (2-tailed)	0.911	0.569	0.895	0.652	0.906
Asssessment session began	Pearson Correlation	0.010	0.003	0.080	-0.111	-0.006
	Sig. (2-tailed)	0.926	0.977	0.471	0.317	0.959
Assessment sessions finished	Pearson Correlation	-0.010	-0.077	-0.140	0.019	-0.065
	Sig. (2-tailed)	0.931	0.492	0.207	0.866	0.559
Assignments read	Pearson Correlation	0.107	0.097	0.117	-0.004	0.111
	Sig. (2-tailed)	0.330	0.381	0.290	0.973	0.315
Assignments submitted	Pearson Correlation	0.039	0.049	0.039	-0.007	0.041
	Sig. (2-tailed)	0.728	0.660	0.724	0.949	0.708
Web links viewed	Pearson Correlation	0.020	0.111	0.177	0.024	0.104
	Sig. (2-tailed)	0.856	0.318	0.109	0.828	0.349
Content folders viewed	Pearson Correlation	0.001	0.048	0.126	-0.031	0.043
	Sig. (2-tailed)	0.995	0.666	0.252	0.779	0.697
Files viewed	Pearson Correlation	0.027	-0.010	0.018	-0.033	0.003
	Sig. (2-tailed)	0.807	0.926	0.871	0.768	0.976

Appendix VII

Correlation analysis of approaches to learning and use of the VLE in Education

		Read Messages	Posted Messages	Assessment Begun	Assessment Finished	Web links viewed	Content Folders	Files viewed
sm	Pearson Correlation	.090	-.134	-.119	-.119	.208	.274	.445*
	Sig. (2-tailed)	.661	.515	.563	.563	.307	.176	.023
	N	26	26	26	26	26	26	26
Ri	Pearson Correlation	.076	-.239	-.326	-.326	.416*	.208	.295
	Sig. (2-tailed)	.713	.240	.104	.104	.034	.309	.143
	N	26	26	26	26	26	26	26
ue	Pearson Correlation	-.214	-.137	.155	.155	.177	-.257	.039
	Sig. (2-tailed)	.294	.505	.448	.448	.387	.205	.850
	N	26	26	26	26	26	26	26
li	Pearson Correlation	-.116	.277	-.249	-.249	.129	-.036	.083
	Sig. (2-tailed)	.573	.170	.220	.220	.529	.862	.688
	N	26	26	26	26	26	26	26
Deep	Pearson Correlation	-.057	-.321	-.198	-.198	.277	.057	.256
	Sig. (2-tailed)	.780	.110	.333	.333	.170	.783	.206
	N	26	26	26	26	26	26	26
Os	Pearson Correlation	.229	-.291	-.159	-.159	.067	.055	.113
	Sig. (2-tailed)	.260	.150	.439	.439	.745	.788	.584
	N	26	26	26	26	26	26	26
Tm	Pearson Correlation	.176	-.122	-.096	-.096	.106	.332	.383
	Sig. (2-tailed)	.389	.553	.642	.642	.605	.098	.053
	N	26	26	26	26	26	26	26
Aa	Pearson Correlation	.158	-.166	-.084	-.084	.208	.176	.232
	Sig. (2-tailed)	.440	.418	.682	.682	.307	.389	.254
	N	26	26	26	26	26	26	26
Me	Pearson Correlation	-.013	.008	.071	.071	.088	.088	.320
	Sig. (2-tailed)	.948	.969	.732	.732	.667	.669	.111
	N	26	26	26	26	26	26	26
strategic	Pearson Correlation	.192	-.194	-.103	-.103	.136	.220	.324
	Sig. (2-tailed)	.348	.343	.617	.617	.508	.279	.106
	N	26	26	26	26	26	26	26
Lp	Pearson Correlation	-.030	.128	.047	.047	.251	-.026	-.135
	Sig. (2-tailed)	.884	.533	.819	.819	.216	.900	.511
	N	26	26	26	26	26	26	26
Um	Pearson Correlation	.030	-.116	-.022	-.022	-.041	.129	-.122
	Sig. (2-tailed)	.884	.571	.915	.915	.843	.529	.552
	N	26	26	26	26	26	26	26
Sb	Pearson Correlation	-.058	-.246	-.117	-.117	-.195	.014	.131
	Sig. (2-tailed)	.778	.226	.570	.570	.340	.945	.524
	N	26	26	26	26	26	26	26
Ff	Pearson Correlation	.102	-.325	.015	.015	-.024	.049	-.136
	Sig. (2-tailed)	.621	.106	.940	.940	.908	.813	.508
	N	26	26	26	26	26	26	26
surface	Pearson Correlation	.028	-.195	-.010	-.010	.205	.052	-.118
	Sig. (2-tailed)	.893	.340	.960	.960	.314	.802	.567
	N	26	26	26	26	26	26	26

Appendix VIII

Comparison of scores on all three scales of the revised ASSIST questionnaire and their related subscales across the four case studies

	Information Systems	Marketing	Management	Education
Seeking Meaning	16.11	14.59	15.21	16.05
Relating Ideas	15.51	14.17	15.22	14.98
Use of Evidence	15.46	14.74	15.86	16.51
Interest in Ideas	15.57	14.09	14.55	14.09
Deep approach total	**62.65**	**57.59**	**60.83**	**61.63**
Organised Study	15.27	13.87	14.16	14.91
Time Management	14.59	14.57	14.69	14.61
Alertness to Assessment	17.14	15.25	16.23	16.93
Monitoring Effectiveness	16.46	15.96	16.97	17.65
Strategic Approach total	**63.46**	**59.64**	**62.06**	**64.09**
Lack of Purpose	11.35	11.29	11.79	9.86
Unrelated Memorizing	12.78	12.48	12.58	10.95
Syllabus Boundness	13.95	13.93	14.32	14.12
Fear of failure	14.11	13.91	15.57	15.28
Surface Approach total	**52.19**	**51.61**	**54.26**	**50.21**

Total possible score on each scale 20-80; total possible score on each subscale 4-20. Sample sizes Information Systems, N=37, Marketing N=69, Management, N=111, Education, N=43.